(No Model.) 3 Sheets—Sheet 1.

C. H. HALL.

CORN HARVESTER.

No. 551,727. Patented Dec. 17, 1895.

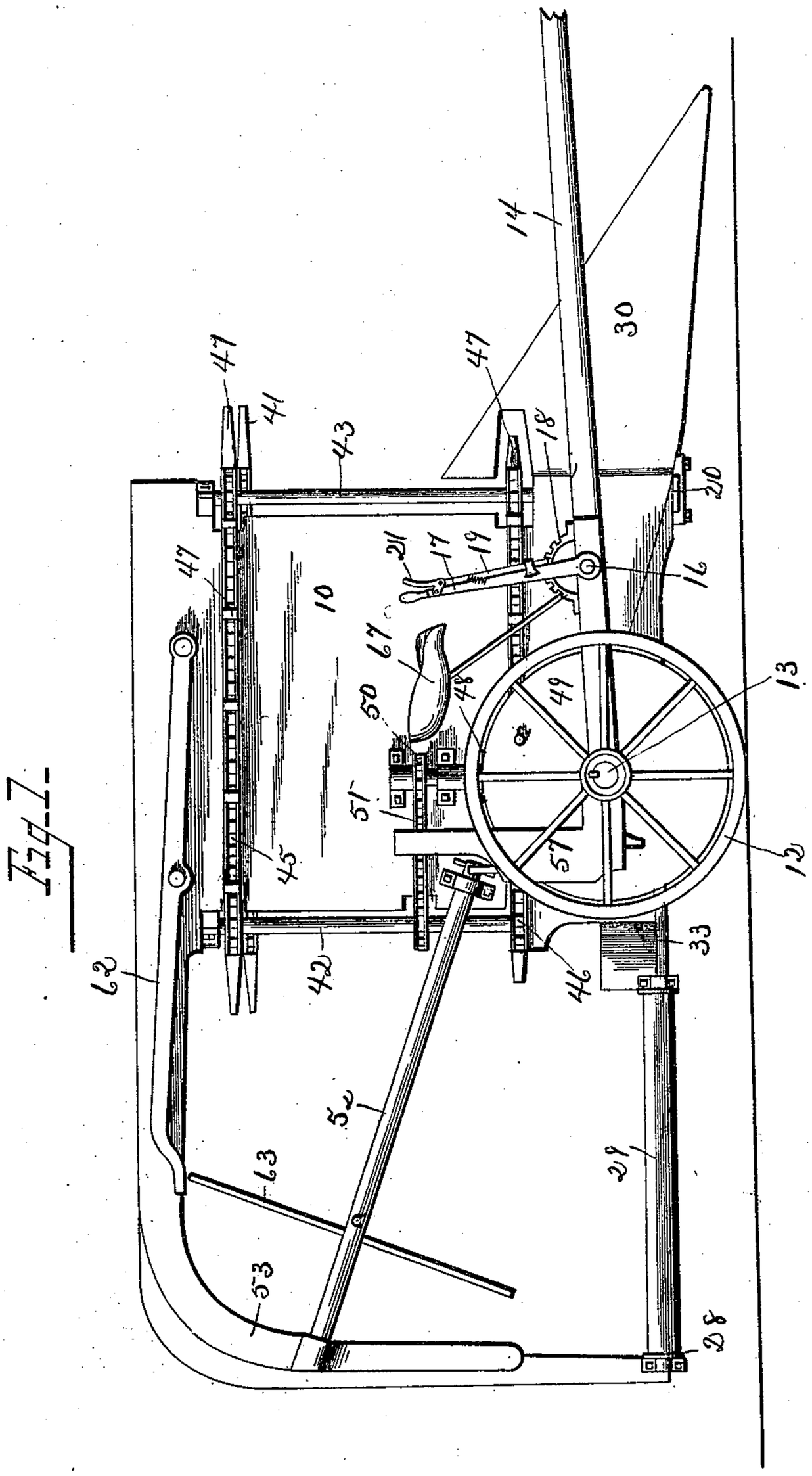

FIG. 1.

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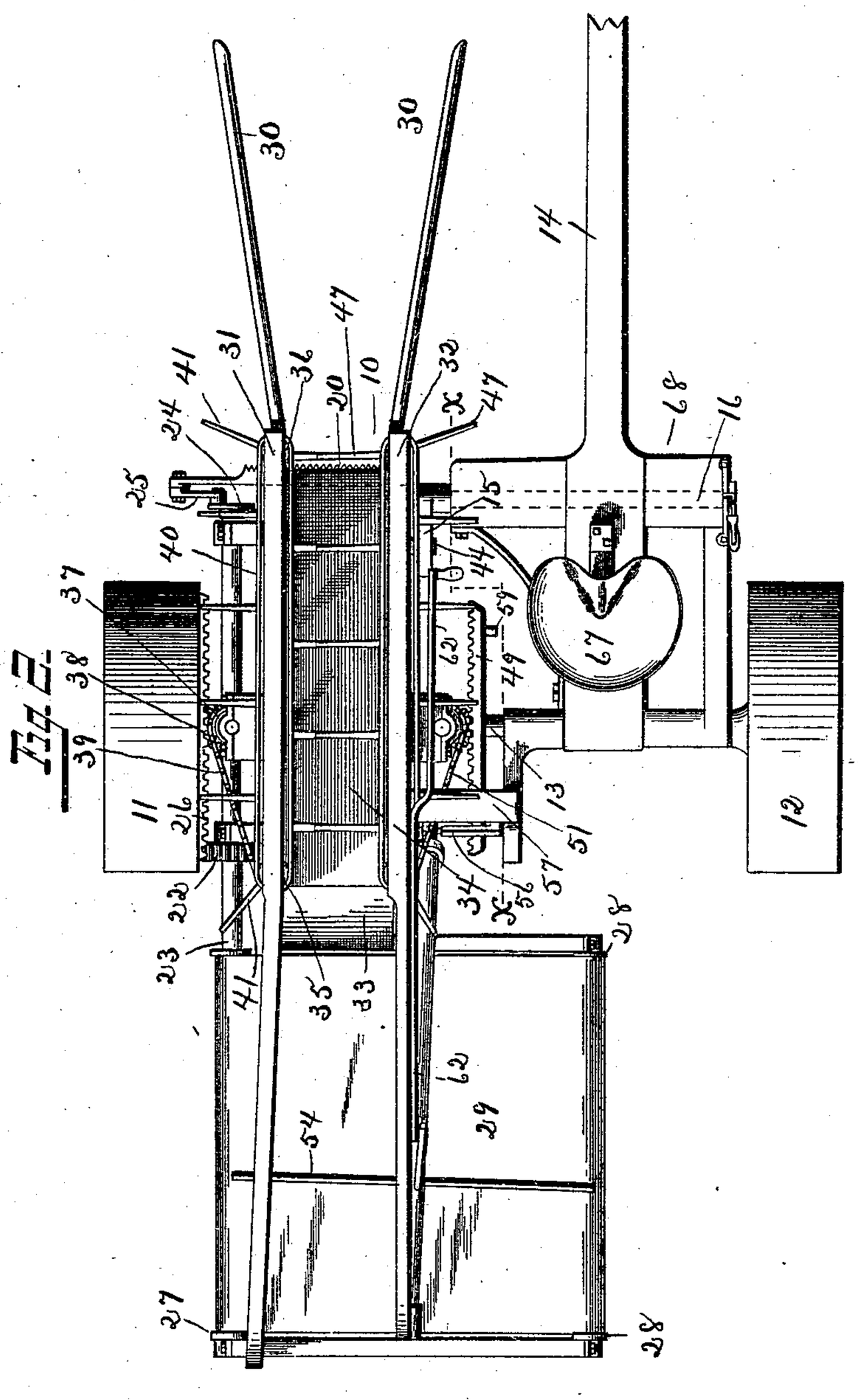

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(No Model.) 3 Sheets—Sheet 3.

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Fig. 3.

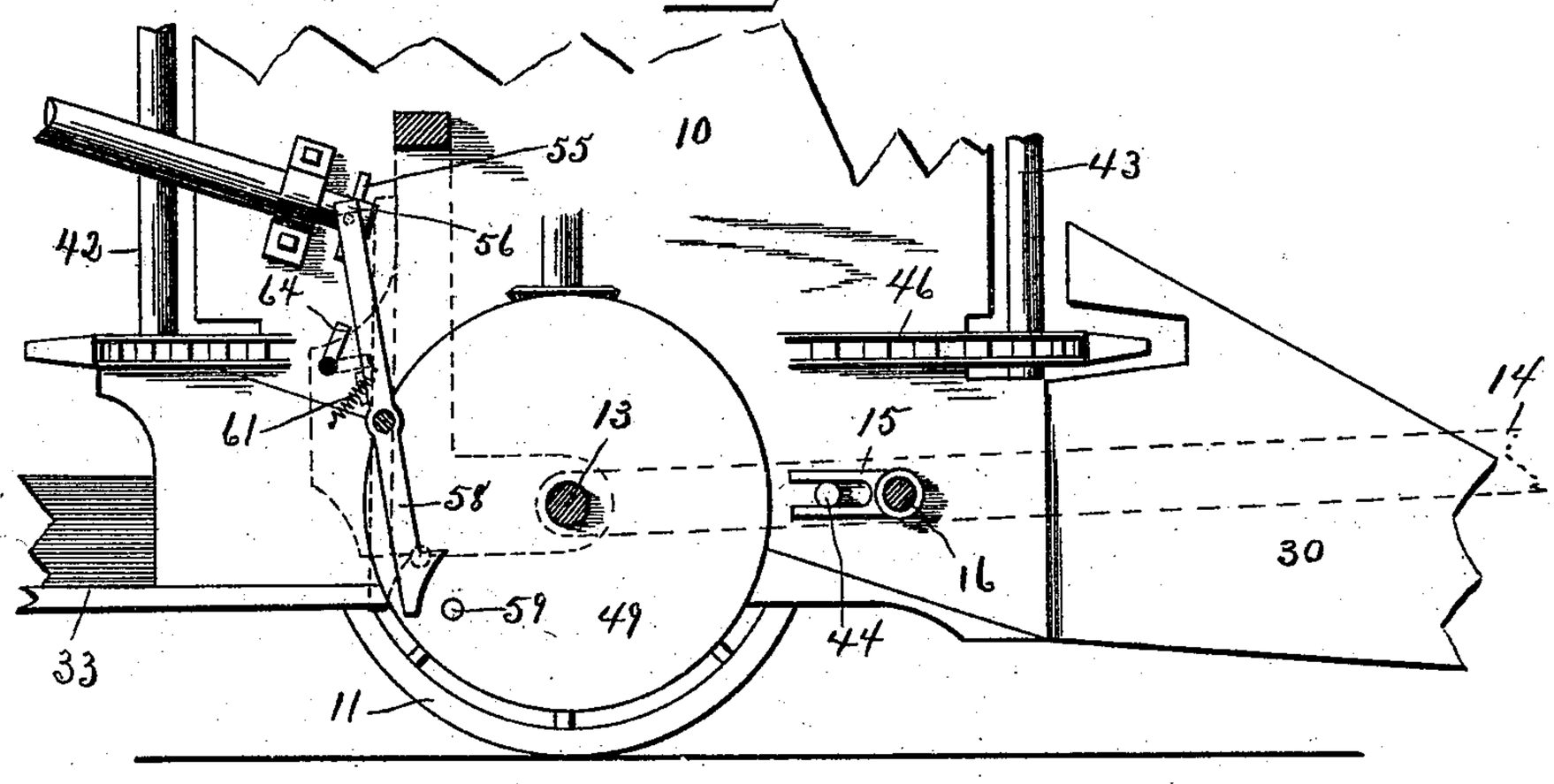
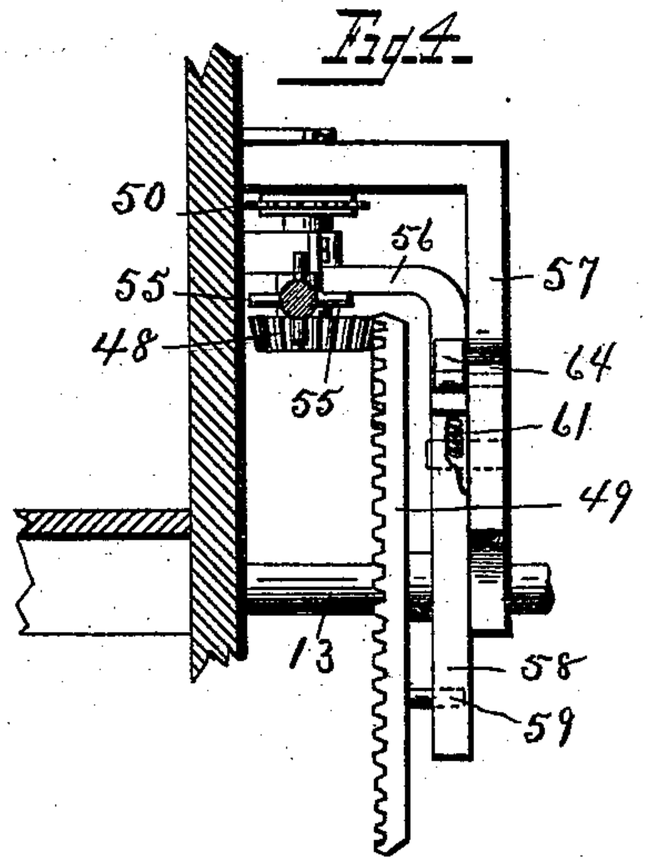


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 551,727, dated December 17, 1895.

Application filed April 2, 1895. Serial No. 544,175. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. HALL, a citizen of the United States, residing at Glidden, in the county of Ashland and State of Wisconsin, have invented a new and useful Improvement in Corn-Harvesters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a corn-harvester according to my invention. Fig. 2 is a top view of the same. Fig. 3 is a side view of the automatic escapement of the cradle, and Fig. 4 is a rear view of the same.

This invention relates in general to corn-harvesting machines, and more particularly to that class of corn-harvesters which are designed to gather the corn and drop it in bundles ready for shocking.

In this specification I shall use the word "corn" to indicate the corn and stalks before separation.

The object of the invention is, first, to hold the corn standing on end in a slanting position while being accumulated into a bundle, and, second, to operate the bundler either automatically so as to drop a bundle at each revolution of the drive-wheel, or by hand when one revolution of the wheel would not permit the gathering of a bundle of the desired size.

To this end my invention consists in the construction and combination of parts forming a corn-harvester hereinafter described and claimed, reference being had to the accompanying drawings, in which—

10 represents the body of the machine.

11 and 12 are drive-wheels fixed upon a shaft 13 which is journaled in bearings in the frame 10. Upon this shaft and its wheels the whole machine is mounted.

14 is the team pole or tongue mounted, by means of its framework 68, upon the shaft 13 independently of the body but connected with the body by means of a stud 44 fixed on the body to engage a slotted arm 15 which is fixed to one end of a shaft 16 that is journaled in the framework 68 of the tongue, and the driver's seat 67 is fixed upon the tongue-frame 68. The shaft 16 is provided with a hand-lever 17 whereby the driver may raise or lower the forward end of the body 10 relatively to the tongue, which in service is supported at its forward end by the team.

18 represents a notched segment secured to the tongue-frame and 19 is a detent upon the hand-lever 17, fitted to slide into engagement with any notch of the segment to hold the lever 17 and thereby the shaft 16, crank 15 and body 10 fixed at any degree of elevation of the latter required.

It will be understood that raising or lowering the forward end of the body 10 relatively to the tongue means raising or lowering it relatively to the ground in order that the cutter 20 carried on the body may be set to cut the corn at the height required.

21 is a hand-latch pivotally connected with the lever 17 and with the detent 19 to operate the latter.

The cutter 20 has a serrated or saw-toothed edge and is fitted to reciprocate in the body 10 across the line of the row of corn being cut.

22 is a beveled pinion-wheel fixed upon a shaft 23 which is journaled in the body 10 and provided with a crank 24 and pitman 25 connected with the cutter 20.

26 is a beveled spur-wheel fixed upon the drive-wheel 11 to revolve therewith and engaging the pinion 22, whereby the pinion is revolved and the cutter is reciprocated. The shaft 23 extends rearward from the drive-wheel and is provided with a long pulley 27 upon which and a mate pulley 28 is mounted a conveyer-belt 29.

30 represents guides spread apart at their forward ends to straddle all the stalks of each hill of corn, and rising and converging rearward to raise fallen corn and to bring the stalks to the cutter 20.

31 and 32 represent the two upright sides of a passage-way extending from the cutter rearward to a fixed platform 33 beside the conveyer-belt 29, and 34 is a fixed smooth bottom upon which the corn may slide through the passage-way, standing on its cut-off end, the sides 31 32 being high enough to support the corn in an upright position.

35 represents a roller or long pulley journaled upright at the rear end of the side 31 and 36 is a similar roller or pulley journaled at the forward end of the same side 31.

37 is a pulley on an upright shaft journaled in the body 10 and provided with a pinion-wheel 38 to engage the spur-wheel 26, and with a chain belt 39 for communicating motion to the roller 35.

40 is a chain belt provided with rake-fingers 41, and mounted to travel horizontally on the rollers 35 and 36 along the faces of the side 31.

42 is an upright roller at the rear end of the side 32, and 43 is an upright roller at the forward end of the same side, upon which rollers two belts 45 and 46 are mounted and both are provided with rake-fingers 47. Below the belt 40 on the same rollers 35 and 36 is another belt provided with fingers opposite to and mating the belt 46, but not shown in the drawings.

48 is a pinion-wheel engaging a spur-wheel 49 that is fixed on the main driving-shaft 13, and 50 is a pulley on the shaft of pinion 48.

51 is a belt communicating motion from pulley 50 to roller 42, whereby the two belts 45 and 46 are kept in motion.

52 is the bundle-gathering cradle journaled at the forward end in a bearing on the body 10 and at the rear end in a bracket 53 extending from the body. This cradle is provided with four arms, one of which 54 projects horizontally when set to receive a bundle.

55 is a ratchet on the cradle-shaft to be caught by a detent 56 which is pivoted to a fixed bracket 57 of the body 10. This detent has an arm 58 to be engaged by a stud 59 which projects from the side of the wheel 49, whereby the detent will be tripped at each revolution of the wheel, releasing the lug 55 and permitting the cradle to be revolved one quarter-turn by the weight of the corn which has been gathered on the arm 54, thus permitting the bundle of corn to tip over onto the conveyer 29.

61 is a spring holding the detent in the paths of both the ratchet 55 and the stud 59.

62 is a hand-latch which may at any time be set by the driver into the path of the upper arm 63 of the cradle to prevent the latter from releasing a bundle when it is too small, even though the detent 56 should be released by the stud 59. If in springing the hand-lever it be pushed a little beyond its path, it will stick by friction and be held from action, so that the reel will then be controlled by the automatically-operated detent 56, but in order that the cradle may be sometimes wholly controlled by hand I provide a catch 64 for holding the detent 56 out of the path of the ratchet 55 and its arm 58 out of the path of the stud 59. Then as each arm of the cradle comes up it will be caught and held by the hand-latch. At such times revolving wheel 49 has no effect upon the cradle and the latter may be operated by hand oftener than the wheel would have done it where the corn is unusually heavy, or not so often where the corn is unusually light.

In operation, the machine advancing along a row of corn at one side of the field pushes its guides 30 along both sides of the row beneath the fallen corn and wedges it up nearly to a standing position in front of the cutter 20, where the corn is first caught by the upper series of rake-fingers 41 and 47, they being longer than the fingers of the lower series, so that by the time the cutter reaches the stalks they are nearly all forced to stand upright when being cut, and as the fingers close in from each side with a circular movement they clasp the corn between the closing fingers and the fingers ahead on the same belt, and there being two series of such fingers, one series at some distance below the other, the corn is carried bodily along in an upright position to the rear end of the passage where it drops standing upon the platform 33. Then the upper series of fingers being the longest again perform a function by pushing the tops of the corn backward farther than the bottom so that the corn in falling tilts over to a half-reclining position, the tops being held by the bundling reel-arm 54. Now if the machine is set for automatic dropping of the bundles, the corn will continue to be cut and deposited upon the said arm 54 until the revolving wheel 49 brings its stud 59 around to trip the detent 56. Then the weight of accumulated corn on the arm 54 will revolve the reel and the corn will fall upon the conveyer-belt 29, which being constantly in rapid motion quickly carries the bundle to one side and drops it out of the way of the next trip of the machine.

My reciprocating saw-toothed cutter will cut the cornstalks whether they stand erect or slanting, even though they slant away from the cutter. It will also cut all weeds in its way instead of pulling them up to clog the machine as fixed knives are likely to do.

While a binder might be attached to this machine, I prefer its present simpler form as being less likely to knock off the ears from the stalks, and the weeds can be separated from the corn before shocking, as they could not be if the bundles were bound by the machine.

The simplicity of the machine, its ability to be operated automatically or by hand at a moment's notice, and the positive action of the cutter are points of advantage which commend it for general adoption.

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

In a corn harvester, a cradle, a hand latch for the cradle, a ratchet, a detent and a mechanical tripper for the detent, means for holding the hand latch and means for holding the detent out of operation, substantially as described.

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

CHARLES H. HALL.

Witnesses:
DANIEL F. TYLER,
PETER SCHROEDER.