CORN-SILKING MACHINE.


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To all whom it may concern:

Be it known that I, JOHN H. MAGEE, a citizen of the United States, residing at Carthage, in the county of Jasper and State of Missouri, have invented certain new and useful Improvements in Corn-Silking Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification:

My invention relates to that class of machines utilized for separating silk and particles of husk and cobs from green corn cut from the cob preparatory to preserving and canning.

The invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure 1 is a view in side elevation of my machine. Fig. II is a top or plan view. Fig. III is a vertical longitudinal sectional view taken on line III III, Fig. II. Fig. IV is a view taken on the section-line IV IV, Fig. III, with parts shown in plan and parts broken out. Fig. V is a detail view of the hinge connection between the jointed stretcher-frame located between the rollers of the endless-belt comb. Fig. VI is an enlarged cross-sectional view taken on line VI VI, Fig. IV, through the belt-comb stretcher-frame, one of the guard-strips, and a fragment of the belt-comb. Fig. VII is a detail view of one of the sockets in which the spindles of the upper belt-carrying rollers journal. Fig. VIII is a detail view of the lower belt-comb-carrying roller and stretcher-frame arm. Fig. IX is an enlarged sectional view taken on the line IX IX, Fig. Y.

1 designates the standards, and 2 the side pieces, of the frame of the machine.
3 designates a screen-frame pivotally hung upon swinging links 4, applied at their lower ends to the frame-standards 1. (See Fig. III.)
5 designates screen-wires arranged in series extending from front to rear of the screen-frame. The forward ends of the screen-wires 5 are suitably held in a cross-piece 7, while the rear ends of the wires are each formed with a curved return-bend 6, that is suitably fastened to a cross-bar 8, carried by the screen-frame. The screen, composed of the frame 3 and wires 5, is adapted to receive the cut corn, which is thrown thereonto, and the corn falls through between the screen-wires, while the silk and pieces of husk and cobs are caught by the wires 5 and gradually carried to the rear ends of the screen during agitation of the screen-frame through means of the pitman 9, operated as will hereinafter appear. As the silk and pieces of husk and cobs are conveyed by the shaking screen to the rear end of the screen they pass over the curved return-bends 6 of the screen-wires, falling readily therefrom into the trough 10, through which such silk and pieces of husk and cobs are discharged to the exterior of the machine.

The screen described is only intended to gather the main portion of the silk and the larger pieces of husk and discharge them with pieces of cobs from the machine, the small particles of silk and husk being gathered and separated from the corn by the auxiliary parts, to be hereinafter described.

11 designates a housing carried by and depending from the screen-frame and within which the corn falls as it descends from the screen-wires 5.
12 designates the drive-shaft of the machine, which is provided with power belt-pulleys 13, the said shaft being mounted in suitable bearing-boxes 14. (See Figs. II and IV.) On this drive-shaft is a cam 15, that receives the connection of the pitman 9, through means of which the screen-frame 3 and wires 5 are shaken or agitated, as hereinbefore stated.
16 designates side bars that are pivotally connected at their forward ends to the drive-shaft 12 by boxes 17. The side bars 16 extend in inclined positions rearwardly and downwardly, and their free rear ends are confined within keepers 18, wherein the bars may be held at any desired inclination by suitable means. I have shown the bars (see Fig. III) upheld by pins 20, inserted in holes 19, contained by the keepers 18; but they may be supported in any other desirable manner.
21 designates an upper roller having spindles 22, that are mounted in socket-bearing 23, carried by the side bars 16. (See Fig. VII.)
24 is a lower roller having spindles 25, that are removably seated in bearing-boxes 26, provided with hinged covers 27, whereby the spindles may be readily removed from their boxes when it is desired to do so for any
reason—such, for instance, as the removal of the belt-comb, to be presently described.

28 designates an endless belt arranged to travel on the rollers 21 and 24. The belt 28 is equipped throughout its extent with prongs 29, preferably of wire, whereby the belt and its prongs provide an endless comb that travels beneath the screen-wires 5 and receives the corn as it falls from said screen. The belt 28, with its prongs 29, I will hereinafter designate as a "belt-comb." As the corn falls upon the belt-comb 28 it is prevented from escape at the sides of the machine by guards 30, hinged at 31 to the housing 11 and connected to said housing by a slot-and-pin connection at 32, whereby the guards may be raised or lowered at their rear ends, according to the elevation of the free lower ends of the side bars 18.

20. The belt-comb 28 is driven by the roller 21. One of the spindles 35 of said roller is provided with a groove 32, (see Fig. IX.) that receives a tongue 33.

33 is a boxing carried by one of the side bars 16, that receives the extension 34 of a worm-wheel 35, mounted on the spindle 22 and held from turning thereon by the feather 36; that fits in the groove 32. By the use of the feather-and-groove attachment of the worm-wheel 35 to the spindle 32 the worm-wheel is incapable of turning without like movement of the spindle, whereas the spindle is capable of endwise movement within the worm-wheel and its boxing for the purpose that will hereinafter appear.

25. A worm-wheel 35 is driven by a worm 36, carried by a driven shaft 37, that is operated through the medium of a bevel-pinion 38, carried by the shaft 37, which receives the engagement of a bevel-pinion 39, carried by the driveshaft 12. The driven shaft 37 is mounted in brackets 40 and is provided at its inner end with a crank 41, to which is connected a pitman 42, the utility of which will be herein referred to.

45 designates two sections of a stretcher-frame, by which the rollers 21 and 24 are held separated a requisite distance to maintain the endless-belt comb in a taut condition. These frame-sections 43 are connected to the spindles 22 and 25 of the rollers 21 and 24 by arms 44, loosely applied to said spindles. The arms 44 are provided with slots 45, (see Fig. VIII.) that receive bolts 46, by which the arms are adjustably connected to the frame-sections, so that they may be adjusted to carry the rollers 21 and 24 farther apart or bring them closer together, according to requirements of the belt-comb. The sections 43 are joined by hinges 47 (see Figs. III and V) and are held by hooks 48 and eyes 49 (see Fig. V) or other suitable means whereby they may be maintained in line with each other beneath the belt-comb. The frame-sections being hinged together, they may be readily folded when the spindles of the rollers 21 and 24 are removed from their bearings on the side bars 18, and thus permit the easy removal of the endless-belt comb from the rollers when it is desired to remove it for repairs or other reason.

In order to prevent the corn from passing beneath the belt-comb at its edges, I provide guard- strips 50, mounted on the frame-sections 43, said guard-strips extending upwardly and having wings 51, that extend over the edges of the belt, as seen in Fig. VI.

To obtain the greatest efficiency in the separation of the silk from the corn it is necessary that the comb-belt be constantly shaken laterally with relation to the direction of its travel around the rollers 21 and 24, and to provide for such lateral movement I utilize the pitman 42, connected to the shaft 37, which is also connected to one of the frame-sections 43 at 45. (See Figs. III and IV.) As the pitman 42 vibrates the frame-sections 43 are oscillated laterally and carry therewith the rollers 21 and 24 through reason of the arms 44 bearing against the ends of said rollers, 90 and the corn is constantly agitated over the belt-comb, so that the silk and small particles of husk are caught by the prongs 29 and carried up over the upper roller 21, while the corn is gradually shaken downwardly and is discharged over the lower roller 24.

To provide for the cleansing of the belt-comb, I provide a rotary brush 52, (see Fig. III.) that is driven by a belt 53, applied to a pulley 54 on the shaft of said brush. The belt 53 receives power from a pulley 55 mounted on the driving-shaft 12. As the brush 52 revolves beneath the belt-comb it effectively wipes or brushes from the prongs thereof any silk or particles of husk that may adhere to said prongs.

I claim as my invention—

1. In a corn-silking machine, the combination of a screen composed of a frame, and screen-wires one end of each of which is formed with a curved return-bend projecting beyond said frame, from which collected silk is discharged, a discharge-spool carried by said frame beneath the return-bends of said wires, and an endless-belt comb arranged beneath said screen to receive material falling through said screen and subject said material to a further cleaning, whereby the corn is freed from all silk and pieces of cob by successive treatments in one passage through the machine.

2. In a machine of the character described, the combination of a screen, the pivotally-mounted side bars, rollers journaled to said side bars, an endless-belt comb arranged to travel on said rollers, and a sectional stretcher-frame arranged between said rollers and connected thereto, substantially as described.

3. In a machine of the character described, the combination of a screen, the pivotally-mounted side bars, rollers journaled to said side bars, an endless-belt comb arranged to travel on said rollers, a sectional frame and
adjustable arms carried by said frame and having connection with the spindles of said rollers, substantially as described.

4. In a machine of the character described, the combination of an endless comb, a frame upon which said comb is mounted, rollers carried by said frame, and guard-strips carried by said frame, said guard-strips being provided with bases fixed to the frame and having overhanging wings that project over the edges of said comb, substantially as described.

5. In a machine of the character described, the combination of a screen, a housing beneath said screen, an endless-belt comb arranged beneath said housing, and having an adjustable lower end, and guards pivotally connected to said housing above said comb, and having the lower end thereof adjustably connected to said housing, substantially as described.

JOHN H. Magee.

In presence of—

J. L. Moore,

L. N. Manley.