

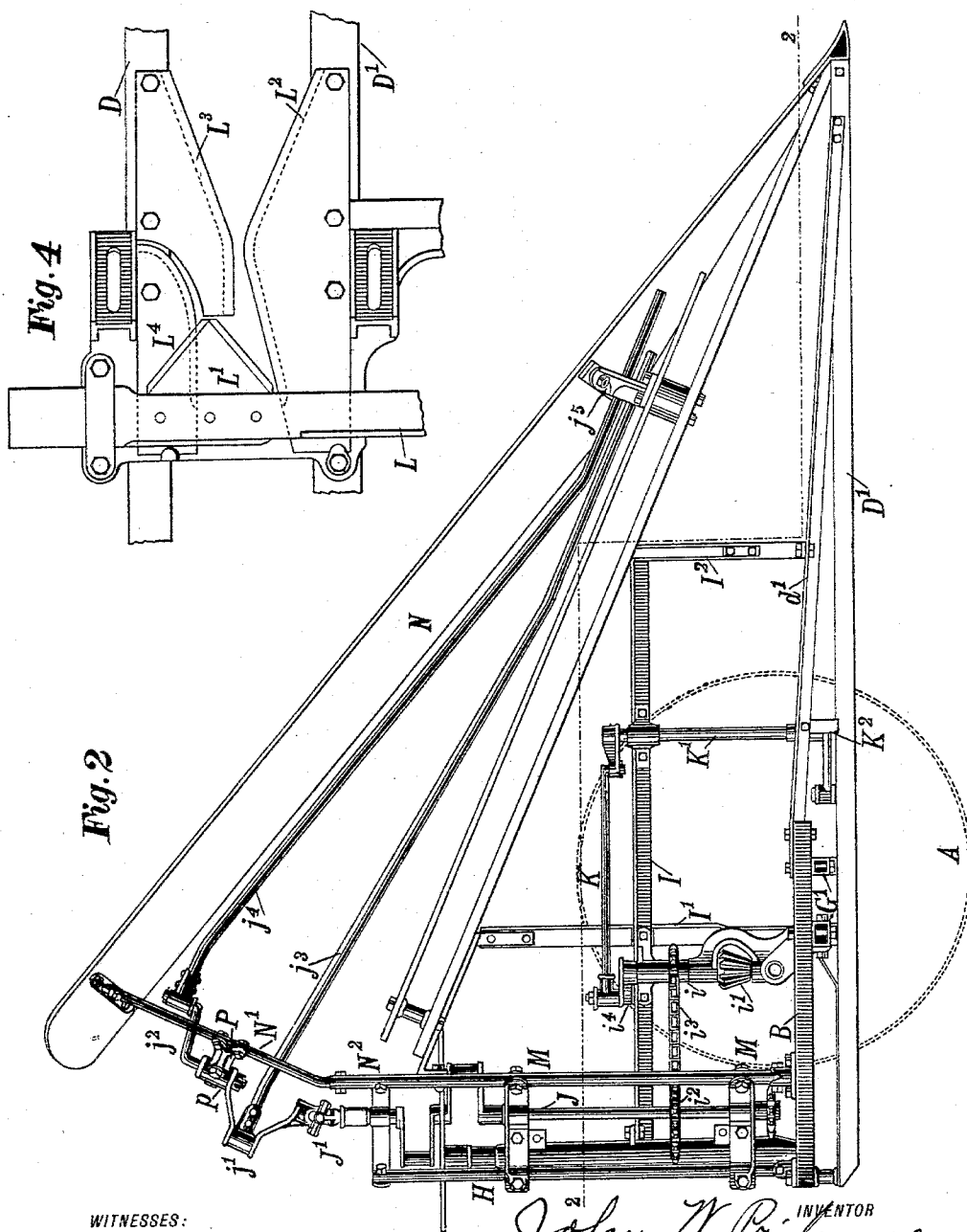
(No Model.)

3 Sheets—Sheet 2.

J. W. PRIDMORE.
MACHINE FOR HARVESTING CORN.

No. 583,937.

Patented June 8, 1897.



WITNESSES:
John M. Culver
E. C. Clinton.

INVENTOR
John W. Pridmore
BY *R. B. Swift.*
ATTORNEY.

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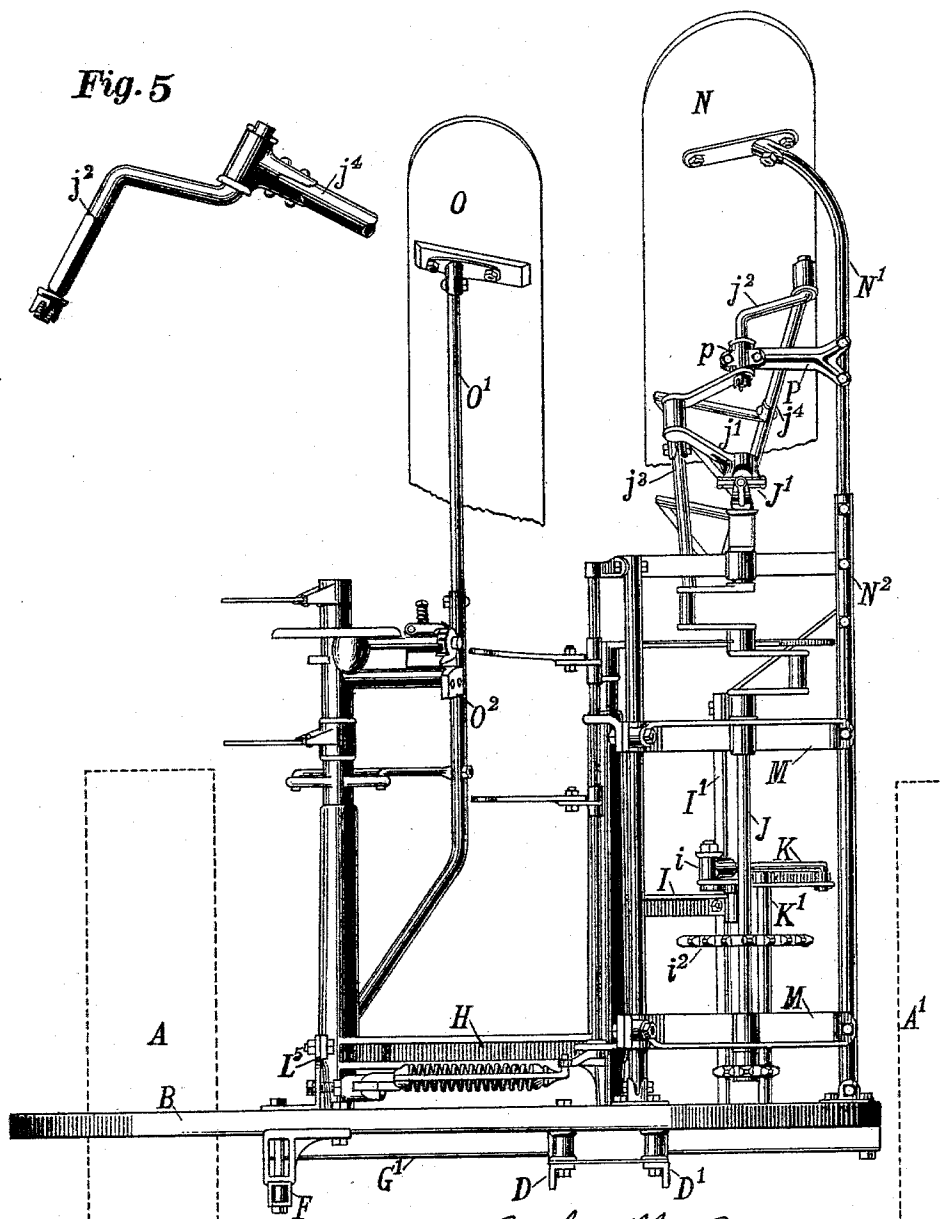
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Fig. 3



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UNITED STATES PATENT OFFICE.

JOHN W. PRIDMORE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE McCORMICK HARVESTING MACHINE COMPANY.

MACHINE FOR HARVESTING CORN.

SPECIFICATION forming part of Letters Patent No. 583,937, dated June 8, 1897.

Application filed June 29, 1895. Serial No. 554,471. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. PRIDMORE, a citizen of the United States, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Machines for Harvesting Corn, of which the following is a specification.

My improvements relate to corn-harvesters, and the devices containing them are shown applied to a machine of the Peck type, in which the corn is conducted between prongs that extend forwardly from the machine on each side of the row to guide and lift the stalks and are severed by a knife located between these prongs and carried onwardly by forwarding devices to a binder positioned on end, which separates the stream of corn into bundles and binds and discharges these bundles to one side out of the way of the machine in its next round. In machines of this type it has been a difficult problem to construct the framework of the machine and to mount the parts upon it so that the framework would be strong and still neat and symmetrical.

One part of my improvement relates to the construction of this framing and has to do with the forming and positioning of the main sills of the machine and to the location of a beam that extends lengthwise of the machine on one side of the row and furnishes a stable bearing for certain of the operating parts.

Another part of my invention has to do with the knife for severing the stalks, while another part has to do with the supporting of the supplemental guiding-boards and the location of the supplemental forwarding-rakes and the method of transmitting motion to them.

In the drawings, Figure 1 is a plan view of the framework of the machine, partly in section, the position of the wheels being shown in dotted lines, and the section on which the view is taken is on line 2 2 of Fig. 2. Fig. 2 is a side elevation of the grain-wheel side of the part of the machine on that side of the row toward the standing corn. Fig. 3 is a rear view showing the binder and part of the stalk passage-way and also showing the means of supporting the supplemental guiding-boards and the forwarding-rakes. Fig.

4 is a top view of the knife, while Fig. 5 is a view of the crank for the upper forwarding-rake, it having been removed from the machine.

In the drawings similar letters refer to similar parts throughout the several views.

The main wheel A and grain-wheel A' are shown in dotted lines and unconnected from the machine. It is to be understood, however, that these wheels support the framing and transmit motion to the devices mounted upon the frame. The main frame is composed of a bent sill B, that starts at the center of the grain-wheel A' and continues rearwardly, curving outwardly, and runs transversely across the rear of the machine, and then curving forwardly it extends past the main wheel A to the front corner of the machine, to which corner the tongue C is attached. A brace-rod C' connects the tongue with a part of the frame. Projecting forwardly from the rear transverse portion of the bent sill B are the prong-sills D and D', which are extended forward and separated sufficiently so that a row of corn can pass between them. At the forward ends they are deflected from the row, so as to pass with more certainty upon either side of the row, the sill D' being bent from the central line of the row at a greater angle than is the sill D. The prong-sill D is supported by the brace d, while D' is supported by the spring-brace d'. At the front of the machine and on the main-wheel side a cross-sill E is extended from the forward end of the bent sill B and bolted by means of chairs d² to the prong-sill D and its brace d. A longitudinal sill F is extended from the rear of the bent sill B to the cross-sill E on the inner side of the main wheel and forms with the longitudinal portion of the bent sill B an elongated opening in the frame for the location of the main wheel A. Near the center of the longitudinal sill F transverse sills G' are extended across the machine and bolted to the prong-sills D and D' and their braces d and d' and are continued to the longitudinal portion of the bent sill B near the center of the grain-wheel A'. An examination of the drawings will show that a framework constructed in this manner will be neat, tasteful, and still

have great strength to resist torsional strains and to carry the devices that are mounted upon it.

The main or **U** frame **H** of the binder is positioned across the rear of the frame, one corner of which is bolted to the rear of the bent sill **B**, while the other is attached to the longitudinal support **L**⁵, that is extended from the box **h**' of the main shaft to the rear of the sill **B**. To the inner arm of the **U**-shaped frame **H** is attached a longitudinal slightly-bent girth **I**, that extends forward and is bolted to an upright **I**¹ and continued still forward and attached to the upright **I**². This girth **I** furnishes a bearing for the upper end of the box, in which is mounted the fly-wheel shaft **i**. Motion is transmitted to this shaft through the bevel-pinion **i**¹, and by means of the sprocket-wheels **i**² and chain **i**³ motion is transmitted to the upright packer-shaft **J** of the binder. The pitman **K** is extended from the crank **i**⁴ on the fly-wheel shaft **i** to the rock-shaft **K'**, the upper end of which is supported on the girth **I** and the lower end upon a supplemental bar **K**², that extends from the prong-sill **D'** to its brace **d'**. This rock-shaft is attached to the reciprocating knife **L** and transmits motion to it. The girth **I** thus firmly supports and ties together the packer-shaft, which is mounted on the binder-sills **M**, that are connected with the inner arm of the **U**-frame **H**, to which the girth **I** is attached, the crank-shaft, and the rock-shaft, and the vibrations of the reciprocating knife thus carry back to the binder-frame a solid part of the machine.

On the upper end of the packer-shaft **J** and connected to it by the knuckle-joint **J'** are the crank-arms **j**¹ and **j**², that give motion to the forwarding-rakes **j**³ and **j**⁴, whose receiving ends slide freely in the stationary guides **j**⁵ on the forward end of the prongs. Attention is called to the fact that these cranks are driven from the vertical packer-shaft, but are so positioned upon the machine as to be practically at a right angle to the pitch of the supplemental board **N** on the inner gathering-prong. The cranks **j**¹ and **j**² thus reciprocate the rakes **j**³ and **j**⁴ in the same diagonal plane, whereas if the cranks were vertical, as constructed heretofore in machines of this type, the rakes would, when the crank was at its inner stroke, be considerably higher than when the cranks were at their outer stroke. This up-and-down movement has a great tendency to strip the ears from the corn, and is therefore very bad in practice. Attention is called to the fact that the crank **j**² (shown in Fig. 5) can be removed from the machine and its rake **j**⁴ taken with it whenever the crop to be harvested is of ordinary height and stands reasonably straight. In this case the rake **j**³ will be all the supplemental assistance the forwarding device will need. The supplemental board **N** is supported by an upright diagonal brace **N'**, that is bolted in the binder-pipe **N**², while the supplemental

board **O** is supported by the diagonal brace **O'**, that is bolted in the binder-pipe **O**². These boards can thus be easily adjusted by adjusting their diagonal supporting-braces **N'** and **O'**, so as to guide and support corn of different heights. The cranks **j**¹ and **j**² are supported and held in place by the brace-arm **P**, that extends from the diagonal brace **N'** and has at its inner end a bearing **p**, in which the crank-arm **j**¹ is journaled.

In corn-harvesting machines of the type in which the corn is held upright while it is severed and transmitted to the binder I have had many difficulties to overcome, perhaps the most important of which has been encountered in obtaining the best shape for the cutting-knives. Many experiments and inventions have been made, and it has been found that small changes are frequently productive of important results, especially where the corn is very heavy and the machine is taxed to its utmost in order to handle it. The knife is therefore an important part of my invention. The reciprocating knife-bar **L** carries the blade **L'** and is moved back and forth across the slot between the gathering-prongs, into which the corn is conducted by the forward advance of the machine. Extending forward from this knife on the inner prong-sill **D'** is a stationary knife **L**², that is formed in a peculiar manner for the purpose herein-after specified. The knife **L**² extends inwardly and into the corn-slot, and when it has reached a position of greatest width and about half-way across the corn passage-way it slants rearwardly and back again toward the sill **D'**. This knife will thus withdraw itself from the kerf that it has cut in the stalk and leave the kerf open for the reciprocating knife to enter, and thus an easier cut will ensue than if the stationary knife continued at its greatest width to the rear. The trash and light stalks thus have a freer space after passing by the knife **L**² to be acted upon by the reciprocating blade **L'**. On the other side of the corn passage-way on the prong-sill **D** a stationary knife **L**³ is positioned, the cutting edge of which extends into the stalk passage-way until it leaves but a small opening between itself and the knife **L**². This small opening allows weeds and trash to pass back to the stationary knife. The rear of the knife **L**³ has been cut away, so as to leave an enlarged space at its rear that the reciprocating knife may enter freely into the kerf that the stationary knife **L**³ may make in any stalk that passes to the rear across it. A supplemental knife or ledger-plate **L**⁴ furnishes a sharp edge to resist the transverse motion of the blade **L'**. In corn that is badly lodged, where the stalks lie almost flat upon the ground and the prongs run along the stalks, the ears, when the stationary knives **L**² and **L**³ are used, are liable to catch between these knives, thus filling the passage-way and clogging the machine. In such corn it is necessary to open the corn passage-way, so that

the ears can pass back to the reciprocating knives. The knife L^3 has therefore been bolted to the prong D, so that it can be removed therefrom, and the stationary knife L^2 , the reciprocating blade L' , and the supplemental knife L^4 will do the cutting. It is plain, however, that the more work that can be done with the stationary knives as the machine is drawn forward the easier will be the operation of the machine, and a handy way is thus required to open the knives in the stalk passage-way whenever it becomes necessary from the tangled condition of the corn.

It has been heretofore stated in this specification that the gathering-prong on the side of the machine toward the standing corn was at its receiving end deflected or bent outwardly from the line of the row that was being operated upon to a greater extent than the prong on the other side of the row. It is necessary in practical operation of corn-harvesting machines that the opening between the ends of the prongs be of sufficient width so that the corn will, even though it is lodged and tangled and even though the hills are out of line, be gathered between the prongs and raised and carried onwardly as the machine advances. The tendency of the team in machines of the type shown in the drawings, in which the machine is drawn from one corner, the team walking beside the row to be cut, is to push away from the row, and especially if the stalks are bent and lodged, thus whipping against them. The team causes no trouble by getting upon the row, which is stiff enough and well enough defined so that they will not crowd upon it. The prong then beside them can be kept straighter at its receiving end than the prong on the other side, the point of which must be curved outwardly in order that any slight deflection of the team or crookedness in the row shall not cause the escape of the stalks. That the opening between the points of the prongs should be as narrow as possible is true, because when the stalks are struck by the prongs which pass beneath them they are frequently whipped across the line of the row onto the other prong, which should be as close as possible, so that the stalk cannot fall too low and be pushed forward. The plan then of making the angle of one of the prongs from the line of the row different from that of the other, thus keeping the opening wide enough to gather the stalks when the row has been planted crookedly, and also when the stalks are lodged, and still keeping them as closely as possible together, so that the stalks may be supported, is very useful in practice, and it is an important part of my invention.

From the descriptions given the operation of the devices in which my improvement is found will be readily understood; and,

Having fully described these devices, what I claim, and desire to secure by Letters Patent, is—

1. In combination in a corn-harvesting ma-

chine the sill, B, extending along the outer side of the main wheel, and serving as a connection for the tongue, and curved at its rear corners and extended forward to the grain-wheel, gathering-prongs projected forward from the sill, a cross-sill extending from the forward corner of the sill, B, transversely across the machine to the sill, D, of the gathering-prong, a longitudinal sill connecting the rear of the sill, B, with the cross-sill, transverse sills extending across the machine practically in line with the center of the wheels, and means uniting these sills, all substantially as and for the purpose specified.

2. In combination in a corn-harvester, forwardly-projecting prongs on each side of the corn-row, a knife located between these prongs, a binder positioned vertically in the rear of the gathering-prongs, a shaft carrying the packers positioned vertically in the frame of the binder, a diagonal shaft connected with the vertical packer-shaft, cranks on the diagonal shaft, rakes mounted on these cranks at their delivery ends and supported on the gathering-prongs at their receiving ends, substantially as and for the purpose specified.

3. In combination in a corn-harvester, gathering-prongs which project forwardly from the machine and slant rearwardly and upwardly, a knife located between these prongs, forwarding devices located on the prongs to move the corn backwardly, a vertical binder positioned on the machine in the rear of the gathering-prongs, a vertical packer-shaft having bearings in the vertical binder, a diagonal shaft connected with the vertical packer-shaft by universal coupling, cranks in the diagonal shaft, the upper end of one crank having a hollow bearing in which the lower end of the other crank is removably mounted, substantially as and for the purpose specified.

4. In combination in a corn-harvesting machine, guiding-prongs, supplemental boards mounted on these guiding-prongs and supported at their receiving ends by the prongs, their rear ends supported on braces that have their bearing on the sills of the vertically-mounted binder, substantially as and for the purpose specified.

5. In combination in a corn-harvesting machine, forwardly-projecting prongs, supplemental boards supported at their receiving ends upon these prongs, their discharge ends supported by adjustable arms that are movably mounted in the sills of the binder, substantially as and for the purpose specified.

6. In a corn-harvesting machine in combination with the reciprocating knife, a stationary knife containing a diagonal cutting edge extending into the corn passage-way ahead of the reciprocating knife, and then turned rearwardly and inwardly toward the prongs at the place where the reciprocating knife moves across its cutting edge, substantially as and for the purpose specified.

7. In combination in a corn-harvesting machine, a reciprocating knife moving trans-

versely across the stalk passage-way, stationary knives whose cutting edges slant inwardly and rearwardly, leaving but a small space in the stalk passage-way ahead of the
5 reciprocating knife, which space widens as it approaches the reciprocating knife, substantially as and for the purpose specified.

In testimony whereof I have hereunto subscribed my name.

JOHN W. PRIDMORE.

Witnesses:

E. E. CLINTON,
R. B. SWIFT.