

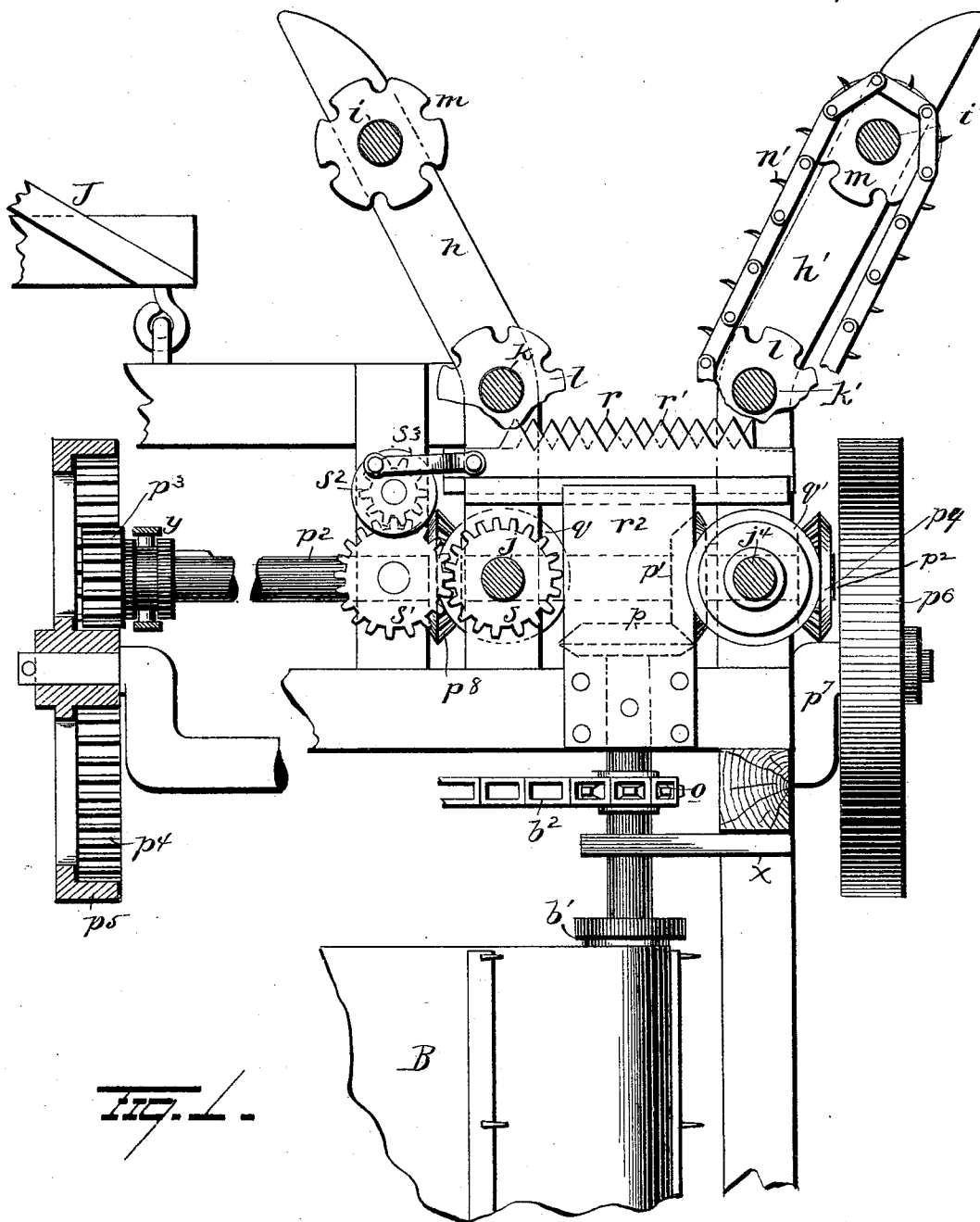
(No Model.)

W. C. DOUBLEDAY.
CORN HARVESTER.

5 Sheets—Sheet 1.

No. 512,541.

Patented Jan. 9, 1894.



Witnesses
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S. Nottingham

Inventor
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By R. A. Sumner.
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(No Model.)

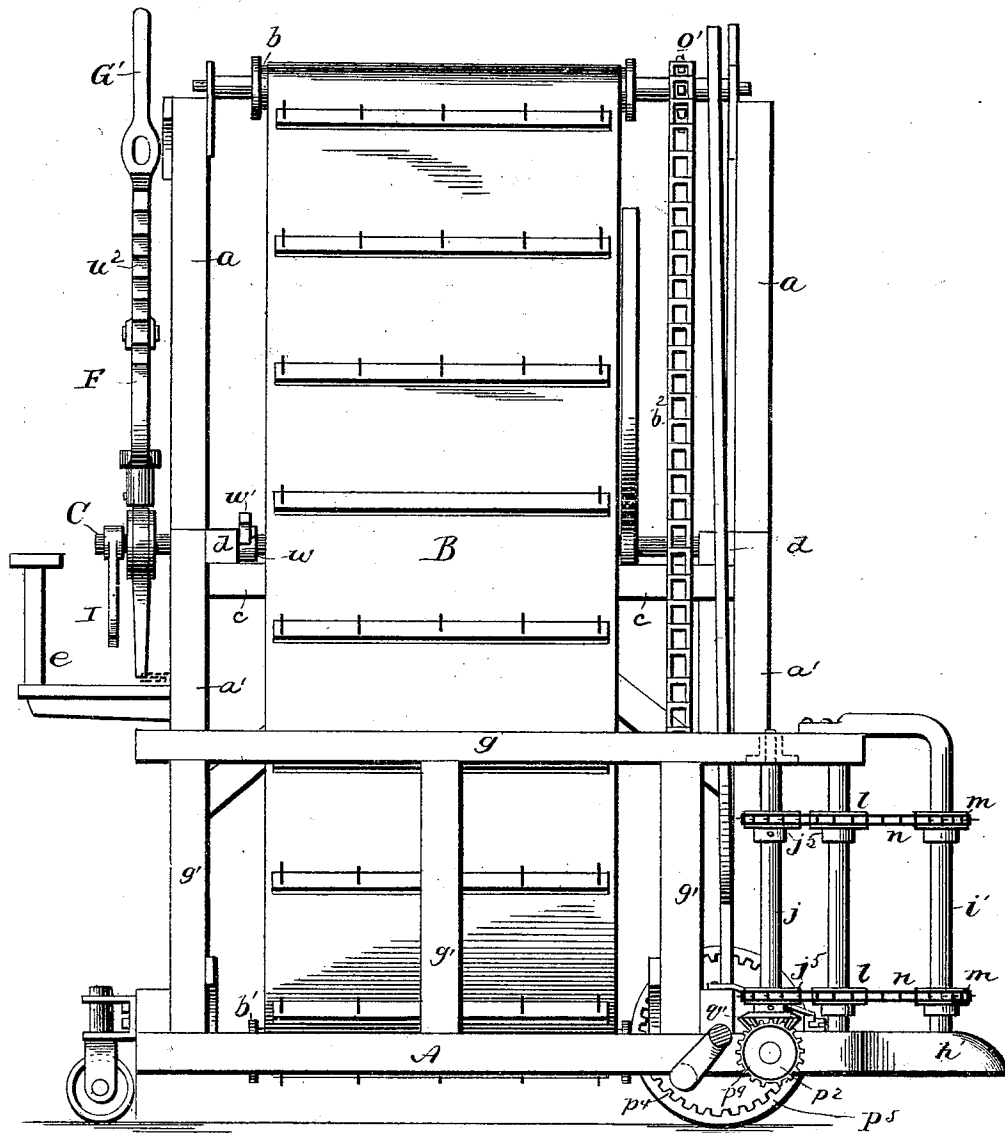
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Fig. 2.



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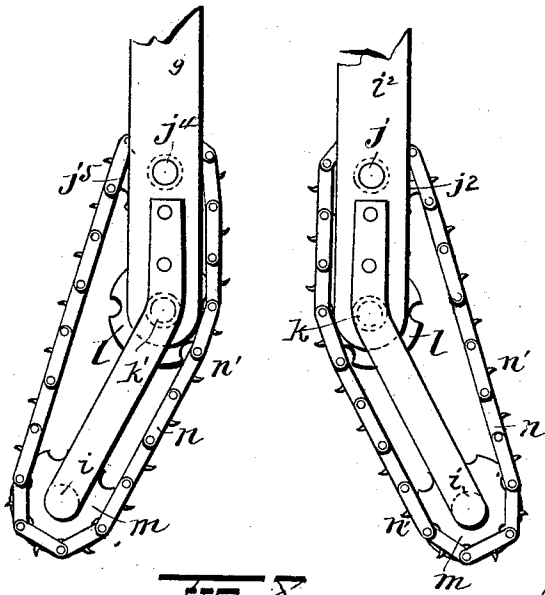
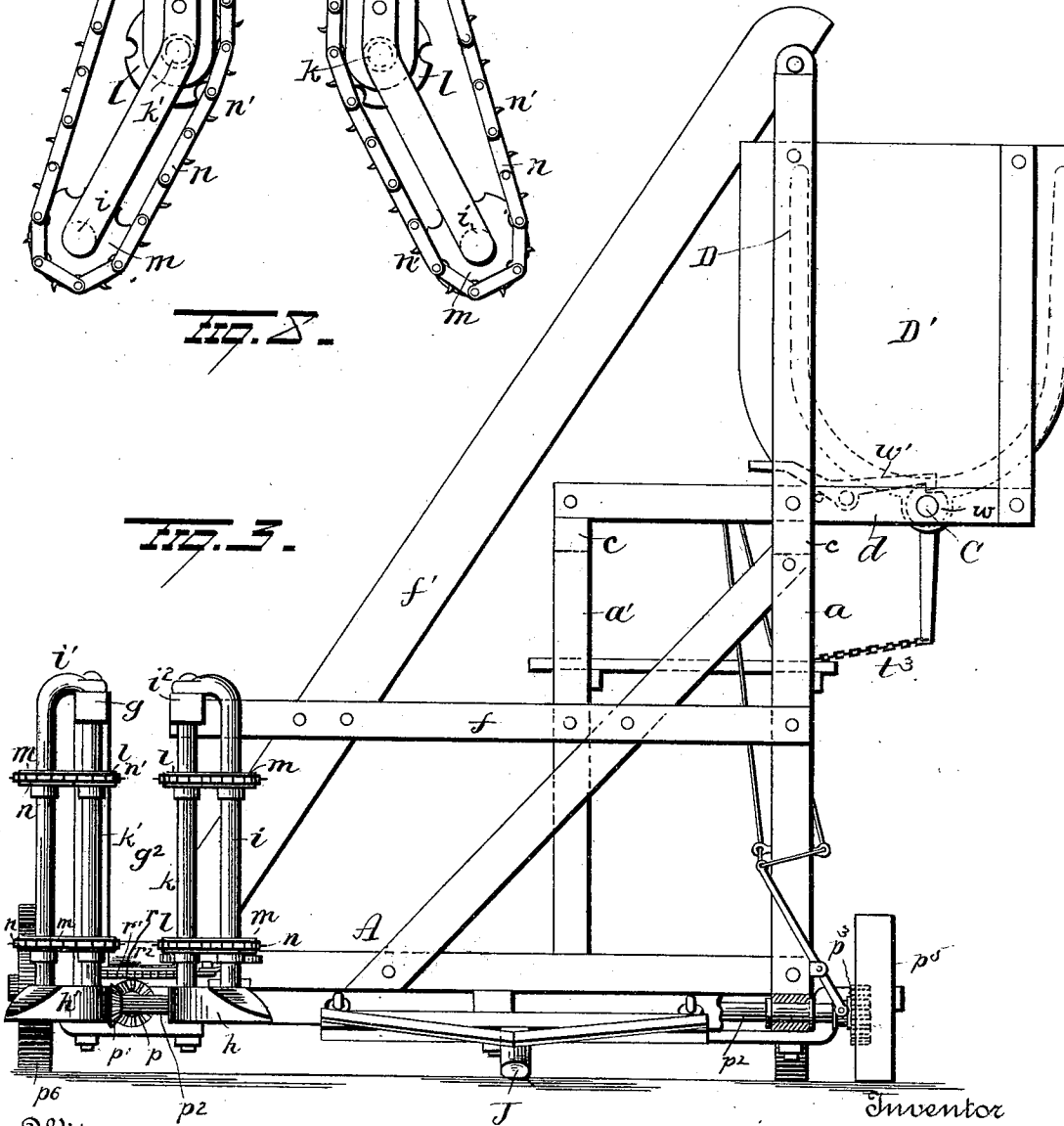


Fig. 8.

Fig. 9.



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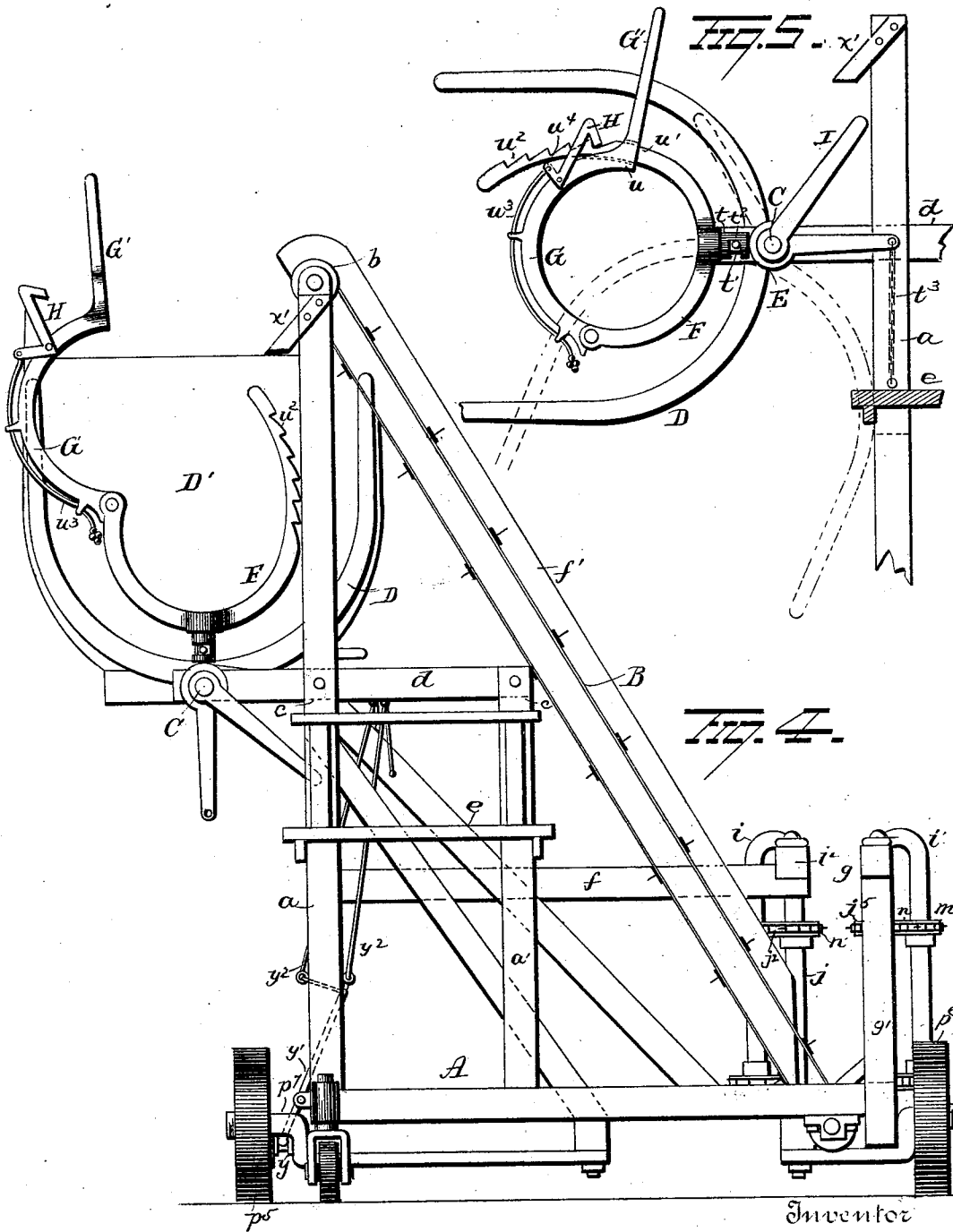
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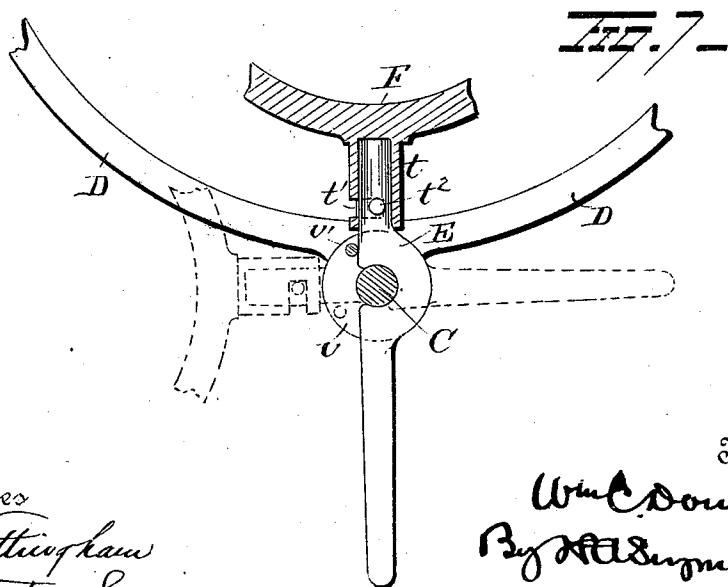
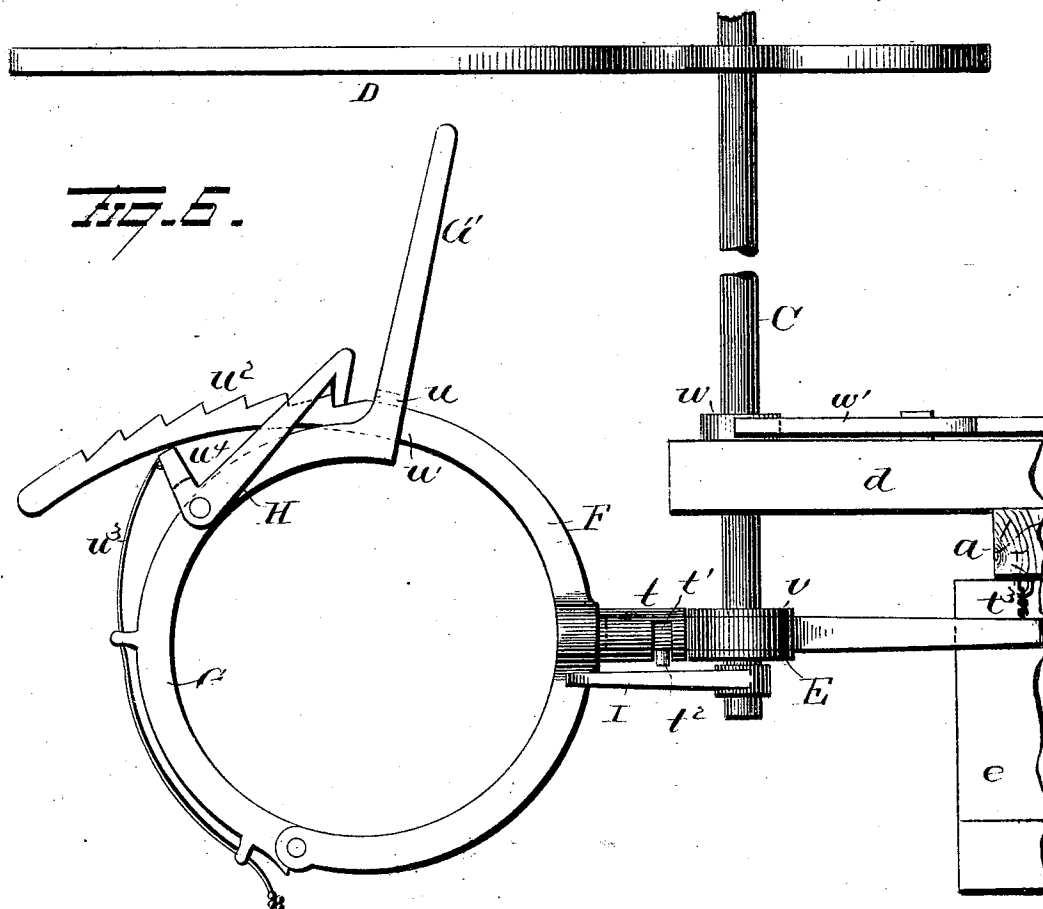
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UNITED STATES PATENT OFFICE.

WILLIAM C. DOUBLEDAY, OF COLUMBUS, OHIO.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 512,541, dated January 9, 1894.

Application filed September 9, 1892. Serial No. 445,428. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. DOUBLEDAY, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Corn-Harvesters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in corn harvesters,—its object being to produce a corn harvester which shall be of simple construction, sure in its operation and effectual in the performance of its functions.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings: Figure 1 is a plan view of a portion of the machine, parts being shown broken away and in section. Fig. 2 is a side elevation. Fig. 3 is a front view. Fig. 4 is an elevation showing the shocking devices in position to receive the corn. Fig. 5 is a detail view of the shocking mechanism, showing the positions of the parts when ready to discharge a shock. Fig. 6 is an enlarged detail view of the shocking mechanisms showing the positions of the parts when in the act of discharging a shock. Fig. 7 is a detail view illustrating parts of the shocking mechanism. Fig. 8 is a detached plan view illustrating the feed chains:

A represents a base or frame, from the ends of which standards *a* project upwardly, the upper ends of which are provided with suitable bearings for a roller *b* for the accommodation of an endless carrier hereinafter to be referred to. The standards *a* are braced by suitable timbers, and in proximity to said standards *a*, shorter uprights or standards *a'* are located. Bars or timbers *c* connect the standards *a'* at their upper ends as shown in Fig. 2 and resting on said cross timber, and a similar one, not shown, connecting standards *a*, *a'* and projecting laterally from the machine are lateral timbers *d*, which support the shocking mechanism as presently explained. A platform *e* is built at the rear end of the

machine, being secured to the rear uprights or standards *a*, *a'*,—this platform being intended for the accommodation of the operator.

A beam or bar *f* extends across the front of the machine at a point above the base or frame *A*, and is secured to a diagonally disposed timber *f'*, which extends from the base *A* to a point preferably slightly above the standards *a*. At the side of the machine farthest removed from the standards *a*, a beam *g* is located and supported at a point above the frame or base *A* about in line with the bar or beam *f*, by means of posts *g'*. From this arrangement of bars or beams it will be seen that a space *g²* will be left between the end of the bar *f* and the side of the bar or beam *g*. Below the bar or beam *f* a shoe or guide arm *h* projects forwardly and laterally and below the bar or beam *g* a shoe or guide arm *h'* projects forwardly and laterally, said shoes or guide arms projecting forward from the base or frame *A*, and laterally in opposite directions. A post or shaft *i* projects upwardly and is secured at its upper end to a bracket *i²* extending from the bar or beam *f* and at the lower end to the shoe *h* in proximity to the end thereof. A similar post or shaft *i'* is secured at one end to the end of the bar or beam *g* and at the other end to the shoe *h'* near its free end. The bracket *i²* is located at the end of the bar or beam *f* and extends parallel with bar or beam *g*. A shaft *j* is revolvably mounted in one end of said bracket and in the inner end of the shoe *h*, and carries two sprocket wheels *j²*. A similar shaft *j⁴* is revolvably mounted at one end in the bar or beam *g* and at the other end in the rear end of the shoe *h'*. This shaft also carries sprocket wheels *j⁵*. A fixed post or shaft *k* is located between the forward end of the bracket *i²* and the shoe *h*, and a similar fixed post *k'* is located between the end of the bar or beam *g* and the shoe *h'*. On the posts *k*, *k'* sprocket wheels *l* are loosely mounted. Sprocket wheels *m* are loosely mounted on the posts *i* and *i'* in line with the sprocket wheels *l*. Passing over these sprocket wheels are four (more or less) sprocket chains *n* having teeth *n'*,—said sprocket chains being adapted to feed the corn to an endless carrier *B*. The endless carrier *B* passes over a roller *b'* mounted

in the base A and over the roller *b* at the upper ends of the standards *a*. Sprocket wheels *o*, *o'* are secured to the shafts of the rollers *b*, *b'* and are connected by a sprocket chain *b²*, whereby motion may be imparted from one of said rollers to the other. The shaft of the roller *b'* is provided with a bevel gear *p*, which meshes with a bevel gear *p'* carried by a shaft *p²*. The shaft *p²* extends to the opposite side of the machine where it is provided with a pinion *p³* which meshes with an internal gear *p⁴* of the carrying wheel *p⁵*. The opposite carrying wheel *p⁶* is carried by a short axle *p⁷* secured to the base A. From this construction it will be seen that when the machine moves forward the endless carrier will be elevated. The shaft *p²* also has secured to it, bevel gears *p⁸*, *p⁹*, which mesh, respectively, with bevel pinions *q*, *q'*, carried by the revoluble shafts *j*, *j'*, whereby to impart motion to the feed chains *n*. Spanning the space between the shoes *h*, *h'* preferably at points in proximity to the inner ends of the flaring portions thereof, is a finger bar *r*, on which a reciprocatory knife bar *r'* is located. A feed board *r²* extends from the cutting mechanism thus produced to the base or frame A whereby to prevent the escape of grain. On the shaft *j* a gear wheel *s* is secured and adapted to mesh with a similar gear wheel *s'* supported by the frame A. The gear wheel *s'* meshes with a pinion *s²* located near one end of the knife bar. One end of a pitman *s³* is pivoted eccentrically to the pinion *s²* at one end and at the other end pivotally connected to the knife bar. In this manner motion will be imparted to the knife bar.

Mounted at its ends in the lateral timbers *d* is a shaft C, to which is secured in proximity to one end, a U-shaped bracket or holder D. This bracket or holder is intended to receive the butt end of the shock of corn and the ends of the stalks of corn comprising the shock will be maintained even with each other by means of an end board or abutment D'. In proximity to the opposite end of the shaft C, an arm E is loosely mounted, the upper end of which arm is adapted to receive the hollow shank *t* of a bracket or holder F, said shank being provided with an elongated slot *t'* for the reception of a pin *t²* projecting from the arm E, whereby a limited oscillatory motion of the holder F will be permitted. The lower end of the arm E is connected to one of the standards *a* by means of a chain *t³* or other flexible connection, whereby to limit the movements of the holder F in both directions. A clamping arm G is hinged to the bracket or holder F, a portion of said arm being preferably curved as shown in Fig. 6, and the free end made straight to produce a handle G'. At the junction of the handle G' and the curved portion of the clamping arm, a perforation *u* is made, for the reception of the arm *u'* of the holder F, whereby the clamping arm will be permitted to close down upon and clamp the corn within the

holder. A dog H is pivotally connected to the clamping arm G and adapted to engage teeth *u²* made in the arm *u'* of the holder F. A cord *u³* is attached to an arm *u⁴* of the dog and passed through suitable loops or eyes on the clamping arm,—by means of which cord the dog may be released from the ratchet teeth when it is desired to release a shock. Disks *v*, are preferably secured to the shaft C at opposite sides of the arm E, and passing through said disks, in front of the arm E, is a pin *v'*. A handle I is secured to the shaft C, by means of which to operate said shaft. A notched collar *w* is secured to the shaft C, and is adapted to be engaged by a pawl or dog *w'*, whereby to retain the holders D, F, in proper position to receive the corn. The holders D and F and the parts attached thereto constitute my improved shocking apparatus.

At the base of the endless carrier or apron, guide *x* is located, to prevent the escape of the corn. A similar guide *x'* is located at the top of the carrier to properly guide the heads of the stalks to the holder F.

A suitable tongue J for the accommodation of the draft animals will be provided as shown in Fig. 3.

During the operation of the machine, the corn will enter between the feeding chains, and be fed thereby to the cutting devices and thence the corn will fall backward upon the endless carrier, the portion upon the belt being of sufficient weight to counterbalance the butt ends so that none of the stalks will drop in the space between platform *r²* and the elevator. When these devices are in position to receive the corn they will assume the position shown in Fig. 3, and be retained in that position by means of the dog or pawl *w'*. When a sufficient quantity of grain has entered the holders D, F, it will be tied and the clamping arm G will be brought down upon it and made to clamp the shock in proximity to its head, the dog H retaining it in its clamped position by engagement with the ratchet teeth *u²*. It may be here stated that the dog *w'* only retains the holder D in its upright position and prevents the turning of the shaft C. The arm E bearing against the pin *v'* prevents the outward movement of the holder F when the shaft C is locked, and the chain *t³* prevents inward movement thereof. The shocking devices being now filled and clamped, the dog *w'* will be raised to release the shaft C, and the handle I operated to turn the holders to discharge the grain. The holder D will be inverted to release the butt of the shock. In the meantime the holder F has made but one-fourth of a revolution, being prevented from further movement by the chain *t³* and the pin *v'*. When the butt of the shock shall have been released as above set forth, the head being clamped in the holder F, will cause the holder F to turn and assume a horizontal position as shown in Fig. 6, and thus hold the shock suspended. The cord *u³* will now be pulled to release the dog

H, whereupon the clamping arm will fly back and release the shock, which will be thus discharged and made to stand upon the ground. The weight of the clamping arm when the holder is open will now cause the holder F to assume its position parallel with the holder D. The handle I will now be again grasped and the parts brought back to their normal positions ready to receive another supply of corn.

In order to provide means for throwing the operating mechanism into and out of gear, a clutch y will be provided on the shaft p^2 and adapted to throw the pinion p^3 into and out of gear. A lever y' is provided for operating said clutch and cords y^2 are connected to said lever for operating it.

Slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope. Hence I do not wish to limit myself to the precise details of construction herein set forth, but,

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

1. A shocking apparatus consisting of a rock shaft having a U-shaped bracket secured thereon, a holder loosely mounted on the shaft a suitable distance from the U-shaped bracket, said holder capable of turning axially, substantially as set forth.

2. A shocking apparatus consisting of a rocking shaft, a U-shaped bracket secured thereon, a holder loosely mounted on the shaft a suitable distance from the U-shaped bracket and capable of turning axially, and clamping mechanism connected with the holder, substantially as set forth.

3. In a shocking apparatus, the combination with an oscillatory shaft, of a holder secured thereto and adapted to receive the butt of a shock, an oscillatory arm mounted on said shaft, and a holder pivotally connected to said arm, substantially as set forth.

4. In a shocking apparatus, the combination with an oscillatory shaft, of a holder secured thereto, an oscillatory arm mounted on said shaft, a holder for the reception of the head of the shock, a hollow shank projecting therefrom having an elongated slot and adapted

to receive said oscillatory arm and a pin projecting from said arm and entering said elongated slot, substantially as set forth.

5. In a shocking apparatus, the combination with an oscillatory shaft, of a holder secured thereto and adapted to receive the butt of a shock, an oscillatory arm mounted on said shaft, a holder pivotally connected to said arm, disks carried by said shaft at opposite sides of said arm, a pin passing through said disks for constituting a stop for said arm, and a flexible connection between the lower end of said arm and the frame of the machine, substantially as set forth.

6. In a shocking apparatus, the combination with an oscillatory shaft, of a holder secured thereto and adapted to receive the butt of a shock, a holder having a swivel connection with said shaft whereby it is capable of turning axially upon the shaft and adapted to receive the head of the shock, a dog for locking said shaft, and a handle secured to the shaft for operating the holders, substantially as set forth.

7. In a shocking apparatus, the combination with a holder for the reception of the butt of a shock, of a holder for the reception of the head of a shock, a clamping arm hinged to said last mentioned holder and having an opening therein for the reception of the opposite arm of said holder, said opposite arm of the holder having ratchet teeth, a dog pivotally connected to said clamping arm and adapted to engage the ratchet teeth on the holder, and a cord attached to said dog for operating it, substantially as set forth.

8. A holder for clamping and holding the head of a shock of grain, comprising a curved body portion having ratchet teeth in one portion thereof, a hinged clamping arm having a perforation for the reception of the toothed portion of the holder, a dog for engaging said ratchet teeth and means for releasing said dog, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM C. DOUBLEDAY.

Witnesses:

ELMER P. GEOCH,
AUG. NEYDOR.