

CPC**COOPERATIVE PATENT CLASSIFICATION****A01F**

PROCESSING OF HARVESTED PRODUCE; HAY OR STRAW PRESSES; DEVICES FOR STORING AGRICULTURAL OR HORTICULTURAL PRODUCE ([devices for topping or skinning onions or flower bulbs](#) [A23N 15/08](#))

A01F 1/00

Stationary apparatus or hand tools for forming or binding straw, hay or the like into bundles ([baling apparatus or presses](#) [A01F 13/00](#), [A01F 15/00](#); [mobile binders for use in the field](#) [A01D 37/00](#), [A01D 39/00](#))

A01F 1/02

- . Hand-operated tools

A01F 1/04

- . Fastening or tying devices

A01F 1/06

- . Ties for bundles

A01F 3/00

Hand-operated implements for cutting-up straw, hay or the like ([mechanically-driven straw cutters](#) [A01F 29/00](#); [cutting in general](#) [B26](#))

Guidance heading: Threshing

A01F 5/00

Hand-operated implements for threshing

A01F 7/00

Threshing apparatus

A01F 7/02

- . with rotating tools ([threshing cylinders or concaves](#) [A01F 12/18](#))

A01F 7/04

- . . with axles transverse to the feeding direction

A01F 7/06

- . . with axles in line with the feeding direction; { [Axial threshing machines](#) }

A01F 7/062

- . . . { [with a rotating cage](#) }

A01F 7/065

- . . . { [with cage sweep mechanisms](#) }

A01F 7/067

- . . . { [with material-flow influencing means](#) }

A01F 7/70

- . with flails

A01F 2009/00

Threshing machines with flails; Threshing devices with flails for combines

A01F 11/00

Threshing apparatus specially adapted for maize; Threshing apparatus specially adapted for particular crops other than cereals

A01F 11/02

- . for flax

A01F 11/04

- . for clover or like seeds, e.g. lucerne

A01F 11/06

- . for maize, e.g. removing kernels from cobs

- A01F 11/08 . for palm fruit, e.g. releasing the fruit from the stalk
- A01F 12/00** **Parts or details of threshing apparatus** (devices, other than safety devices for feeders, for protecting human beings [A01D 75/20](#), [A01F 21/00](#))
- A01F 12/10 . Feeders
- A01F 12/12 .. without band-cutters
- A01F 12/14 .. with band-cutters
- A01F 12/16 .. Safety devices
- A01F 12/18 . Threshing devices
- A01F 12/181 .. { Adjustable threshing mechanisms }
- A01F 12/182 .. { Stripper beaters after the threshing drum }
- A01F 12/184 .. { Cleaning means }
- A01F 12/185 .. { Mounting means }
- A01F 12/187 .. { Vibratory threshing mechanisms }
- A01F 2012/188 .. Rethreshing devices
- A01F 12/20 .. Threshing cylinders with ribs
- A01F 12/22 .. Threshing cylinders with teeth
- A01F 12/24 .. One-part threshing concaves
- A01F 12/26 .. Multi-part threshing concaves
- A01F 12/28 .. Devices for adjusting the concaves
- A01F 12/30 . Straw separators { , i.e. straw walkers, for separating residual grain from the straw (grain cleaning [A01F 12/44](#)) }
- A01F 12/305 .. { combined with additional grain extracting means }
- A01F 12/32 .. with shaker screens or sieves
- A01F 12/34 ... Sieve elements; Linings for shakers
- A01F 12/36 Sieve elements specially adapted for handling short straw
- A01F 12/38 .. with juxtaposed and independently-moved shaker bars or the like
- A01F 12/385 .. with endless straw-conveying surface
- A01F 12/39 .. with straw carriers in the form of rotors or drums
- A01F 12/395 .. Conical or cylindrical straw separators with internal working surface
- A01F 12/40 . Arrangements of straw crushers or cutters
- A01F 12/42 . Apparatus for removing awns from the grain
- A01F 12/44 . Grain cleaners; Grain separators
- A01F 12/442 .. { Rotary cleaners }
- A01F 12/444 .. { Fanning means }
- A01F 12/446 .. { Sieving means }
- A01F 12/448 ... { Sieve adjusting means }
- A01F 12/46 . Mechanical grain conveyers

- A01F 12/48 . Air conduits or blowers for grain
- A01F 12/50 . Sack-filling devices; Counting or weighing devices
- A01F 12/52 . Arrangements for returning unthreshed grain to the threshing device
- A01F 12/54 . Arrangements for collecting or removing dust
- A01F 12/56 . Driving mechanisms for the threshing parts
- A01F 12/58 . Control devices; Brakes; Bearings
- A01F 12/60 . Grain tanks { (for combines [A01D 41/1208](#)) }

Guidance heading: **Baling straw or the like** ([baling presses in general](#), [briquetting presses B30B](#))

A01F 13/00 Hand-operated baling apparatus

A01F 15/00 Baling presses for straw, hay or the like { [making compressed stacks A01D 85/00](#) }

- A01F 15/005 . { [for conditioning bales, e.g. rebaling](#) }
- A01F 15/02 . with press-boxes { ([A01F 15/046 takes precedence](#)) }
- A01F 15/04 . Plunger presses
- A01F 15/042 .. { [Plungers](#) }
- A01F 15/044 .. { [with open pressing chambers](#) }
- A01F 15/046 .. { [with press-boxes](#) }
- A01F 2015/048 .. Anti-return systems for the material in the pressing chamber when the plunger moves backwards
- A01F 15/06 .. with double-action plunger
- A01F 15/07 . Rotobalers, i.e. machines for forming cylindrical bales by winding and pressing
- A01F 15/0705 .. { [Arrangements for continuous operation](#) }
- A01F 15/071 .. { [Wrapping devices \(tying devices A01F 15/141 \)](#) }
- A01F 15/0715 ... { [Wrapping the bale in the press chamber before opening said chamber](#) }
- A01F 2015/072 Braking means for the film roll in balers which wrap the bale before opening the pressing chamber in order to stretch the film while wrapping.
- A01F 2015/0725 ... Film dispensers for film rollers in a satellite type wrapper, e.g. holding and tensioning means for the film roller ([the rotating arm itself A01F 2015/073](#))
- A01F 2015/073 ... Features related to the horizontal rotating arm of a wrapping device of the satellite type ([features of film dispensers A01F 2015/0725](#))
- A01F 2015/0735 ... Combined machines that include a press bale and a wrapping device in a further step, e.g. turning table, not in the same closed pressing chamber
- A01F 2015/074 ... Mechanisms for discharging a bale from the wrapping machine.
- A01F 2015/0745 ... Special features of the wrapping material for wrapping the bale.

A01F 2015/075	...	Opening the pressing chamber before wrapping, and then wrapping by rotating the bale without displacing it out of the open pressing chamber
A01F 2015/0755	...	Configuration of support surfaces which can move in order to rotate a bale around at least one axis while wrapping
A01F 2015/076	...	Wrapping device incorporating sensors
A01F 15/0765	..	{ Rolling bales on the ground }
A01F 2015/077	..	Pressing chamber formed by belts and rollers.
A01F 2015/0775	..	Pressing chambers with fix volume
A01F 2015/078	..	Pressing chamber formed exclusively by flexible elements, e.g. belts
A01F 2015/0785	..	Latching or locking means for the tailgate of the rotobaler.
A01F 2015/079	..	Sledge for rollers of the pressing chamber.
A01F 2015/0795	..	Pressing chamber with variable volume
A01F 15/08	.	Details
A01F 2015/0808	..	Balers incorporate an inclinometer
A01F 15/0816	..	{ Devices for dispensing chemicals in bales during formation }
A01F 15/0825	..	{ Regulating or controlling density or shape of the bale }
A01F 15/0833	...	{ for round balers }
A01F 15/0841	..	{ Drives for balers }
A01F 15/085	...	{ for round balers }
A01F 15/0858	...	{ for the tying devices or needles }
A01F 2015/0866	....	Clutching means for the knotting process; Bale length measuring means for triggering the clutching mean
A01F 15/0875	..	{ Discharge devices }
A01F 15/0883	...	{ for round balers }
A01F 2015/0891	...	Weighing the finished bale before falling to ground
A01F 15/10	..	Feeding devices for the crop material, { e.g. precompression devices (pick-ups A01D 89/00) }
A01F 15/101	...	{ Feeding at right angles to the compression stroke (A01F 15/106 takes precedence) }
A01F 2015/102	....	the pressing chamber is fed from the bottom side
A01F 2015/103	....	the pressing chamber is fed from a lateral side
A01F 2015/105	....	the pressing chamber is fed from the top side
A01F 15/106	...	{ for round balers }
A01F 2015/107	...	Means for withdrawing knives, rotor or walls of the feeding chamber in case of plugging or congestion
A01F 2015/108	...	Cutting devices comprising cutter and counter-cutter
A01F 15/12	..	Feeding devices for the ties
A01F 15/14	..	Tying devices specially adapted for baling presses { independent binders A01D 39/00 }
A01F 15/141	...	{ for round balers (wrapping devices A01F 15/071) }
A01F 2015/143	....	Guiding fingers for twines in order to avoid the slippage of twines to the sides of the bale when tying it
A01F 15/145	...	{ Twine knotters }
A01F 15/146	...	{ Wire twistors }

- A01F 15/148 . . . { Monitoring the tying, e.g. mistie detectors }
- A01F 15/16 . . Division blocks
- A01F 15/18 . . Endless belts, rolls or the like
- A01F 2015/183 . . . Constructional details of belts of the press chamber
- A01F 2015/186 . . . Constructional details of rollers or the bearings of the rollers of the press chamber

Guidance heading: **Accessories for threshing machines or baling presses** (loaders for sheaves, stacks or bales [A01D 87/12](#); trailers [B62D 63/06](#))

A01F 17/00 Straw conveyers for threshing machines or baling presses

- A01F 17/02 . Mechanical conveyers
- A01F 17/04 . Pneumatic conveyers

A01F 19/00 Devices for securing threshing machines or baling presses to the ground, e.g. for compensating for unevenness of the ground

A01F 21/00 Devices for protecting human beings for threshing machines or baling presses (in combines [A01D 75/20](#); for feeders for threshing apparatus [A01F 12/16](#))

A01F 25/00 Storing agricultural or horticultural produce; Hanging-up harvested fruit (maturing fruit [A23N 15/06](#); arrangements in barns for preparatory treatment of tobacco [A24B 1/02](#); packing or storing hops [C12C 3/04](#))

- A01F 25/02 . Clamps; Pits
- A01F 25/04 . Stacks, ricks or the like
- A01F 25/045 . . { Distributing arrangements in haystacks }
- A01F 25/08 . . Ventilating means
- A01F 25/10 . . Shelters; { Open sheds or similar structures }
- A01F 25/12 . Racks for drying purposes
- A01F 25/125 . . { Transport devices for hay racks }
- A01F 25/13 . Coverings ([A01F 25/14](#) takes precedence)
- A01F 25/14 . Containers specially adapted for storing
- A01F 2025/142 . . Machinery for making sausage-like groups of bales by wrapping or bagging (for bagging of loose material [A01F 2025/145](#))
- A01F 2025/145 . . Bagging machines for loose materials making some kind of "sausage" on the field (making sausage-like groups of bales [A01F 2025/142](#))
- A01F 2025/147 . . the containers are specially adapted for storing or drying the products in vacuum
- A01F 25/16 . Arrangements in forage silos

- A01F 25/163 .. { in tower silos }
- A01F 25/166 .. { in trench silos }
- A01F 25/18 .. Loading or distributing arrangements
- A01F 25/183 ... { Loading arrangements }
- A01F 25/186 ... { Distributing arrangements (for haystacks [A01F 25/045](#)) }
- A01F 25/20 .. Unloading arrangements
- A01F 25/2009 ... { Top unloading units for tower silos }
- A01F 25/2018 ... { Bottom unloading units for tower silos }
- A01F 25/2027 ... { for trench silos }
- A01F 25/2036 { Cutting or handling arrangements for silage blocks }
- A01F 25/2045 Unloading arrangements including a conveyor belt for transferring the material to a hopper
- A01F 25/2054 Machinery for cutting successive parallel layers of material in a trench silo (for shredding [A01F 25/2063](#))
- A01F 25/2063 Machinery for shredding successive parallel layers of material in a trench silo
- A01F 25/2072 Scoops with an extracting tool mounted inside or in the vicinity of said scoop
- A01F 25/2081 Hydraulic features of the trench silos unloading devices, e.g. hydraulic circuits
- A01F 25/209 Manual portable tools for unloading a silo, e.g. for cutting out a block
- A01F 25/22 .. Ventilating arrangements

- A01F 29/00** **Cutting apparatus specially adapted for cutting hay, straw or the like (mowers combined with means for cutting up the mown crop [A01D 43/08](#))**

- A01F 29/005 . { for disintegrating and cutting up bales of hay, straw or fodder (for unrolling round bales [A01D 87/127](#)) }
- A01F 29/01 . specially adapted for being mounted on or drawn by a tractor, e.g. field choppers
- A01F 29/02 . having rotating knives with their cutting edges in a plane perpendicular to their rotational axis
- A01F 29/025 .. { with feeding direction parallel to axis }
- A01F 29/04 .. with feeding direction transverse to axis
- A01F 29/06 . having rotating knives with their cutting edges on a cylinder surface, e.g. of the helical-type
- A01F 29/08 . having reciprocating knives
- A01F 29/09 . Details
- A01F 29/095 .. { Mounting or adjusting of knives }
- A01F 29/10 .. Feeding devices
- A01F 29/12 .. Discharge means (loaders for hay or like field crop having blowers [A01D 87/10](#))
- A01F 29/14 .. Drives
- A01F 29/16 .. Safety devices, e.g. emergency brake arrangements
- A01F 29/18 ... for protecting human beings

A01F 29/22

. . Arrangement of knife sharpening devices