

(No Model.)

4 Sheets—Sheet 1.

H. McPHERSON.
CORN CUTTING AND SHOCKING MACHINE.

No. 512,314.

Patented Jan. 9, 1894.

Fig. 1.

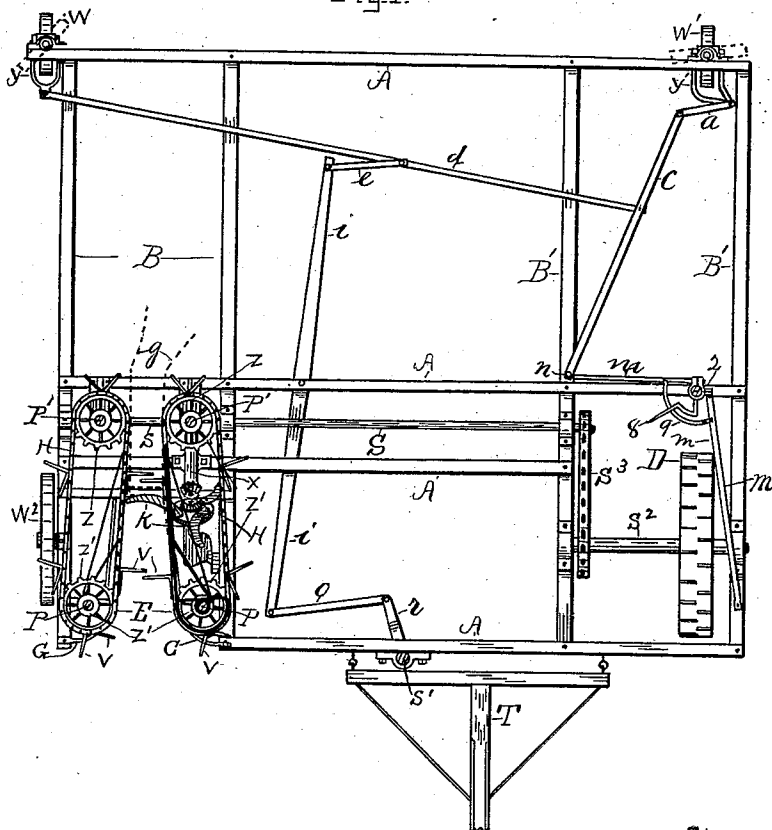
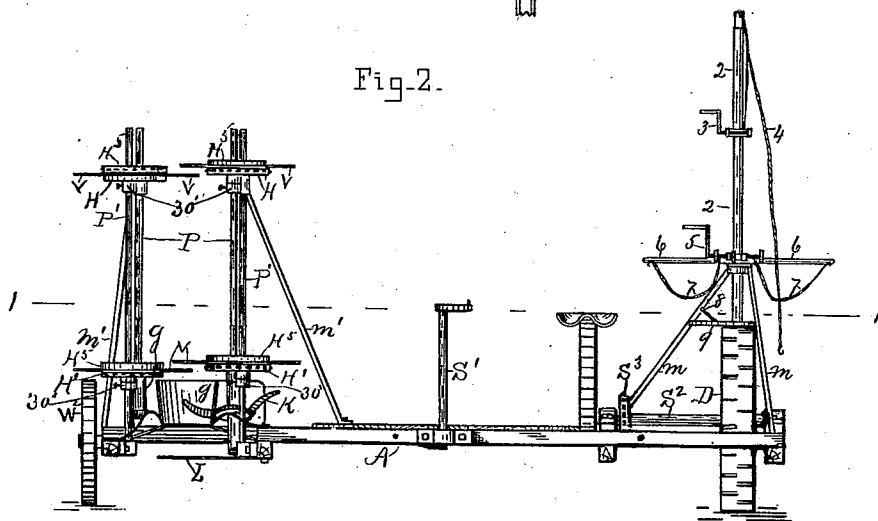


Fig-2.



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Fig. 3.

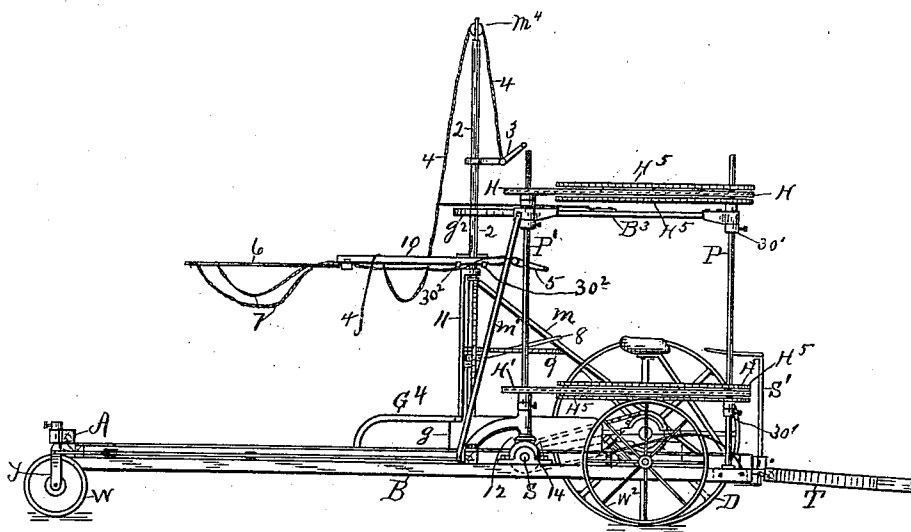
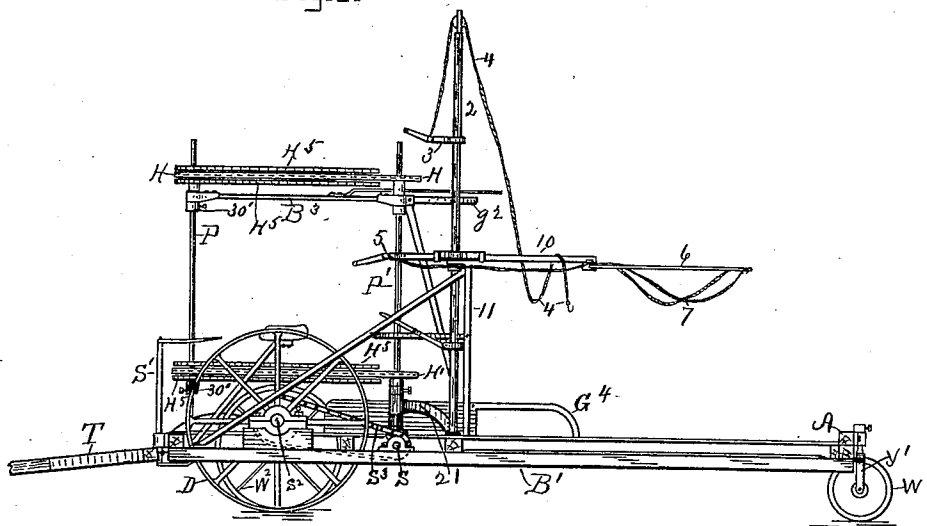


Fig. 4.



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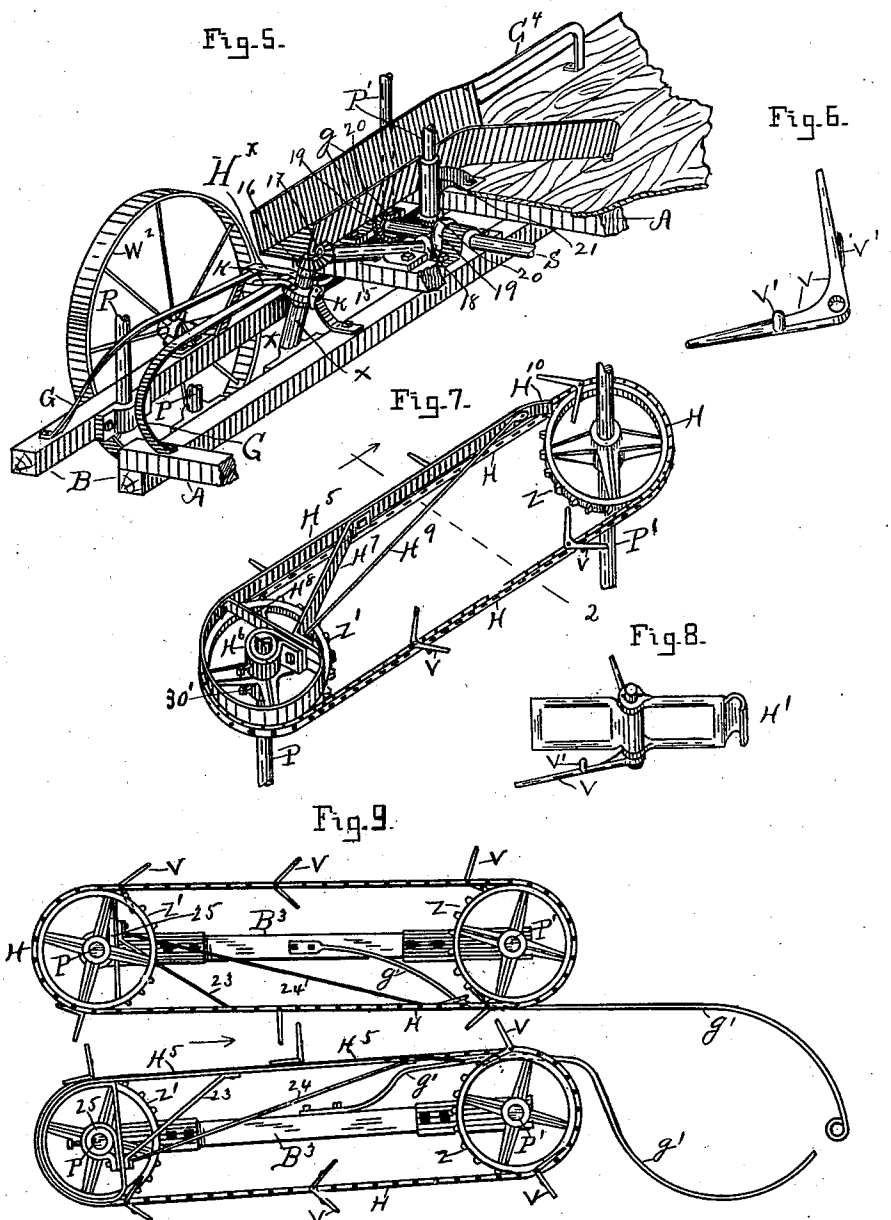
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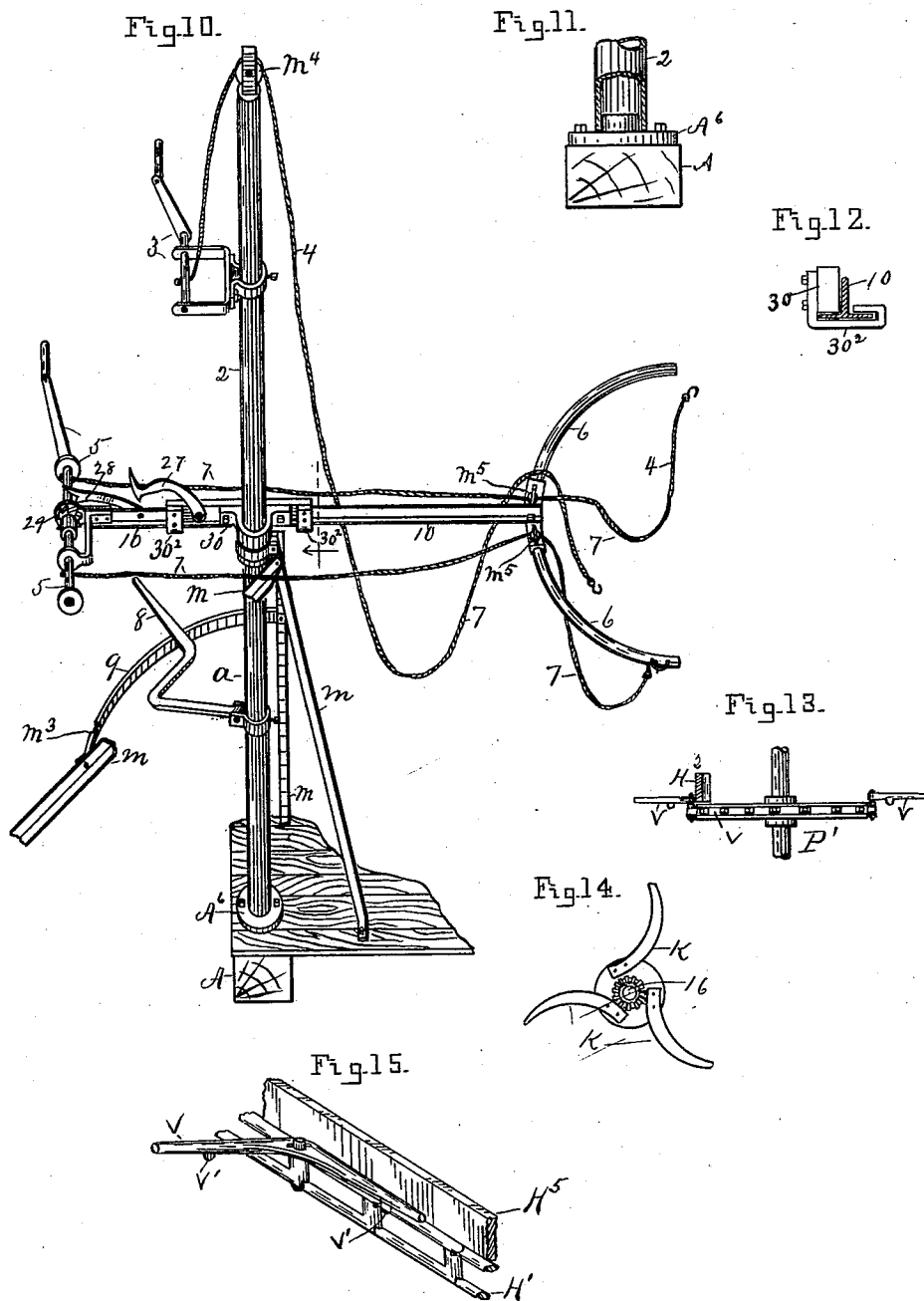
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UNITED STATES PATENT OFFICE.

HORACE MCPHERSON, OF CRETE, ILLINOIS.

CORN CUTTING AND SHOCKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 512,314, dated January 9, 1894.

Application filed May 24, 1893. Serial No. 475,390. (No model.)

To all whom it may concern:

Be it known that I, HORACE MCPHERSON, a citizen of the United States of America, residing at Crete, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Corn Cutting and Shocking Machines, of which the following is a specification, reference being had therein to the accompanying drawings and the letters and figures of reference thereon, forming a part of this specification, in which—

Figure 1 is a plan view omitting the floor, and omitting the upper endless carrier chains, and the shock removing mechanism. Fig. 2 is a front elevation. Fig. 3 is a side elevation. Fig. 4 is a side elevation, it being the opposite side from that shown in Fig. 3. Fig. 5 is a perspective view showing the throat, and in detail that portion of the machine carrying the rotating knives for cutting stalks, and of the gearing for driving the knives, and of a trough for conducting the stalks rearward to the machine platform. Fig. 6 is a perspective view of one of the pivoted arms of the endless carrier chains showing its lower side provided with integral lugs. Fig. 7 is a perspective view of one of the upper endless carrier chains and of its sprocket wheels mounted on their shafts, and of a guide for guiding the arms of said chains. Fig. 8 is an inverted perspective view of a portion of one of the endless carrier chains, and of one of the arms pivotally connected thereto. Fig. 9 is a plan view of the two upper endless carrier chains, and sprocket wheels mounted on their posts and shafts, and of a pair of spring gathering arms extending rearward of the knives and endless carrier chains, and attached to bars which respectively connect the upper part of the posts and shafts of each endless carrier chain. Fig. 10 is a perspective view of the device for compressing the corn stalks so that they may be bound, and for removing the bound shocks from the machine. Fig. 11 is a side view of the lower end of the hollow mast of said shock compressing and removing device, having a portion broken away to show it stepped on a stud secured to the bed of the machine. Fig. 12 is a cross section of Fig. 10 looking in the direction of the arrow. Fig. 13 is a cross section of Fig. 7 looking in the direction of the arrow. Fig. 14 is a plan of the rotary cutting knives

and their hub and pinion, and Fig. 15 is a perspective view of a portion of one of the endless carrier chains, and of one of its bell crank shaped arms pivotally attached thereto, and of a portion of a guide for guiding said arm.

This invention relates to certain improvements in corn cutting and shocking machines, which improvements are fully set forth and explained in the following specification and claims.

Referring to the drawings A, B and B' represent the bed sills of the machine, designed to be made of wooden beams, and to be floored over so that an operator and driver may stand upon it, and so as to support the corn shock while being gathered and bound. The said frame is supported on the drive wheel D, wheel W², and a pair of rear caster wheels W and W' as is shown particularly in Fig. 1.

T is a tongue attached to the forward end of the machine, to which a team may be attached to draw the machine.

D is the drive wheel secured on shaft S², which drive shaft drives the shaft S through the medium of a sprocket chain S³, and sprocket wheels on said shaft. Said shaft S has secured on it near its outer end the two bevel gears 19, which respectively mesh with and drive the bevel pinions 20 respectively secured on the lower ends of the vertical shafts P', for driving the said shafts and their endless carrier chains, said shafts being respectively journaled at their lower ends in the boxes 21 as shown in Fig. 5.

For steering the machine the frames *y* of the two caster wheels W and W' are connected by means of the levers *c* and *i*, and the links *a d e* and *o* with the crank *r* of crank shaft S' having a hand crank on its upper end as shown in Figs. 1 and 2 by means of which hand crank the said steering device is operated. The lever *i* is pivotally connected at about its center to the lower side of one of the bed sills A, and is connected at its forward end by means of a link *o* with crank *r* on the lower end of crank shaft S', and its rear end is connected with link *d* near its center by means of link *e*. Said link *d* has one end connected to the frame of caster wheel W, and its opposite end to lever *c* near its center, which lever *c* has one end pivotally

connected to the bed sill B'; and its opposite end is connected with the frame of caster wheel W' through the medium of link *a*. By turning the hand crank shaft S', the caster wheels W and W' are simultaneously turned as shown in broken lines in Fig. 1, so that the machine may turn to the left around wheel D, but caster wheel W is not turned so far as caster wheel W', which causes the machine to turn in a much shorter space than if they both turned to the same angle.

The hub of the rotary knives is provided with a spindle that is journaled in the rearwardly inclined box X secured to the sill B, and its pinion 16 meshes with a gear 17 on a shaft journaled in box 18 having a gear wheel on its opposite end in mesh with one of the gears 19 on shaft S, through the medium of which shafts and gears said rotary knives are driven; and the said knives are arranged so that they cut in an oblique direction against the inner one of the guard bars G. The said guard bars G have their forward ends curved downward and secured to the sills B by means of bolts, and their rear ends are secured to an arm H^x secured to a bed sill at the rear of the knives K, and said guard bars are for the purpose of assisting to conduct the standing corn stalks to the knives.

g is a trough arranged at the rear of the throat of the machine near and at the rear of the rotary knives, for the purpose of receiving the butts of the stalks after being severed from the ground, and for conducting them rearward to the platform of the machine to the gathering arms *g'* *g'*.

P, P are a pair of vertical posts having their lower ends secured to the sills B, B, near their forward ends, one at either side of the throat or space between said sills. Said posts have journaled on them each two sprocket wheels Z' supported by adjustable collars 30', for regulating the distance apart of said sprocket wheels to accommodate the endless carrier chains to the size of the corn stalks being cut.

The vertical shafts P', P', have secured on them each two sprocket wheels Z, corresponding with the sprocket wheels Z' on posts P. The upper sprocket wheels carry the endless carrier sprocket chain H, and the lower sprocket wheels carry the endless carrier sprocket chain H'.

B² are connecting bars for respectively connecting the upper ends of the posts P, with the upper ends of the vertical shafts P' for maintaining them the proper distance apart, and for giving proper tension to said endless carrier chains, and *m'* are braces for bracing the upper ends of said shafts P'. Said vertical shafts P' together with said sprocket wheels and their endless chain carriers are driven in the direction indicated by the arrows, by shaft S, through the medium of the bevel gears 19 and 20 as shown in Figs. 1 and 5. Said endless chains are provided at regular intervals throughout their length with

arms V such as shown in Fig. 6, pivotally connected thereto as shown in Fig. 8. These arms are in the form of a bell crank and are provided on their under sides with integral lugs V' as shown in Figs. 6 and 15 for engaging the chain on either side to prevent the arms from turning too far. The sprocket wheels Z and Z' and their chains on the post and shaft at one side of the throat are arranged to be on a different plane from those on the opposite post and shaft on the opposite side of the throat so that their arms V will not interfere with each other, as shown in Fig. 2.

The guide arms H⁵ have their inner ends secured to the posts P in the manner shown particularly in Fig. 7, (and as these guide arms are four in number and all alike, only one is shown in detail,) and are held in their proper position by means of the braces H⁷, H⁸ and H⁹, and their free ends extend along the sides of the throat and directly in line with the endless chain carriers alternately above and below them as stated and in close proximity thereto so that as the chains travel the arms V bear against the outer sides of said guides as shown in Fig. 15 particularly so as to cause one member of said arm to project across the throat of the machine and at right angles with their chains for the purpose of conducting the stalks to the rearward of said endless carriers. The extreme inner ends of the arms H⁵ are curved outward from the throat as shown at H¹⁰ in Fig. 7, at a point about opposite the shafts P' for the purpose of releasing the pivoted arms V and permit them to turn and release their contact with the stalks.

g', *g'*, are a pair of rearwardly extending spring gathering arms for receiving the stalks after they leave the endless carrier chains, and holding them in an upright position until they can be tied up to form a shock. The inner ends of said arms are attached to the bars B³, and their outer ends are free and yielding and bowed or curved toward each other, so as to hold between them a varying amount of stalks. After a sufficient quantity of stalks are received between the arms *g'*, *g'*, it is necessary to bind the upper ends of the stalks with a cord or band to form a shock and then lift the bound shock off from the machine. This is accomplished by means of the mechanism shown in perspective in Fig. 10 and also shown in Figs. 2 and 3 and consists of the hollow mast 2 having its lower end stepped over a stud A⁵, (shown also in Fig. 11,) on the upper side of the platform of the machine, and held in an upright position by means of the braces *m* attached to a collar surrounding said mast. An arm 8 is secured to said mast by means of which it can be rotated within the limits of the segment 9 attached to said braces and having a notch *m*³ for receiving and holding said arm 8. The upper end of said mast is provided with a pulley *m*⁴, over which passes a cord 4 having a hook attached to its outer end and having

its inner end attached to a windlass 3 adjustably attached to said mast by means of a collar and set screw.

30 is a cross bar adjustably attached to said mast by means of a strap and set screw and provided with supporting hooks 30² for supporting a sliding bar 10 made of T iron (see Fig. 12), which sliding bar is provided on its inner end with a windlass 5, having a ratchet wheel 29 and a pawl 28 pivotally attached to said bar and adapted to engage said ratchet wheel.

7, 7, are a pair of cords having hooks on their outer ends, and having their inner ends attached to said windlass. The outer end of said sliding bar 10, is provided with the curved cross arm 6', securely attached thereto, and having pulleys m⁵ over which said cords 7 pass. Said sliding bar 10 is also provided with a pawl 27, pivotally connected thereto for preventing the return of said bar when it is moved out to its fullest extent. A knife L, is arranged below and at the rear of rotary knife K, to cut off the stubs of the stalks next to the ground.

In operation a team is attached to the tongue T and the machine is drawn forward so that a row of standing corn enters the throat between forward ends of the sills B, and between the endless chain carriers H and H' and are cut off by the blades of the rotating knives K, and carried rearward by the endless carriers, with their butts in the trough g, and delivered to the gathering arms g', g'. After being delivered to said arms g', g' the curved arm 6 is moved up against the stalks near their upper ends and the cords 7, are passed around the bundle from either side and hooked together at their ends. The windlass 5 is then turned to wind up said cords thereon, and thereby compress the stalks into as small a shock as possible, when it is tied by an operator who rides on the machine, by means of a cord or band, and then the cords 7, are loosened from it. The cord 4 is then hooked fast to the bound shock and the windlass 3 turned to wind it thereon and lift the shock from the machine, and when clear of the floor the mast 2 is turned by means of the arm 8 so as to swing the shock off the machine to the ground, when

the cord 4 is unhooked from it and the arms 10 and 6 are moved back to their first positions ready for another like operation.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. In a corn cutting and shocking machine the combination of the bed sills or frame A, B, B', wheels D, and W², caster wheels W, 60 and W', and their frames, levers i, c, links a, d, e, o, and crank shafts r, S', all arranged to operate substantially as and for the purpose set forth.

2. In a corn cutting and shocking machine the combination of the main frame, drive wheel D, and its shaft S², shaft S, having the bevel gears 19, sprocket chain S³, for connecting said shafts, vertical shafts P', having respectively the bevel gears 20 and having respectively the sprocket wheels Z, bars B³, 70 endless sprocket carrier chains H and H', arms V having the integral lugs V' and pivotally connected to said chains, guides H⁵, posts P having respectively the sprocket wheels Z' journaled thereon, rotating knife K, having the pinion 16 and the means for driving said knife guards G, guide trough g, and the spring gathering arms g' g', all arranged to operate substantially as and for the purpose set forth. 80

3. In a corn cutting and shocking machine the combination of the main frame, spring gathering arms g', g', rotatable mast 2 having the pulley m⁴, arm 8, cross bar 30 having the hooks 30², windlass 3, sliding bar 10; having windlass 5, ratchet 29, and pawls 27, 28, and having the curved cross bar 6, cords 4 and 7, and notched segment 9, all arranged to operate substantially as and for the purpose set forth. 90

4. In a corn cutting and shocking machine the combination of the guides H⁵, endless carrier chains H, and H' and the bell crank shaped arms V pivotally connected to said chains and having the integral lugs V' and adapted to engage said guides substantially as and for the purpose set forth. 95

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