(No Model.) 3 Sheets—Sheet 1.

C. W. WARDWELL.

CORN HARVESTING MACHINE.

No. 360,069. Patented Mar. 29, 1887.

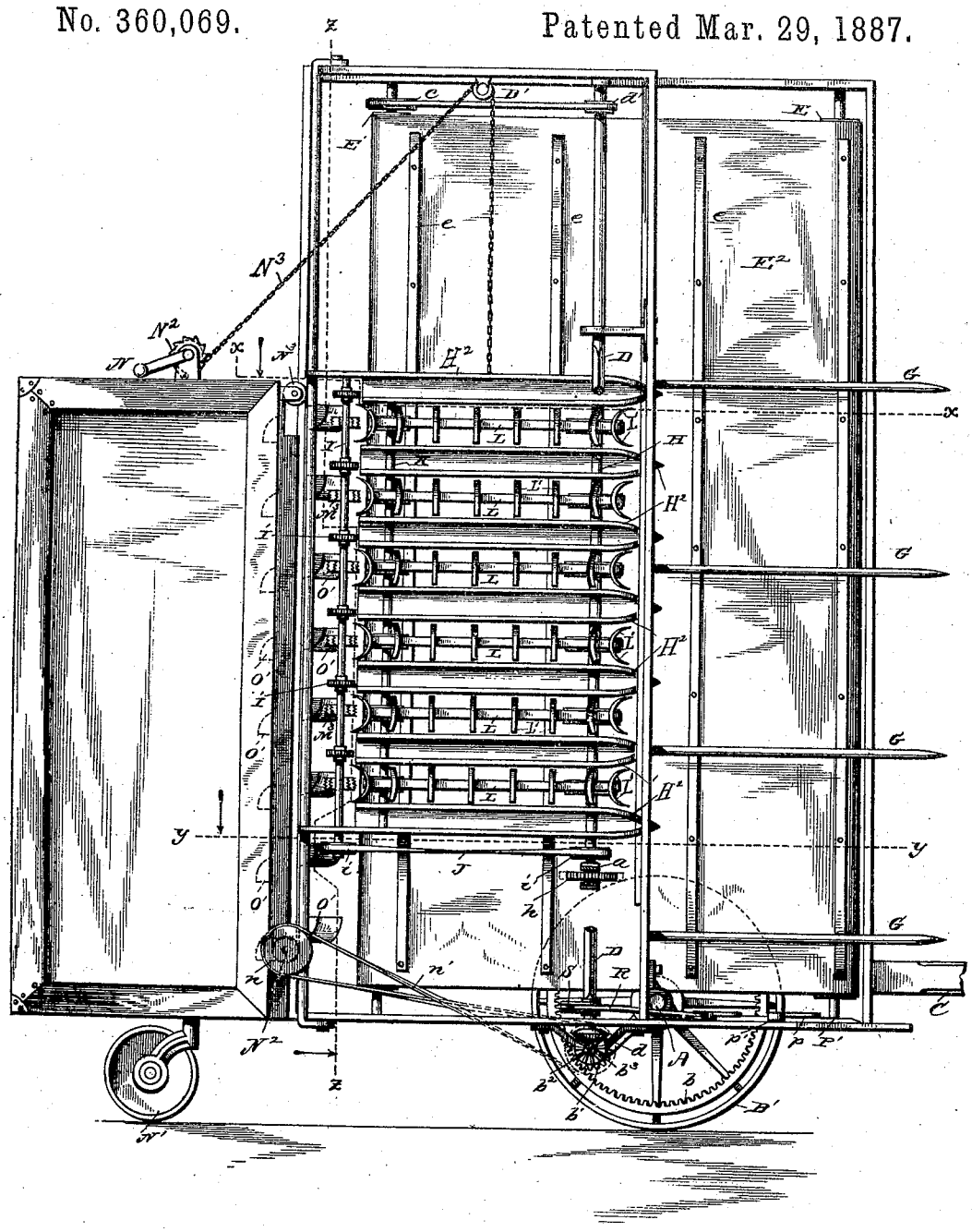

Fig. 1.

Witnesses
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Jno. W. Henderson.

Inventor
Chas. W. Wardwell.
By his Attorney
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(No Model.)

3 Sheets—Sheet 2.

C. W. WARDWELL.

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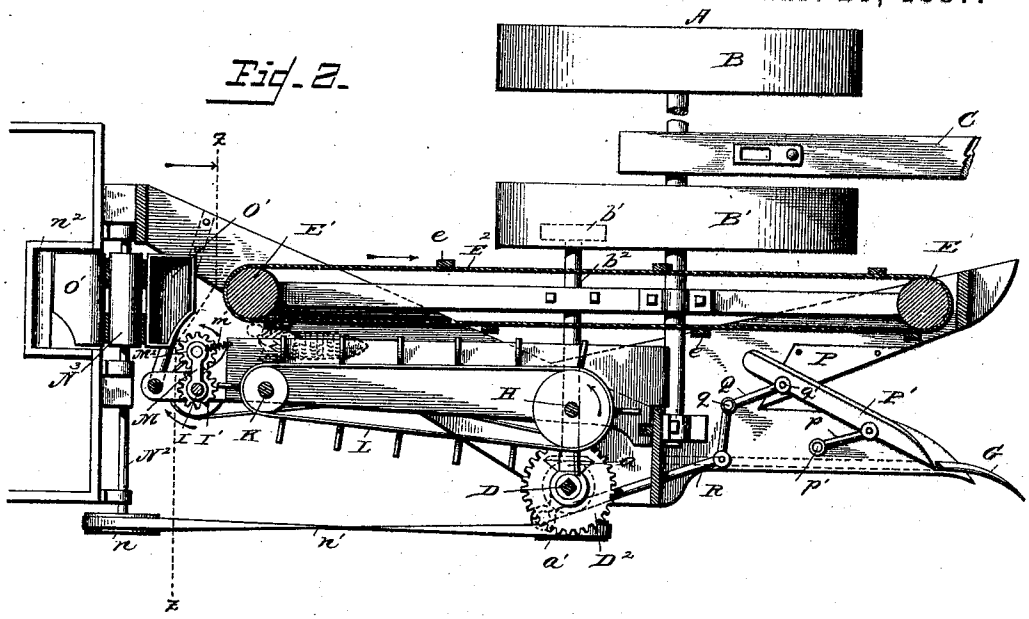
Fig. 2.



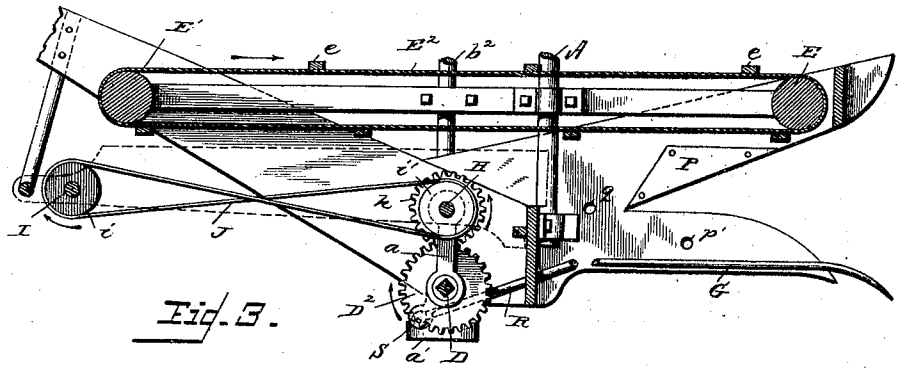
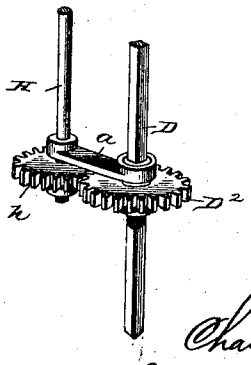


Fig. 3.

Fig. 7.



Witnesses

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Geo. W. Henderson.

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(No Model.)

3 Sheets—Sheet 3.

C. W. WARDWELL.

CORN HARVESTING MACHINE.

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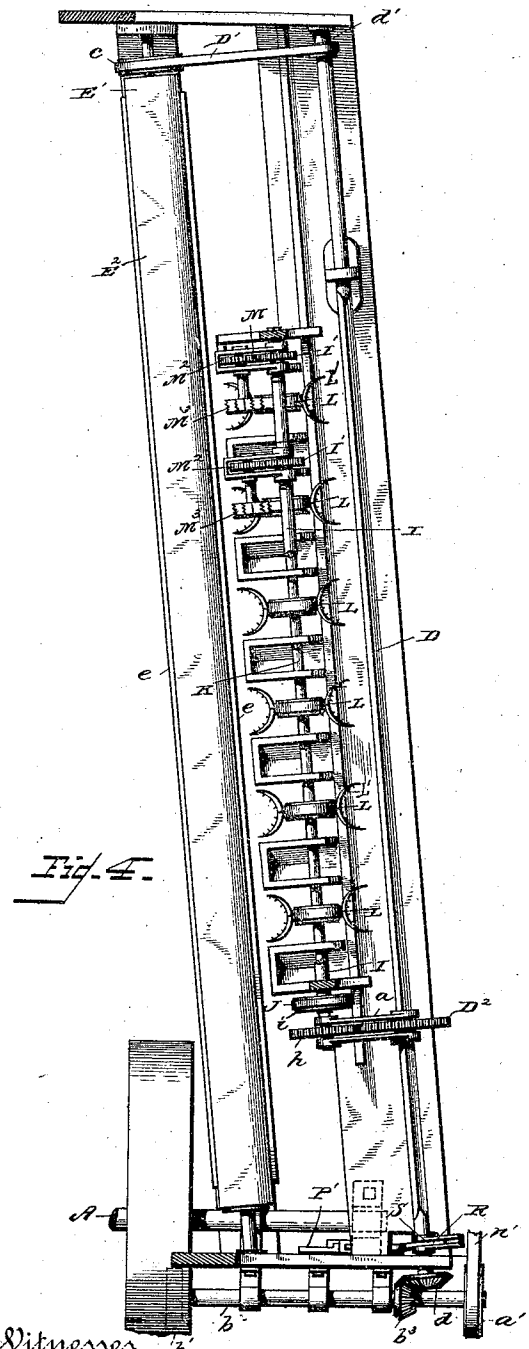
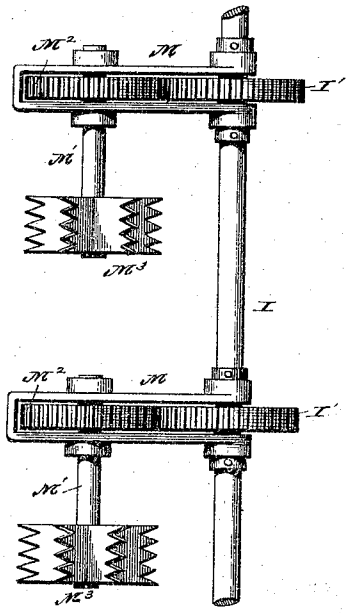


Fig. 4.

Fig. 5.



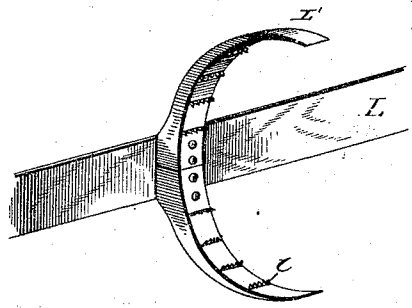


Fig. 6.

Witnesses

Inventor

Charles W. Wardwell

By his Attorney

Franklin H. Hough

UNITED STATES PATENT OFFICE.

CHARLES WILSON WARDWELL, OF ANNELLY, KANSAS.

CORN-HARVESTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 360,069, dated March 29, 1887.

Application filed August 30, 1886. Serial No. 212,204. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WILSON WARDWELL, a citizen of the United States, residing at Annelly, in the county of Harvey and State of Kansas, have invented certain new and useful Improvements in Corn-Harvesting Machines; 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, reference being had to the accompanying drawings and letters of reference marked thereon, which form a part of this specification.

Like letters refer to similar parts throughout the several views.

My invention relates to corn-harvesters; and the novelty consists in the peculiar combinations and the novel construction, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the drawings, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a corn-harvester constructed in accordance with my invention. Fig. 2 is a section on the line *x x* of Fig. 1. Fig. 3 is a section on the line *y y* of Fig. 1. Fig. 4 is a section on the line *z z* of Fig. 1. Fig. 5 is a detail view of the burrs. Fig. 6 is a detail view of one of the shuckers. Fig. 7 is a detailed perspective view of the mechanism by which power is transmitted to the shucker-arbor.

Referring by letter to the said drawings, A is the main axle, B B′ the traction-wheels, and C the pole, all of ordinary construction. The inner traction-wheel, B′, is provided upon its inner rim with cog-teeth *b*, with which meshes the cog-wheel *b′* on the horizontal shaft b^2, suitably journaled in said frame. On this shaft, near its outer end, is a beveled pinion, b^3, meshing with the beveled pinion *d* on the vertical shaft D.

E E′ are vertical shafts or rollers suitably journaled in the frame of the machine, one at the front and the other at the rear thereof.

E^2 is an endless carrier passing around said rollers, and provided with a plurality of transverse slats, *e*, for a purpose hereinafter described.

G G are fingers secured to any convenient part of the frame, and serve to retain the stalks in an upright position, to insure their being carried to the strippers in a position so as to be best acted upon thereby.

Near the upper end of the shaft D is a pulley, *d′*, around which and the pulley *c* on the upper end of the shaft E′ passes the belt D′. Thus motion is imparted from the shaft D to the shaft E′, and consequently to the belt E^2. The shaft D, for a greater portion of its length, is square in cross-section, and sleeved upon this shaft, so as to turn therewith and yet be adjustable thereon, is the cog-wheel D^2.

H is a vertical shaft provided with a cog-wheel, *h*, meshing with the cog-wheel D^2, by which motion is imparted from the shaft D to the shaft H.

a a are links sleeved upon the shaft D, and also upon the shaft H, for a purpose hereinafter described.

I is a vertical shaft, carrying on its lower end the belt-pulley *i*, around which and the pulley *i′* on the shaft H passes the crossed belt J, so that motion is imparted to the shaft I from the shaft H, but in an opposite direction. The shafts H and I are carried in a suitable frame, which may be provided with any suitable means for vertically adjusting the same for varying heights of corn. I do not wish to limit myself to any particular means of adjustment, although in the drawings I have shown a windlass, N^2, and chain N^3 suitably arranged and passing over pulleys for this purpose.

K is a vertical shaft, and L L are a plurality of endless belts mounted thereon, each carrying a plurality of strippers, L′, secured thereto in any convenient manner. These belts pass around pulleys on the shafts H and K, respectively. These strippers are substantially semi-circular in form, as shown in Fig. 6, and are provided with projections or teeth *l*, the object of which will be apparent.

On the shaft I are a series of cog-wheels, I′.

M M are yokes or brackets sleeved on the shaft I, and carrying a stub-shaft, M′, on which is secured between the arms of said yoke a cog-wheel, M^2, meshing with the cog-wheel I′.

M^3 are burrs carried upon the lower or free ends of the stub-shafts M′.

m' are springs, one of the ends of each of which is connected to said burr and the other end to some rigid part of the frame.

Upon the outer end of the shaft b^2 is a pulley-wheel, a'.

N is a husked-corn receptacle, suitably mounted upon the caster-wheel N′ at the rear of the machine.

N^2 is a horizontal shaft suitably journaled upon the front of said receptacle, and carrying upon its outer end a pulley, n.

n' is a crossed belt connecting the pulleys a' and n, as shown in Fig. 2.

On the shaft N^2 is a roller, N^3, around which and a roller, n^3, opposite the mouth n^2 of the receptacle N passes the endless belt O, carrying a series of elevator-buckets, O′.

P is a stationary cutting-edge secured to the front of the machine, as plainly shown in Figs. 2 and 3.

P′ is a movable knife or cutting-edge, pivotally connected near one end of which is the lever p, the opposite end of which is pivoted to the frame, as shown at p'.

Q is a bell-crank lever, pivoted at q to the frame and at q' to the movable knife P′ near its inner end. The other arm of this bell-crank lever is connected by means of the rod R with the crank S on the shaft D.

The operation is as follows: Draft is applied to the pole in the ordinary manner, and the rotation of the traction-wheels imparts a like motion to the shaft D. The rotation of the shaft D through the mechanism above described operates the knife P′, which cuts off the stalks a short distance from the ground. The carrier E^2 conveys the stalks thus cut to the strippers, the fingers G serving to keep such stalks in a vertical position, and the slats on the carrier helping to prevent the said stalks from slipping on the carrier. Upon arriving at the strippers the ears are seized by the latter and the husks stripped down on one side, and the ears, being still integral with the stalks, to which they are attached at their butts, are forced butt-end foremost to the burrs, which are forced forward by the ears, and which remove the husks and stub of the ear. The strippers are so geared as to move or run at a much greater rate of speed than the carrier E^2, to facilitate the operation of stripping, the slats e on the carrier preventing the ears from being carried to the rear without being stripped, and the strippers moving faster than the carrier insures the stripping of the ears before they arrive at the burrs, at which point the shuck is broken from the ear and passes on with the stalk, the springs m' yielding to the pressure of the ears, allowing the same to pass from the burrs to the elevator, and, as soon as the ears have passed, returning the burrs to their normal position. After the ears have passed the burrs they are taken up by the elevator-buckets and deposited in the receptacle N, which may be provided with a discharge-spout. (Not shown.)

To guide the ears to the strippers and to prevent said ears from getting between two adjacent stripping-belts and thus escape the husking, I provide the guard-fingers H^2, which are arranged between the belts carrying the strippers and have their front ends tapered or rounded, so as to readily guide the ears to the strippers, as will be readily understood on reference to Fig. 1. These guard-fingers also serve another function—viz., that of presenting the ears of corn to the strippers butt-end first, which is done in the following manner: As the stalks, with the ears thereon, approach the strippers in a vertical or nearly vertical position, and the ears being attached to the stalks only at their butts, consequently leaving the remainder of the ear free, in the further progress of the stalks the ears will be struck by the ends of the guard-fingers and be forced back, while the stalk moves on, and as the butt of the ear is still attached to the stalk it is evident that the butt will be acted upon by the strippers before the fingers have ceased to act on the free part of the ears, and when once started between any two guard-fingers in this position they will continue to move on, butt-end first, to the burrs, which burrs are so constructed as to allow the passage of the stalk, which is comparatively small, but to act upon the ear, which, upon account of its greater thickness, cannot pass the burrs without being acted upon thereby. As soon as severed from the stalks they fall by their own gravity into the elevator-buckets, which deliver them into the box or receptacle N. The stalks are carried to the rear of the machine, where they are deposited in any suitable receptacle.

From the above description it will be seen that the operation is continuous, cutting, shucking, and removing the stub of the ear by one and the same machine.

Having thus described my invention and set forth its merits, what I claim to be new, and desire to secure by Letters Patent, is—

1. In a corn-harvester, a plurality of shuckers arranged in a vertical series and carried by a vertically-adjustable frame, substantially as and for the purpose specified.

2. In a corn-harvester, a plurality of horizontally-moving strippers arranged in a vertical series, combined with an elevator arranged at the rear of said strippers, substantially as and for the purpose specified.

3. In a corn-harvester, a plurality of endless belts carrying strippers, combined with an equal number of burrs, one for each belt, arranged at the rear of said strippers, substantially as described.

4. In a corn-harvester, a plurality of endless belts carrying strippers, combined with a plurality of burrs, one for each belt, arranged at the rear of said strippers, and an elevator arranged at the rear of said burrs, substantially as and for the purposes specified.

5. In a corn-harvester, a corn-stripper combined with a burr at the rear thereof, and a

spring arranged between said stripper and burr, substantially as and for the purpose specified.

6. In a corn-harvester, the combination, with a plurality of strippers and a plurality of burrs, of means, substantially as described, for vertically adjusting said strippers and burrs, substantially as specified.

7. In a corn-harvester, the combination, with the horizontally-moving strippers and the revolving burrs, arranged at the rear thereof, of means, substantially as described, for vertically adjusting said strippers and burrs simultaneously, as set forth.

8. The combination, with the carrier E^2 and the stripper-belts, arranged in a vertical series, of the guard-fingers H^2, extending between and in advance of each two adjacent belts, substantially as and for the purpose specified.

9. The combination, with the carrier E^2, provided with transverse slats *e*, and the stripper-belts, arranged in a vertical series, of the guard-fingers H^2, extending between each two belts and provided with tapered outer ends, substantially as and for the purpose specified.

10. In a corn-harvester, the combination, with the cutting-knives, the endless belts, arranged in a vertical series and carrying strippers, and carrier, of guard-fingers extending between each two belts, substantially as and for the purpose specified.

11. In a corn-harvester, the combination of the following elements: cutting-knives, strippers arranged in a vertical series, a carrier, burrs arranged in the rear of said strippers, a shucked-corn receptacle arranged at the rear of said strippers, and an elevator arranged at right angles to the travel of said strippers and between said strippers and receptacle, to convey the shucked corn from the former to the latter, substantially as described.

12. The combination, with the shaft I and the strippers, of the stub-shafts M′, supported from said shaft I, and the burrs M^3, carried by said stub-shafts, substantially as and for the purpose specified.

13. The combination, with the shaft I and the cog-wheel I′, carried thereby, of a yoke, M, sleeved on said shaft, the stub-shaft M′, supported by said yoke, cog-wheel M^2 on said stub-shaft, meshing with the cog-wheel I′, and the burr M^3 on the free end of said stub-shaft, substantially as described.

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

CHARLES WILSON WARDWELL.

Witnesses:
JOSEPH FRITZ,
A. O. MCLAIN.