

# CPC COOPERATIVE PATENT CLASSIFICATION

## B PERFORMING OPERATIONS; TRANSPORTING (NOTES omitted)

### PRINTING

#### B41 PRINTING; LINING MACHINES; TYPEWRITERS; STAMPS

**B41J TYPEWRITERS; SELECTIVE PRINTING MECHANISMS, {e.g. INK-JET PRINTERS, THERMAL PRINTERS}, i.e. MECHANISMS PRINTING OTHERWISE THAN FROM A FORME; CORRECTION OF TYPOGRAPHICAL ERRORS** (composing [B41B](#); printing on special surfaces [B41F](#); laundry marking [B41K](#); erasers, rubbers or erasing devices [B43L 19/00](#); fluid media for correction of typographical errors by coating [C09D 10/00](#); recording the results of measuring [G01](#); recognition or presentation of data, marking record carriers in digital fashion, e.g. by punching, [G06K](#); franking or ticket-printing and issuing apparatus [G07B](#); electric keyboard switches, in general [H01H 13/70](#), [H03K 17/94](#); coding in connection with keyboards or like devices, in general [H03M 11/00](#); receivers or transmitters for transmission of digital information [H04L](#); transmission or reproduction of documents, or the like, e.g. facsimile transmission, [H04N 1/00](#); printing mechanisms specially adapted for apparatus, e.g. cash registers, weighing machines, producing records of their own performance, see the relevant subclasses)

#### NOTES

1. This subclass covers:
  - manually controlled power-operated apparatus or apparatus of this type with additional control by input of recorded information, e.g. on punched cards or tapes;
  - the "print-out" features of apparatus controlled by record carriers or electric signals in so far as these are of general interest, e.g. impression, inking, line-spacing mechanisms, printing heads.
2. This subclass does not cover:
  - electrical features of apparatus controlled by record carriers or electric signals and of interest apart from the "print-out" features of said apparatus;
  - apparatus controlled by record carriers or electric signals, as a whole.
3. In this subclass, the following term is used with the meaning indicated:
  - "paper" covers also similar flexible copy material;
  - "printing material" covers both paper and temporary record carriers from which records are transferred to a paper, but does not cover printing masters, e.g. formes.

#### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

#### Kinds of typewriters or of selective printing mechanisms

- 1/00 Typewriters or selective printing mechanisms characterised by the mounting, arrangement, or disposition of the types or dies (non-selective embossing [B44B 5/00](#))**
- 1/02 . with separate or detached types or dies
  - 1/04 . with types or dies carried upon levers or radial arms, e.g. manually operated ([B41J 1/16](#) takes precedence)
  - 1/06 . . on power-operated levers or arms
  - 1/08 . with types or dies carried on sliding bars or rods
  - 1/10 . . on end surfaces thereof
  - 1/12 . . on side surfaces thereof, e.g. fixed thereto

- 1/14 . . . the types or dies being movable relative to the bars or rods ([mounted on flexible bars or rods \[B41J 1/16\]\(#\)](#))
- 1/16 . with types or dies arranged in stationary or sliding cases or frames or upon flexible strips, plates, bars or rods
- 1/18 . with types or dies strung on wires or rods
- 1/20 . with types or dies mounted on endless bands or the like
- 1/22 . with types or dies mounted on carriers rotatable for selection
- 1/24 . . the plane of the type or die face being perpendicular to the axis of rotation ([B41J 1/60](#) takes precedence)
- 1/243 . . . {Mounting or fixing the carriers}

1/246	. . . {Cartridges for the carriers}				• "ink spray" means a spray of ink transported by a stream of charged particles or air on to the printing material
1/26	. . . Carriers moving for impression ( <a href="#">B41J 1/27 takes precedence</a> )				
1/27	. . . Carriers moving during impression				
1/28	. . . Carriers stationary for impression, e.g. with the types or dies not moving relative to the carriers	2/005			• characterised by bringing liquid or particles selectively into contact with a printing material ( <a href="#">printing by selective application of impact or pressure on a printing or impression-transfer material B41J 2/22</a> )
1/30	. . . . with the types or dies moving relative to the carriers or mounted on flexible carriers				
1/32	. . the plane of the type or die face being parallel to the axis of rotation, e.g. with type on the periphery of cylindrical carriers ( <a href="#">B41J 1/60 takes precedence</a> )	2002/0052			• {Control methods or devices for non ink jet heads}
1/34	. . . Carriers rotating during impression	2002/0055			• {Heating elements adjacent to nozzle orifices of printhead for warming up ink meniscuses, e.g. for lowering the surface tension of the ink meniscuses}
1/36	. . . Carriers sliding for impression, e.g. manually operated				
1/38	. . . . power operated	2/0057			• {where an intermediate transfer member receives the ink before transferring it on the printing material}
1/40	. . . Carriers swinging for impression				
1/42	. . . . about an axis parallel to the axis of rotation of the carrier	2/01			• Ink jet
1/44	. . . Carriers stationary for impression	2002/012			• . . . {with intermediate transfer member}
1/46	. . . . Types or dies fixed on wheel, drum, cylinder, or like carriers	2/015			• . . . characterised by the jet generation process ( <a href="#">B41J 2/215 takes precedence</a> )
1/48	. . . . . with a plurality of carriers, one for each character space	2/02			• . . . . generating a continuous ink jet
1/50	. . . . . with one or more carriers travelling across copy material in letter-space direction	2002/022			• . . . . . {Control methods or devices for continuous ink jet}
1/52	. . . . . with copy material moving in the letter-space direction, and the carrier mounting being fixed relative to the machine	2/025			• . . . . . by vibration
1/54	. . . . . Types or dies movable on wheel, drum, cylinder or like carriers	2/03			• . . . . . by pressure
1/56	. . . . . Types or dies on shuttles or like loose carriers	2002/031			• . . . . . {Gas flow deflection}
1/58	. . . . . Types or dies upon arcuate bars	2002/032			• . . . . . {Deflection by heater around the nozzle}
1/60	. with types or dies on spherical, truncated-spherical, or like surfaces	2002/033			• . . . . . {Continuous stream with droplets of different sizes}
2/00	<b>Typewriters or selective printing mechanisms characterised by the printing or marking process for which they are designed</b> ( <a href="#">mounting, arrangement, or disposition of types or dies B41J 1/00; marking methods B41M 5/00; structure or manufacture of heads, e.g. inductive, for recording by magnetisation or demagnetisation of a record carrier G11B 5/127; heads for reproducing capacitive information G11B 9/07</a> )	2/035			• . . . . . by electric or magnetic field
		2/04			• . . . . . generating single droplets or particles on demand
		2002/041			• . . . . . {Electromagnetic transducer}
		2002/043			• . . . . . {Electrostatic transducer}
		2/045			• . . . . . by pressure, e.g. electromechanical transducers
		2/04501			• . . . . . {Control methods or devices therefor, e.g. driver circuits, control circuits}
		2/04503			• . . . . . {aiming at compensating carriage speed}
		2/04505			• . . . . . {aiming at correcting alignment}
		2/04506			• . . . . . {aiming at correcting manufacturing tolerances}
		2/04508			• . . . . . {aiming at correcting other parameters}
		2/0451			• . . . . . {for detecting failure, e.g. clogging, malfunctioning actuator}
		2/04511			• . . . . . {for electrostatic discharge protection}
		2/04513			• . . . . . {for increasing lifetime}
		2/04515			• . . . . . {preventing overheating}
		2/04516			• . . . . . {preventing formation of satellite drops}
		2/04518			• . . . . . {reducing costs}
		2/0452			• . . . . . {reducing demand in current or voltage}
		2/04521			• . . . . . {reducing number of signal lines needed}
		2/04523			• . . . . . {reducing size of the apparatus}
		2/04525			• . . . . . {reducing occurrence of cross talk}
		2/04526			• . . . . . {controlling trajectory}

## NOTES

1. This group covers devices reproducing only a discrete number of tones, whereas group [H04N 1/00](#) covers devices used for the reproduction of documents or the like, which devices are capable of reproducing continuous tone value scales.
2. In this group, the following expressions are used with the meanings indicated:
  - "ink jet" involves the projection of ink on to the printing material, e.g. paper, through a nozzle as a stream of droplets or particles of colouring matter
  - "continuous ink jet" means a jet of ink transformed into a continuous stream of droplets or particles of colouring matter after having left the nozzle

2/04528	. . . . .	{aiming at warming up the head}	2/04591	. . . . .	{Width of the driving signal being adjusted}
2/0453	. . . . .	{controlling a head having a dummy chamber}	2/04593	. . . . .	{Dot-size modulation by changing the size of the drop}
2/04531	. . . . .	{controlling a head having a heater in the manifold}	2/04595	. . . . .	{Dot-size modulation by changing the number of drops per dot}
2/04533	. . . . .	{controlling a head having several actuators per chamber}	2/04596	. . . . .	{Non-ejecting pulses}
2/04535	. . . . .	{involving calculation of drop size, weight or volume}	2/04598	. . . . .	{Pre-pulse}
2/04536	. . . . .	{using history data}	2/05	. . . . .	produced by the application of heat
2/04538	. . . . .	{involving calculation of heater resistance}	2/055	. . . . .	Devices for absorbing or preventing back-pressure
2/0454	. . . . .	{involving calculation of temperature}	2/06	. . . . .	by electric or magnetic field
2/04541	. . . . .	{Specific driving circuit}	2002/061	. . . . .	{Ejection by electric field of ink or of toner particles contained in ink}
2/04543	. . . . .	{Block driving}	2002/062	. . . . .	{by using a divided counter electrode opposite to ejection openings of an electrostatic printhead, e.g. for controlling the flying direction of ejected toner particles by providing the divided parts of the counter electrode with different potentials}
2/04545	. . . . .	{Dynamic block driving}	2002/063	. . . . .	{Moving solid toner particles in carrier liquid by electrostatic force acting on the toner particles, e.g. for accumulating the toner particles around an ejection electrode of an electrostatic printhead}
2/04546	. . . . .	{Multiplexing}	2/065	. . . . .	involving the preliminary making of ink protuberances
2/04548	. . . . .	{Details of power line section of control circuit}	2/07	. . .	characterised by jet control ( <a href="#">B41J 2/205</a> takes precedence)
2/0455	. . . . .	{Details of switching sections of circuit, e.g. transistors}	2/072	. . . .	{by thermal compensation}
2/04551	. . . . .	{using several operating modes}	2/075	. . . .	for many-valued deflection
2/04553	. . . . .	{detecting ambient temperature}	2/08	. . . . .	charge-control type
2/04555	. . . . .	{detecting current}	2/085	. . . . .	Charge means, e.g. electrodes
2/04556	. . . . .	{detecting distance to paper}	2/09	. . . . .	Deflection means
2/04558	. . . . .	{detecting presence or properties of a dot on paper}	2/095	. . . . .	electric field-control type
2/0456	. . . . .	{detecting drop size, volume or weight}	2/10	. . . . .	magnetic field-control type
2/04561	. . . . .	{detecting presence or properties of a drop in flight}	2/105	. . . .	for binary-valued deflection
2/04563	. . . . .	{detecting head temperature; Ink temperature}	2/11	. . . .	for ink spray
2/04565	. . . . .	{detecting heater resistance}	2/115	. . . .	synchronising the droplet separation and charging time
2/04566	. . . . .	{detecting humidity}	2/12	. . . .	testing or correcting charge or deflection
2/04568	. . . . .	{Control according to number of actuators used simultaneously}	2/125	. . . .	Sensors, e.g. deflection sensors
2/0457	. . . . .	{Power supply level being detected or varied}	2/13	. . . .	for inclination of printed pattern
2/04571	. . . . .	{detecting viscosity}	2/135	. . .	Nozzles
2/04573	. . . . .	{Timing; Delays}	2/14	. . . .	Structure thereof {only for on-demand ink jet heads}
2/04575	. . . . .	{controlling heads of acoustic type}	2/14008	. . . . .	{Structure of acoustic ink jet print heads}
2/04576	. . . . .	{controlling heads of electrostatic type}	2/14016	. . . . .	{Structure of bubble jet print heads}
2/04578	. . . . .	{controlling heads based on electrostatically-actuated membranes}	2/14024	. . . . .	{Assembling head parts}
2/0458	. . . . .	{controlling heads based on heating elements forming bubbles}	2/14032	. . . . .	{Structure of the pressure chamber}
2/04581	. . . . .	{controlling heads based on piezoelectric elements}	2/1404	. . . . .	{Geometrical characteristics}
2/04583	. . . . .	{controlling heads based on discharge by lowering the surface tension of meniscus}	2/14048	. . . . .	{Movable member in the chamber}
2/04585	. . . . .	{controlling heads based on thermal bent actuators}	2/14056	. . . . .	{Plural heating elements per ink chamber}
2/04586	. . . . .	{controlling heads of a type not covered by groups <a href="#">B41J 2/04575</a> - <a href="#">B41J 2/04585</a> , or of an undefined type}	2/14064	. . . . .	{Heater chamber separated from ink chamber by a membrane}
2/04588	. . . . .	{using a specific waveform}	2/14072	. . . . .	{Electrical connections, e.g. details on electrodes, connecting the chip to the outside...}
2/0459	. . . . .	{Height of the driving signal being adjusted}	2/1408	. . . . .	{Structure dealing with thermal variations, e.g. cooling device, thermal coefficients of materials}

2/14088	. . . . .	{Structure of heating means}	2002/14419	. . . . .	{Manifold (for bubble jet <a href="#">B41J 2/14145</a> )}
2/14096	. . . . .	{Current flowing through the ink}	2/14427	. . . . .	{Structure of ink jet print heads with thermal bend detached actuators}
2/14104	. . . . .	{Laser or electron beam heating the ink}	2002/14435	. . . . .	{Moving nozzle made of thermal bend detached actuator}
2/14112	. . . . .	{Resistive element}	2002/14443	. . . . .	{Nozzle guard}
2/1412	. . . . .	{Shape}	2/14451	. . . . .	{Structure of ink jet print heads discharging by lowering surface tension of meniscus}
2/14129	. . . . .	{Layer structure}	2002/14459	. . . . .	{Matrix arrangement of the pressure chambers}
2/14137	. . . . .	{Resistor surrounding the nozzle opening}	2002/14467	. . . . .	{Multiple feed channels per ink chamber}
2/14145	. . . . .	{Structure of the manifold}	2002/14475	. . . . .	{characterised by nozzle shapes or number of orifices per chamber}
2/14153	. . . . .	{Structures including a sensor}	2002/14483	. . . . .	{Separated pressure chamber (for bubble jet <a href="#">B41J 2/14064</a> )}
2/14161	. . . . .	{Structure having belt or drum with holes filled with ink}	2002/14491	. . . . .	{Electrical connection (for bubble jet <a href="#">B41J 2/14072</a> )}
2002/14169	. . . . .	{Bubble vented to the ambience}	2/145	. . . . .	Arrangement thereof
2002/14177	. . . . .	{Segmented heater}	2/15	. . . . .	for serial printing
2002/14185	. . . . .	{characterised by the position of the heater and the nozzle}	2/155	. . . . .	for line printing
2002/14193	. . . . .	{movable member in the ink chamber (for bubble jet <a href="#">B41J 2/14048</a> )}	2/16	. . . . .	Production of nozzles
2/14201	. . . . .	{Structure of print heads with piezoelectric elements}	2/1601	. . . . .	{Production of bubble jet print heads ( <a href="#">B41J 2/1606</a> , <a href="#">B41J 2/162</a> take precedence)}
2/14209	. . . . .	{of finger type, chamber walls consisting integrally of piezoelectric material}	2/1603	. . . . .	{of the front shooter type}
2002/14217	. . . . .	{Multi layer finger type piezoelectric element}	2/1604	. . . . .	{of the edge shooter type}
2002/14225	. . . . .	{Finger type piezoelectric element on only one side of the chamber}	2/1606	. . . . .	{Coating the nozzle area or the ink chamber}
2/14233	. . . . .	{of film type, deformed by bending and disposed on a diaphragm}	2/1607	. . . . .	{Production of print heads with piezoelectric elements ( <a href="#">B41J 2/1606</a> , <a href="#">B41J 2/162</a> take precedence)}
2002/14241	. . . . .	{having a cover around the piezoelectric thin film element}	2/1609	. . . . .	{of finger type, chamber walls consisting integrally of piezoelectric material}
2002/1425	. . . . .	{Embedded thin film piezoelectric element}	2/161	. . . . .	{of film type, deformed by bending and disposed on a diaphragm}
2002/14258	. . . . .	{Multi layer thin film type piezoelectric element}	2/1612	. . . . .	{of stacked structure type, deformed by compression/extension and disposed on a diaphragm}
2002/14266	. . . . .	{Sheet-like thin film type piezoelectric element}	2/1614	. . . . .	{of cantilever type}
2/14274	. . . . .	{of stacked structure type, deformed by compression/extension and disposed on a diaphragm}	2/1615	. . . . .	{of tubular type}
2/14282	. . . . .	{of cantilever type}	2/1617	. . . . .	{of disc type}
2/1429	. . . . .	{of tubular type}	2/1618	. . . . .	{Fixing the piezoelectric elements}
2/14298	. . . . .	{of disc type}	2/162	. . . . .	{Manufacturing of the nozzle plates}
2002/14306	. . . . .	{Flow passage between manifold and chamber}	2/1621	. . . . .	{manufacturing processes}
2/14314	. . . . .	{Structure of ink jet print heads with electrostatically actuated membrane}	2/1623	. . . . .	{bonding and adhesion}
2002/14322	. . . . .	{Print head without nozzle}	2/1625	. . . . .	{electroforming}
2/1433	. . . . .	{Structure of nozzle plates}	2/1626	. . . . .	{etching}
2002/14338	. . . . .	{Multiple pressure elements per ink chamber (for bubble jet <a href="#">B41J 2/14056</a> )}	2/1628	. . . . .	{dry etching}
2002/14346	. . . . .	{Ejection by pressure produced by thermal deformation of ink chamber, e.g. buckling}	2/1629	. . . . .	{wet etching}
2002/14354	. . . . .	{Sensor in each pressure chamber}	2/1631	. . . . .	{photolithography}
2002/14362	. . . . .	{Assembling elements of heads}	2/1632	. . . . .	{machining}
2002/1437	. . . . .	{Back shooter}	2/1634	. . . . .	{laser machining}
2002/14379	. . . . .	{Edge shooter}	2/1635	. . . . .	{dividing the wafer into individual chips}
2002/14387	. . . . .	{Front shooter}	2/1637	. . . . .	{molding}
2002/14395	. . . . .	{Electrowetting}	2/1639	. . . . .	{sacrificial molding}
2002/14403	. . . . .	{including a filter}	2/164	. . . . .	{thin film formation}
2002/14411	. . . . .	{Groove in the nozzle plate}	2/1642	. . . . .	{thin film formation by CVD [chemical vapor deposition]}
			2/1643	. . . . .	{thin film formation by plating}
			2/1645	. . . . .	{thin film formation by spincoating}

2/1646	. . . . .	{thin film formation by sputtering}	2/16588	. . . . .	{Print heads movable towards the cleaning unit}
2/1648	. . . . .	{Production of print heads with thermal bend detached actuators}	2002/16591	. . . . .	{for line print heads above an endless belt}
2/165	. . . . .	Preventing {or detecting} of nozzle clogging, e.g. cleaning, capping or moistening for nozzles	2002/16594	. . . . .	{Pumps or valves for cleaning}
2002/16502	. . . . .	{Printhead constructions to prevent nozzle clogging or facilitate nozzle cleaning}	2002/16597	. . . . .	{Pumps for idle discharge of liquid through nozzles}
2/16505	. . . . .	{Caps, spittoons or covers for cleaning or preventing drying out}	2/17	. . . . .	characterised by ink handling
2/16508	. . . . .	{connected with the printer frame}	2/1707	. . . . .	{Conditioning of the inside of ink supply circuits, e.g. flushing during start-up or shut-down}
2/16511	. . . . .	{Constructions for cap positioning (B41J 2/16547 takes precedence)}	2/1714	. . . . .	{Conditioning of the outside of ink supply systems, e.g. inkjet collector cleaning, ink mist removal (B41J 2/08, B41J 2/16517, B41J 2/18 take precedence)}
2002/16514	. . . . .	{creating a distance between cap and print head, e.g. for suction or pressurising}	2/1721	. . . . .	{Collecting waste ink; Collectors therefor}
2/16517	. . . . .	{Cleaning of print head nozzles (B41J 2/16505, B41J 2/1707, B41J 2/1714 take precedence)}	2002/1728	. . . . .	{Closed waste ink collector}
2/1652	. . . . .	{by driving a fluid through the nozzles to the outside thereof, e.g. by applying pressure to the inside or vacuum at the outside of the print head}	2002/1735	. . . . .	{Closed waste ink collector with ink supply tank in common container}
2/16523	. . . . .	{Waste ink collection from caps or spittoons, e.g. by suction}	2002/1742	. . . . .	{Open waste ink collector, e.g. ink receiving from a print head above the collector during borderless printing}
2/16526	. . . . .	{by applying pressure only}	2/175	. . . . .	Ink supply systems ; Circuit parts therefor}
2002/16529	. . . . .	{Idle discharge on printing matter}	2/17503	. . . . .	{Ink cartridges}
2/16532	. . . . .	{by applying vacuum only}	2/17506	. . . . .	{Refilling of the cartridge}
2/16535	. . . . .	{using wiping constructions (B41J 2/16552 takes precedence)}	2/17509	. . . . .	{Whilst mounted in the printer}
2/16538	. . . . .	{with brushes or wiper blades perpendicular to the nozzle plate}	2/17513	. . . . .	{Inner structure}
2/16541	. . . . .	{Means to remove deposits from wipers or scrapers}	2002/17516	. . . . .	{comprising a collapsible ink holder, e.g. a flexible bag}
2/16544	. . . . .	{Constructions for the positioning of wipers}	2/1752	. . . . .	{Mounting within the printer}
2/16547	. . . . .	{the wipers and caps or spittoons being on the same movable support}	2/17523	. . . . .	{Ink connection}
2002/1655	. . . . .	{with wiping surface parallel with nozzle plate and mounted on reels, e.g. cleaning ribbon cassettes}	2/17526	. . . . .	{Electrical contacts to the cartridge}
2/16552	. . . . .	{using cleaning fluids}	2/1753	. . . . .	{Details of contacts on the cartridge, e.g. protection of contacts}
2002/16555	. . . . .	{Air or gas for cleaning}	2/17533	. . . . .	{Storage or packaging of ink cartridges}
2002/16558	. . . . .	{Using cleaning liquid for wet wiping}	2/17536	. . . . .	{Protection of cartridges or parts thereof, e.g. tape}
2002/16561	. . . . .	{by an electrical field}	2/1754	. . . . .	{with means attached to the cartridge, e.g. protective cap}
2002/16564	. . . . .	{Heating means therefor, e.g. for hot melt inks}	2/17543	. . . . .	{Cartridge presence detection or type identification}
2002/16567	. . . . .	{using ultrasonic or vibrating means}	2/17546	. . . . .	{electronically}
2002/1657	. . . . .	{Cleaning of only nozzles or print head parts being selected}	2/1755	. . . . .	{mechanically}
2002/16573	. . . . .	{Cleaning process logic, e.g. for determining type or order of cleaning processes}	2/17553	. . . . .	{Outer structure}
2002/16576	. . . . .	{Cleaning means pushed or actuated by print head movement}	2/17556	. . . . .	{Means for regulating the pressure in the cartridge}
2/16579	. . . . .	{Detection means therefor, e.g. for nozzle clogging}	2/17559	. . . . .	{Cartridge manufacturing}
2002/16582	. . . . .	{Maintenance means fixed on the print head or its carriage}	2/17563	. . . . .	{Ink filters}
2/16585	. . . . .	{for paper-width or non-reciprocating print heads}	2/17566	. . . . .	{Ink level or ink residue control}
			2002/17569	. . . . .	{based on the amount printed or to be printed}
			2002/17573	. . . . .	{using optical means for ink level indication}
			2002/17576	. . . . .	{using a floater for ink level indication}
			2002/17579	. . . . .	{Measuring electrical impedance for ink level indication}
			2002/17583	. . . . .	{using vibration or ultra-sons for ink level indication}
			2002/17586	. . . . .	{using ink bag deformation for ink level indication}
			2002/17589	. . . . .	{using ink level as input for printer mode selection or for prediction of remaining printing capacity}



2/17593	. . . . . {Supplying ink in a solid state}	2/25	. . . . . Print wires
2/17596	. . . . . {Ink pumps, ink valves}	2/255	. . . . . Arrangement of the print ends of the wires
2/18	. . . . . Ink recirculation systems	2/26	. . . . . Connection of print wire and actuator
2/185	. . . . . Ink-collectors; Ink-catchers	2/265	. . . . . Guides for print wires
2002/1853	. . . . . {ink collectors for continuous Inkjet printers, e.g. gutters, mist suction means}	2/27	. . . . . Actuators for print wires
2002/1856	. . . . . {waste ink containers}	2/275	. . . . . of clapper type ( <a href="#">B41J 2/28 takes precedence</a> )
2/19	. . . . . for removing air bubbles	2/28	. . . . . of spring charge type, i.e. with mechanical power under electro-magnetic control
2/195	. . . . . for monitoring ink quality	2/285	. . . . . of plunger type
2/20	. . . . . for preventing or detecting contamination of compounds	2/29	. . . . . of moving-coil type
2/205	. . . . . for printing a discrete number of tones ( <a href="#">B41J 2/21 takes precedence</a> )	2/295	. . . . . using piezo-electric elements
2/2052	. . . . . {by dot superpositioning, e.g. multipass doubling}	2/30	. . . . . Control circuits for actuators
2/2054	. . . . . {by the variation of dot disposition or characteristics, e.g. dot number density, dot shape}	2/305	. . . . . Ink supply apparatus ( <a href="#">ink ribbons, ink-ribbon mechanisms B41J 31/00 - B41J 35/00</a> )
2/2056	. . . . . {by ink density change}	2/31	. . . . . using a print element with projections on its surface impacted or impressed by hammers
2002/2058	. . . . . {selecting different ink densities from one colour}	2/315	. . . . . characterised by selective application of heat to a heat sensitive printing or impression-transfer material ( <a href="#">B41J 2/385, B41J 2/435 take precedence</a> )
2/21	. . . . . for multi-colour printing	2/32	. . . . . using thermal heads
2/2103	. . . . . {Features not dealing with the colouring process <i>per se</i> , e.g. construction of printers or heads, driving circuit adaptations}	2/325	. . . . . by selective transfer of ink from ink carrier, e.g. from ink ribbon or sheet
2/2107	. . . . . {characterised by the ink properties}	2/33	. . . . . from ink roller
2/211	. . . . . {Mixing of inks, solvent or air prior to paper contact}	2/335	. . . . . Structure of thermal heads
2/2114	. . . . . {Ejecting transparent or white coloured liquids, e.g. processing liquids ( <a href="#">B41J 2/211 takes precedence</a> )}	2/33505	. . . . . {Constructional details}
2/2117	. . . . . {Ejecting white liquids}	2/3351	. . . . . {Electrode layers}
2/2121	. . . . . {characterised by dot size, e.g. combinations of printed dots of different diameter}	2/33515	. . . . . {Heater layers}
2/2125	. . . . . {by means of nozzle diameter selection}	2/3352	. . . . . {Integrated circuits}
2/2128	. . . . . {by means of energy modulation}	2/33525	. . . . . {Passivation layers}
2/2132	. . . . . {Print quality control characterised by dot disposition, e.g. for reducing white stripes or banding ( <a href="#">methods for local corrections by dot omission, image edge enhancement, or multi-pass mask selection G06K 15/102; colour conversion H04N 1/40</a> )}	2/3353	. . . . . {Protective layers}
2/2135	. . . . . {Alignment of dots ( <a href="#">adjustments by bodily moving print heads or carriages B41J 25/001</a> )}	2/33535	. . . . . {Substrates}
2/2139	. . . . . {Compensation for malfunctioning nozzles creating dot place or dot size errors}	2/3354	. . . . . {characterised by geometry}
2/2142	. . . . . {Detection of malfunctioning nozzles ( <a href="#">for cleaning purposes B41J 2/16579; jet deflection sensors B41J 2/125</a> )}	2/33545	. . . . . {characterised by dimensions}
2/2146	. . . . . {for line print heads}	2/3355	. . . . . {characterised by materials}
2/215	. . . . . by passing a medium, e.g. consisting of an air or particle stream, through an ink mist	2/33555	. . . . . {characterised by type}
2/22	. . . . . characterised by selective application of impact or pressure on a printing material or impression-transfer material	2/3356	. . . . . {Corner type resistors}
2/225	. . . . . ballistic, e.g. using solid balls or pellets	2/33565	. . . . . {Edge type resistors}
2/23	. . . . . using print wires	2/3357	. . . . . {Surface type resistors}
2/235	. . . . . Print head assemblies	2/33575	. . . . . {Processes for assembling process heads}
2/24	. . . . . serial printer type ( <a href="#">B41J 2/25, B41J 2/265 take precedence</a> )	2/3358	. . . . . {Cooling arrangements}
2/245	. . . . . line printer type ( <a href="#">B41J 2/25, B41J 2/265 take precedence</a> )	2/33585	. . . . . {Hollow parts under the heater}
		2/3359	. . . . . {Manufacturing processes}
		2/33595	. . . . . {Conductors through the layered structure}
		2/34	. . . . . comprising semiconductors
		2/345	. . . . . characterised by the arrangement of resistors or conductors
		2/35	. . . . . providing current or voltage to the thermal head
		2/355	. . . . . Control circuits for heating-element selection
		2/3551	. . . . . {Block driving}
		2/3553	. . . . . {Heater resistance determination}
		2/3555	. . . . . {Historical control}
		2/3556	. . . . . {Preheating pulses}
		2/3558	. . . . . {Voltage control or determination}
		2/36	. . . . . Print density control
		2/362	. . . . . {Correcting density variation}
		2/365	. . . . . by compensation for variation in temperature
		2/37	. . . . . by compensation for variation in current
		2/375	. . . . . Protection arrangements against overheating
		2/38	. . . . . Preheating, i.e. heating to a temperature insufficient to cause printing

2/385	. characterised by selective supply of electric current or selective application of magnetism to a printing or impression-transfer material ( <a href="#">B41J 2/005 takes precedence</a> ; <a href="#">electrography</a> , <a href="#">magnetography G03G</a> )	2/485	. characterised by the process of building-up characters {or <a href="#">image elements</a> } applicable to two or more kinds of printing or marking processes
2/3855	. . { <a href="#">Electrographic print heads using processes not otherwise provided for</a> , e.g. <a href="#">electrolysis</a> }	2/49	. . by writing
2/39	. . using multi-stylus heads	2/495	. . by selective printing from a rotating helical member
2/395	. . . Structure of multi-stylus heads	2/50	. . by the selective combination of two or more non-identical printing elements
2/40	. . . providing current or voltage to the multi-stylus head	2/505	. . from an assembly of identical printing elements {( <a href="#">printers with two or more sets of printing elements B41J 3/54</a> ; <a href="#">arrangements for producing a permanent visual presentation of the digital output data using matrix printers</a> , e.g. <a href="#">individual print element control for printing letters G06K 15/10</a> )}
2/405	. . . . Selection of the stylus or auxiliary electrode to be supplied ( <a href="#">electronic switching circuits in general H03K 17/00</a> )	2/5052	. . . { <a href="#">with special adaptations characterised by the ink properties (B41J 2/2107 takes precedence)</a> }
2/41	. . for electrostatic printing ( <a href="#">B41J 2/39 takes precedence</a> )	2/5054	. . . { <a href="#">with special adaptations characterised by dot size (B41J 2/2121 takes precedence)</a> }
2/415	. . . by passing charged particles through a hole or a slit	2/5056	. . . { <a href="#">using dot arrays providing selective dot disposition modes</a> , e.g. <a href="#">different dot densities for high speed and high quality printing</a> , <a href="#">array line selections for multi-pass printing</a> , or <a href="#">dot shifts for character inclination (B41J 2/2132 takes precedence</a> ; <a href="#">providing dot disposition modes by bodily changing the angle of a print head B41J 25/003</a> )}
2/4155	. . . . { <a href="#">for direct electrostatic printing [DEP]</a> }	2/5058	. . . . { <a href="#">locally, i.e. for single dots or for small areas of a character (methods for insertion or deletion of dots, or for character edge smoothing G06K 15/102)</a> }
2/42	. . for heating selectively	2/51	. . . serial printer type
2/425	. . for removing surface layer selectively from electro-sensitive material, e.g. metal coated paper	2/512	. . . . { <a href="#">Adjustment of the dot disposition by adjustment of the arrangement of the dot printing elements of a print head</a> , e.g. <a href="#">nozzles</a> , <a href="#">needles</a> }
2/43	. . for magnetic printing	<b><u>WARNING</u></b>	
2/435	. characterised by selective application of radiation to a printing material or impression-transfer material ( <a href="#">optical elements, systems, or apparatus G02B</a> ; <a href="#">modulation or deflection of light G02F</a> ; <a href="#">electrophotography G03G</a> )	This group is no longer used for the classification of new documents as from January 1, 2010. The backlog of this group is being continuously reclassified to <a href="#">B41J 25/001</a> and subgroups	
2/44	. . using single radiation source { <a href="#">per colour</a> }, e.g. <a href="#">lighting beams or shutter arrangements ((B41J 2/465, B41J 2/47), B41J 2/475 take precedence)</a>	2/515	. . . line printer type
2/442	. . . { <a href="#">using lasers (ablative marking methods and sheet materials for use therein B41M 5/24; working material by laser beam in general B23K 26/00)</a> }	2/52	. Arrangement for printing a discrete number of tones, not covered by group <a href="#">B41J 2/205</a> , e.g. applicable to two or more kinds of printing or marking process ( <a href="#">B41J 2/525 takes precedence</a> ; for <a href="#">photomechanical production G03F 5/00</a> )
2/445	. . . using liquid crystals	2/525	. Arrangement for multi-colour printing, not covered by group <a href="#">B41J 2/21</a> , e.g. applicable to two or more kinds of printing or marking process (for <a href="#">photomechanical production G03F 3/00</a> )
2/447	. . using arrays of radiation sources ( <a href="#">B41J 2/475 takes precedence</a> )	3/00	<b>Typewriters or selective printing or marking mechanisms, {e.g. <a href="#">ink-jet printers</a>, <a href="#">thermal printers</a>} characterised by the purpose for which they are constructed (<a href="#">cryptographic typewriters G09C 3/00</a>)</b>
2/4473	. . . { <a href="#">using liquid crystal [LC] arrays</a> }	3/01	. for special character, e.g. for Chinese characters or barcodes
2/4476	. . . { <a href="#">using cathode ray or electron beam tubes</a> }	3/24	. for perforating or stencil cutting using special types or dies
2/45	. . . using light-emitting diode {[LED] or laser} arrays	3/26	. for stenographic writing
2/451	. . . . { <a href="#">Special optical means therefor</a> , e.g. <a href="#">lenses</a> , <a href="#">mirrors</a> , <a href="#">focusing means</a> }		
2002/453	. . . . { <a href="#">self-scanning</a> }		
2/455	. . . using laser arrays {, the laser array being <a href="#">smaller than the medium to be recorded</a> }		
2/46	. . . characterised by using glass fibres		
2/465	. . using masks, e.g. light-switching masks ( <a href="#">photographic composing B41B</a> )		
2/4655	. . . { <a href="#">using character templates</a> }		
2/47	. . using the combination of scanning and modulation of light		
2/471	. . . { <a href="#">using dot sequential main scanning by means of a light deflector</a> , e.g. <a href="#">a rotating polygonal mirror</a> }		
2/473	. . . . { <a href="#">using multiple light beams</a> , <a href="#">wavelengths</a> or <a href="#">colours</a> }		
2/475	. . for heating selectively { <a href="#">by radiation or ultrasonic waves</a> }		
2/4753	. . . { <a href="#">using thermosensitive substrates</a> , e.g. <a href="#">paper</a> }		
2002/4756	. . . . { <a href="#">Erasing by radiation</a> }		
2/48	. . . melting ink on a film or melting ink granules		

- 3/28 . . for printing downwardly on flat surfaces, e.g. of books, drawings, boxes {, envelopes, e.g. flat-bed ink-jet printers ([B41J 3/36](#), [B41J 3/407](#), [B41J 3/4071](#), [B41J 3/4073](#), [B41J 3/4075](#), [B41J 3/4076](#), [B41J 3/4078](#) take precedence; flat page-size platens [B41J 11/06](#); conveyor belts [B41J 13/12](#); drawing instruments [B43L 13/00](#), automatic draughting machines [B43L 13/022](#))}
- 3/283 . . {on bank books or the like}
- 3/286 . . {on boxes}
- 3/30 . . for printing with large type, e.g. on bulletins, tickets
- 3/32 . . for printing in Braille or with keyboards specially adapted for use by blind or disabled persons
- 3/34 . . for printing musical scores
- 3/36 . . for portability {, i.e. hand-held printers or laptop printers ([B41J 3/4075](#) takes precedence; printers with reduced dimensions [B41J 29/023](#); stackable printers [B41J 29/026](#))}
- 3/365 . . {Toy typewriters (toy imitations of typewriters [A63H 33/3077](#))}
- 3/37 . . Foldable typewriters
- 3/38 . . for embossing, e.g. for making matrices for stereotypes {(surface shaping, e.g. embossing [B29C 59/00](#); mechanical deformation of paper or cardboard without removing material [B31F 1/00](#); machines or apparatus for embossing decorations or marks [B44B 5/00](#))}
- 3/382 . . {of tapes, e.g. tape cartridges}
- 3/385 . . {of plates, e.g. metal plates, plastic cards}
- 3/387 . . . {with automatic plate transport systems, e.g. for credit cards}
- 3/39 . . hand-held (manually-controlled or manually-operable label dispensers having printing equipment [B65C 11/02](#))
- 3/407 . . for marking on special material (printing on special surfaces [B41F 7/00](#); {apparatus or processes for manufacturing printed circuits by printing or dispensing a conductive paste or ink [H05K 3/1241](#)})
- 3/4071 . . {Printing on disk-shaped media, e.g. CDs}
- 3/4073 . . {Printing on three-dimensional objects not being in sheet or web form, e.g. spherical or cubic objects ([B41J 3/283](#), [B41J 3/286](#) take precedence; building up a 3D object using individual droplets from jetting heads [B29C 64/112](#))}

**WARNING**

Group [B41J 3/4073](#) is impacted by reclassification into groups [B41J 3/40731](#) and [B41J 3/40733](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 3/40731 . . . {Holders for objects, e. g. holders specially adapted to the shape of the object to be printed or adapted to hold several objects}

**WARNING**

Group [B41J 3/40731](#) is incomplete pending reclassification of documents from group [B41J 3/4073](#).

Groups [B41J 3/40731](#) and [B41J 3/4073](#) should be considered in order to perform a complete search.

- 3/40733 . . . {Printing on cylindrical or rotationally symmetrical objects, e. g. on bottles}

**WARNING**

Group [B41J 3/40733](#) is incomplete pending reclassification of documents from group [B41J 3/4073](#).

Groups [B41J 3/40733](#) and [B41J 3/4073](#) should be considered in order to perform a complete search.

- 3/4075 . . {Tape printers; Label printers (tape cartridges [B41J 15/044](#))}
- 3/4076 . . {printing on rewritable, bistable "electronic paper" by a focused electric or magnetic field (displays in which the positions of movable elements are controlled by the application of an electric field [G09F 9/372](#), of a magnetic field [G09F 9/375](#))}
- 3/4078 . . {Printing on textile (ink-jet dying or printing processes for textile [D06P 5/30](#); conversion of colour signals for textile printing [H04N 1/54](#))}
- 3/413 . . for metal
- 3/42 . . Two or more complete typewriters coupled for simultaneous operation
- 3/44 . . Typewriters or selective printing mechanisms having dual functions or combined with, or coupled to, apparatus performing other functions (printing mechanisms coupled to typographical composing machines [B41B 27/41](#))
- 3/445 . . {Printers integrated in other types of apparatus, e.g. printers integrated in cameras}
- 3/46 . . Printing mechanisms combined with apparatus providing a visual indication
- 3/50 . . Mechanisms producing characters by printing and also producing a record by other means {, e.g. printer combined with RFID writer}(punching mechanisms [G06K](#))
- 3/51 . . . the printed and recorded information being identical; using type elements with code-generating means ([G06K 1/12](#) takes precedence)
- 3/54 . . with two or more sets of type or printing elements ([B41J 3/60](#) takes precedence)
- 3/543 . . {with multiple inkjet print heads ([B41J 2/17503](#), [B41J 2/2103](#) take precedence)}
- 3/546 . . {Combination of different types, e.g. using a thermal transfer head and an inkjet print head}
- 3/60 . . for printing on both faces of the printing material
- 3/62 . . for printing on two or more separate sheets or strips of printing material {being conveyed simultaneously to or through the printing zone}([B41J 3/54](#) takes precedence {; [B41J 15/18](#), [B41J 15/20](#), [B41J 15/22](#) and [B41J 15/24](#) take precedence})

**Common details or accessories**

- 5/00 **Devices or arrangements for controlling character selection** ({interpreting [G06K 3/00](#);} methods or arrangements for sensing record carriers [G06K 7/00](#))
- 5/02 . . Character or syllable selected by setting an index
- 5/04 . . Single-character selection
- 5/06 . . Multiple-character selection



5/08	Character or syllable selected by means of keys or keyboards of the typewriter type	7/12	U-shaped type-lever on two pivots
	<b>WARNING</b>	7/14	Single key-and-type lever
	Groups <a href="#">B41J 5/08</a> - <a href="#">B41J 5/28</a> are no longer used for the classification of new documents. See <a href="#">G06F 3/00</a>	7/16	Type-head pivoted to or rotating on lever
		7/18	Levers having moving or variable fulcra to alter the mechanical advantage during the stroke
5/10	Arrangements of keyboards {, e.g. key button disposition}	7/20	Levers having moving pivots fixed relative to the lever; Type- bars each pivoted on two links
5/102	{Keyboard overlays (for computer use <a href="#">G06F 3/023</a> )}	7/22	Type-baskets; Bearings or hangers for type levers
5/105	{Constructional details of keyboard frames, e.g. adjusting or fixation means}	7/24	Construction of type-levers ( <a href="#">U-shaped levers B41J 7/12</a> )
5/107	{for special purposes, e.g. Braille, Chinese, multi-language options}	7/26	Special means, e.g. repulsers, for ensuring return of type- levers
5/12	Construction of key buttons	7/28	Key lever and type member returned independently to rest position
5/14	Construction of key levers	7/30	Preventing rebound or clash of levers or type members
5/16	Mounting or connecting key buttons on or to key levers	7/32	Type-face selected by operation of sliding members
5/18	Locks	7/34	Type-face selected by operation of rotary members
5/20	for subsidiary keys, e.g. for shift keys	7/36	Selecting arrangements applied to type-carriers rotating during impression
5/22	Interlocks between keys, e.g. without detent arrangements	7/38	Type movable on carrier for selection
5/24	with detent arrangements	7/40	Type movable on carrier for impression
5/26	Regulating touch, key dip or stroke, or the like	7/42	Timed impression, e.g. without impact
5/28	Multiple-action keys, e.g. keys depressed by two or more amounts or movable in two or more directions to effect different functions or selections	7/44	with impact
		7/46	Rolling contact during impression
		7/48	Type carrier arrested in selected position by electromagnetic means
5/30	Character or syllable selection controlled by recorded information	7/50	Type-face selected by combinations of two movements of type carrier
5/31	characterised by form of recorded information	7/52	by combined rotary and sliding movement
5/32	by printed, embossed, or photographic records, e.g. cards, sheets	7/54	Selecting arrangements including combinations, permutation, summation, or aggregation means
5/34	by strips or tapes	7/56	Summation devices for mechanical movements
5/36	by punched records, e.g. cards, sheets	7/58	Wedges
5/38	by strips or tapes	7/60	Levers
5/40	by magnetic or electrostatic records, e.g. cards, sheets	7/62	Gearing
5/42	by strips or tapes	7/64	Pulley and strand mechanism
5/44	characterised by storage of recorded information	7/66	Movable members, e.g. pins, displaceable according to a code
5/46	on internal storages	7/68	with means for selectively closing an electric circuit for type presentation
5/48	on external storages	7/90	Syllable, line, or like type selection
5/50	on a single storage	7/92	Impact adjustment; Means to give uniformity of impression ( <a href="#">B41J 9/46</a> , <a href="#">B41J 9/48</a> take precedence)
5/51	on more than one separate storage, e.g. on additional correction strips or tapes	7/94	Character-by-character adjustment
5/52	characterised by the provision of additional devices for producing a punched or like record, e.g. simultaneously	7/96	Means checking correctness of setting
<b>7/00</b>	<b>Type-selecting or type-actuating mechanisms (index setting <a href="#">B41J 5/02</a>)</b>	<b>9/00</b>	<b>Hammer-impression mechanisms</b>
7/005	{Type-selecting actions or mechanisms by unusual means, e.g. for use by physically disabled persons (control means for physically disabled persons in general <a href="#">A61F 4/00</a> )}	9/02	Hammers; Arrangements thereof
7/02	Type-lever actuating mechanisms	9/04	of single hammers, e.g. travelling along printing line
7/04	Levers mounted on fixed pivots	9/06	of stationary hammers, e.g. engaging a single type-carrier
7/06	and connected to transmission members, e.g. toothed gearing	9/08	engaging more than one type-carrier
7/08	with pin-and-slot or like loose connections; Cam-slot members	9/10	of more than one hammer, e.g. one for each character position
7/10	Chain, belt, flexible cable, or like members	9/12	each operating in more than one character position
		9/127	Mounting of hammers
		9/133	Construction of hammer body or tip
		9/14	Means for selecting or suppressing individual hammers
		9/16	Means for cocking or resetting hammers

- 9/18 . . Cams
- 9/20 . . Springs
- 9/22 . . Fluid-pressure means
- 9/24 . . Electromagnetic means
- 9/26 . Means for operating hammers to effect impression
- 9/28 . . Cams
- 9/30 . . Springs
- 9/32 . . arranged to be clutched to snatch roll
- 9/34 . . Fluid-pressure means
- 9/36 . . in which mechanical power is applied under electromagnetic control
- 9/38 . . Electromagnetic means
- 9/40 . . including an electro-adhesive clutch
- 9/42 . with anti-rebound arrangements
- 9/44 . Control for hammer-impression mechanisms
- 9/46 . . for deciding or adjusting hammer-firing time
- 9/48 . . for deciding or adjusting hammer-drive energy
- 9/50 . . for compensating for the variations of printer drive conditions, e.g. for compensating for the variation of temperature or current supply
- 9/52 . . for checking the operation of print hammers
- 9/54 . . . for checking the breakage of print hammers

**11/00** **Devices or arrangements {of selective printing mechanisms, e.g. ink-jet printers, thermal printers,} for supporting or handling copy material in sheet or web form (specially adapted for supporting or handling copy material in short lengths [B41J 13/00](#); in continuous form [B41J 15/00](#); holders for text to be copied [B41J 29/00](#))**

- 11/0005 . {Curl smoothing, i.e. smoothing down corrugated printing material, e.g. by pressing means acting on wrinkled printing material}
- 11/001 . {Handling wide copy materials}
- 11/0015 . {for treating before, during or after printing or for uniform coating or laminating the copy material before or after printing ([selective coating B41J 2/2114](#))}
- 11/002 . . {Curing or drying the ink on the copy materials, e.g. by heating or irradiating}

#### **WARNING**

Group [B41J 11/002](#) is impacted by reclassification into groups [B41J 11/0021](#) , [B41J 11/00212](#), [B41J 11/00214](#), [B41J 11/00216](#), [B41J 11/00218](#), [B41J 11/0022](#), [B41J 11/00222](#), [B41J 11/00224](#), [B41J 11/0024](#), [B41J 11/00242](#), and [B41J 11/00244](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 11/0021 . . . {using irradiation}

#### **WARNING**

Groups [B41J 11/0021](#) - [B41J 11/00218](#) are incomplete pending reclassification of documents from group [B41J 11/002](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 11/00212 . . . . {Controlling the irradiation means, e.g. image-based controlling of the irradiation zone or control of the duration or intensity of the irradiation}
- 11/00214 . . . . {using UV radiation}
- 11/00216 . . . . {using infrared [IR] radiation or microwaves}
- 11/00218 . . . . {Constructional details of the irradiation means, e.g. radiation source attached to reciprocating print head assembly or shutter means provided on the radiation source}
- 11/0022 . . . {using convection means, e.g. by using a fan for blowing or sucking air}

#### **WARNING**

Groups [B41J 11/0022](#) - [B41J 11/00224](#) are incomplete pending reclassification of documents from group [B41J 11/002](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 11/00222 . . . . {Controlling the convection means}
- 11/00224 . . . . {comprising movable shutters, e.g. for redirection of an air flow}
- 11/0024 . . . {using conduction means, e.g. by using a heated platen}

#### **WARNING**

Groups [B41J 11/0024](#) - [B41J 11/00244](#) are incomplete pending reclassification of documents from group [B41J 11/002](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 11/00242 . . . . {Controlling the temperature of the conduction means}
- 11/00244 . . . . {Means for heating the copy materials before or during printing}
- 11/0025 . {Handling copy materials differing in width}
- 11/003 . . {Paper-size detection, i.e. automatic detection of the length and/or width of copy material}
- 11/0035 . {Handling copy materials differing in thickness ([B41J 11/20](#) and [B41J 25/308](#) take precedence)}
- 11/004 . {Platenless printing, i.e. conveying the printing material freely, without support on its back, through the printing zone opposite to the print head}
- 11/0045 . {Guides for printing material ([curl smoothing B41J 11/0005](#); [platens B41J 11/02](#), [B41J 11/06](#); [guiding webs B41J 15/046](#))}
- 11/005 . . {Guides in the printing zone, e.g. guides for preventing contact of conveyed sheets with printhead ([guides in the printing section for copy material in short lengths B41J 13/14](#))}
- 11/0055 . . {Lateral guides, e.g. guides for preventing skewed conveyance of printing material}
- 11/006 . {Means for preventing paper jams or for facilitating their removal}
- 11/0065 . {Means for printing without leaving a margin on at least one edge of the copy material, e.g. edge-to-edge printing}

- 11/007 . {Conveyor belts or like feeding devices (conveyor belts specially adapted for handling sheets [B41J 13/08](#); conveyor belts specially adapted for handling copy material in continuous form [B41J 15/048](#); conveyor belts in general [B65G 15/00](#); separating articles from piles using belts [B65H 3/04](#); feeding articles by belts [B65H 5/02](#))}
- 11/0075 . {Low-paper indication, i.e. indicating the state when copy material has been used up nearly or completely}
- 11/008 . {Controlling printhead for accurately positioning print image on printing material, e.g. with the intention to control the width of margins}
- 11/0085 . {Using suction for maintaining printing material flat (on rotatable drums [B41J 13/226](#))}
- 11/009 . {Detecting type of paper, e.g. by automatic reading of a code that is printed on a paper package or on a paper roll or by sensing the grade of translucency of the paper (selecting type of paper [B41J 11/485](#); investigating or analysing materials by the use of optical means [G01N 21/00](#); investigating moving sheets [G01N 21/86](#))}
- 11/0095 . {Detecting means for copy material, e.g. for detecting or sensing presence of copy material or its leading or trailing end}
- 11/02 . Platens
- 11/04 . . Roller platens
- 11/053 . . . with sound-deadening devices (structure of surface [B41J 11/057](#))
- 11/057 . . . Structure of the surface
- 11/06 . . Flat page-size platens (or smaller flat platens having a greater size than line-size platens ([B41J 11/0085](#) takes precedence; flat-bed ink-jet printers [B41J 3/28](#)))
- 11/08 . . Bar or like line-size platens
- 11/10 . . Anvil or like character-size platens
- 11/13 . . Backings or blankets (for roller platens [B41J 11/057](#))
- 11/14 . . Platen-shift mechanisms; Driving gear therefor {([B41J 11/20](#) takes precedence)}
- 11/16 . . with balancing means
- 11/18 . Platen-impression arrangements
- 11/20 . Platen adjustments for varying the strength of impression, for a varying number of papers, for wear or for alignment {, or for print gap adjustment (adjustments by moving the print head [B41J 25/308](#), [B41J 25/312](#))}
- 11/22 . Paper carriage guides or races {(printhead carriage guides [B41J 19/00](#))}
- 11/24 . Detents, brakes, or couplings for feed rollers or platens
- 11/26 . Pin feeds
- 11/27 . . on or within the platen-rollers
- 11/28 . . Pin wheels
- 11/30 . . Pin traction elements other than wheels, e.g. pins on endless bands
- 11/32 . . Adjustment of pin wheels or traction elements, e.g. laterally
- 11/34 . . Guides coacting with pin feeds
- 11/36 . Blanking or long feeds; Feeding to a particular line, e.g. by rotation of platen or feed roller
- 11/38 . . Manually-operated feeding devices
- 11/40 . . specially adapted for printing musical scores
- 11/42 . . Controlling {printing material conveyance for accurate alignment of the printing material with the printhead; Print registering (controlling printhead [B41J 11/008](#); control of the transport of cut sheets [B41J 13/0009](#))}
- 11/425 . . . {for a variable printing material feed amount}
- 11/44 . . . by devices, e.g. programme tape or contact wheel, moved in correspondence with movement of paper-feeding devices, e.g. platen rotation
- 11/46 . . . by marks or formations on the paper being fed
- 11/48 . Apparatus for condensed record, tally strip, or like work using two or more papers, or sets of papers {, e.g. devices for switching over from handling of copy material in sheet form to handling of copy material in continuous form and *vice versa* or point-of-sale printers comprising means for printing on continuous copy material, e.g. journal for tills, and on single sheets, e.g. cheques or receipts ([B41J 15/042](#) takes precedence; simultaneous conveyance of sheets or strips [B41J 3/62](#))}
- 11/485 . . {Means for selecting a type of copy material amongst different types of copy material in the printing apparatus (detecting type of paper [B41J 11/009](#))}
- 11/50 . . in which two or more papers or sets are separately fed in the same direction towards the printing position {([B41J 15/18](#), [B41J 15/20](#), [B41J 15/22](#) and [B41J 15/24](#) take precedence)}
- 11/51 . . . with different feed rates {([B41J 15/18](#), [B41J 15/20](#), [B41J 15/22](#) and [B41J 15/24](#) take precedence)}
- 11/52 . . in which one paper or set is moved transversely relative to another
- 11/53 . . . Devices for holding in place one paper or set during replacement of one or more of the auxiliary papers or sets
- 11/54 . . in which one paper or set is fed towards printing position from the front of the apparatus
- 11/55 . . . with means for adjusting a paper or set
- 11/56 . specially constructed to facilitate storage or transport of typewriter {([B41J 3/36](#) takes precedence)}
- 11/58 . Supply holders for sheets or fan-folded webs, e.g. shelves, tables, scrolls, pile holders {([B41J 13/10](#), [B41J 13/103](#) and [B41J 13/106](#) take precedence)}
- 11/60 . Erasing or correcting tables
- 11/62 . Shields or masks
- 11/64 . Applications of scales or indicators
- 11/66 . Applications of cutting devices {(cutting in general [B26D](#))}
- 11/663 . . {Controlling cutting, cutting resulting in special shapes of the cutting line, e.g. controlling cutting positions, e.g. for cutting in the immediate vicinity of a printed image}
- 11/666 . . {Cutting partly, e.g. cutting only the uppermost layer of a multiple-layer printing material}
- 11/68 . . cutting parallel to the direction of paper feed
- 11/70 . . cutting perpendicular to the direction of paper feed
- 11/703 . . . {Cutting of tape}
- 11/706 . . . {using a cutting tool mounted on a reciprocating carrier}

<b>13/00</b>	<b>Devices or arrangements {of selective printing mechanisms, e.g. ink-jet printers, thermal printers,} specially adapted for supporting or handling copy material in short lengths, e.g. sheets</b> {(handling sheets or webs in general <a href="#">B65H</a> ; apparatus for electrographic processes using a charge pattern, e.g. copying machines, <a href="#">G03G 15/00</a> )}	13/12	. . specially adapted for {small} cards, envelopes, or the like {, e.g. credit cards, cut visiting cards (handling thick cut sheets larger than credit cards <a href="#">B41J 13/0063</a> )}
13/0009	. {control of the transport of the copy material}	13/14	. . Aprons or guides {for the printing section}
13/0018	. . {in the sheet input section of automatic paper handling systems (guides therefor <a href="#">B41J 13/103</a> )}	13/16	. . . movable for insertion or release of sheets
13/0027	. . {in the printing section of automatic paper handling systems (rollers <a href="#">B41J 13/02</a> , guides therefor <a href="#">B41J 13/14</a> )}	13/18	. . . concentric with roller platen
13/0036	. . {in the output section of automatic paper handling systems (rollers <a href="#">B41J 13/02</a> , guides <a href="#">B41J 13/106</a> )}	13/20	. . Bails
13/0045	. . {concerning sheet refeed sections of automatic paper handling systems, e.g. intermediate stackers, reversing units (printing on both faces <a href="#">B41J 3/60</a> )}	13/22	. . Clamps or grippers
13/0054	. {Handling sheets of differing lengths}	13/223	. . . {on rotatable drums}
13/0063	. {Handling thick cut sheets larger than credit cards, e.g. greeting cards, postcards, e.g. using means for enabling or facilitating the conveyance of thick sheets ( <a href="#">B41J 11/20</a> , <a href="#">B41J 13/12</a> and <a href="#">B41J 25/308</a> take precedence)}	13/226	. . . . {using suction}
13/0072	. {Handling wide cut sheets, e.g. using means for enabling or facilitating the conveyance of wide sheets}	13/24	. . Strips for supporting or holding papers
13/0081	. {Sheet-storing packages, e.g. for protecting the sheets against ambient influences, e.g. light, humidity, changes in temperature}	13/26	. Registering devices {(registering in general <a href="#">B65H 9/00</a> )}
13/009	. {Diverting sheets at a section where at least two sheet conveying paths converge, e.g. by a movable switching guide that blocks access to one conveying path and guides the sheet to another path, e.g. when a sheet conveying direction is reversed after printing on the front of the sheet has been finished and the sheet is guided to a sheet turning path for printing on the back}	13/28	. . Front lays, stops, or gauges
13/02	. Rollers (roller platens <a href="#">B41J 11/04</a> (; rollers for conveying in general <a href="#">B65G 39/00</a> ; separating articles from piles using friction rollers <a href="#">B65H 3/06</a> ; feeding articles by rollers <a href="#">B65H 5/06</a> )}	13/30	. . Side lays or gauges
13/025	. . {Special roller holding or lifting means, e.g. for temporarily raising one roller of a pair of nipping rollers for inserting printing material}	13/32	. . Means for positioning sheets in two directions under one control, e.g. for format control or orthogonal sheet positioning
13/03	. . driven, e.g. feed rollers separate from platen	<b>15/00</b>	<b>Devices or arrangements {of selective printing mechanisms, e.g. ink-jet printers, thermal printers,} specially adapted for supporting or handling copy material in continuous form, e.g. webs</b> {(handling sheets or webs in general <a href="#">B65H</a> )}
13/036	. . co-operating with a roller platen	15/005	. {Forming loops or sags in webs, e.g. for slackening a web or for compensating variations of the amount of conveyed web material (by arranging a "dancing roller" in a sag of the web material)}
13/042	. . . Front and rear rollers or sets of front or rear rollers each mounted on a separate carrier	15/02	. Web rolls or spindles; Attaching webs to cores or spindles
13/048	. . . Front and rear rollers both mounted on a common carrier	15/04	. Supporting, feeding, or guiding devices; Mountings for web rolls or spindles
13/054	. . . . on the paper apron concentric with the roller platen	15/042	. . {for loading rolled-up continuous copy material into printers, e.g. for replacing a used-up paper roll; Point-of-sale printers with openable casings allowing access to the rolled-up continuous copy material}
13/076	. . Construction of rollers; Bearings therefor	15/044	. . {Cassettes or cartridges containing continuous copy material, tape, for setting into printing devices}
13/08	. {Conveyor} bands or like feeding devices {( <a href="#">B41J 11/007</a> takes precedence)}	15/046	. . {for the guidance of continuous copy material, e.g. for preventing skewed conveyance of the continuous copy material}
13/10	. Sheet holders, retainers {, movable guides}, or stationary guides	15/048	. . {Conveyor belts or like feeding devices ( <a href="#">B41J 11/007</a> takes precedence)}
13/103	. . {for the sheet feeding section}	15/06	. . characterised by being applied to printers having stationary carriages
13/106	. . {for the sheet output section}	15/08	. . characterised by being applied to printers having transversely- moving carriages
		15/10	. . . and mounted on the carriage
		15/12	. . . and coupled to the carriage
		15/14	. . . and detached from the carriage
		15/16	. Means for tensioning or winding the web
		15/165	. . {for tensioning continuous copy material by use of redirecting rollers or redirecting nonrevolving guides}
		15/18	. Multiple web-feeding apparatus
		15/20	. . for webs superimposed during printing (machines for separating superposed webs <a href="#">B65H 41/00</a> )
		15/22	. . for feeding webs in separate paths during printing
		15/24	. . with means for registering the webs with each other



<b>17/00</b>	<b>Mechanisms for manipulating page-width impression-transfer material, e.g. carbon paper (in manifold devices <a href="#">B41L</a>)</b>	19/18	• Character-spacing or back-spacing mechanisms; Carriage return or release devices therefor
17/02	• Feeding mechanisms	19/20	• • Positive-feed character-spacing mechanisms (controlled by escapements <a href="#">B41J 19/52</a> )
17/04	• • Feed dependent on the record-paper feed, e.g. both moved at the same time	19/202	• • • {Drive control means for carriage movement}
17/06	• • • "Creep" feed, i.e. impression-transfer material fed slower than the record paper	19/205	• • • • {Position or speed detectors therefor}
17/07	• • • electromagnetically controlled	19/207	• • • • • {Encoding along a bar}
17/08	• • Feed independent of the record-paper feed	19/22	• • • acting by friction or gripping effect
17/10	• • • electromagnetically controlled	19/24	• • • Pawl and ratchet
17/12	• • Special adaptations for ensuring maximum life	19/26	• • • • moving a paper or like carriage
17/14	• • Automatic arrangements for reversing the feed direction	19/28	• • • • moving a paper or like web or strip, e.g. over a stationary support
17/16	• Holders in the machine for sheets of impression transfer material	19/30	• • • Electromagnetically-operated mechanisms
17/18	• • pivotable to and from the platen	19/305	• • • • {Linear drive mechanisms for carriage movement}
17/20	• • slidable to and from the platen	19/32	• • • Differential or variable-spacing arrangements
17/22	• Supply arrangements for webs of impression-transfer material	19/34	• • Escapement-feed character-spacing mechanisms
17/24	• • Webs supplied from reels or spools attached to the machine	19/36	• • • Driving mechanisms, e.g. springs stressed during carriage return
17/26	• • Webs supplied from trays or like supports attached to the machines	19/38	• • • • adapted for silent return
17/28	• Arrangements of guides for the impression-transfer material	19/40	• • • Escapements having a single pawl or like detent
17/30	• Constructions of guides for the impression-transfer material	19/42	• • • Escapements having two pawls or like detents
17/32	• Detachable carriers or holders for impression-transfer material mechanism	19/44	• • • • coacting with two toothed members, e.g. racks or wheels
17/34	• Backings for impression-transfer material, e.g. sheets for reducing friction, shields for preventing imprint	19/46	• • • • and mounted on a single rocker
17/36	• Alarms, indicators, or feed-disabling devices responsible to material breakage or exhaustion	19/48	• • • • and mounted on a single slider
17/38	• for dealing with the impression-transfer material after use	19/50	• • • Electromagnetically-controlled escapements
17/40	• • for retracting sheets for re-use	19/52	• • • Escapements controlling positive-feed mechanism
17/42	• • for webs	19/54	• • • Construction of universal bars
<b>19/00</b>	<b>Character- or line-spacing mechanisms ({paper carriage guides <a href="#">B41J 11/22</a>; superimposed movements for serial printing <a href="#">B41J 25/005</a>;} key actions <a href="#">B41J 25/02</a>)</b>	19/56	• • • Escapements controlling web or strip feed
19/005	• {Cable or belt constructions for driving print, type or paper-carriages, e.g. attachment, tensioning means}	19/58	• • • Differential or variable-spacing arrangements
19/02	• with retarding devices, e.g. brakes	19/60	• • Auxiliary feed or adjustment devices
19/04	• Sound-deadening or shock-absorbing devices or measures therein ( <a href="#">B41J 19/38</a> takes precedence)	19/62	• • • for back spacing
19/06	• • Resilient mounting of mechanism	19/64	• • • for justifying
19/08	• • Buffers, springs or like carriage stops	19/66	• • Carriage-release mechanisms
19/10	• • Dash-pots	19/68	• • Carriage-return mechanisms, e.g. manually actuated
19/12	• • Gearing made of special material or specially constructed to reduce sound or shock	19/70	• • • power driven
19/14	• with means for effecting line or character spacing in either direction	19/72	• • • • with power stored during character spacing
19/142	• • {with a reciprocating print head printing in both directions across the paper width}	19/74	• • with special means to maintain character-spacing or back- spacing elements in engagement during case-shift or like movement
19/145	• • • {Dot misalignment correction}	19/76	• Line-spacing mechanisms (special line-feeds, e.g. long feeds <a href="#">B41J 11/36</a> )
19/147	• • • {Colour shift prevention}	19/78	• • Positive-feed mechanisms
19/16	• Special spacing mechanisms for circular, spiral, or diagonal-printing apparatus	19/80	• • • Pawl-and-ratchet mechanisms
		19/82	• • • • moving a paper or like carriage
		19/84	• • • • • in the form of a roller rotated for line spacing
		19/86	• • • • • the pawl being normally in engagement with the ratchet
		19/88	• • • • moving a type carriage
		19/90	• • • • moving a paper or like web or strip, e.g. over a stationary support, automatically in response to movements other than carriage return
		19/92	• • • Electromagnetically-operated mechanisms
		19/94	• • • automatically operated in response to carriage return
		19/96	• • • Variable-spacing arrangements

19/98	. . Escapement-feed mechanisms	2025/008	. {comprising a plurality of print heads placed around a drum}
<b>21/00</b>	<b>Column, tabular, or like printing arrangements; Means for centralising short lines</b> (carrier-release mechanisms <a href="#">B41J 19/66</a> ; key actions <a href="#">B41J 25/18</a> )	25/02	. Key actions for specified purposes
21/02	. Stops or stop-racks	25/04	. . Back spacing
21/04	. Mechanisms for setting or restoring tabulation stops	25/06	. . Carriage return
21/06	. with means for preventing rebound from stops	25/08	. . Case shift
21/08	. Mechanisms for initiating, effecting, skipping, or stopping tabulation movement; Means for centralising short lines	25/10	. . Ink-ribbon adjustment
21/10	. with central, counter, or equivalent stop projected into path of tabulation stops	25/12	. . Character spacing
21/12	. characterised by arrangements of electrical contacts	25/14	. . Line spacing
21/14	. characterised by denominational arrangements	25/16	. . Line spacing and carriage return by a single key
21/16	. controlled by the sensing of marks or formations on the paper being typed, an undersheet, or the platen	25/18	. . Tabulating
21/17	. controlled by stored information	25/20	. Auxiliary type mechanisms for printing distinguishing marks, e.g. for accenting, using dead or half-dead key arrangements, for printing marks in telegraph printers to indicate that machine is receiving
21/18	. characterised by applications of scales or indicators	25/22	. for aligning characters for impression (in machines using index setting <a href="#">B41J 5/02</a> )
<b>23/00</b>	<b>Power drives for actions or mechanisms</b> ( <a href="#">B41J 9/00</a> , { <a href="#">B41J 19/305</a> }, take precedence)	25/24	. Case-shift mechanisms ( <a href="#">B41J 11/14</a> takes precedence; key actions <a href="#">B41J 25/08</a> ); Fount-change arrangements
23/02	. Mechanical power drives	25/304	. Bodily-movable mechanisms for print heads or carriages movable towards or from paper surface (type carriers {rotatable for selection and} sliding for impression <a href="#">B41J 1/36</a> ; type carriers {rotatable for selection and} swinging for impression <a href="#">B41J 1/40</a> ; line print heads movable towards a cleaning unit <a href="#">B41J 2/16588</a> )
23/025	. . {using a single or common power source for two or more functions}	25/308	. . with print gap adjustment mechanisms {(by platen movement <a href="#">B41J 11/20</a> )}
23/04	. . with driven mechanism arranged to be clutched to continuously- operating power source	25/3082	. . . {with print gap adjustment means on the print head carriage, e.g. for rotation around a guide bar or using a rotatable eccentric bearing}
23/06	. . . by snatch rolls	25/3084	. . . . {by means of a spacer contacting the matter to be printed}
23/08	. . . by one-revolution or part-revolution clutches	25/3086	. . . {with print gap adjustment means between the print head and its carriage}
23/10	. . . and arrested in selected position	25/3088	. . . {with print gap adjustment means on the printer frame, e.g. for rotation of an eccentric carriage guide shaft}
23/12	. . Mechanism driven by cams engaging rotating roller	25/312	. . with print pressure adjustment mechanisms, e.g. pressure-on-the paper mechanisms
23/14	. . Mechanism driven by through an oscillating or reciprocating member	25/316	. . with tilting motion mechanisms relative to paper surface
23/16	. . Mechanisms driven by a spring tensioned by power means	25/32	. Impression mechanisms in which a roller co-operates with stationary type-faces
23/18	. . Continuously-cycling drives	25/34	. Bodily-changeable print heads or carriages ( <a href="#">B41J 1/20</a> , <a href="#">B41J 1/22</a> , <a href="#">B41J 1/60</a> take precedence)
23/20	. Fluid-pressure power drives	<b>27/00</b>	<b>Inking apparatus</b>
23/22	. . for key or like type selection	27/02	. with ink applied by pads or rotary discs
23/24	. . for impression mechanisms	27/04	. . Pads or discs; Ink supply arrangements therefor
23/26	. . for platen or carriage movements, e.g. for line spacing, letter spacing, or carriage return	27/06	. . Arrangements to ensure maximum life of pads or discs
23/28	. . for type-carriage movements	27/08	. . Arrangements for multicolour work
23/30	. . for case shift	27/10	. with ink applied by rollers; Ink supply arrangements therefor
23/32	. Electromagnetic power drives, e.g. applied to key levers	27/12	. . Rollers
23/34	. . applied to elements other than key levers	27/14	. . Arrangements for multicolour work
23/36	. . . and acting on type members	27/16	. with ink deposited electrostatically or electromagnetically, e.g. powdered ink
23/38	. . . and acting on aligning or case-shift mechanisms	27/18	. . with liquid ink deposited
<b>25/00</b>	<b>Actions or mechanisms not otherwise provided for</b>	27/20	. with ink supplied by capillary action, e.g. through porous type members, through porous platens
25/001	. {Mechanisms for bodily moving print heads or carriages parallel to the paper surface (character- or line-spacing mechanisms <a href="#">B41J 19/00</a> )}		
25/003	. . {for changing the angle between a print element array axis and the printing line, e.g. for dot density changes (dot arrays providing selective dot disposition modes <a href="#">B41J 2/5056</a> )}		
25/005	. . {for serial printing movements superimposed to character- or line-spacing movements}		
25/006	. . {for oscillating, e.g. page-width print heads provided with counter-balancing means or shock absorbers}		

27/22	• with inking discs or sectors	29/46	• Applications of alarms, e.g. responsive to approach of end of line ( <a href="#">responsive to transfer-material breakage or exhaustion B41J 17/36, B41J 35/36</a> )
<b>29/00</b>	<b>Details of, or accessories for, typewriters or selective printing mechanisms not otherwise provided for</b>	29/48	• • responsive to breakage or exhaustion of paper or approach of bottom of paper
29/02	• Framework	29/50	• Side-stop mechanisms
29/023	• • {with reduced dimensions (for portability <a href="#">B41J 3/36</a> )}	29/52	• Top-and-bottom stop mechanisms
29/026	• • {Stackable}	29/54	• Locking devices applied to printing mechanisms
29/04	• Means for attaching machines to baseboards	29/56	• • and manually actuated
29/06	• Special supports, platforms or trolleys for supporting machines on tables	29/58	• • and automatically actuated
29/08	• Sound-deadening, or shock-absorbing stands, supports, cases or pads separate from machines	29/60	• • • in response to failure of power supply
29/10	• Sound-deadening devices embodied in machines ( <a href="#">B41J 19/04 takes precedence</a> )	29/62	• • • by the absence of paper to lock hammer mechanism
29/12	• Guards, shields or dust excluders	29/64	• • • by a function of the printer to lock the keyboard
29/13	• • Cases or covers	29/66	• • • • Locking devices actuated when platen reaches the end of a line
29/14	• Attachments operated by the leg, e.g. the foot, the knee	29/68	• • • by completion of a page or predetermined number of lines or exhaustion of paper to lock the keyboard
29/15	• Script supports connected to the typewriter or printer ( <a href="#">tables, desks, office furniture in general A47B</a> )	29/70	• • • Interlocks between any two-carriage-moving mechanisms, e.g. character-space, back space, tabulation, carriage return or carriage- release mechanisms
29/16	• Auxiliary receptacles for articles, e.g. erasers, pencils		
29/17	• Cleaning arrangements	<b><u>Ink ribbons; Ink-ribbon mechanisms</u></b>	
29/18	• Mechanisms for rendering the print visible to the operator ( <a href="#">ink-ribbon shifts B41J 35/20</a> )	<b>31/00</b>	<b>Ink ribbons (spools for ink ribbons <a href="#">B65H 75/00</a>; coated or treated non-woven strips or sheets used as ink ribbons <a href="#">D21H</a>); Testing or renovating ink ribbons</b>
29/19	• • with reflectors or illuminating devices	31/02	• Ink ribbons characterised by the material from which they are woven
29/20	• Arrangements of counting devices	31/04	• • woven from synthetic material
29/22	• • Line counters	31/05	• Ink ribbons having coatings other than impression-material coatings
29/24	• • Word counters	31/06	• • the coatings being directly on the base material, i.e. below impression transfer material; Ink ribbons having base material impregnated with material other than impression material
29/26	• Devices, non-fluid media or methods for cancelling, correcting errors, underscoring or ruling	31/08	• • the coatings being superimposed on impression-transfer material
29/28	• • Writing or like instruments in holders or guides	31/09	• Ink ribbons characterised by areas carrying media for obliteration or removal of typing errors
29/30	• • Wheels	31/10	• Ink ribbons having arrangements to facilitate threading through a machine
29/32	• • Type members	31/12	• Ink ribbons having arrangements to prevent undesired contact between the impression-transfer material and machine parts or other articles
29/34	• • • repeatedly actuated	31/14	• Renovating or testing ink ribbons
29/36	• • for cancelling or correcting errors by overprinting ( <a href="#">B41J 31/00 takes precedence</a> )	31/16	• • while fitted in the machine using the ink ribbons
29/367	• • • sheet media carrying a pigmented transferable correction layer	<b>32/00</b>	<b>Ink-ribbon cartridges</b>
29/373	• • • sheet media bearing an adhesive layer effective to lift off wrongly typed characters	32/02	• for endless ribbons
29/377	• Cooling or ventilating arrangements	<b>33/00</b>	<b>Apparatus or arrangements for feeding ink ribbons or like character-size impression-transfer material</b>
29/38	• Drives, motors, controls or automatic cut-off devices for the entire printing mechanism	33/003	• {Ribbon spools (spools in general <a href="#">B65H 75/00</a> )}
29/387	• • Automatic cut-off devices	33/006	• • {Arrangements to attach the ribbon to the spool}
29/393	• • Devices for controlling or analysing the entire machine (; <a href="#">Controlling or analysing mechanical parameters involving printing of test patterns</a> )	33/02	• Ribbon arrangements
2029/3932	• • • {Battery or power source mounted on the carriage}	33/04	• • mounted on moving carriages
2029/3935	• • • {by means of printed test patterns}	33/06	• • Ribbons associated, but not moving, with typewriter platens, e.g. extending transversely to the length of the platen
2029/3937	• • • {Wireless communication between the printer and the cartridge, carriage or printhead}		
29/40	• Means for printing fixed, i.e. unchanging, matter in addition to selectable matter		
29/42	• Scales and indicators, e.g. for determining side margins		
29/44	• • for determining top and bottom margins or indicating exhaust of paper		

33/08	. . . and extending parallel to the length of the platen	35/10	. . . Vibrator mechanisms; Driving gear therefor
33/10	. . Arrangements of endless ribbons	35/12	. . . adjustable, e.g. for case shift ( <a href="#">key actions B41J 25/02</a> )
33/12	. . Ribbons carried by coaxially-mounted spools	35/14	. . . . for multicolour work; for ensuring maximum life of ink ribbon; for rendering ink-ribbon inoperative
33/14	. Ribbon-feed devices or mechanisms	35/16	. Multicolour arrangements ( <a href="#">B41J 35/10 takes precedence</a> )
33/16	. . with drive applied to spool or spool spindle	35/18	. . Colour change effected automatically
33/18	. . . by ratchet mechanism ( <a href="#">B41J 33/30 takes precedence</a> )	35/20	. Ink-ribbon shifts, e.g. for exposing print, for case-shift adjustment, for rendering ink ribbon inoperative
33/20	. . . by friction	35/22	. Mechanisms permitting the selective use of a plurality of ink ribbons
33/22	. . . by gears or pulleys	35/23	. . with two or more ribbon guides
33/24	. . with drive applied directly to ribbon	35/24	. Mechanisms specially adapted for feeding impression-transfer materials of foil form
33/26	. . . by rollers engaging the ribbon	35/26	. Ink-ribbon shields or backings
33/28	. . . by mechanism pulling or gripping the ribbon	35/28	. Detachable carriers or holders for ink-ribbon mechanisms
33/30	. . Escapement mechanisms	35/30	. . . . . Manifolding or like arrangements
33/32	. . Electromagnetic devices	35/32	. . . for producing a plurality of copies along the printing line by a single ink ribbon
33/34	. . driven by motors independently of the machine as a whole	35/34	. . . using a plurality of separate ink ribbons, e.g. including one hectographic ink ribbon
33/36	. . with means for adjusting feeding rate	35/35	. . . using unwound short lengths of ink ribbons
33/38	. . Slow, e.g. "creep", feed mechanisms	35/36	. Alarms, indicators, or feed disabling devices responsive to ink ribbon breakage or exhaustion
33/382	. . . the ribbon being fed only during carriage return	35/38	. Feeding the ink ribbon to waste after use
33/384	. . . . and attached to the carriage during writing		
33/386	. . . the ribbon being fed only by operation of the line spacing mechanism		
33/388	. . . the ribbon being fed only when type impression takes place		
33/40	. . with arrangements for reversing the feed direction		
33/42	. . . manually		
33/44	. . . automatically		
33/46	. . . . and characterised by its application to mechanism in which two spools are driven by pawl-and-ratchet mechanism		
33/48	. . . . . comprising two pawls and ratchets, one for each spool		
33/50	. . . . . comprising a single pawl or integral double-tooth pawl selectively engageable with two ratchets, one for each spool		
33/51	. . . . and characterised by the use of particular reversing control means		
33/512	. . . . . using a pivoted reversing-feeler engaging the external periphery of the wound ribbon		
33/514	. . . . . using a pivoted reversing-feeler engaging the interior of the wound ribbon		
33/516	. . . . . using a reversing-feeler responsive to the tension of the ribbon		
33/518	. . . . . the reversing-feeler engaging buttons or the like secured to the ribbon near its ends		
33/52	. . Braking devices therefor		
33/54	. . for ensuring maximum life of the ribbon ( <a href="#">B41J 33/38 takes precedence; by adjustment of vibrator mechanisms B41J 35/14</a> )		
33/56	. . . Ribbon adjusted transversely		
33/58	. . . Ribbon fed angularly		
33/60	. . responsive to telegraph code or other extraneous signals		
<b>35/00</b>	<b>Other apparatus or arrangements associated with, or incorporated in, ink-ribbon mechanisms</b>		
35/02	. Frames or holders for unwound short lengths of ink ribbons		
35/03	. . the holder being movable to inoperative position, e.g. by swinging upwardly		
35/04	. Ink-ribbon guides		
35/06	. . stationary		
35/08	. . with tensioning arrangements		
		<b>2202/00</b>	<b>Embodiments of or processes related to ink-jet or thermal heads</b>
		2202/01	. Embodiments of or processes related to ink-jet heads
		2202/02	. . Air-assisted ejection
		2202/03	. . Specific materials used
		2202/04	. . Heads using conductive ink
		2202/05	. . Heads having a valve
		2202/06	. . Heads merging droplets coming from the same nozzle
		2202/07	. . dealing with air bubbles
		2202/08	. . dealing with thermal variations, e.g. cooling
		2202/09	. . Ink jet technology used for manufacturing optical filters
		2202/10	. . Finger type piezoelectric elements
		2202/11	. . characterised by specific geometrical characteristics
		2202/12	. . with ink circulating through the whole print head
		2202/13	. . Heads having an integrated circuit
		2202/14	. . Mounting head into the printer
		2202/15	. . Moving nozzle or nozzle plate ( <a href="#">for moving nozzle or nozzle plate made of thermal bend actuator B41J 2002/14435</a> )
		2202/16	. . Nozzle heaters
		2202/17	. . Readable information on the head
		2202/18	. . Electrical connection established using vias
		2202/19	. . Assembling head units
		2202/20	. . Modules
		2202/21	. . Line printing
		2202/22	. . Manufacturing print heads



## B41J

- 2202/30 . Embodiments of or processes related to thermal heads
- 2202/31 . . Thermal printer with head or platen movable
- 2202/32 . . Thermal head for perforating stencil
- 2202/33 . . Thermal printer with pre-coating or post-coating ribbon system
- 2202/34 . . Thermal printer with pre-coating or post-processing
- 2202/35 . . Thermal printing on id card
- 2202/36 . . Thermal printing on disk-shaped medium
- 2202/37 . . Writing and erasing thermal head
- 2202/38 . . Test pattern thermal printing
- 2202/50 . Embodiments of processes related to optical heads
- 2203/00 Embodiments of or processes related to the control of the printing process**
- 2203/01 . Inspecting a printed medium or a medium to be printed using a sensing device
- 2203/011 . . Inspecting the shape or condition, e.g. wrinkled or warped, of a medium to be printed before printing on it