

No. 618,052.

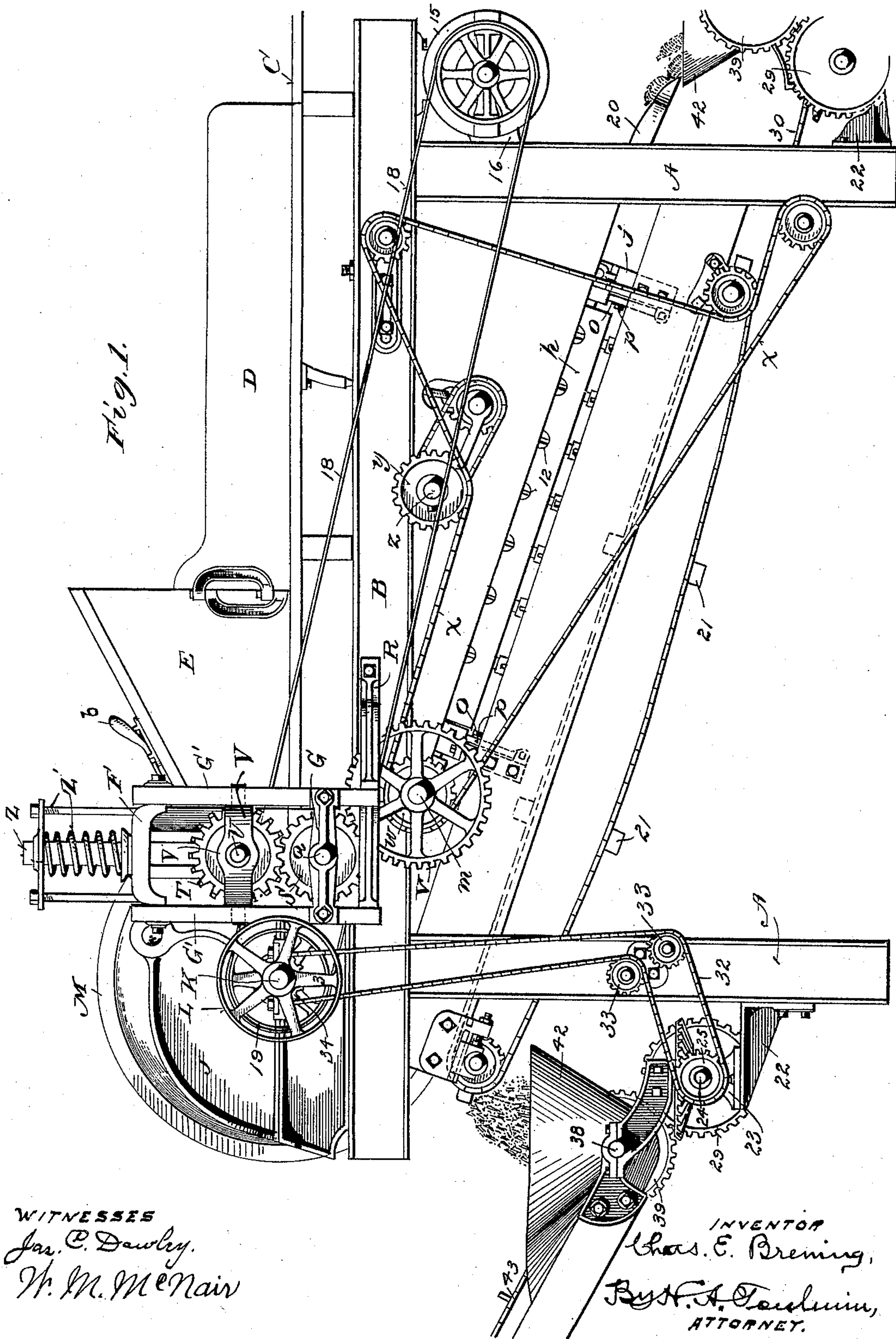
Patented Jan. 24, 1899.

C. E. BRENING.
CORN HUSKING MACHINE.

(Application filed Oct. 17, 1896.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES

Jas. C. Dawley.
W. M. McNair

INVENTOR

Chas. E. Brening,
By H. A. Tushman,
ATTORNEY.

No. 618,052.

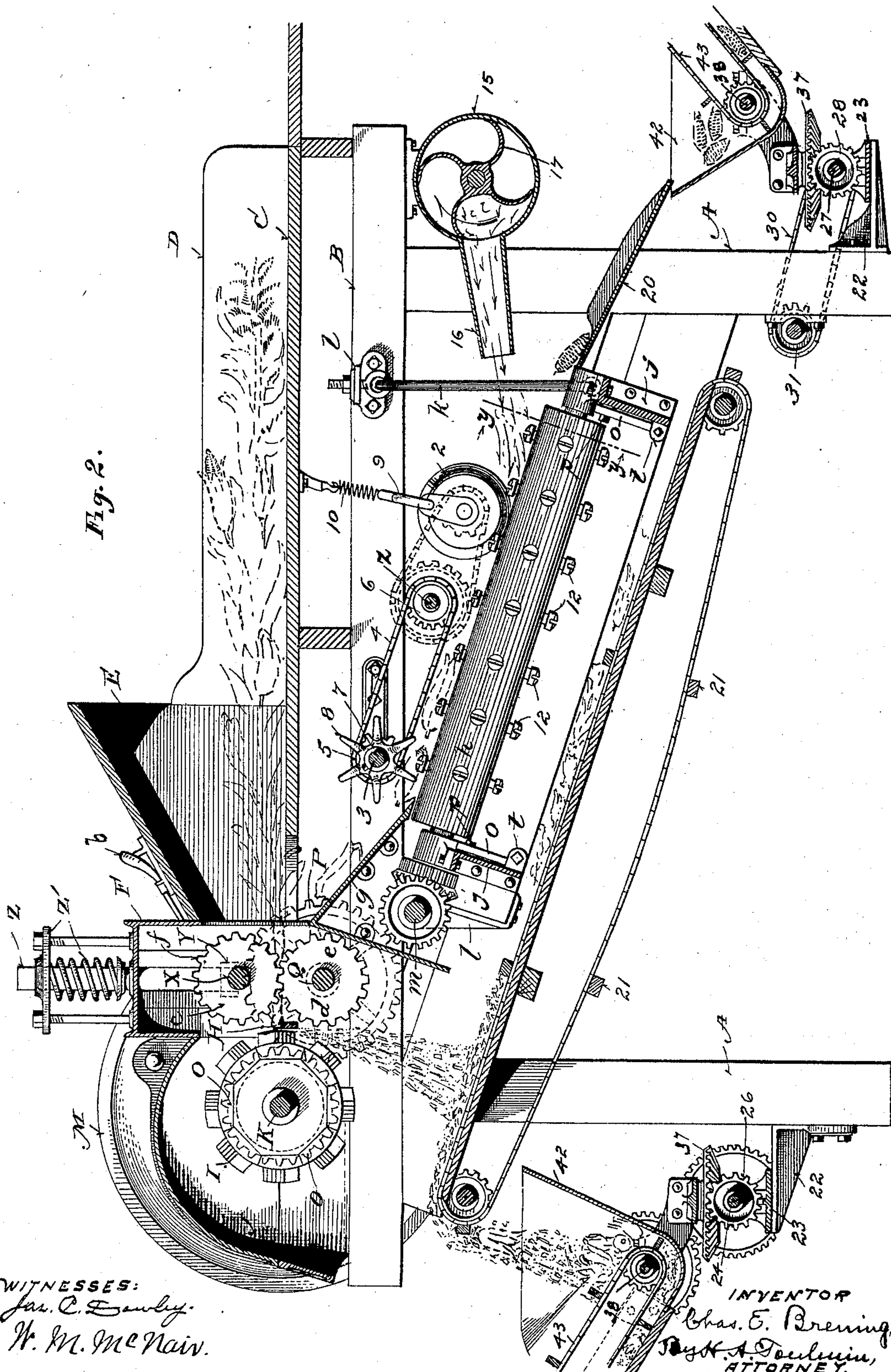
Patented Jan. 24, 1899.

C. E. BRENING.
CORN HUSKING MACHINE.

(Application filed Oct. 17, 1896.)

(No Model.)

3 Sheets—Sheet 2.



UNITED STATES PATENT OFFICE.

CHARLES E. BRENING, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE E. W. ROSS COMPANY, OF SAME PLACE.

CORN-HUSKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 618,052, dated January 24, 1899.

Application filed October 17, 1896. Serial No. 609,175. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BRENING, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Corn-Husking Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in corn-husking machines, being machines used to strip the husks from the ears of corn.

15 The special features will be hereinafter fully described, and particularly pointed out in the claims.

20 In the accompanying drawings, on which like reference letters and numerals indicate corresponding parts, Figure 1 is a side elevation of a corn-husking machine embodying my improvements; Fig. 2, a longitudinal vertical sectional view of the same, showing parts in elevation, the section being taken on the line $x x$ of Fig. 3; Fig. 3, a plan view of the machine with portions of the table broken away to show the parts below it; Fig. 4, a detail sectional view of a husking-roll with its spike or pin; Fig. 5, a detail plan view of the bushing for such pin; Fig. 6, a detail view, partly in section and partly in elevation, of the swinging elevator, the section being on the line $z z$ of Fig. 7; Fig. 7, a partial end elevation and sectional view of the lower part of said swinging elevator; and Fig. 8, a transverse sectional view showing the spring-lever bearing for the yielding husking-rolls, the section being on the line $y y$.

40 The letter A designates the legs or standards of a corn-husking machine with side beams B and the table C, having sides D, hood E, and standards F, in which are mounted bearings for the upper snapping-rolls, presently to be referred to. To the rear of the snapping-rolls are affixed knife-bar H and a revolving shredder I, which together shred off the ends of the cornstalks fed to them by the snapping-rolls as the latter nip off or sever the ears of corn while yet in the husks. A housing J covers the shredder. This shredder is 50 on the main shaft K, which is driven by a pulley L by power and carries a balance-

wheel M and a pinion O, meshing with a spur-gear P on the shaft Q of the lower snapping-roll, which shaft is mounted at one end in the lower part of the standards F (see Fig. 2) 55 and at the other end in a bearing G, secured to post G', supported by a bracket R, fastened to the side bar or rail of the machine. A pinion S on this end of the shaft Q meshes with a pinion T, whose teeth are slightly 60 rounded, (see Figs. 1 and 2,) mounted on a short shaft U, carried at one end in a bearing V, swiveled in the posts G', and connected at the other end by a universal joint W (see Fig. 3) to the shaft X (see Fig. 2) of 65 the upper snapping-roll. This shaft X is mounted under yielding bearings Y, fitted to slide in the standards F, and held down by a rod Z and spring device Z'. When this upper snapping-roll is lifted more or less, the uni- 70 versal joint W compensates for it and tilts the short shaft U in its swiveled bearing V, and the rounding form of the teeth of the pinion T keep their mesh with the pinion S.

75 The spur-gear P is connected and disconnected with and from the shaft Q of the lower snapping-roll by a clutch a and lever b . (See Fig. 3.) This brings me to a description of the snapping-rolls, which are shown at $c d$ in Fig. 2 and have corrugated surfaces, forming 80 longitudinal ribs or teeth f , which mesh with one another, as shown, and have the effect of crushing the stalks ready for the shredder I to act on them, and the effect also of nipping the ears and husks from the stalks, causing 85 them to drop upon the incline g and pass to the husking-rolls. To mere appearances it would look as though these snapping-rolls would take hold of the husk and draw the ear in and mash it; but in practical operation, as 90 ascertained in these machines, such is not the case, but, rather, the desired operation of snapping the ears from the stalks is rapidly and satisfactorily performed, the stalks passing on between such rolls and the ears and 95 husks dropping down. The ribs f nip off the ears in a rapid and admirable manner just where the stem joins the husk and ear to the stalk.

The husking-rolls h and i are mounted, as 100 usual in these machines, in suitable bearings carried by a stout frame j (seen more clearly

in Fig. 8) and supported by the adjustable hanger-rods *k* (see Fig. 2) at one end and at the other by a bracket *l*, hung from a transverse shaft *m* in suitable bearings secured to the general frame. So far these features are not peculiar, the only novel feature in the parts now being described being the peculiar spring-lever for the rollers *i i*, each of these rollers working in conjunction with a roller *h*. These peculiar spring-lever bearings are used one at each end of each roller *i i*, and by referring to Fig. 8 it will be seen to consist of a lever *o*, pivoted at *p* to the frame *j* and forming a bearing at the upper end for the shaft of said roller *i* and controlled at its lower end by a spring and rod in a manner to keep the roller *i* forced snugly against the roller *h*. To this end the lever *o* has a pocket *q*, containing a cup *r*, with a rod *s* extending through the cup and pocket and to a lug *t* on the frame *j*. The ends of the rod are upset or have nuts to prevent its being displaced, and a spiral spring *u* around the rod fits in the cup at one end and presses against it at that end and against the lug *t* at the other, thus forcing the roller *i* against the roller *h*. The cup *r* merely supports the spring, and the pocket *q* is merely a convenient means of engaging the rod and spring with the lever. One of these bearings is provided, as above intimated, for each of the husking-rollers *i* at each of its ends, and the effect is to render these rollers yielding at either or both ends when an unusually thick or tangled husk is drawn between the roller *i* and its mate *h*. The lever form of bearing, with its spring, yields without binding or catching. These rollers are rotated by a system of pinions on their shafts and the shaft *m*, as shown in Figs. 2 and 3; but these features form no part of my improvements. This shaft *m* receives motion from the pinion *s*, as shown in Fig. 1, through the spur-gear *v*. This shaft *m* also operates, through its sprocket-pinion *w* and sprocket-chain *x*, the pinion *y* on a shaft *z*. (See Figs. 1 and 3.) The shaft *z* in turn rotates each of the ear-revolving rollers 2 through suitable sprocket pinions and chains, and also rotates a feeder-shaft 3, through a sprocket-chain 4, sprocket-pinions 5 and 6. (See Figs. 2 and 3.) The shaft 3 is mounted in suitable bearings at the sides of the frame and carries for each pair of husking-rollers a feeder composed of a hub 7, with a series of bifurcated or divided arms 8, which take hold of the ears of corn with their husks and positively force them down the husking-roller, so that there is no lodging or delay at the foot of the incline *g*, thus accelerating the work. The form of these arms 8 is advantageous in the work.

The rollers 2 are supported by spring-bearings involving a bar 9 and a spring 10; but these form no part of my invention.

It will be seen that the husking-rolls *i* are grooved circumferentially at 11 and that the husking-rollers *h* are armed with teeth or

spikes. My improvement at this point relates to the character of these teeth or spikes. They consist of screws 12 and bushings 13, screw-threaded to receive said screws and also to screw into sockets in the rollers *h*. (See Fig. 4.) These sockets are notched at 14, so that they may be engaged with a screw-driver or other device to screw them in and out of their sockets. The screws 12 frequently break, and if screwed directly into the rollers it is not possible to remove the fragment without more or less injury to the surface of the roller and without much loss of time. With my construction the sockets are readily taken out and the fragment thus removed, when a new bushing and screw are applied.

Referring now to the blast mechanism for preventing the ears from escaping from the husking-rollers, it will be seen from Figs. 1 and 2 that I have secured a casing 15 to the machine, with its air-trough 16 pointing toward the husking-rolls just beneath the rollers 2. In the casing is mounted a fan-blower 17, driven by a belt 18, run from a pulley 19 on a shaft K. (See Fig. 3.) Any ear, with its husk, that escapes the rollers 2 is arrested by this blast and blown back or held back until caught by the pins or spikes and drawn between the husking-rollers, after which the ear passes on down to the chute 20. The husk being removed, the ear is not bulky enough for its weight and smoothness to be arrested by the blast. Then, again, it will be readily understood that any silk or light husks still remaining on the ear will be drawn into engagement with the husking-rollers. This feature in practice is found to produce acceptable results.

At each end of the machine I mount swinging elevators, into one of which the husks and shredded cornstalks are delivered by an endless carrier 21 and into the other of which the husked ears are delivered. These products are thence delivered by the swinging elevators into receptacles or piles as desired. The elevators are swung from side to side by hand. The elevators are alike, and a description of one will describe the other. A bracket 22 is secured to the machine, and to it is fixed a plate 23, carrying a shaft 24, with a driving sprocket-pinion 25 and a bevel-pinion 26. The sprocket-pinion 25 receives motion from a chain 30, driven by a sprocket-pinion 31 at one end of the machine, such pinion 31 receiving motion from the chain *x*, before referred to, and at the other end of the machine the chain 32 operates a like sprocket-pinion 25, said chain passing over guide-pinions 33 and thence around a sprocket-pinion 34 on the shaft K. (See Fig. 1.)

A yoke 35 has a stud 36, pivotally mounted in the bevel gear-wheel 37, and to this yoke is secured the general structure of the elevator. An elevator-shaft 38 is driven by a spur-wheel 29 on a shaft 27, carried by the yoke 35, and having a bevel-pinion 28, which receives motion from the bevel-gear 37, which

latter is operated by the pinion 26. Thus rotary motion is given the shaft 38, while the elevator may swing from side to side. The bevel-gear 37 has a sleeve 40, mounted in a column 41 of the plate 23. A hopper 42 completes the elevator, together with an endless carrier 43.

Thus it will be seen that I have provided an improved form of nipping-rolls, a force-feed device, an efficient spring-lever bearing for the husking-rollers, a new type of pin or spike for such rollers, a combination of air-blast apparatus and inclined husking-rollers, and a swinging elevator of novel construction.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a corn-husking machine, the combination with one or more pairs of inclined revoluble husking-rollers, of an air-blast device located and arranged to discharge such blast upon said rollers near their lower ends to arrest or drive back ears of corn in the husk.

2. In a corn-husker, the combination with one or more pairs of revoluble husking-rollers, of a revoluble force-feed device consisting of a shaft transverse to the rollers, and a hub thereon with a series of bifurcated arms, and means to rotate said feed device so that its arms sweep downward along the upper surface of said husking-rollers whereby the ears of corn are forced downward along said rollers.

3. In a corn-husking machine, the combination with inclined revoluble husking-rollers, a feeding device above said rollers, means to rotate said device so that it moves past the upper surfaces of said rollers in the gen-

eral direction of their incline, and an air-blast device located and arranged to discharge an air-blast upon said rollers near their lower ends, whereby ears of corn in the husks are fed downward, are arrested until husked, the husks carried beneath the husking-rollers and the husked ears fed downward past said rollers and the blast, said blast device being adapted to arrest the ears only when in the husks and to permit them to escape when free of the husks, and also adapted to force the silk and light inner threads of husks into engagement with said husking-rollers, whereby the corn is more perfectly cleaned.

4. In a corn-husking machine, the combination with one or more pairs of inclined husking-rollers, a feeding device consisting of a series of revoluble arms and a transverse shaft supporting the same just above said rolls, means to rotate said shaft and arms so that the latter pass downward over said rollers and feed the corn down the incline of the rollers, and an air-blast fan discharging air upon said rollers near their lower ends, whereby the corn is positively fed downward in the husks, is arrested by the blast from escaping in the husks, is husked by the rollers and is allowed to pass downward after being husked, and the silk and light inner threads of husks are blown into engagement with said rollers.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES E. BRENING.

Witnesses:

J. F. MCGREW,
W. M. MCNAIR.