

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](#))

Guidance heading:

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

Guidance heading:

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](#) }

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 twisters }
- 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 2025/2045 Unloading arrangements including a conveyor belt for transferring the material to a hopper
- A01F 2025/2054 Machinery for cutting successive parallel layers of material in a trench silo (for shredding [A01F 2025/2063](#))
- A01F 2025/2063 Machinery for shredding successive parallel layers of material in a trench silo
- A01F 2025/2072 Scoops with an extracting tool mounted inside or in the vicinity of said scoop
- A01F 2025/2081 Hydraulic features of the trench silos unloading devices, e.g. hydraulic circuits
- A01F 2025/209 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