

CPC COOPERATIVE PATENT CLASSIFICATION

G PHYSICS (NOTES omitted)

INSTRUMENTS

G01 MEASURING (counting [G06M](#)); TESTING (NOTES omitted)

G01G WEIGHING (sorting by weighing [B07C 5/16](#))

NOTE

Attention is drawn to the Notes following the title of class [G01](#).

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.

1/00	Weighing apparatus involving the use of a counterweight or other counterbalancing mass	1/42	. . Temperature compensating arrangements
1/02	. Pendulum-weight apparatus	3/00	Weighing apparatus characterised by the use of elastically-deformable members, e.g. spring balances
1/025	. . {with variable cam radius or variable counterpoise pendulum}	3/02	. wherein the weighing element is in the form of a helical spring
1/04	. . the pendulum having a fixed pivot axis	3/04	. . using a plurality of springs
1/06	. . . with a plurality of pendulums	3/06	. wherein the weighing element is in the form of a spiral spring
1/08	. . the pendulum having a moving pivot axis, e.g. a floating pendulum	3/08	. wherein the weighing element is in the form of a leaf spring
1/10	. . . with a plurality of pendulums	3/10	. wherein the torsional deformation of a weighing element is measured
1/12	. . Constructional arrangements for obtaining equal indicative divisions	3/12	. wherein the weighing element is in the form of a solid body stressed by pressure or tension during weighing
1/14	. . Temperature compensating arrangements	3/125	. . {wherein the weighing element is an optical member}
1/16	. . Means for correcting for obliquity of mounting	3/13	. . having piezo-electric or piezo-resistive properties
1/18	. Balances involving the use of a pivoted beam, i.e. beam balances	3/14	. . measuring variations of electrical resistance (G01G 3/13 takes precedence)
1/185	. . {Two draft weighing apparatus, e.g. tandem scales systems}	3/1402	. . . {Special supports with preselected places to mount the resistance strain gauges; Mounting of supports}
1/20	. . Beam balances having the pans carried below the beam, and for use with separate counterweights	3/1404	. . . . {combined with means to connect the strain gauges on electrical bridges}
1/22	. . . for precision weighing	3/1406	. . . . {combined with special measuring circuits}
1/24	. . Platform-type scales, i.e. having the pans carried above the beam	3/1408	. . . . {the supports being of the column type, e.g. cylindric}
1/243	. . . {having pans carried above the beam}	3/141	. . . . {the supports being disc or ring shaped}
1/246	. . . . {of the parallelogram type}	3/1412	. . . . {the supports being parallelogram shaped}
1/26	. . with associated counterweight or set of counterweights	3/1414	. . . {Arrangements for correcting or for compensating for unwanted effects}
1/28	. . . involving means for automatically lifting counterweights corresponding to the load	3/1416	. . . . {for non-linearity}
1/29	. . . . with electrical or electromechanical control means	3/1418	. . . . {for temperature variations}
1/30	. . . wherein the counterweight is in the form of a chain	3/142	. . . Circuits specially adapted therefor
1/32	. . . wherein the counterweights are in the form of rider-weights	3/145	. . . . involving comparison with a reference value (G01G 3/147 takes precedence)
1/34	. . . involving a fixed counterweight, with poise-weights selectively added to the load side	3/147	. . . . involving digital counting
1/36	. . . wherein the counterweights are slideable along the beam, e.g. steelyards	3/15	. . measuring variations of magnetic properties
1/38	. . . . with automatically-driven counterweight		
1/40	. . specially adapted for weighing by substitution		

3/16	<ul style="list-style-type: none"> measuring variations of frequency of oscillations of the body 	13/00	Weighing apparatus with automatic feed or discharge for weighing-out batches of material (for weighing a continuous stream G01G 11/00 ; check-weighing G01G 15/00 ; for fluids G01G 17/04 ; apportioning by weight materials to be mixed G01G 19/22 ; combinatorial weighing G01G 19/387)
3/165	<ul style="list-style-type: none"> {Constructional details} 	13/003	<ul style="list-style-type: none"> {Details; specially adapted accessories (details of weighing apparatus in general G01G 21/00; auxiliary devices for weighing apparatus in general G01G 23/00)}
3/18	<ul style="list-style-type: none"> Temperature-compensating arrangements 	13/006	<ul style="list-style-type: none"> {Container supply or discharge mechanism (means for automatic loading or discharging G01G 13/02, G01G 13/16, G01G 13/24)}
5/00	Weighing apparatus wherein the balancing is effected by fluid action	13/02	<ul style="list-style-type: none"> Means for automatically loading weigh pans or other receptacles, e.g. disposable containers, under control of the weighing mechanism
5/003	<ul style="list-style-type: none"> {load-cell construction or mountings} 	13/022	<ul style="list-style-type: none"> {Material feeding devices (G01G 13/04 - G01G 13/14 take precedence)}
5/006	<ul style="list-style-type: none"> {with pneumatic means} 	13/024	<ul style="list-style-type: none"> {by gravity}
5/02	<ul style="list-style-type: none"> with a float or other member variably immersed in liquid 	13/026	<ul style="list-style-type: none"> {by mechanical conveying means, e.g. belt or vibratory conveyor}
5/04	<ul style="list-style-type: none"> with means for measuring the pressure imposed by the load on a liquid (pressure gauges per se G01L) 	13/028	<ul style="list-style-type: none"> {by pneumatic carrying means}
5/045	<ul style="list-style-type: none"> {combined with means for totalising the pressure imposed by several load-cells} 	13/04	<ul style="list-style-type: none"> involving dribble-feed means controlled by the weighing mechanism to top up the receptacle to the target weight
5/06	<ul style="list-style-type: none"> with electrical indicating means 	13/06	<ul style="list-style-type: none"> wherein the main feed is effected by gravity from a hopper or chute
7/00	Weighing apparatus wherein the balancing is effected by magnetic, electromagnetic, or electrostatic action, or by means not provided for in the preceding groups	13/08	<ul style="list-style-type: none"> wherein the main feed is effected by mechanical conveying means, e.g. by belt conveyors, by vibratory conveyors
7/02	<ul style="list-style-type: none"> by electromagnetic action 	13/10	<ul style="list-style-type: none"> wherein the main feed is effected by pneumatic conveying means, e.g. by fluidised feed of granular material
7/04	<ul style="list-style-type: none"> with means for regulating the current to solenoids 	13/12	<ul style="list-style-type: none"> Arrangements for compensating for material suspended at cut-off, i.e. for material which is still falling from the feeder when the weigher stops the feeder
7/045	<ul style="list-style-type: none"> {having a PID control system} 	13/14	<ul style="list-style-type: none"> Arrangements for determination of, or compensation for, the tare weight of an unloaded container, e.g. of a disposable container
7/06	<ul style="list-style-type: none"> by electrostatic action 	13/16	<ul style="list-style-type: none"> Means for automatically discharging weigh receptacles under control of the weighing mechanism
9/00	Methods or apparatus for the determination of weight not otherwise provided for	13/18	<ul style="list-style-type: none"> by valves or flaps in the container bottom
9/005	<ul style="list-style-type: none"> {using radiations, e.g. radioactive (analysing materials by the use of wave or particle radiation G01N 23/00)} 	13/20	<ul style="list-style-type: none"> by screw conveyors in the weigh receptacle
11/00	Apparatus for weighing a continuous stream of material during flow; Conveyor belt weighers	13/22	<ul style="list-style-type: none"> by tilting or rotating the weigh receptacle
11/003	<ul style="list-style-type: none"> {Details; specially adapted accessories (details of weighing apparatus in general G01G 21/00; auxiliary devices for weighing apparatus in general G01G 23/00)} 	13/24	<ul style="list-style-type: none"> Weighing mechanism control arrangements for automatic feed or discharge
11/006	<ul style="list-style-type: none"> {Special taring or checking devices therefor (devices for determining tare weight in general G01G 23/14)} 	13/241	<ul style="list-style-type: none"> {Bulk-final weighing apparatus, e.g. rough weighing balance combined with separate fine weighing balance}
11/02	<ul style="list-style-type: none"> having mechanical weight-sensitive devices 	13/242	<ul style="list-style-type: none"> {Twin weighing apparatus; weighing apparatus using single load carrier and a plurality of weigh pans coupled alternately with the load carrier; weighing apparatus with two or more alternatively used weighing devices}
11/025	<ul style="list-style-type: none"> {combined with totalising or integrating devices} 	13/243	<ul style="list-style-type: none"> {using a single load carrier}
11/04	<ul style="list-style-type: none"> having electrical weight-sensitive devices 	13/244	<ul style="list-style-type: none"> {with a single weighing receptacle divided into two or more alternatively used sections}
11/043	<ul style="list-style-type: none"> {combined with totalising or integrating devices} 	13/245	<ul style="list-style-type: none"> {the weighing receptacles being rockable or oscillating}
11/046	<ul style="list-style-type: none"> {involving digital counting} 	13/246	<ul style="list-style-type: none"> {the weighing apparatus being rotatable}
11/06	<ul style="list-style-type: none"> having fluid weight-sensitive devices 		
11/065	<ul style="list-style-type: none"> {combined with totalising or integrating devices} 		
11/08	<ul style="list-style-type: none"> having means for controlling the rate of feed or discharge (regulation of flow of fluent material G05D) 		
11/083	<ul style="list-style-type: none"> {of the weight-belt or weigh-auger type (G01G 11/10, G01G 11/12 take precedence)} 		
11/086	<ul style="list-style-type: none"> {of the loss-in-weight feeding type} 		
11/10	<ul style="list-style-type: none"> by controlling the height of the material on the belt 		
11/12	<ul style="list-style-type: none"> by controlling the speed of the belt 		
11/14	<ul style="list-style-type: none"> using totalising or integrating devices ({G01G 11/025, G01G 11/043, G01G 11/046 and G01G 11/065 take precedence} totalising or integrating devices per se G06) 		
11/16	<ul style="list-style-type: none"> being electrical or electronic means 		
11/18	<ul style="list-style-type: none"> using digital counting 		
11/20	<ul style="list-style-type: none"> being mechanical means 		

- 13/247 . . {Checking quantity of material in the feeding arrangement, e.g. discharge material only if a predetermined quantity is present}
- 13/248 . . {Continuous control of flow of material ([control of flow G05D 7/00](#))}
- 13/26 . . involving fluid-pressure systems
- 13/28 . . involving variation of an electrical variable which is used to control loading or discharge of the receptacle
- 13/285 . . . involving comparison with a reference value ([G01G 13/29 takes precedence](#) ; [electric measuring arrangements involving comparison with a reference value G01R 17/00](#))}
- 13/2851 {for controlling automatic loading of weigh pans or other receptacles ([G01G 13/29 takes precedence](#))}
- 13/2852 {involving dribble-feed means controlled by the weighing mechanism to top up the receptacle to the target weight}
- 13/2853 {wherein the main feed is effected by gravity from a hopper or chute}
- 13/2855 {wherein the main feed is effected by mechanical conveying means, e.g. by belt conveyors, by vibratory conveyors}
- 13/2856 {wherein the main feed is effected by pneumatic conveying means, e.g. by fluidised feed of granular material}
- 13/2857 {Arrangements for compensating for material suspended at cut-off, i.e. for material which is still falling from the feeder when the weigher stops the feeder}
- 13/2858 {Arrangements for the determination of, or compensation for, the tare weight of an unloaded container, e.g. of a disposable container}
- 13/29 . . . involving digital counting
- 13/2906 {for controlling automatic loading of weigh-pans or other receptacles}
- 13/2912 {involving dribble-feed means controlled by the weighing mechanism to top up the receptacle to the target weight}
- 13/2918 {wherein the main feed is effected by gravity from a hopper or chute}
- 13/2925 {wherein the main feed is effected by mechanical means, e.g. by belt conveyors, by vibratory conveyors}
- 13/2931 {wherein the main feed is effected by pneumatic conveying means, e.g. by fluidised feed of granular material}
- 13/2937 {Arrangements for compensating for material suspended at cut-off, i.e. for material which is still falling from the feeder when the weigher stops the feeder}
- 13/2943 {Arrangements for determination of, or compensation for, the tare weight of an unloaded container, e.g. of a disposable container}
- 13/295 . . . for controlling automatic loading of the receptacle {([G01G 13/285](#), [G01G 13/29 take precedence](#))}
- 13/2951 {involving dribble-feed means controlled by the weighing mechanism to top up the receptacle to the target weight}
- 13/2952 {wherein the main feed is effected by gravity from a hopper or chute}
- 13/2954 {wherein the main feed is effected by mechanical conveying means, e.g. by belt conveyors, by vibratory conveyors}
- 13/2955 {wherein the main feed is effected by pneumatic conveying means, e.g. by fluidised feed of granular material}
- 13/2957 {Arrangements for compensating for material suspended at cut-off, i.e. for material which is still falling from the feeder when the weigher stops the feeder}
- 13/2958 {Arrangements for the determination of, or compensation for, the tare weight of an unloaded container, e.g. a disposable container}
- 13/30 . . involving limit switches or position-sensing switches
- 13/32 . . . involving photoelectric devices
- 13/34 . . involving mechanical linkage motivated by weighing mechanism
- 15/00 Arrangements for check-weighing of materials dispensed into removable containers ([packaging aspects B65B](#); {electric measuring arrangements involving comparison with a reference value [G01R 17/00](#)})**
- 15/001 . {Volumetric pre-dispensing to an estimated weight; Gravimetric make-up device for target device}
- 2015/002 . . {using electrical, electromechanical or electronic means}
- 2015/003 . . . {involving digital counting}
- 2015/005 . . . {involving comparison with reference value}
- 15/006 . {using electrical, electromechanical, or electronic means not covered by [G01G 15/001](#), [G01G 15/02](#), [G01G 15/04](#)}
- 2015/007 . . {involving digital counting}
- 2015/008 . . {involving comparison with a reference value}
- 15/02 . with provision for adding or removing a make-up quantity of material to obtain the desired net weight ([dribble-feed means for automatic batch-weighers G01G 13/04](#))
- 2015/022 . . {using electrical, electromechanical or electronic means}
- 2015/025 . . . {involving digital counting}
- 2015/027 . . . {involving comparison with a reference value}
- 15/04 . with provision for adding or removing a make-up quantity of material to obtain the desired gross weight ([dribble-feed means for automatic batch-weighers G01G 13/04](#))
- 2015/042 . . {using electrical, electromechanical or electronic means}
- 2015/045 . . . {involving digital counting}
- 2015/047 . . . {involving comparison with a reference value}
- 17/00 Apparatus for or methods of weighing material of special form or property ([determining weight by measuring volume G01F](#))**
- 17/02 . for weighing material of filamentary or sheet form
- 17/04 . for weighing fluids, e.g. gases, pastes
- 17/06 . . having means for controlling the supply or discharge
- 17/08 . for weighing livestock

19/00	Weighing apparatus or methods adapted for special purposes not provided for in the preceding groups {(electric measuring arrangements involving comparison with a reference value G01R 17/00)}	19/382	. . . {involving digital counting}
19/002	. {for postal parcels and letters}	19/384	. . . {involving comparison with a reference value}
19/005	. . {with electric or electronic computing means}	19/387	. for combinatorial weighing, i.e. selecting a combination of articles whose total weight or number is closest to a desired value
19/007	. {fractioning a determined weight of material in several equal parts}	19/393	. . using two or more weighing units
19/02	. for weighing wheeled or rolling bodies, e.g. vehicles	19/40	. with provisions for indicating, recording, or computing price or other quantities dependent on the weight (indicating means for weighing apparatus G01G 23/18 ; recording means for weighing apparatus G01G 23/18 ; computers in general G06)
19/021	. . {having electrical weight-sensitive devices (G01G 19/04 - G01G 19/07 take precedence)}	19/41	. . using mechanical computing means
19/022	. . {for weighing wheeled or rolling bodies in motion (G01G 19/045 takes precedence)}	19/413	. . using electromechanical or electronic computing means
19/024	. . . {using electrical weight-sensitive devices}	19/414	. . . using electronic computing means only
19/025	. . {wheel-load scales}	19/4142	. . . . {for controlling activation of safety devices, e.g. airbag systems (electrical circuits for triggering safety arrangements in case of vehicle accidents B60R 21/015)}
19/027	. . . {using electrical weight-sensitive devices}	19/4144	. . . . {for controlling weight of goods in commercial establishments, e.g. supermarket, P.O.S. systems}
19/028	. . {combined with shock-absorbing devices (shock-absorbing arrangements for bearings G01G 21/02 ; means for damping oscillations G01G 23/06 ; shock-absorbers per se F16F)}	19/4146	. . . . {for controlling caloric intake, e.g. diet control}
19/03	. . for weighing during motion (G01G 19/04 , G01G 19/07 take precedence {check weighing of materials dispensed into removable containers G01G 15/00 ; weighing a continuous stream of material during flow G01G 11/00 ; G01G 19/02 , e.g. G01G 19/022 , G01G 19/045 take precedence })	19/4148	. . . . {for controlling postal rate in articles to be mailed (franking apparatus with means for computing G07B 17/02)}
19/035	. . . {using electrical weight-sensitive devices}	19/415	. . . . combined with recording means
19/04	. . for weighing railway vehicles	19/417	. . with provision for checking computing part of balance
19/042	. . . {having electrical weight-sensitive devices}	19/42	. . for counting by weighing (G01G 19/387 takes precedence)
19/045	. . . {for weighing railway vehicles in motion}	19/44	. for weighing persons
19/047	. . . . {using electrical weight-sensitive devices}	19/445	. . {in a horizontal position}
19/06	. . . on overhead rails	19/46	. . Spring balances specially adapted for this purpose
19/07	. . for weighing aircraft	19/48	. . Pendulum balances specially adapted for this purpose
19/08	. for incorporation in vehicles	19/50	. . having additional measuring devices, e.g. for height
19/083	. . {lift truck scale}	19/52	. Weighing apparatus combined with other objects, e.g. furniture (with walking sticks A45B 3/08)
19/086	. . {wherein the vehicle mass is dynamically estimated}	19/54	. . combined with writing implements or paper-knives
19/10	. . having fluid weight-sensitive devices	19/56	. . combined with handles of tools or household implements
19/12	. . having electrical weight-sensitive devices	19/58	. . combined with handles of suit-cases or trunks
19/14	. for weighing suspended loads (G01G 3/00 takes precedence ; incorporation of weighing devices in cranes B66C 1/40 , B66C 13/16)	19/60	. . combined with fishing equipment, e.g. with fishing rods
19/16	. . having fluid weight-sensitive devices	19/62	. Over or under weighing apparatus
19/18	. . having electrical weight-sensitive devices	19/64	. Percentage-indicating weighing apparatus, i.e. for expressing the weight as a percentage of a predetermined or initial weight
19/20	. . for weighing unbalanced loads	21/00	Details of weighing apparatus
19/22	. for apportioning materials by weighing prior to mixing them (ratio regulation G05D 11/00)	21/02	. Arrangements of bearings (bearings per se F16C)
19/24	. . using a single weighing apparatus	21/022	. . {of tapes or ribbons}
19/26	. . . associated with two or more counterweighted beams	21/025	. . {using a combination of knife-edge and ball or roller bearings}
19/28	. . . having fluid weight-sensitive devices	21/027	. . {Hydraulic or pneumatic bearings}
19/30	. . . having electrical weight-sensitive devices	21/04	. . of knife-edge bearings
19/303	. . . . {involving digital counting}	21/06	. . of ball or roller bearings
19/306	. . . . {involving comparison with a reference value}	21/07	. . of flexure-plate bearings
19/32	. . using two or more weighing apparatus	21/08	. . Bearing mountings or adjusting means therefor
19/34	. . with electrical control means		
19/343	. . . {involving digital counting}		
19/346	. . . {involving comparison with a reference value}		
19/36	. . with mechanical control means		
19/38	. . programme controlled, e.g. by perforated tape (programme control in general G05B 19/00)		

21/085	. . . {of knife-edge bearings (knife-edge bearings G01G 21/04)}	23/002	. {Means for correcting for obliquity of mounting (for pendulum-weight apparatus G01G 1/16)}
21/10	. . Floating suspensions; Arrangements of shock absorbers (shock absorbers per se F16F)	23/005	. {Means for preventing overload}
21/12	. . Devices for preventing derangement	23/007	. {Integrated arrangements for generating electrical power, e.g. solar cells}
21/125	. . . {of knife-edge bearings (knife-edge bearings G01G 21/04)}	23/01	. Testing or calibrating of weighing apparatus
21/14	. Beams	23/012	. . {with load cells comprising in-build calibration weights}
21/16	. . of composite construction; Connections between different beams	23/015	. . {by adjusting to the local gravitational acceleration}
21/161	. . . {Connections between different beams}	23/017	. . {Securing calibration against fraud}
21/162	. . . . {using knife-edge bearings (knife-edge bearings G01G 21/04)}	23/02	. Relieving mechanisms; Arrestment mechanisms
21/163	. . . . {using ball or roller bearings (ball or roller bearings G01G 21/04)}	23/04	. . for precision weighing apparatus
21/165	. . . . {using tapes or ribbons (tapes or ribbons G01G 21/022)}	23/06	. Means for damping oscillations, e.g. of weigh beams
21/166	. . . . {using flexure plate fulcrums (flexure plate fulcrums G01G 21/07)}	23/08	. . by fluid means
21/167	. . . . {combined with different kinds of bearings}	23/10	. . by electric or magnetic means
21/168	. . . . . {combined with knife-edge and ball or roller bearings}	23/12	. . specially adapted for preventing oscillations due to movement of the load
21/18	. Link connections between the beam and the weigh pan	23/14	. Devices for determining tare weight or for cancelling out the tare by zeroising, e.g. mechanically operated (in connection with automatic loading G01G 13/14)
21/182	. . {using knife-edge bearings (knife-edge bearings G01G 21/04)}	23/16	. . electrically or magnetically operated
21/184	. . {using ball or roller bearings (ball or roller bearings G01G 21/06)}	23/163	. . . {involving digital counting}
21/186	. . {using tapes or ribbons (tapes or ribbons G01G 21/022)}	23/166	. . . {involving comparison with a reference value}
21/188	. . {using flexure plate fulcrums (flexure plate fulcrums G01G 21/07)}	23/18	. Indicating devices, e.g. for remote indication; Recording devices; Scales, e.g. graduated
21/20	. . for precision weighing apparatus	23/20	. . Indicating weight by mechanical means
21/22	. Weigh pans or other weighing receptacles; Weighing platforms	23/203	. . . {with wheel-type counters}
21/23	. Support or suspension of weighing platforms (G01G 21/24 takes precedence)	23/206	. . . {special graduated scales therefor (G01G 23/24 takes precedence)}
21/235	. . {using knife-edge bearings (knife-edge bearings G01G 21/04)}	23/22	. . . combined with price indicators
21/24	. Guides or linkages for ensuring parallel motion of the weigh-pans	23/24	. . . involving logarithmic scales
21/241	. . {combined with knife-edge bearings (knife-edge bearings G01G 21/04)}	23/26	. . . Drive for the indicating member, e.g. mechanical amplifiers
21/242	. . {combined with ball or roller bearings (ball or roller bearings G01G 21/06)}	23/28	. . . involving auxiliary or memory marks
21/243	. . {combined with tapes or ribbons (tapes or ribbons G01G 21/022)}	23/30	. . . with means for illuminating the scale
21/244	. . {combined with flexure-plate fulcrums (flexure-plate fulcrums G01G 21/07)}	23/32	. . Indicating the weight by optical projection means
21/245	. . {combined with different kinds of bearings}	23/34	. . . combined with price indicators
21/246	. . . {combined with knife-edge and ball or roller bearings}	23/35	. . Indicating the weight by photographic recording
21/247	. . . {combined with knife-edge bearings and tapes or ribbons}	23/36	. . Indicating the weight by electrical means, e.g. using photoelectric cells
21/248	. . . {combined with knife-edge and flexure-plate fulcrums}	23/361	. . . {using photoelectric cells}
21/26	. Counterweights; Poise-weights; Sets of weights; Holders for the reception of weights	23/362	. . . {using electric contacts}
21/28	. Frames, Housings	23/363	. . . {using magnetic or capacitive contacts}
21/283	. . {Details related to a user interface}	23/365	. . . involving comparison with a reference value (G01G 23/37 takes precedence)
21/286	. . {with windshields}	23/37	. . . involving digital counting
21/30	. Means for preventing contamination by dust	23/3707	. . . . {using a microprocessor}
23/00	Auxiliary devices for weighing apparatus	23/3714	. . . . . {with feedback means}
		23/3721	. . . . . {with particular representation of the result, e.g. graphic}
		23/3728	. . . . . {with wireless means}
		23/3735	. . . . . {using a digital network}
		23/3742	. . . . . {using a mobile telephone network}
		23/375	. . . . during the movement of a coded element
		23/38	. . Recording and/or coding devices specially adapted for weighing apparatus (computers per se G06; disc converters in general G08C)
		23/40	. . . mechanically operated
		23/42	. . . electrically operated
		23/44	. . . . Coding devices therefor

G01G

- 23/46 . . . Devices preventing recording until the weighing mechanism has come to rest
- 23/48 . Temperature-compensating arrangements ([G01G 1/14](#), [G01G 1/42](#), [G01G 3/18](#) take precedence)