

No. 727,875.

PATENTED MAY 12, 1903.

L. A. ASPINWALL.

CORN HUSKER.

APPLICATION FILED FEB. 3, 1902.

NO MODEL.

3 SHEETS—SHEET 1.

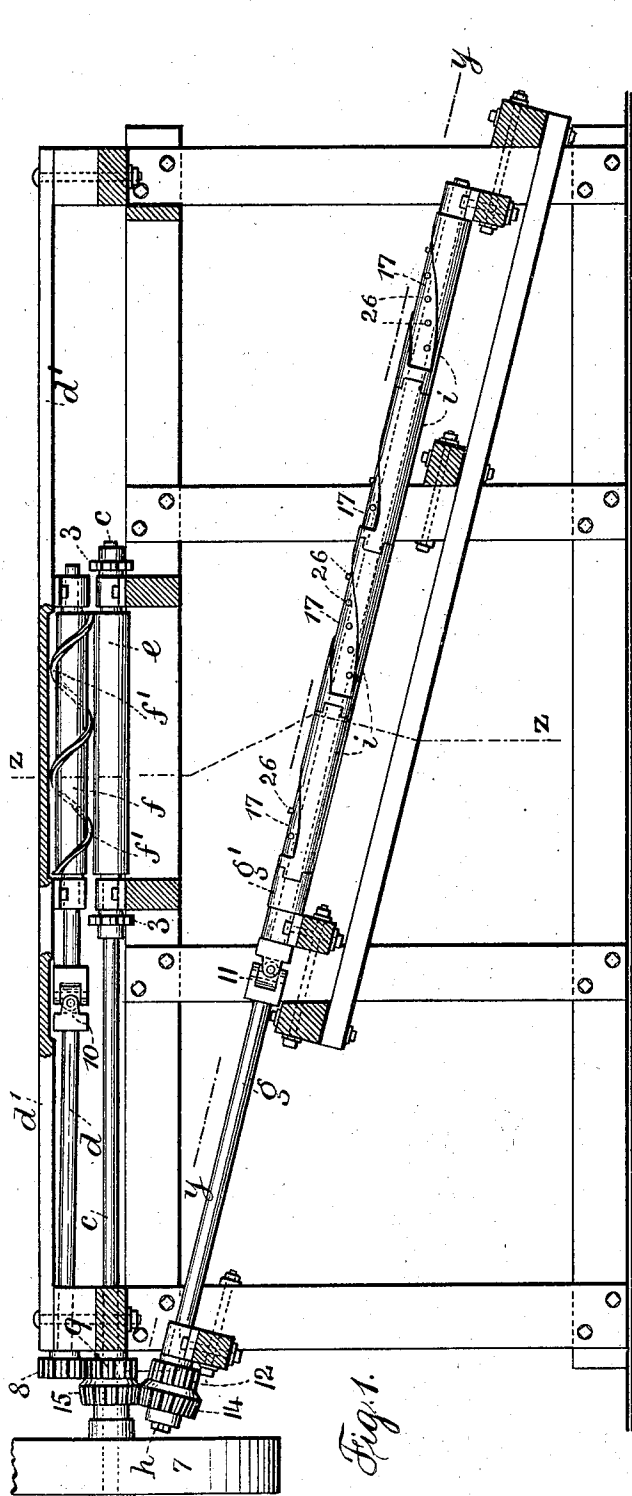


Fig. 1.

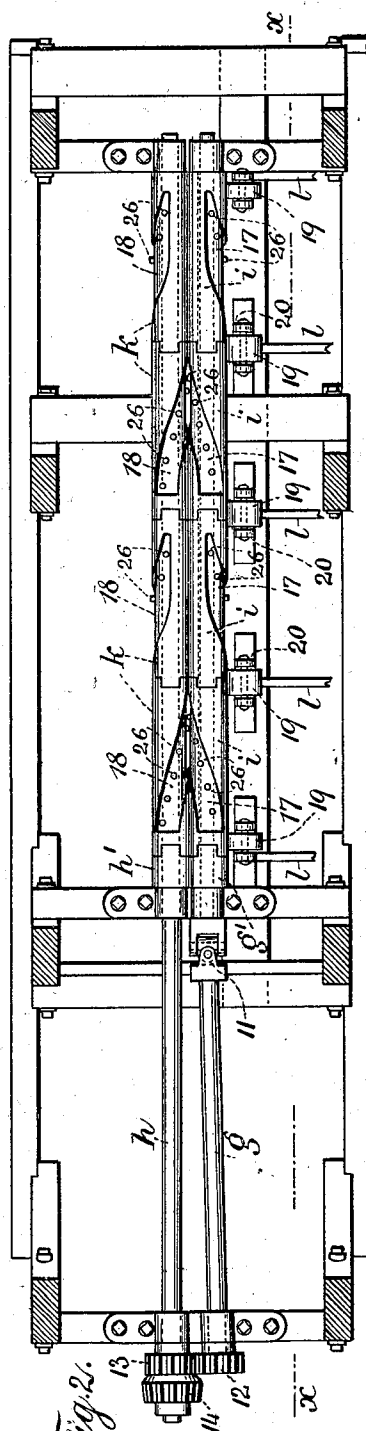


Fig. 2.

Witnesses:
J. Staley
Chas. Smith

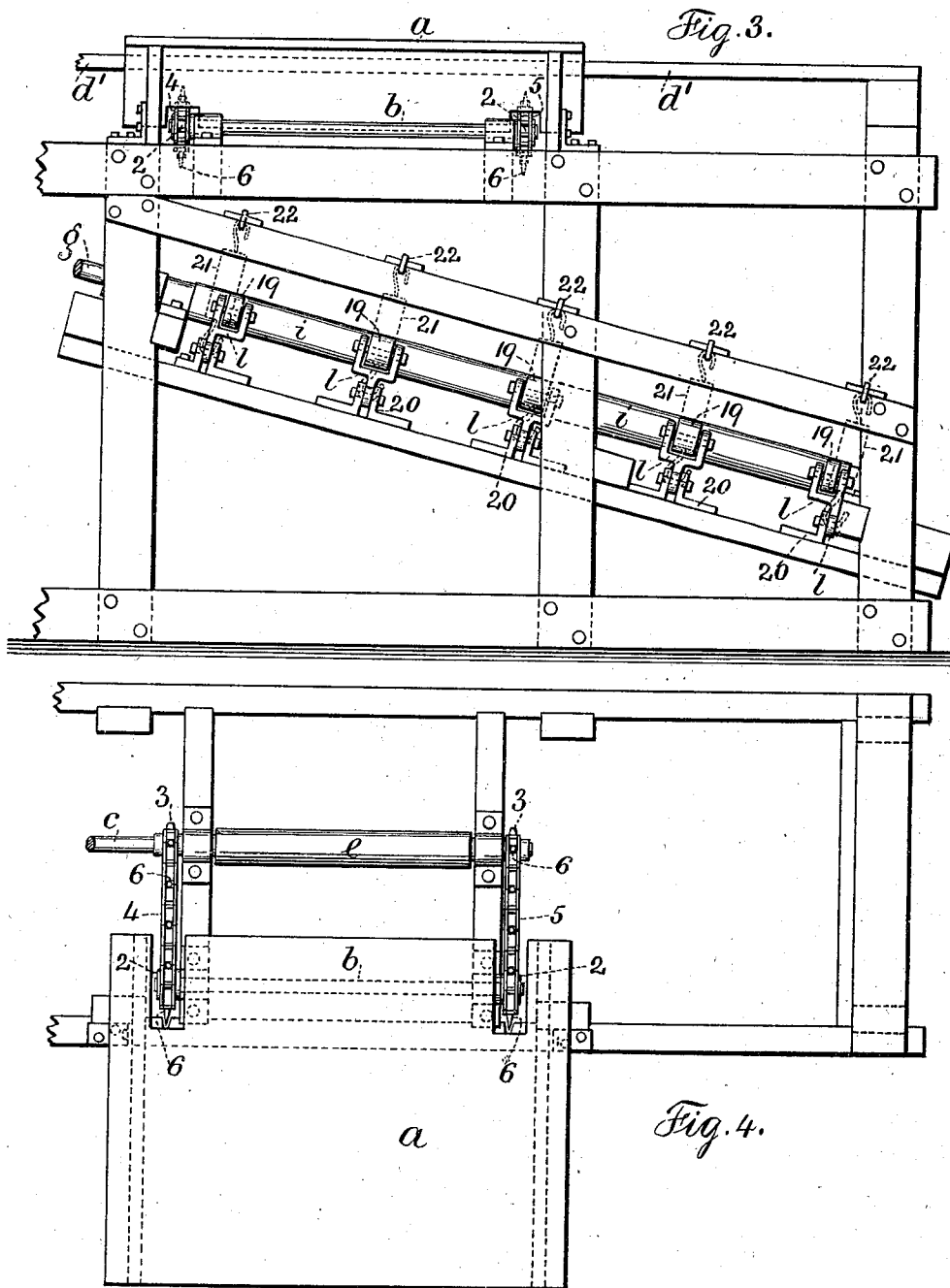
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3 SHEETS—SHEET 2.



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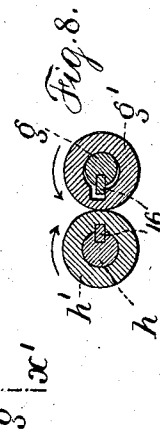
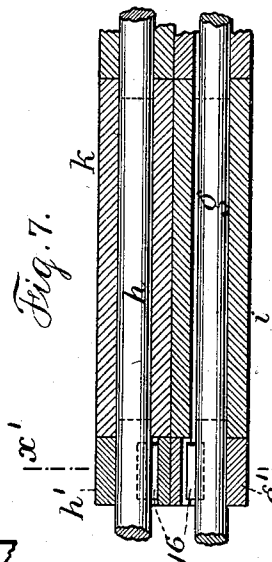
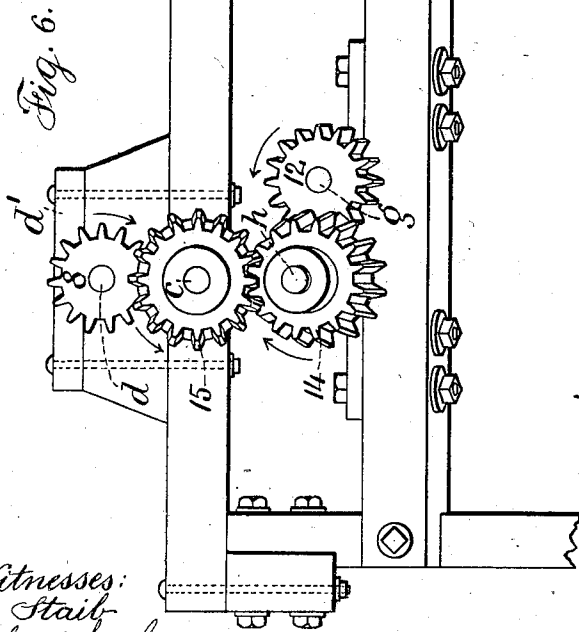
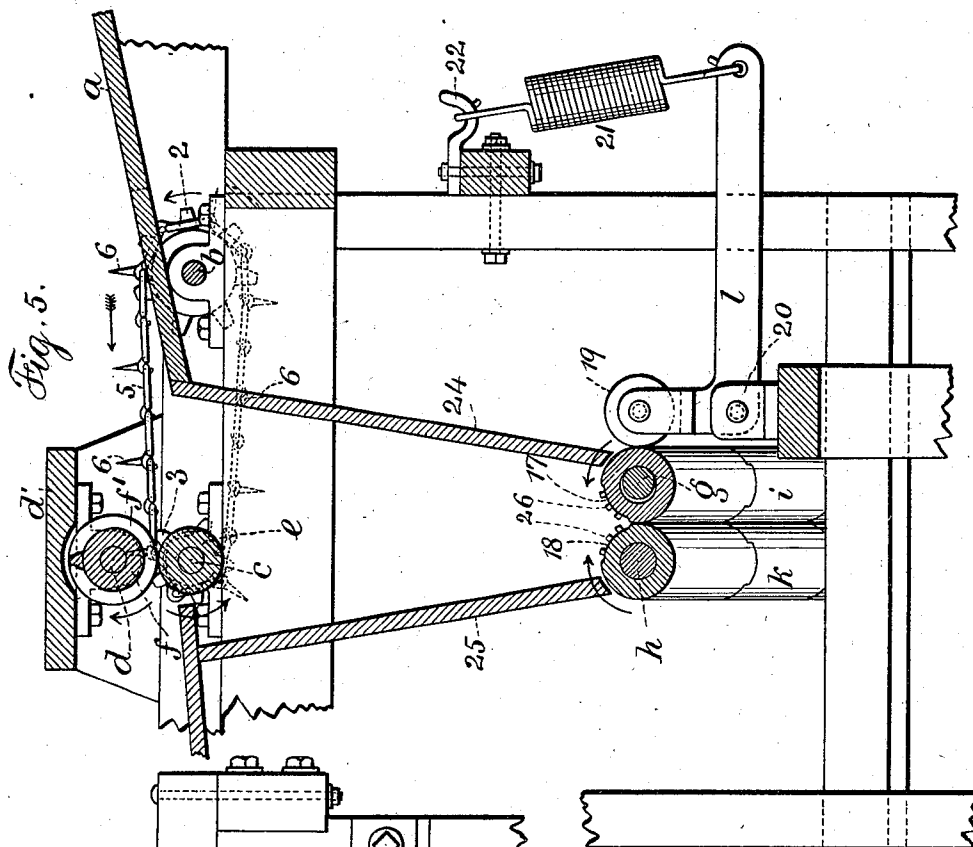
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APPLICATION FILED FEB. 3, 1902.

NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

LEWIS AUGUSTUS ASPINWALL, OF JACKSON, MICHIGAN, ASSIGNOR TO
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A CORPORATION OF MICHIGAN.

CORN-HUSKER.

SPECIFICATION forming part of Letters Patent No. 727,875, dated May 12, 1903.

Application filed February 3, 1902. Serial No. 92,239. (No model.)

To all whom it may concern:

Be it known that I, LEWIS AUGUSTUS ASPINWALL, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented an Improvement in Corn-Huskers, of which the following is a specification.

My invention relates to devices for receiving cornstalks with the ears thereon, feeding them progressively by chain devices to rollers that separate the ears from the stalks, the stalks passing on and the ears falling on inclined husking-rollers. These inclined husking-rollers are composed of end-locked sections threaded or slipped upon companion shafts, and said husking-rollers are provided with coinciding spirally-arranged depressions in pairs and projections in the depressions to nip and pull the husks from the ears. One of the picking-rollers separating the ears from the stalks is yielding, and one of the sectional husking-rolls is also yielding; but the latter is held to operative position by a series of spring-actuated pressure-rollers. The sections of this husking-roller are adapted to yield somewhat independent of one another, and the respective pressure-rollers bear upon the meeting ends of the sections. These devices are mounted upon and connected to a suitable frame.

In the drawings, Figure 1 is a longitudinal section and elevation, and Fig. 2 a sectional plan, representing my improvement, Fig. 1 being taken upon the line xx of Fig. 2 and Fig. 2 upon the line yy of Fig. 1, Fig. 2 being a view directly looking at the parts below the line yy . Fig. 3 is a partial side elevation, and Fig. 4 a partial plan, of the feeding mechanism, the inclined husking-rolls being omitted from Fig. 4. Fig. 5 is a vertical section and partial elevation on the line zz of Fig. 1. Fig. 6 is an end elevation representing the gears connecting the respective pairs of shafts. Fig. 7 is a horizontal and longitudinal section through one end of the husking-rolls, and Fig. 8 is a cross-section at $x'x'$ of Fig. 7.

I employ a suitable frame preferably composed of parallel longitudinal lower and upper members connected by vertical members

and transverse members. These parts constitute a strong and suitable framework for mounting the devices of the corn-husker and supporting the bearings of the parts, and as the same may be changed or varied at pleasure the frame portions need no further description.

The inclined feed-table a is mounted upon the framework of the machine by suitable supports, and $b\ c\ d$ are parallel shafts longitudinal of the machine in suitable bearings upon the frame, the shaft d being above the shaft c and the shafts c and d separated an appreciable distance from one another. A pair of sprockets 2 is upon the ends of the shaft b and another pair of sprockets 3 upon the shaft c , and chains 4 5 pass around the sprockets, and I prefer to provide alternate links of the chains with spikes 6, so arranged that the spikes of the chains move forward in parallel pairs and in lines parallel to the shafts $c\ d$. The cornstalks, with the ears, are placed upon the feed-table a with the larger ends of the stalks toward the right-hand end, Figs. 3 and 4. The stalks, with the ears, pass down the table, being fed by the hand of the attendant. They are taken up by the chains between the spikes, which carry the same forward to the rollers $e\ f$, which are upon the shafts $c\ d$, the roller f being provided with a spiral rib f' and the shaft of said roller being provided with suitable bearings secured to the under side of a board or bar d' , which is sufficiently flexible to be yielding, and provide for a slight upward movement of the roller f as the stalks pass between the rollers e and f . In this operation the spiral ribs indent and grip the stalks, moving the same through between the rolls and picking the ears from the stalks, so that the ears fall down upon the husking-rollers.

The shaft c is the power-shaft, and thereon I provide a pulley 7, and the shafts c and d are connected by gears 8 and 9, and as it is desirable to employ gears of appreciable size I provide the shaft d with a universal joint 10, which makes possible a certain divergence of said shafts necessary for the movement of the larger gears. The husking-rollers are provided with shafts $g\ h$, that are inclined,

the shaft *g* being at a slight inclination to the shaft *h* and the shafts being connected by gears 12 13, there being a universal joint 11 in the shaft *g*. The power-shaft *c* is provided with a bevel-gear 15, and the shaft *h* with a bevel-gear 14, meshing with one another to communicate the power of the shaft *c* to the shafts *h* and *g*. These shafts *g* and *h* are mounted in suitable bearings upon the frame of the machine, and they are provided with hubs *g'* and *h'*, there being ways within the said hubs to receive the splines 16 on the shafts *g* and *h*, so as to lock the hubs to the shafts and compel the parts to turn together.

15 The hubs *g'* *h'* at one end come adjacent to bearings on a transverse member of the frame, and the other ends of said hubs are provided with opposite notches on radial lines, forming clutch-faces.

20 *i* and *k* represent the removable sections forming the husking-rollers. These are provided with end notches and intermediate ribs on radial lines, the ribs on one part entering the notches on the adjacent part, so as to interlock or clutch the various parts of the husking-rolls and not only compel them to rotate with the shafts, but to be rotated by the hubs *g'* *h'*. These sections are threaded or slipped endwise upon the shafts to place before the lower ends of the shafts are passed into their bearings on the frame. The removable sections *i* of the husking-rolls are advantageously provided with a bore of the same size as the sections *k*; but the shaft *g* is smaller than the shaft *h*. The sections *k* fit snugly upon the shaft *h*; but the sections *i* are sufficiently loose to provide for a transverse movement and for the slight parting of the husking-rolls. These husking-rolls are made with coinciding spirally-arranged depressions 17 18 in pairs, there being series of projections 26 in the depressions, which projections are of a height substantially agreeing with the depressions, the projections of one longitudinal set of rolls *i* preferably coming intermediate to the projections of the sets of rolls *k*.

I provide spring-actuated pressure-rolls 19, mounted in pivoted levers *l*, the levers being connected to brackets 20, and I provide springs 21 from the free long end of said levers to hooks 22, secured to one of the members of the frame. These rollers bear at the meeting ends of the sections and tend to force the sections *i* against the sections *k*, the pivoted levers, however, swinging when the springs 21 yield on account of material passing between the husking-rollers.

I prefer to employ hopper sides 24 25 (see specially Fig. 5) and which are set at an inclination and extend upwardly from opposite sides of the husking-rolls *i* *k*, the one to the left hand of the rolls *c* *d* and the other to approximately the edge of the feed-table. These hopper sides serve to direct the falling ears as torn from the cornstalks onto the husking-rollers, and said husking-rollers revolving in the direction of the arrows tend to nip the

husks as portions of the husks pass down into the spirally-arranged depressions and are caught by the projections thereon. These engage and loosen the husks upon the ears, and the husks, being caught by the husking-rollers, are drawn from the ears thereby and passing through between the husking-rollers fall beneath the same, the ears having a progressive movement down the inclined husking-rollers, their husks being gradually-removed therefrom and the ears cleaned of husks, being delivered from the lower ends of the husking-rollers into a suitable receptacle. While I have shown the husking-rolls as each composed of four removable sections, I do not limit myself to the length thereof, as they may be of any desired length consistent with the thorough removal of the husks from the ears. As the husks are removed from the ears and pass between the husking-rolls the sections *i* yield independently because of the construction hereinbefore described and increase the applied pressure and the husking-surface capacity, and numerous points of contact are presented to the husks, which would not be the case with a solid roll.

Figs. 7 and 8 show the possibilities of movement of the sections *i* on account of the bore thereof being greater than the diameter of the shaft, and as these sections yield and wherever they yield in their length pressure is exerted against the spring-actuated pressure-rolls 19, causing the same to give and thereafter return the rolls to a normal position in performing their functions.

Should any part of the husking-rollers become damaged, it is only necessary to replace the part or section damaged, and the entire roller is not thereby disadvantageously affected. This is accomplished by removing the bearing at the lower ends of the husking-rollers and the sections from the shafts *g* *h*, so that the injured section may be replaced with a similar perfect section.

The sections *k* fit snugly upon the shaft *h*, and I prefer to employ the husking-rollers in sections, because if made in one piece they would be liable to warp and get out of shape, whereas in sections this liability is reduced to a minimum and the further advantage is obtained of replacing the smaller parts when an injury occurs rather than to be obliged to replace the entire roll.

While I have shown a pair of husking-rollers, I do not limit myself to employing a single pair, as another and extra pair may be employed and the ears when removed from the stalks so directed as to fall alternately on first one pair of rollers and then on another.

The devices comprising my improvement are simple, strong, and efficient, and the machine is so made that the parts are accessible and parts damaged may be easily replaced.

I claim as my invention—

1. In a corn-husker, the combination with devices for feeding the stalks and ears and

removing the ears from the stalks, of a husking-roller comprising a shaft, removable sections and means for connecting the sections together and to the shaft, a second yielding and parallel husking-roller also comprising a shaft, removable sections and means for connecting the sections together and to the shaft and spring-actuated devices for keeping the second husking-roller up to the first, substantially as specified.

2. In a corn-husker, the combination with devices for feeding the stalks and ears and removing the ears from the stalks, of a husking-roller comprising a shaft, removable sections end-interlocked and a hub on the shaft engaging the adjacent section or roll, a second yielding and parallel husking-roller also comprising a shaft, removable sections end-interlocked and a hub on the shaft engaging the adjacent section or roll, and spring-actuated devices for keeping the second husking-roller up to the first, substantially as specified.

3. In a corn-husker, the combination with devices for feeding the stalks and ears and removing the ears from the stalks, of husking-rollers comprising removable sections end-interlocked and shafts therefor passing through the said sections, hubs at one end of said rolls keyed to said shafts and engaging the adjacent rolls, and spring-actuated pressure-rollers and bearings therefor, said pressure-rollers coming against the meeting ends of the sections of the husking-rollers, bearings for the shafts and means for driving the same in unison, substantially as set forth.

4. In a corn-husker, the combination with devices for feeding the stalks and ears and removing the ears from the stalks, of a husking-roller comprising a shaft, removable sections end-interlocked and a hub on the shaft engaging the adjacent section or roll, a second yielding and parallel husking-roller also comprising a shaft, removable sections end-interlocked and a hub on the shaft engaging the adjacent section or roll, and spring-actuated pressure-rollers coming against the meeting ends of the sections, substantially as specified.

5. In a corn-husker, the combination with the husking-rolls and means for operating the same, of an inclined feed-table, the parallel shafts *b c*, sprockets carried thereby and chains around the sprockets, a shaft *d* over the shaft *c* and rollers *e f* mounted upon the shafts *c* and *d*, means for connecting the shafts and operating the same, a spiral rib on the roller *f*, a yielding support for the roller *f* and bearings for the roller connected to said support, substantially as set forth.

6. In a corn-husker, the combination with the husking-rolls and means for operating the same, of an inclined feed-table, the parallel shafts *b c*, sprockets carried thereby and chains around the sprockets, a shaft *d* and rollers *e f* mounted upon the shafts *c* and *d*, means for connecting the shafts and operating the same, a spiral rib on the roller *f*, a yield-

ing support for the roller *f* and bearings for the roller connected to said support, and spikes *6* connected to and projecting above the links of the chains *4 5*, and a universal joint in the shaft *d* to compensate for a slight divergence between the shafts *c* and *d*, substantially as set forth.

7. In a corn-husking machine, the combination with a feed-table, devices for receiving and progressively forwarding stalks with ears thereon and removing the ears from the stalks, of parallel inclined shafts *g h* and bearings therefor, a hub *h'* keyed upon the shaft *h* and coming at one end adjacent to one set of bearings, removable sections *k* surrounding the shaft *h*, and means for connecting the sections together and to the hub *h'* so that the parts turn together, a hub *g'* keyed to the shaft *g* but having a bore of larger diameter than the diameter of the shaft so that while the hub is loose upon the shaft it cannot rotate independent thereof, removable sections *i* surrounding said shaft *g* and each having a bore larger than the diameter of the shaft so that said sections are adapted to yield or move with reference to the shaft and without affecting the position of the shaft, means for connecting the sections *i* to one another and to the hub *g'* so that they are compelled to rotate together, and yielding devices bearing upon the meeting ends of the sections *i* so as to provide for the yielding movement of said sections and for returning them to their normal position, substantially as set forth.

8. In a corn-husking machine, the combination with a feed-table, devices for receiving and progressively forwarding stalks with ears thereon and removing the ears from the stalks, of parallel inclined shafts *g h* and bearings therefor, a hub *h'* keyed upon the shaft *h* and coming at one end adjacent to one set of bearings, removable sections *k* surrounding the shaft *h*, and means for connecting the sections together and to the hub *h'* so that the parts turn together, a hub *g'* keyed to the shaft *g* but having a bore of larger diameter than the diameter of the shaft so that while the hub is loose upon the shaft it cannot rotate independent thereof, removable sections *i* surrounding said shaft *g* and each having bores larger than the diameter of the shaft, so that said sections are adapted to yield or move with reference to the shaft and without affecting the position of the shaft, means for connecting the sections *i* to one another and to the hub *g'* so that they are compelled to rotate together, and yielding devices bearing upon the meeting ends of the sections *i* so as to provide for the yielding movement of said sections and for returning them to their normal position, the sections *i* and *k* forming the corn-husking rollers having spirally-arranged depressions in coinciding pairs with projections in the depressions rising from the surface thereof, substantially as set forth.

9. In a corn-husking-machine, the combination with a feed-table, devices for receiv-

ing and progressively forwarding stalks with ears thereon and removing the ears from the stalks, of parallel inclined shafts *g h* and bearings therefor, a hub *h'* keyed upon the shaft *h* and coming at one end adjacent to
 5 one set of bearings, removable sections *k* surrounding the shaft *h*, and means for connecting the sections together and to the hub *h'* so that the parts turn together, a hub *g'* keyed
 10 to the shaft *g* but having a bore of larger diameter than the diameter of the shaft so that while the hub is loose upon the shaft it cannot rotate independent thereof, removable
 15 sections *i* surrounding said shaft *g* and each having bores larger than the diameter of the shaft so that said sections are adapted to yield or move with reference to the shaft and without affecting the position of the shaft,
 20 means for connecting the sections *i* to one another and to the hub *g'* so that they are compelled to rotate together, and yielding devices bearing upon the meeting ends of the
 25 sections *i* so as to provide for the yielding movement of said sections and for returning them to their normal position, and a universal joint 11 in the shaft *g* providing for a slight divergence of part of said shaft with
 30 reference to the shaft *h*, gears connecting the said shafts, and means for operating the shaft *h* and the gears and shaft *g*, substantially as set forth.

10. In a corn-husking machine, the combi-

nation with a feed-table, devices for receiving and progressively forwarding stalks with ears thereon and removing the ears from the stalks, of parallel inclined shafts *g h* and bearings therefor, a hub *h'* keyed upon the shaft *h* and coming at one end adjacent to
 35 one set of bearings, removable sections *k* surrounding and fitting upon the shaft *h*, a hub
 40 *g'* keyed to the shaft *g* but having a bore of larger diameter than the diameter of the shaft so that while the hub is loose upon the shaft it cannot rotate independent thereof, remov-
 45 able sections *i* surrounding said shaft *g* and each having a bore larger than the diameter of the shaft so that said sections are adapted to yield or move with reference to the shaft
 50 and without affecting the position of the shaft, and clutch devices formed upon the respective ends of the said sections and in one
 55 end of the said hubs and interlocking, whereby the said parts are compelled to rotate together and yielding devices bearing upon the meeting ends of the sections *i* so as to provide for the yielding movement of said sections and for returning them to their normal position, substantially as set forth.

Signed by me this 18th day of December, 1901.

LEWIS AUGUSTUS ASPINWALL.

Witnesses:

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 GEO. N. WHITNEY.