

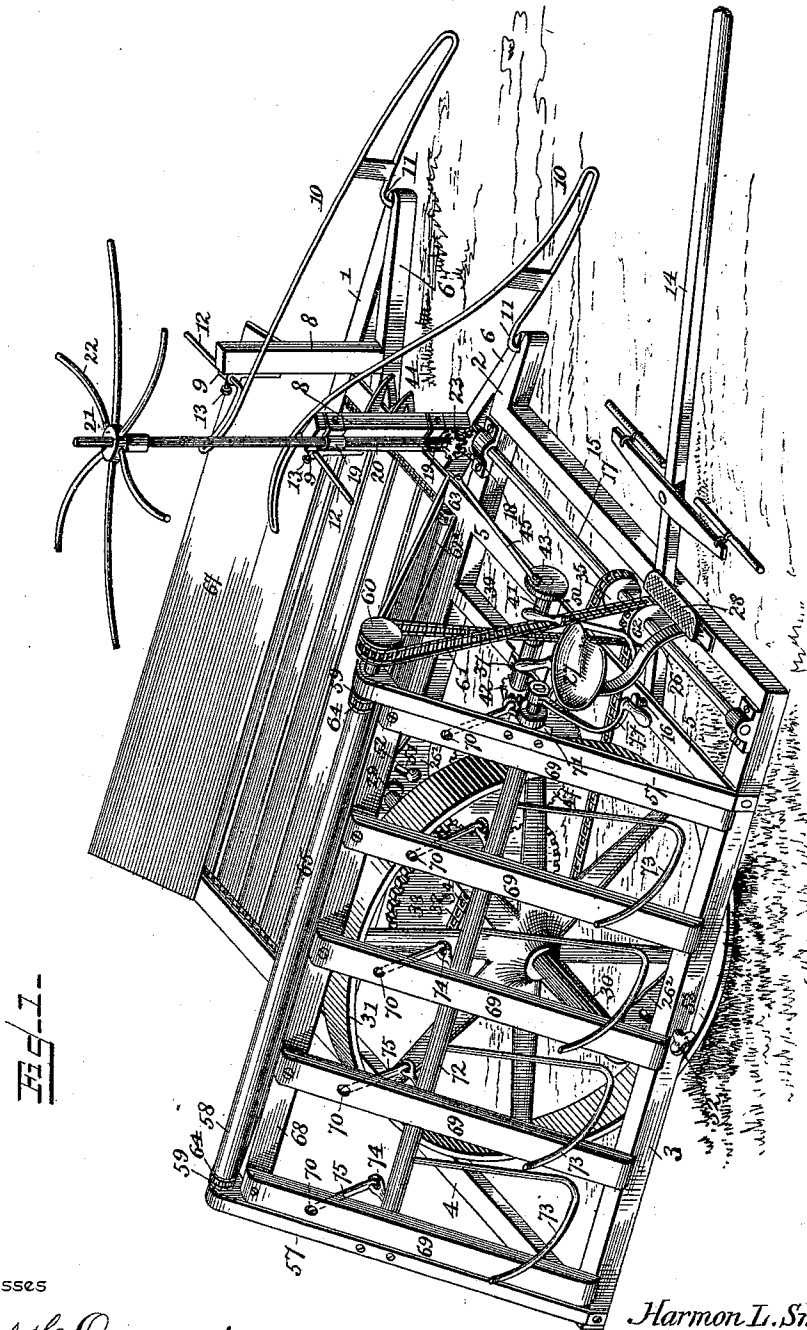
(No Model.)

4 Sheets—Sheet 1.

H. L. & W. E. SMITH.
CORN HARVESTER.

No. 497,390.

Patented May 16, 1893.



Witnesses

Charles Girard
J. B. Giggers,

Inventors

Harmon L. Smith
William E. Smith

By their Attorneys,

Cashow & Co.

(No Model.)

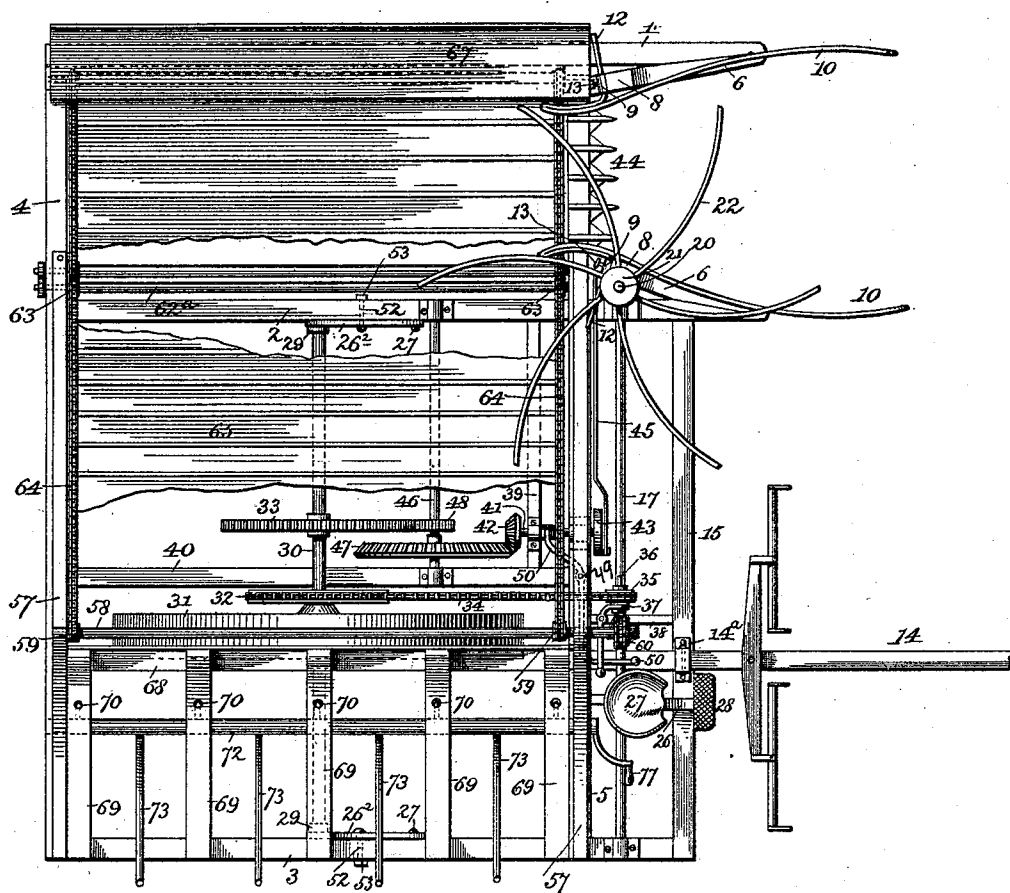
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H. L. & W. E. SMITH.
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Patented May 16, 1893.

Fig. 2.



Witnesses

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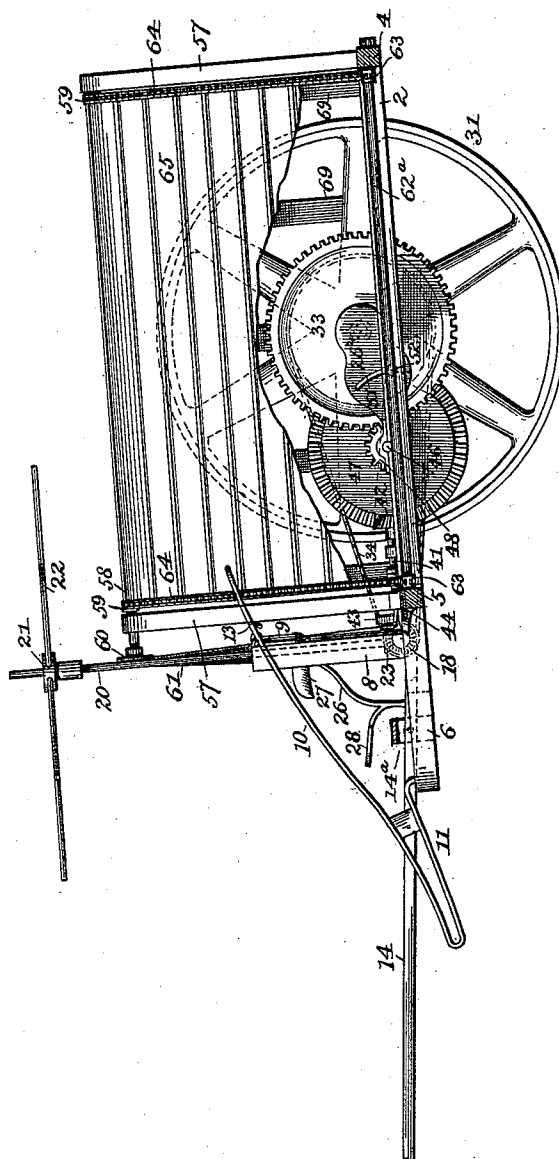
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Fig. 3.



Witnesses

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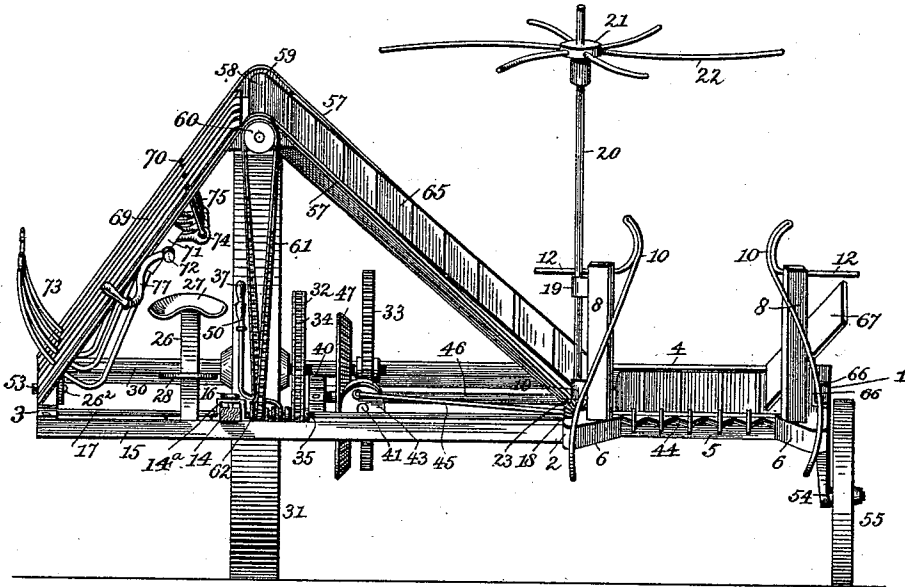
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H. L. & W. E. SMITH.
CORN HARVESTER.

No. 497,390.

Patented May 16, 1893.

Fig 4.



Witnesses

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UNITED STATES PATENT OFFICE.

HARMON L. SMITH AND WILLIAM E. SMITH, OF WATKINS, NEW YORK.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 497,390, dated May 16, 1893.

Application filed March 3, 1892. Serial No. 423,623. (No model.)

To all whom it may concern:

Be it known that we, HARMON L. SMITH and WILLIAM E. SMITH, citizens of the United States, residing at Watkins, in the county of Schuyler and State of New York, have invented a new and useful Corn-Harvester, of which the following is a specification.

Our invention relates to machines for harvesting corn, the objects in view being to provide a machine embodying simplicity of construction and cheapness, and adapted to cut, convey and shock corn in one continuous operation; to support the shock while being tied; and finally, to deliver the same at intervals upon the ground at the side of the machine.

Various other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a perspective view of a corn-harvester constructed in accordance with our invention. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal section of the harvester. Fig. 4 is a front elevation.

Like numerals of reference indicate like parts in all the figures of the drawings.

In constructing the framework of the machine, we employ a series of three longitudinal bars, designated as 1, 2 and 3, the bars 1 and 2 being slightly longer than the bar 3 and the entire series being connected at their rear ends by a transverse bar 4. Beyond their middles they are further connected by a transverse bar 5. Deflecting-bars 6 connect the inner sides of the bars 1 and 2 with the transverse bar 5, so as to contract the opening or space between the bars 1 and 2, opposite the bar 5. From the bars 6 rise a pair of vertical posts 8, which are directly in front of the cross-bar 5, and said posts are provided at their rear upper sides with clips 9.

10 designates a pair of guide-rods, which are curved at their extremities, as shown, each being provided near its front end with a depending arm 11, which takes into perforations formed in the extremities of the bars 1 and 2, and near their rear ends the horizontal arms 12, which pass laterally through the clips and may be secured in adjusted positions by set-screws 13. The rods 10 being adjustable, it

will be obvious that the passage-way to the machine between the bars 1 and 2 may be made wider or narrower, as desired. The bars 3 and 2 in front of the bar 5, are connected by a transverse bar 15, and the same is connected to the draft-tongue 14 by means of a clip 14^a in which the draft-tongue is pivoted through the medium of a bolt, the rear end of the tongue being borne upon by a vertically operating screw 16, the same passing through the bar 5, whereby as will be obvious the rear end of the tongue may be depressed by the screw, thus elevating the end of the same against the weight of the horses pulling the machine. A seat-standard 26 rises from the cross-bar 15, between the bars 2 and 3, the same supporting the platform 28 and seat 27, said seat being in such position as to facilitate the grasping of certain levers, hereinafter explained, by the driver.

17 designates a shaft, which is journaled in bearings formed in the bars 2 and 3, between the transverse bars 5 and 15, and this shaft is provided at its inner end with a pinion 18. In vertically opposite bearings 19, secured to the inner post 8, is located a vertical shaft 20, provided at its upper end with a hub 21 having radiating arms 22, and at its lower end with a pinion 23, engaged with and driven by the pinion 18 of the shaft 17. A pair of segmental plates 26² are pivotally bolted as at 27 to the inner sides of the bars 3 and 2, and the same are provided at their outer ends and at their inner faces with bearing-cavities 29, in which is journaled for rotation the main axle 30 of the machine. A wheel 31, a pulley 32 and a gear-wheel 33 are mounted upon the axle and rotate therewith. The pulley 32 is connected by a belt 34 with a small pulley 35, mounted loosely on the shaft 17, but adapted to be thrown into engagement with a spline 36 formed on the shaft, whereby it becomes locked, through the medium of a lever 37 fulcrumed on a short bar 38, and connecting the bars 5 and 15. By this means it will be seen that motion is conveyed from the axle through the medium of the pulleys 32, 35, and belt 34, to the shaft 17 and from thence to the pinion 18 and to the rotatable reel at the side of the machine. It will further be obvious that by shifting the lever 37, so as to

disengage the pulley 35 from the spline on the shaft 17, the pulley 35 becomes idle and no motion is communicated to the reel.

Upon the bar 5 and a transverse bar 39, between the bar 2 and an intermediate longitudinal bar 40, there is located a sliding shaft 41, provided at its rear end with a beveled pinion 42 and at its front end with a crank-disk 43. A reciprocating-cutter 44 is located on the bar 5 between the bars 1 and 2, and a pitman 45 is loosely connected to the inner end of the cutter and to the crank disk 43, so that rotations of the latter are communicated to the cutter.

Upon a shaft 46, mounted in bearings in the bars 2 and 40, a beveled gear 47 is mounted, the same being fast upon the shaft and engaging and driving the pinion 42 before mentioned. A small gear 48 is mounted on the shaft 46, rotates said shaft and is engaged and driven by the large gear 33 of the axle. The shaft 41 may be slid longitudinally within its bearings by means of a lever 50, fulcrumed on the bar 5 as at 49, and extending within reach of the driver when mounted upon the seat. The segmental bearing-plates for the axle are provided with concentric slots, 51, through which and into the bars 2 and 3 pass bolts 52, and beyond said bars said bolts are provided with binding-nuts 53, whereby the superincumbent parts carried by the framework can be raised or lowered at that side of the machine. A stub-axle 54 extends from the outer side of the bar 1 and upon the same is mounted a ground-wheel 55.

Secured to the cross-bars 4 and 5 is a pair of angular arches or frames 57, and the same are provided at their upper angular portions or apices with bearings in which is mounted for rotation a longitudinal shaft 58, which is provided near its end with sprocket-wheels 59, and at its front end beyond the angular frame 57 with a pulley 60, the pulley being connected by an endless belt 61 with a pulley 62, mounted upon and moving with the shaft 17.

In bearings formed in the cross-bars 4 and 5, adjacent to the bar 2, a longitudinal shaft 62^a is journaled for rotation, and the same is provided near its bearings with sprocket-wheels 63. These sprocket-wheels are connected with the sprocket-wheels 59 of the shaft 58, by sprocket-chains 64, which are therefore inclined, as shown, and they are connected by an endless belt or conveyer 65.

Rising from the bar 1 is a pair of standards 66, and bolted to the same at their upper ends is an inclined board 67 the front end of which is secured to the post or standard 8. A bar 68 connects the rear side of the pair of angular frames 57, and from said bar depends inclined strips 69, provided near their upper ends with perforations 70. Bearings 71 are formed on the under sides of the outer branches of the frames 57, and journaled therein is a rock-shaft 72, the same therefore being located under the strips. At intervals

coincident with the spaces between the strips 69, are depending L-shaped shock-supporting-arms 73, the upper ends of which are connected with said rock-shaft. At the opposite side of the shaft, and coincident with the strips, eyes 74 are mounted on the shaft, and loosely connected with the outer ends of the eyes are fingers 75, which are normally within the perforations of the strips, though adapted to be projected through the same. The rock-shaft 72 is provided near its front end with a hand-lever 77, by which the shaft may be partially rotated. By rotating the rock-shaft in a partial manner, the shock-supporting arms are withdrawn from in front of the strips, and the fingers are projected through the perforations beyond the strips, and a reverse movement of the latter withdraws the fingers and re-projects the shock-supporting arms. This lever may be reached by the driver and operated from his seat.

This completes the construction, and the operation of the machine may be briefly stated as follows:—As the machine is drawn along and motion is communicated to the various parts in the manner heretofore described the corn is guided by the guide-arms 10 into the space between the beams 1 and 2, at which point the deflectors 6 force the stalks in a condensed manner toward the knives, where they are severed by the reciprocations of said knives. The corn at the side of the swath cut is forced aside by the inclined board 67, so as not to interfere with the outer wheel of the machine. As the corn is cut, as will be obvious, it falls lengthwise upon the inclined board 67, dropping upon the endless apron or conveyer, and being caught by the cleats of the latter passes over the upper end of the apron and is delivered to the inclined strips 69, down which the stalks slide and fall upon the L-shaped rock-arms 73. In this manner the corn is accumulated to form the shock, which may be bound by hand or by any suitable binding mechanism that we may desire to employ. As soon as the shock is formed, the driver operates the lever at his side, thus moving the rock-shaft 72 so as to withdraw the lower rock-arms 73 from under the shock and permitting the same to fall to the ground. Simultaneous with the withdrawal of the arm 73, the fingers 75 are projected through the perforations 70 of the strips outwardly into the path of the stalks falling from the endless belt or conveyer, so that the stalks are caught and prevented from falling to the ground at the time that the shock is delivered.

It will be obvious that many changes in the details of our invention may be made, and we do not, therefore, limit ourselves to the construction and arrangement herein shown, but hold that we may make variations within the scope of mechanical skill without departing from our invention.

Having described our invention, what we claim is—

1. In a corn-harvester, the combination with

the framework comprising opposite beams, and a transverse cutting-mechanism supporting-beam in rear of the front ends of the opposite beams, a pair of guide-arms pivoted at their front ends to the beams and rearwardly extending over the cutting-mechanism supporting-beams, a pair of standards located in front of the cutting-mechanism supporting-beam, and means connecting the guide-bars to the standards for lateral adjustment of the latter to vary the width of the path to the cutting mechanism.

2. In a corn-harvester, the combination with the framework comprising the parallel longitudinally-opposite beams, and the cutting-mechanism supporting-beam connecting said longitudinal beams in rear of their front ends, of vertical posts or standards located in front of the cutting-mechanism supporting-beam and provided with clips, and the opposite curved guide-rods provided near their front ends with depending arms pivoted in sockets formed in the longitudinal beams and at their rear ends and outer sides with outwardly-disposed arms passing through the clips, and

means for adjusting the arms in the clips, substantially as specified.

3. In a corn-harvester, the combination with the framework, harvesting-mechanism, an endless belt or conveyer located at one side of the latter, and means for operating the same, of a series of perforated strips inclined and extending from the upper end of the belt to the side of the machine, a rock-shaft journaled under the strips, L-shaped rock-arms depending from the rock-shaft between the strips, eyes extending from the rock-shaft in rear of the strips, pins loosely connected with the eyes and extending through the perforations in the strips, and a lever for operating the rock-shaft, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

HARMON L. SMITH.
WILLIAM E. SMITH.

Witnesses:

RUY M. SMITH,
URBAN SHERMAN.