

J. C. McINTYRE.
CORN SILKING MACHINE.

No. 566,465.

Patented Aug. 25, 1896.

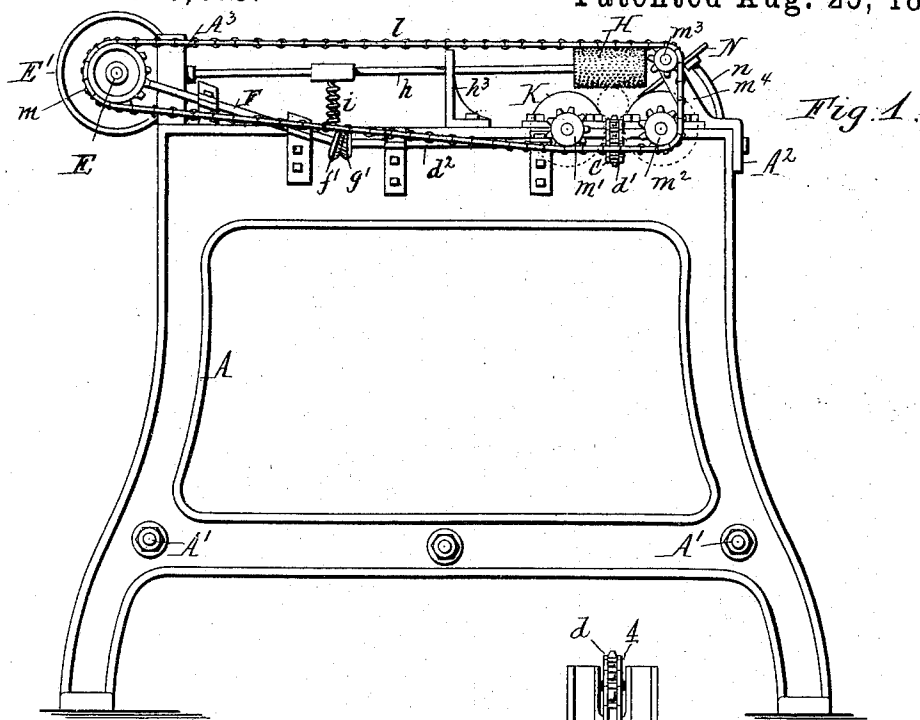


Fig. 1.

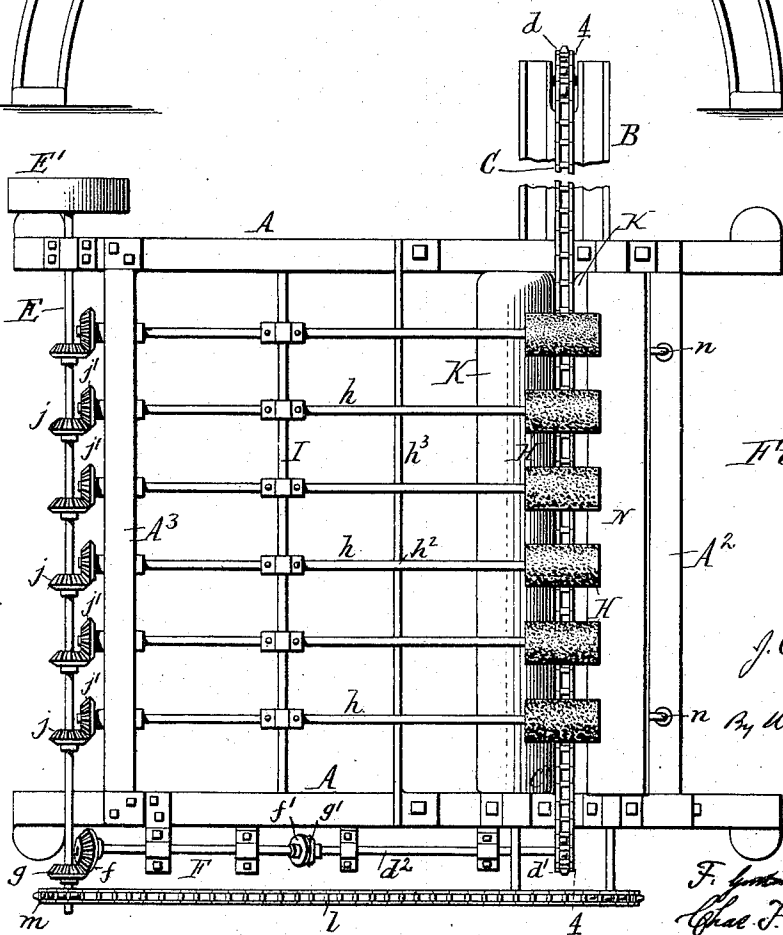


Fig. 2.

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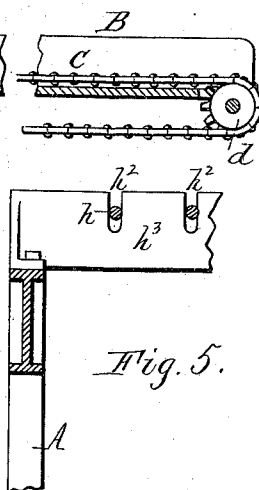
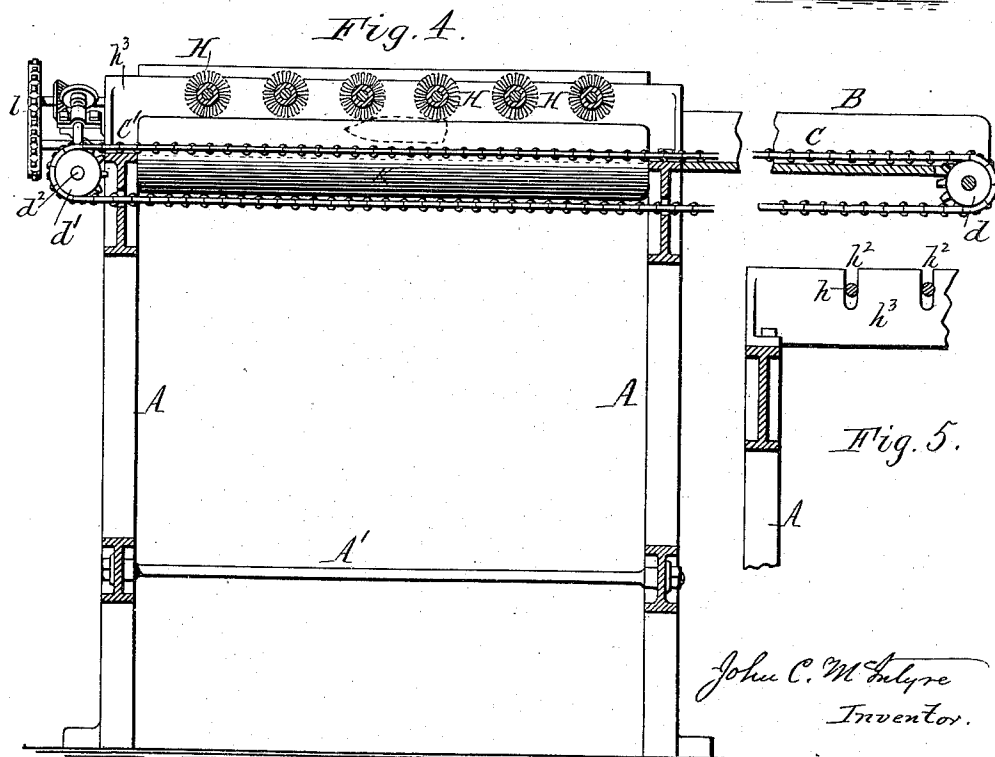
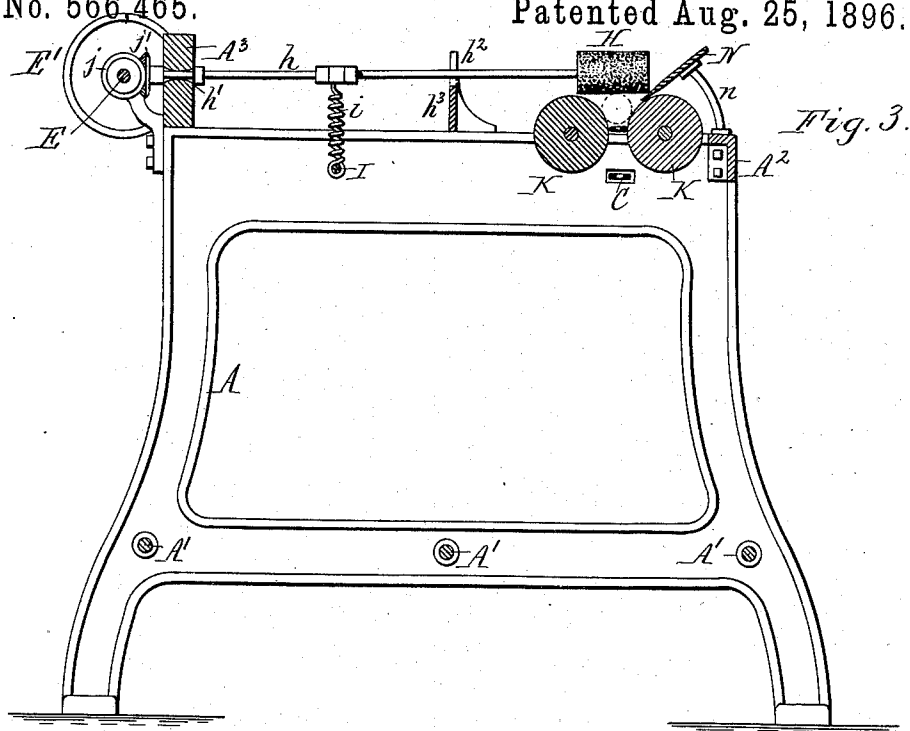
(No Model.)

2 Sheets—Sheet 2.

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Chas. F. Buckhardt } Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN C. MCINTYRE, OF FARNHAM, NEW YORK, ASSIGNOR OF THREE-FOURTHS TO THE SPRAGUE MANUFACTURING COMPANY, OF SAME PLACE.

CORN-SILKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 566,465, dated August 25, 1896.

Application filed March 6, 1895. Serial No. 540,719. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. MCINTYRE, a citizen of the United States, residing at Farnham, in the county of Erie and State of New York, have invented a new and useful Improvement in Corn-Silking Machines, of which the following is a specification.

This invention relates to corn-silking machines whereby the silk is removed from the ears after husking the same and before cutting off the kernels.

Among other devices a hand-brush has been employed for this purpose; but this practice is slow and requires a subsequent separation or screening of the kernels after being cut off the cob in order to completely remove the silk.

The object of my invention is to produce an efficient machine whereby the silk is thoroughly and expeditiously removed from the ears by the use of brushes.

In the accompanying drawings, consisting of two sheets, Figure 1 is a rear view of my improved machine. Fig. 2 is a top plan view thereof with a portion of the feed-trough and feed-chain broken away. Fig. 3 is a vertical cross-section of the machine. Fig. 4 is a vertical longitudinal section thereof in line 4 4, Fig. 2, with a portion of the feed-trough and feed-chain broken away. Fig. 5 is a fragmentary longitudinal section showing the front bearings of the brush-shafts.

Like letters of reference refer to like parts in the several figures.

A represents the upright end frames of the machine, which are connected together at their lower portions by longitudinal rods A' and at their upper portions by longitudinal bars A² A³.

B is a longitudinal feed-trough which is arranged at the front end of the machine and which receives the husked ears of corn to be silked.

C is a feed device or carrier whereby the ears are propelled through the feed-trough. This carrier preferably consists of an endless horizontal chain running around sprocket-wheels *d* *d'* and having its upper portion arranged in the bottom of the feed-trough, so that the ears placed in the trough rest upon the chain. The sprocket-wheel *d* is journaled

at the front end of the feed-trough, while the sprocket-wheel *d'* is mounted on a transverse shaft *d*², journaled in bearings secured to the adjacent end frame.

E is the main driving-shaft, which is mounted in bearings secured to the upper portions of the end frames A, and E' is the driving-pulley secured thereto. The shaft of the rear sprocket-wheel *d'* is driven from the main shaft by an intermediate inclined shaft F, turning in bearings secured to the adjacent end frame and provided at opposite ends with bevel-wheels *f* *f'*, which mesh, respectively, with bevel-wheels *g* *g'*, secured to the adjacent ends of the main shaft and the sprocket-wheel shaft *d*².

The lower portion of the feed-chain passes through openings formed in the end frames of the machine, as shown in Fig. 4.

K represents a pair of supporting-rollers, which are arranged lengthwise in front of the feed-trough B and on opposite sides of the upper portion of the feed-chain and which form a longitudinal guide channel or support for the ears as they pass through the machine. These supporting-rollers are separated or out of contact with each other, but at the same time are preferably arranged so closely together as to prevent the ears from resting on the adjacent portion of the feed-chain, as shown in the drawings. These rollers are rotated in the same direction so as to impart a rotary movement to the ears. They are mounted in bearings secured to the end frames of the machine and are driven by an endless chain *l*, running around a sprocket-wheel *m*, secured to the rear portion of the driving-shaft, similar wheels *m'* *m*², secured to the projecting rear ends of the roller-shafts, and an idler *m*³, journaled upon a standard *m*⁴.

H represents a series of rotary brushes arranged at intervals above the longitudinal guide-channel formed by the rollers K and adapted to remove the silk from the ears of corn and at the same time feed the same toward the delivery end of the machine. These brushes are mounted on the outer ends of transverse shafts *h*, which are capable of yielding vertically to permit the brushes to

adapt themselves to ears of various sizes. In the construction shown in the drawings the rear portion of each brush-shaft is supported in a bearing or opening h' , formed in the adjacent longitudinal bar A^3 and flared toward both ends, as shown in Fig. 3, to allow the shaft to swivel, while the front portion of the shaft is supported in an upright slot or open bearing h^2 , which confines the shaft against lateral displacement, but allows the necessary vertical play thereof. The slots h^2 are formed in an upright longitudinal bar h^3 , secured at its ends to the stationary end frames. Each brush-shaft is yieldingly held in its depressed position by a spring i , attached at one end to the shaft and at its other end to a longitudinal rod I , which is secured to the end frames.

The brush-shafts are driven from the main shaft by bevel-wheels j , mounted on the latter and meshing with similar wheels j' , secured to the brush-shafts. The brushes are rapidly rotated in the direction in which the ears pass through the machine and remove the silks from the ears and at the same time propel or brush the ears forwardly by the friction of their bristles against the upper sides of the ears. The frictional contact between the ears and the supporting-rollers K is sufficient to prevent the bristles of the brushes, which are comparatively soft, from rapidly sweeping the ears toward the delivery end of the machine. The brushes are preferably arranged so closely together that the advancing ears pass under one brush before being fully out of the reach of the preceding brush, so as to insure an uninterrupted feed of the ears past the series of brushes.

As both of the ear-turning rollers rotate in the same direction their opposing sides, which run in contact with the ears, move in opposite directions. The roller whose contacting side ascends has a tendency to lift the ears and discharge the same over said roller before they complete their course through the machine. To prevent this, a guard N is arranged adjacent to that portion of the periphery of said roller which faces the ears. An ear, when lifted by said roller, rides up the edge of the guard N and is thus temporarily held out of contact with the roller, allowing the ear to roll back upon the roller and preventing the same from being carried over the top of said roller. The guard N preferably consists of a sloping longitudinal board extending from end to end of the adjacent roller and supported by standards n , which are secured to the longitudinal bar A^2 .

In the use of my improved machine the ears of corn after being stripped of their husks are placed into the feed-trough, whence they are carried forward underneath and in contact with the first rotary brush by the endless chain C , after which they are propelled through the machine by the succeeding brushes in the manner hereinbefore described. At the same time that the ears pro-

gress through the machine they receive a rotary movement about their axis by the rollers K . The ears are thus subjected to the cleaning action of the brushes from end to end and on all sides thereof, thus effectually detaching the silk therefrom. The ears after passing the last brush drop upon the tail portion C' of the endless carrier, whereby they are discharged upon the floor or into a bin or receptacle.

By arranging the ear-turning rollers to bear against the under side of the ears and the silking-brushes to bear against the upper side thereof the brushes perform the double function of silking the ears and holding them down upon the turning-rollers, and the latter perform the double function of supporting the ears and turning the same.

By extending the carrier C from end to end of the machine, as shown, it serves both as a feed-apron for carrying the ears of corn from the feed-trough to the silking-brushes and as a delivery-apron for discharging the silked ears from the machine.

I claim as my invention—

1. The combination with a guide or support for the ears of corn, of rotary silking and propelling brushes arranged above said guide or support, with their axes crosswise thereof and adapted to run in contact with the ears and driving mechanism for turning the brushes in the direction in which the ears pass through the machine, whereby the ears are silked and at the same time propelled through the machine by the frictional contact of the brushes therewith, substantially as set forth.

2. The combination with a pair of rollers arranged to face each other and driven to rotate with their opposing surfaces in opposite directions, said rollers supporting the ears upon the upper downwardly-converging portions of their opposing surfaces and turning the ears while supporting the same, of a silking-brush which is arranged above said rollers and whereby the ears are held down upon the supporting-rollers, while it removes the silk from the ears, substantially as set forth.

3. The combination with a pair of rollers arranged to face each other and driven to rotate with their opposing surfaces in opposite directions, said rollers supporting the ears upon the upper downwardly-converging portions of their opposing surfaces, and turning the ears while supporting the same, of a silking-brush which is arranged above said rollers and transversely to the latter, substantially as set forth.

4. The combination with a pair of rollers arranged to face each other and driven to rotate with their opposing surfaces in opposite directions, said rollers supporting the ears upon the upper downwardly-converging portions of their opposing surfaces and turning the ears while supporting the same, of a silking-brush which is arranged above said roll-

ers, a feed-trough arranged in line with the upper opposing surfaces of said rollers, and a carrier running along the bottom of said trough and conveying the ears to said rollers, substantially as set forth.

5 5. The combination with a pair of rollers arranged to face each other and driven to rotate with their opposing surfaces in opposite directions, said rollers supporting the ears upon the upper downwardly-converging portions of their opposing surfaces and turning the ears while supporting the same, of a silking-brush which is arranged above said rollers and an endless carrier arranged between
10 said rollers and extending beyond both ends thereof, whereby the receiving portion of said carrier serves to feed the ears to the rollers and the tail portion of said carrier serves

to remove the ears from the roller, substantially as set forth.

20 6. The combination with a pair of longitudinal ear supporting and turning rollers driven to rotate in the same direction, of vertically-yielding shafts arranged transversely above said rollers, brushes mounted on said
25 shafts and adapted to run in contact with the ears of corn, and a carrier for delivering the ears of corn to said brushes, substantially as set forth.

Witness my hand this 24th day of December, 1894.

JOHN C. MCINTYRE.

Witnesses:

JNO. J. BONNER,
KATHRYN ELMORE.