(No Model.) 3 Sheets—Sheet 1.

C. S. SHARP.

CORN HARVESTER.

No. 569,242 Patented Oct. 13, 1896.

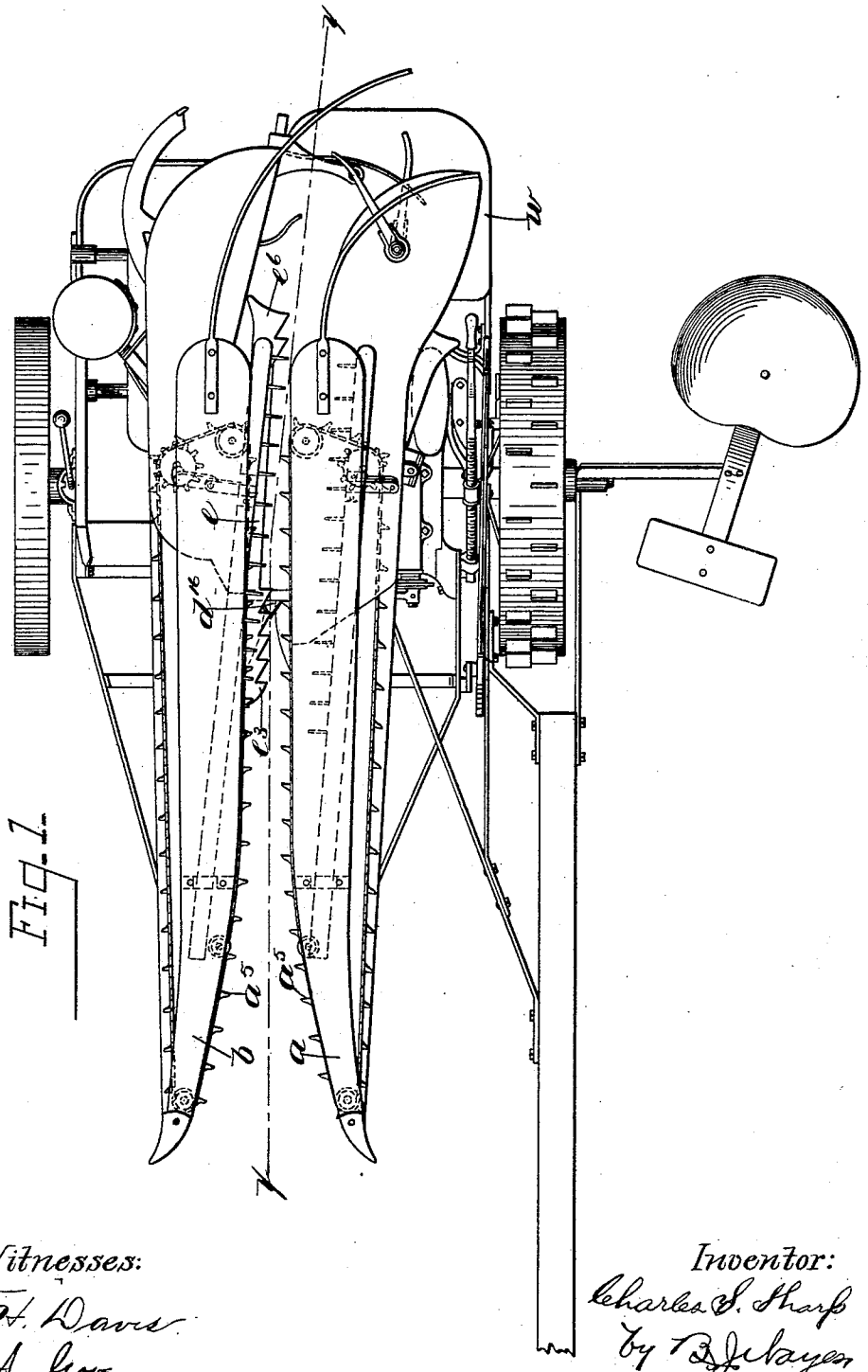

Fig. 1.

Witnesses:
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Inventor:
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(No Model.) 3 Sheets—Sheet 2.

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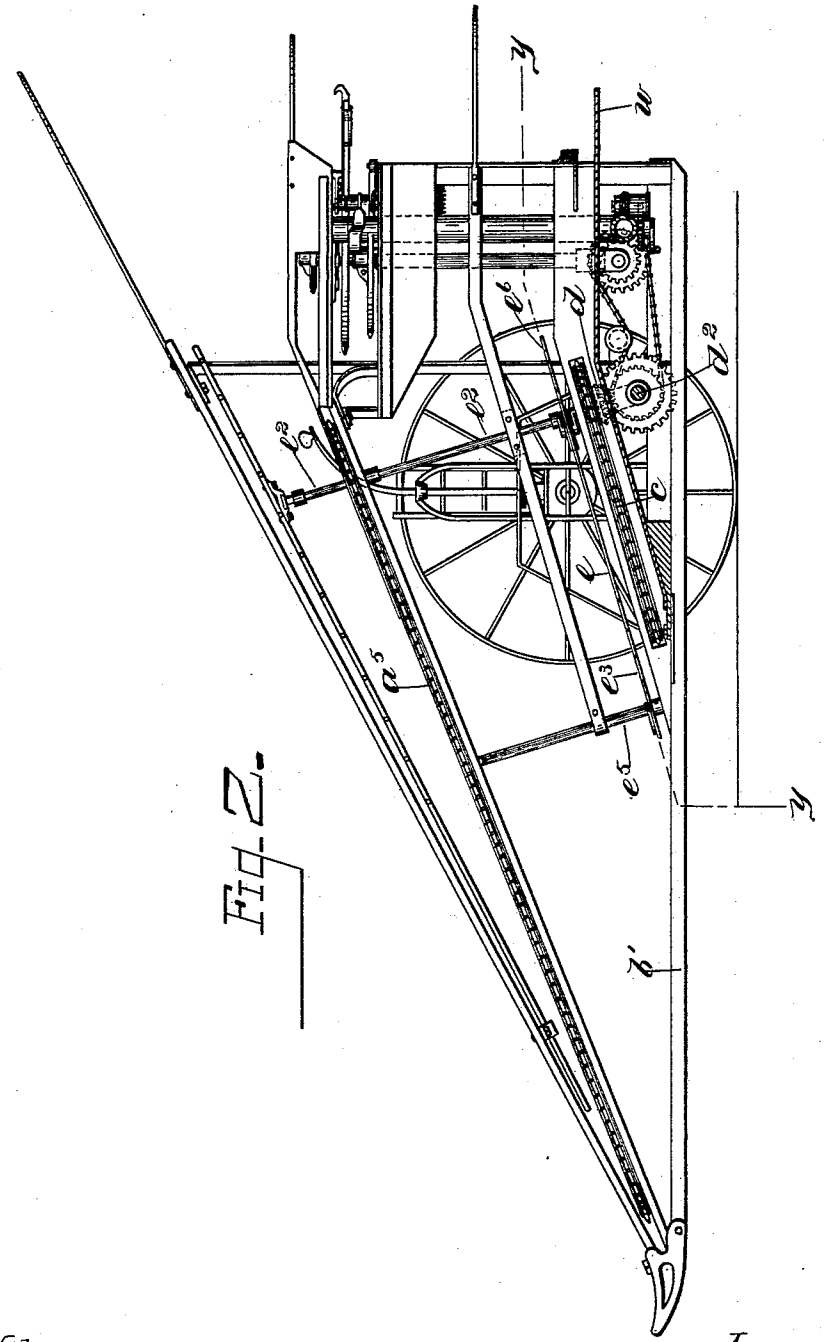

FIG. 2.

Witnesses:
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(No Model.) 3 Sheets—Sheet 3.

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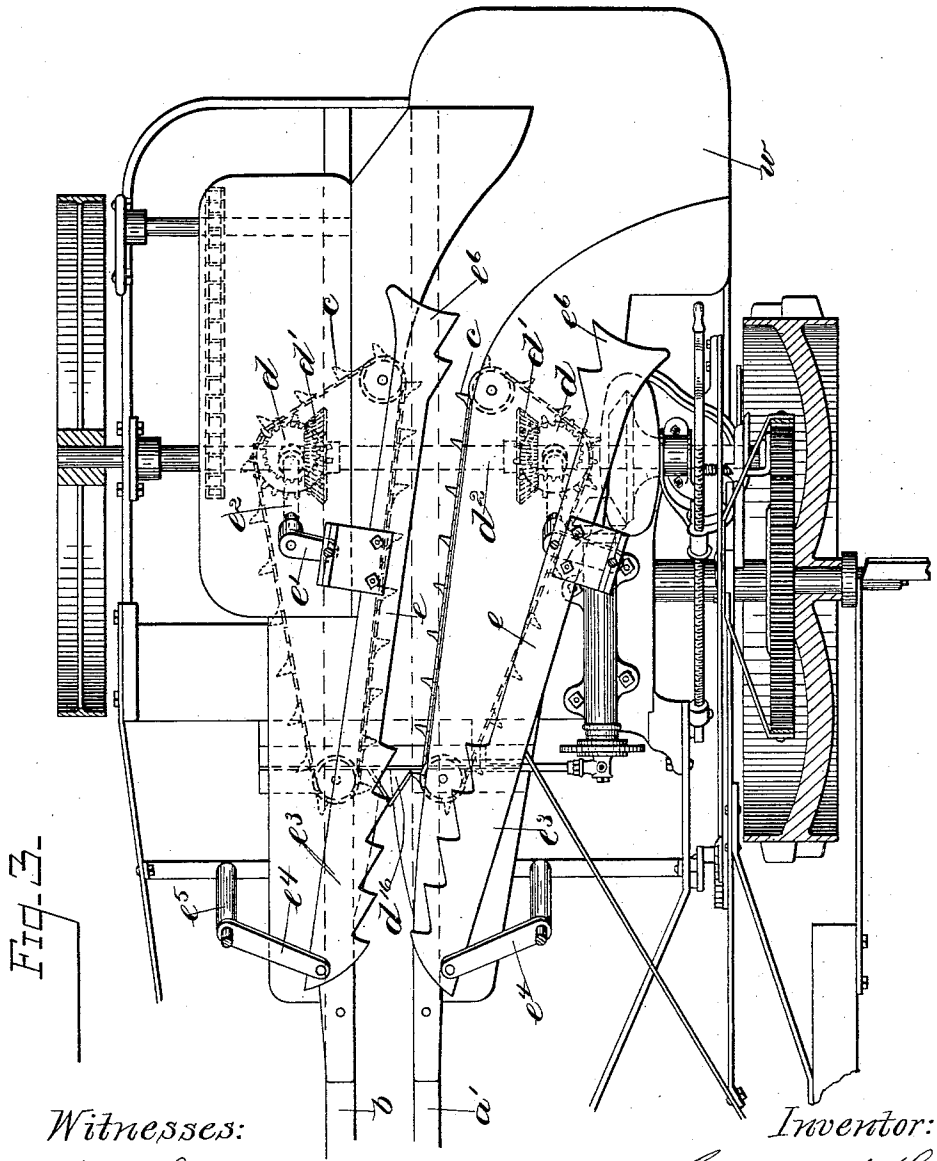

Fig. 3.

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UNITED STATES PATENT OFFICE.

CHARLES S. SHARP, OF AUBURN, NEW YORK, ASSIGNOR TO THE D. M. OSBORNE & COMPANY, OF SAME PLACE.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 569,242, dated October 13, 1896.

Application filed October 12, 1895. Serial No. 565,443. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. SHARP, of Auburn, county of Cayuga, State of New York, have invented an Improvement in Corn-Harvesters, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In corn-harvesters of that class wherein the corn is gathered, cut, and fed along a laterally-confined passage-way in "standing position" to a binder at least two feeding devices are necessary—viz., an upper or stalk-feeding device and a lower or butt-feeding device. In some previous structures these feeding devices have been made as feeding-chains, moving continuously to feed along the corn, but in practice the weeds, grass, &c., are wound into or become entangled with the feeding chain or chains, and in a very short time said chain becomes so clogged or choked as to cease operating. Obviously this trouble is more serious with the lower or butt-feeding chain or chains than the upper or stalk-feeding chains.

One of the various improvements which my present invention comprehends consists in providing clearing devices for the feeding-chains whereby the weeds, grass, &c., will be disengaged from the chains and allowed to pass along freely with the corn without choking the machine. The clearing devices are herein shown in conjunction with the lower or butt-feeding devices only, but obviously can be applied to the upper or stalk-feeding devices, if desirable. The clearing devices may consist of plates located adjacent to the feeding-chains and provided with suitable means for moving them inwardly to push the weeds, grass, &c., away from said chains, thereby allowing them to pass freely along with the corn. I find that good results are produced by reciprocating these plates in such a manner that they act intermittently on the material which is held or engaged by the feeding-chains. For simplicity a single plate may be provided as a clearing device for each feeding-chain, being made substantially as long as the acting face of the chain. When two feeding-chains are employed, which receive the corn between them and feed it along, two such plates may be provided, and they may act alternately, if desired. It is furthermore very desirable, and in many cases necessary, to provide feeding devices for the butts of the corn in advance of the cutter, and instead of extending the feeding-chains or constructing them to do the work my present invention comprehends additional feeding devices which assist in presenting the butts of the corn to the cutter, after which it is fed along by the chain-feeding devices. These additional feeding devices may be made as forward extensions on the clearing-plates or otherwise and provided with teeth to engage the corn. When made as extensions on the clearing-plates, they will of course reciprocate or otherwise move with said plates.

My invention also comprehends certain means for positively presenting the butts of the corn to and packing them into the binder, said means herein consisting of feeding devices at the rear of the butt-feeding chains which reciprocate and pack the butts of the corn into the binder. These feeding devices may be made as toothed plates, and for simplicity formed as extensions on the clearing-plates which project rearwardly beyond the rear ends of the feeding-chains, and when so formed they will reciprocate or otherwise move with said clearing-plates.

My various improvements are herein shown as applied to a harvester such, for instance, as represented in United States Patent No. 539,830, dated May 28, 1895, yet they are applicable to other corn-harvesters.

Figure 1 shows in plan view a corn-harvester embodying my several improvements; Fig. 2, a vertical section of the machine, taken on the dotted line $x\ x$, Fig. 1; Fig. 3, a horizontal section of the machine, taken on the dotted line $y\ y$, Fig. 2.

The gathering-arms, consisting of the upper inclined portions $a\ b$ and lower horizontal portions $a'\ b'$, are supported by the framework and adapted to form a more or less laterally-confined passage-way extending from the forward end of the machine rearwardly toward or to a binder of any suitable construction. A cutter d^{16} crosses this passage-way a suitable distance back of its forward end, which severs the corn that is gathered by the arms and presented to it.

The binder has a platform w, adapted to receive upon it the corn in standing position, or upon which the butts of the corn rest, and an upwardly-inclined floor or bottom is provided for the laterally-confined passage-way extending from the cutter rearwardly to or toward the binder-platform, which is also adapted to receive the severed butts of corn.

An upper or stalk-feeding device a^5 is provided, which is herein shown as a pair of feeding-chains, one for each gathering-arm, and extending from at or near the forward end of the arms rearwardly to or toward the binder, said feeding-chains acting along the adjacent sides of the gathering-arms and substantially the entire length of the laterally-confined passage-way. Means are provided for operating these feeding-chains to engage and feed along the corn.

So much of the corn-harvester herein shown, and which it appears necessary to refer to, is substantially the same as in the Patent No. 539,830, heretofore referred to, to which reference may be had.

As a feeding device for the butts of the corn a pair of feeding-chains are located at opposite sides of the laterally-confined passage-way and extending from the cutter d^{16} to the binder, being upwardly inclined in parallelism with the upwardly-inclined floor or bottom of said passage-way. These feeding-chains engage the butts of the severed corn and convey the corn rearwardly toward the binder. Such butt-feeding chains are old and possess certain advantages in continuously feeding along the corn, and as they are not exceedingly taut they yield more or less between the chain-wheels.

The feeding-chains are composed of sprocket-chains with teeth moving around sprocket-wheels, and hence comprise many pieces jointed together, and the weeds, grass, &c., which are gathered up by the gathering-arms with the corn are wound into and become entangled with the feeding-chains to such a serious extent as to frequently prevent them from operating, thereby choking the machine. The trouble is obviously greater with the butt-feeding chains than with the upper or stalk-feeding chains, and to prevent the weeds, grass, &c., from so clogging the feeding-chains and choking the machine clearing devices are provided for said feeding-chains, which are herein shown as plates e e, located adjacent to the feeding-chains, as, for instance, they may be located just above said feeding-chains and in parallelism therewith.

The plates, which serve as clearers for the feeding-chains, are made substantially as long as the acting portions of said chains and are movable inwardly to push the weeds, grass, &c., away from or out of engagement with said chains.

The plates e are each loosely connected to crank-arms e', secured to shafts e^2, which occupy substantially vertical positions, said shafts having at their lower ends or secured thereto beveled gears d, which are engaged by beveled gears d', secured to a horizontal driving-shaft d^2. As the shaft d^2 is rotated the shafts e^2 are caused to rotate, but in opposite directions, turning the crank-arms e' and thereby moving the plates in and out in a more or less curved path.

The plates e are herein shown as having forward extensions provided with adjacent toothed edges, and the forward ends of the plates, or the extensions thereof, are loosely connected by links e^4 to rods e^5. The links e^4 and rods e^5 thus loosely or pivotally support the forward ends of the plates, permitting them to be worked by the crank-arms in such a manner as to act intermittently upon the material. The motion given to the clearing-plates thus supported and operated is substantially a four-motion. So far as said plates are employed to act as clearing devices for the feeding-chains they need be made only as long as the acting portions of said chains, and the toothed extensions e^3 are provided for the purpose of more positively feeding and more correctly presenting the butts of the corn to the cutter. The toothed extensions e^3 therefore extend forward some distance in advance of the cutter. The crank-arms e' are herein arranged to cause the clearing-plates to act alternately upon the material, which arrangement appears to produce good results. The feeding-chains cease to feed the corn along after it reaches the binder, and I have therefore provided butt-packers for the corn, adapted to pack the butts into the binder. These consist of extensions e^6 upon or at the rear end of the clearing-plates, having teeth formed upon their adjacent faces or edges, and as said toothed extensions are formed integral with or secured to the clearing-plates they are reciprocated thereby and act alternately to force or pack the butts into the binder.

For the sake of simplicity, as well as for the production of good results, the feeding-plates e^3 and the butt-packers e^6 are formed integral with or secured to the clearing-plates.

It is obvious that various modifications of the clearing devices herein shown may be made which come within the spirit and scope of this invention and which act to push away or disengage or disentangle the weeds, grass, &c., from the feeding-chain, permitting them to be fed along freely through the machine with the corn. It is also obvious that the clearing devices may be provided for the upper or stalk-feeding chains, if desired, or for any portion thereof.

I claim—

1. In a corn-harvester, a pair of feeding-chains adapted to receive the corn between them and feed it along, and clearing devices located adjacent thereto, and moving alternately to push the corn away from said chains, substantially as described.

2. In a corn-harvester, feeding mechanism for the corn having as a coöperative part of

it a continuously-moving feeding-chain, and an intermittently-moving clearing device therefor, located adjacent thereto, and adapted to push the corn away from the chain, substantially as described.

3. In a corn-harvester, a pair of continuously-moving feeding-chains adapted to receive the corn between them and feed it along, and a pair of feed-chain-clearing devices located adjacent to said feed-chains, and moving intermittently and alternately to push the corn away from one and then away from the other feed-chain, substantially as described.

4. In a corn-harvester, a pair of feeding-chains adapted to receive the corn between them and feed it along, and a pair of reciprocating clearers located close to said chains, substantially as described.

5. In a corn-harvester, a pair of feeding-chains adapted to receive the corn between them and feed it along, and a pair of four-motion clearing-plates for said feeding-chains, located adjacent thereto to clear them of weeds, &c., substantially as described.

6. In a corn-harvester, in combination with upper or stalk-feeding devices, of a pair of butt-feeding chains adapted to receive the corn between them and coöperate with said stalk-feeding devices in feeding it along, and clearing devices for said butt-feeding chains, and means for moving them in and out to disengage the weeds, &c., from said chains, substantially as described.

7. In a corn-harvester, feeding-chains adapted to receive the corn between them and feed it along, and a pair of reciprocating clearing-plates located close to said chains, for removing weeds, &c., therefrom, said plates having teeth on their adjacent edges, substantially as described.

8. In a corn-harvester, feeding-chains adapted to receive the corn between them and feed it along, a pair of clearing-plates for said chains having toothed extensions in advance of the feeding-chains, means for moving said clearing-plates inwardly to remove weeds, &c., from the feeding-chains and to engage the corn in advance of said feeding-chains, and for moving them rearwardly to feed the corn along into engagement with said feeding-chains, substantially as described.

9. In a corn-harvester, the combination of a pair of gathering-arms, a laterally-confined passage-way forming a continuation of the passage-way between said gathering-arms, a cutter crossing the passage-way, and a binder at the rear, upper or stalk-feeding devices, a pair of butt-feeding chains at opposite sides of said laterally-confined passage extending from the cutter toward the binder, and a pair of clearing-plates for said butt-feeding chains having forward extensions in advance of the cutter provided with teeth, and means for moving said plates to clear the butt-feeding chains and to engage and feed along the corn to the cutter and butt-feeding chains, substantially as described.

10. In a corn-harvester, wherein the corn is fed along a laterally-confined passage-way to a binder, a cutter, and continuously-operating butt-feeding chains which terminate adjacent said cutter and which engage the butts of the corn and assist in feeding said corn along the passage-way, and reciprocating toothed plates which engage the butts of the corn in said passage-way in advance of said butt-feeding chains and draw them into engagement with and across the cutter and deliver them cut to said butt-feeding chains, substantially as described.

11. In a corn-harvester, wherein the corn is fed along a laterally-confined passage-way to a binder, a cutter, butt-feeding devices which terminate adjacent the cutter and which engage the butts of the cut corn and assist in feeding said corn along said passage-way, and two alternately-operating toothed plates which engage the butts of the corn in said passage-way in advance of said butt-feeding devices and draw them into engagement with and across the cutter, and deliver them to said butt-feeding devices, substantially as described.

12. In a corn-harvester, wherein the corn is fed along a laterally-confined passage-way to a binder, a cutter, butt-feeding devices which terminate adjacent the cutter, which engage the butts of the cut corn and assist in feeding said corn along said passage-way, and two alternately-operating toothed plates located at opposite sides of said passage-way, which alternately engage the butts of the corn in said passage-way in advance of said butt-feeding devices, moving them against one and then against the other wall of said passage-way and drawing them into engagement with and across the cutter and delivering them cut to said butt-feeding devices, substantially as described.

13. In a corn-harvester, feeding-chains adapted to receive the corn between them and feed it along, a pair of clearing-plates for said chains, having toothed extensions beyond the rear of the feeding-chains, means for moving said clearing-plates inwardly to disengage weeds, &c., from said feeding-chains, and to engage the corn at the rear of said chains, and for moving them rearwardly to pack the corn into the binder, substantially as described.

14. In a corn-harvester, a pair of feeding-chains adapted to receive the corn between them and feed it along, clearing-plates therefor, having toothed extensions in advance of and also beyond the rear of said feeding-chains, and means for operating said clearing-plates, substantially as described.

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

CHARLES S. SHARP.

Witnesses:
RAYMOND M. ATHERLY,
C. F. BALDWIN.