

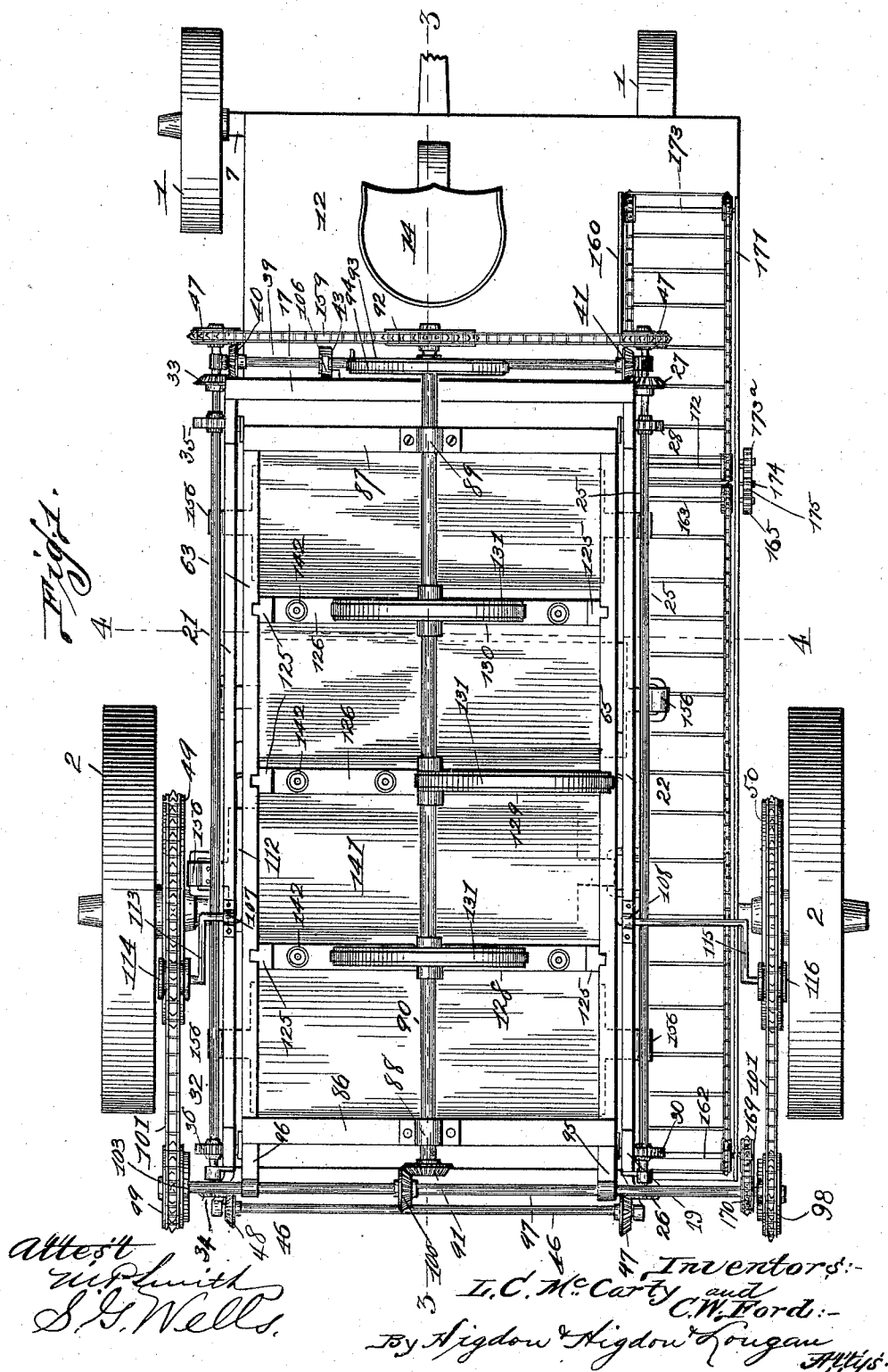
(No Model.)

4 Sheets—Sheet 1.

L. C. McCARTY & C. W. FORD.
COTTON HARVESTER.

No. 585,588.

Patented June 29, 1897.



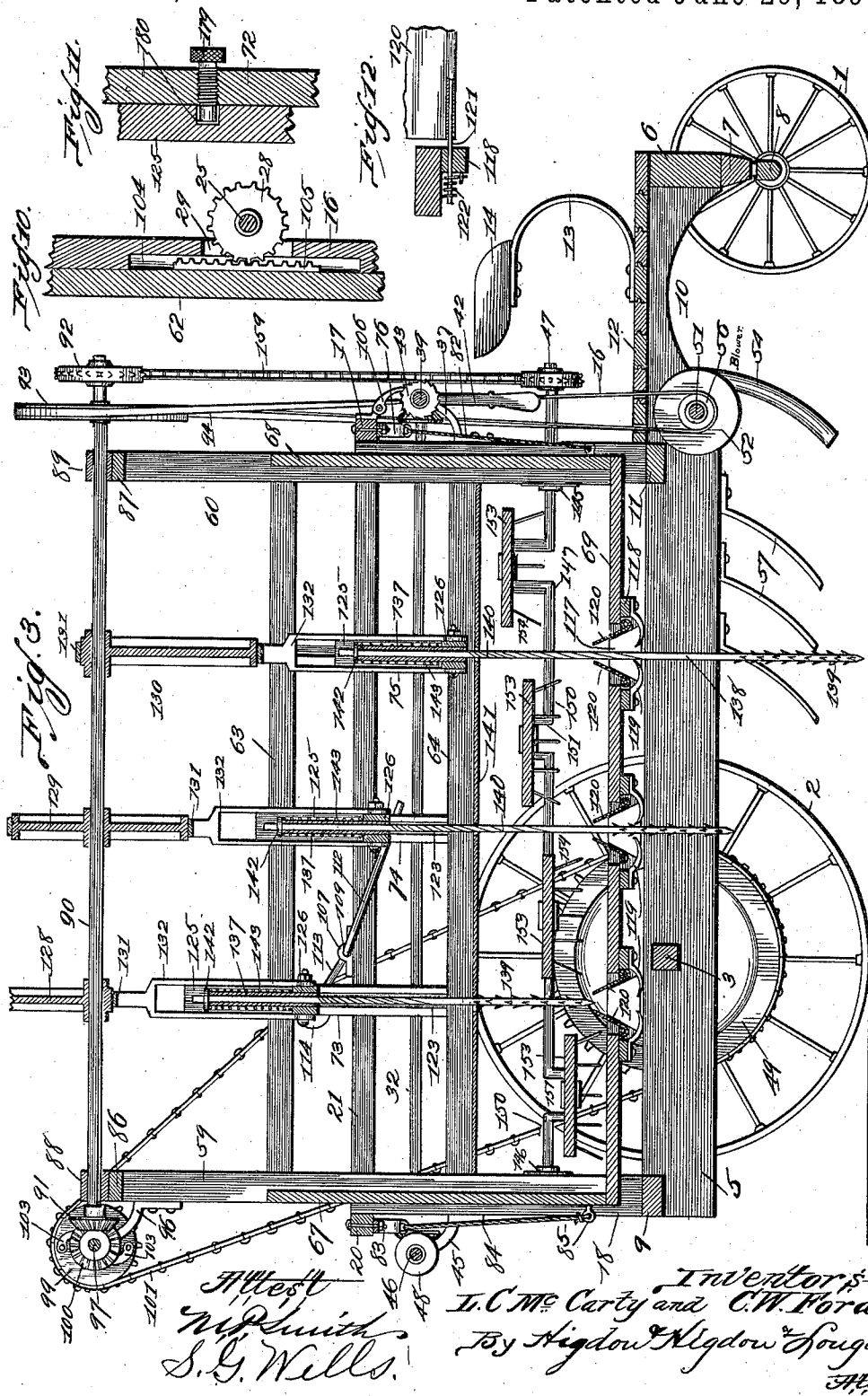
(No Model.)

4 Sheets—Sheet 3.

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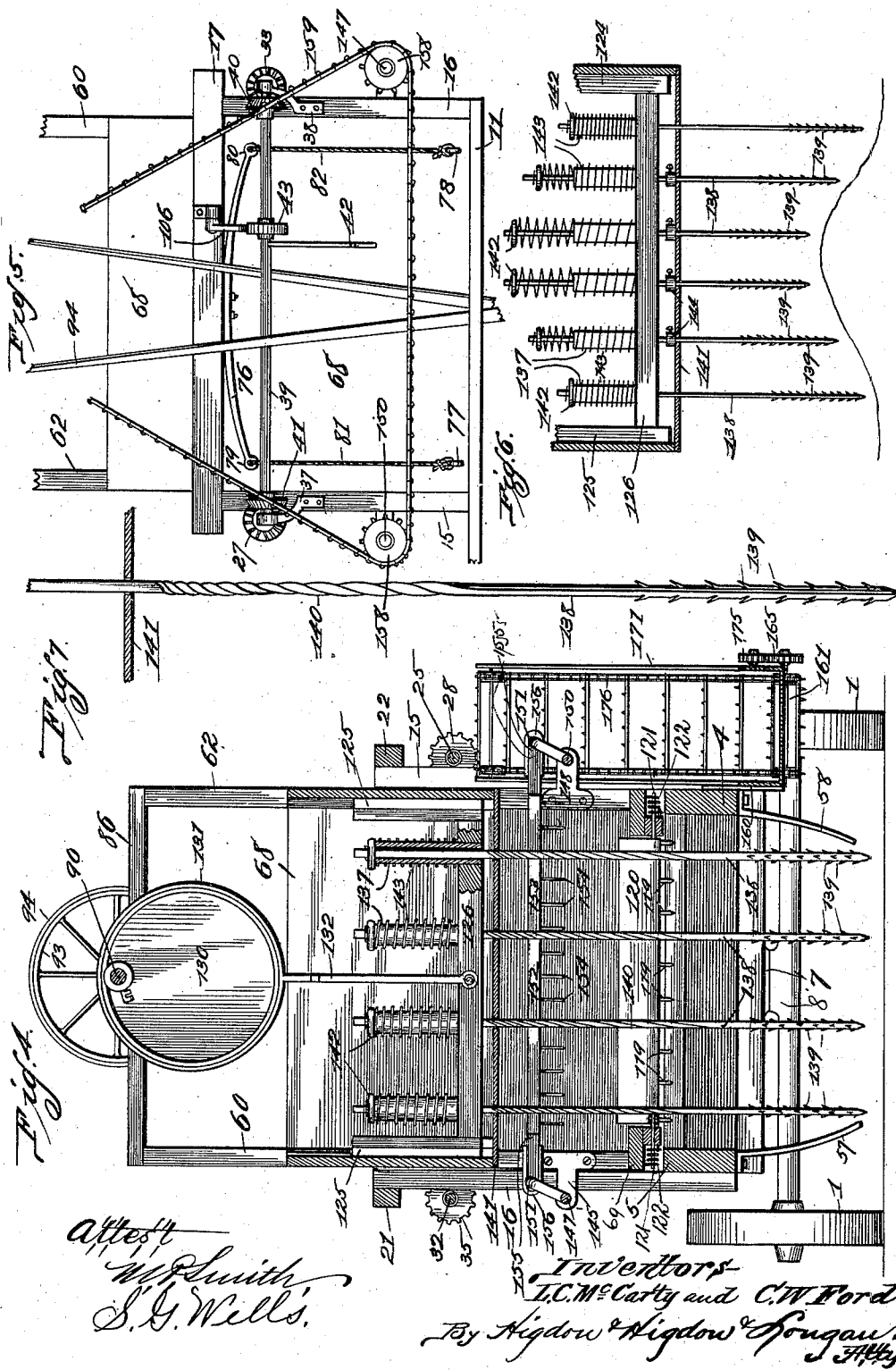
(No Model.)

4 Sheets—Sheet 4.

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COTTON HARVESTER.

No. 585,588.

Patented June 29, 1897.



UNITED STATES PATENT OFFICE.

LEWIS C. McCARTY AND CHARLES W. FORD, OF BERNIE, MISSOURI,
ASSIGNORS TO THE McCARTY & FORD HARVESTING COMPANY, OF
SAME PLACE.

COTTON-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 585,588, dated June 29, 1897.

Application filed June 22, 1896. Serial No. 596,484. (No model.)

To all whom it may concern:

Be it known that we, LEWIS C. McCARTY and CHARLES W. FORD, of the city of Bernie, Stoddard county, State of Missouri, have invented certain new and useful Improvements in Cotton-Harvesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to cotton-harvesters; and it consists in the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

Figure 1 is a top plan view of our improved cotton-harvester. Fig. 2 is a side elevation of the machine shown in Fig. 1. Fig. 3 is a longitudinal sectional view on the line 3 3 of Fig. 1. Fig. 4 is a transverse sectional view on the line 4 4 of Fig. 1. Fig. 5 is a front elevation of the machine, parts being broken away. Fig. 6 is a diagrammatic transverse view showing how the machine is operated on a ridge or back furrow. Fig. 7 is an enlarged detail view of one of the pickers. Fig. 8 is a detail view in perspective of a picker-guard. Fig. 9 is an enlarged detail view of the means of affixing the cams to their shafts. Fig. 10 is a vertical sectional view of the rack-and-pinion connection between the inside frame and the outer frame. Fig. 11 is a vertical sectional view showing the means of holding the inside frame stationary relative to the outer frame. Fig. 12 is a sectional view showing the means of mounting and operating the yielding plates, which act as cleaners for the pickers.

In the construction of our improved cotton-harvester we employ the front trucks 1 and the rear trucks 2. The rear axle 3 passes through the timbers 4 and 5, and the front ends of said timbers are connected by the cross-piece 6, which rests upon the rocker 7, and said rocker 7 rests upon the front axle 8. The rear ends of the timbers 4 and 5 are connected by the cross-timber 9. The lower edges of the timbers 4 and 5 are cut away, forming the arches 10, which arches are designed to allow the front truck to turn as required to guide the machine.

A cross-timber 11 connects the timbers 4

and 5 at points some distance behind the arch 10. The rectangular space between the timbers 4 and 5 and cross-pieces 6 and 11 is covered by the boards 12, upon which rests the seat-spring 13, carrying the seat 14.

Extending upwardly from the side pieces 4 and 5 at a point in line with the cross-piece 11 are the posts 15 and 16, the upper ends of which posts are connected by the cross-piece 17. At the rear ends of the side pieces 4 and 5 and extending upwardly therefrom are posts 18 and 19, the upper ends of which are connected by the cross-piece 20. Timbers 21 and 22 connect the ends of the cross-pieces 17 and 20.

Near the upper ends of the posts 15 and 19 are horizontally-alined bracket-hangers 23 and 24, having bearings in their outer ends, in which bearings is mounted the shaft 25, and said shaft 25 carries upon its rear end the bevel-gear 26 and upon its front end the bevel-gear 27. Mounted upon the shaft 25, adjacent the post 15, is a spur-gear 28, and the face of said spur-gear passes through the aperture 29 in the post 15. Mounted upon the rear end of the shaft 25 and adjacent the post 19 is a spur-gear 30, the face of which passes through the aperture 31 in the post 19.

Upon the upper end of the post 16 is a bracket-hanger similar to the bracket-hanger 24, and upon the upper end of the post 18 is a hanger similar to the hanger 23, and mounted in these hangers is a shaft 32 in a position parallel with the shaft 25 and resembling said shaft 25 in every particular. Upon the front end of the shaft 32 is a bevel-gear 33, and upon the rear end of said shaft is a bevel-gear 34, and upon the front end of said shaft 32 is a spur-gear 35, corresponding to the spur-gear 28, and upon the rear end of said shaft is a spur-gear 36, corresponding to the spur-gear 30.

Near the upper end of the post 15 and on the front side thereof is a bracket 37, and upon the upper end of the post 16 and in horizontal alinement with said bracket 37 is a bracket 38, and in the upper ends of said brackets are bearings, in which the shaft 39 operates. Upon one end of the shaft 39 is a bevel-gear 40, which meshes into the bevel-

gear 33 upon the shaft 32, and upon the opposite end of said shaft is a bevel-gear 41, which meshes into the bevel-gear 27 upon the shaft 25.

5 Attached to the shaft 39 at a point intermediate of its ends is a handle 42, and upon said shaft and near the said handle 42 is a ratchet-wheel 43. Near the upper end of the post 19, on the rear face thereof, is a bracket
10 44, and upon the upper end of the post 18 and in alinement with said bracket 44 is a similar bracket 45. In the ends of said brackets are bearings, in which the shaft 46 is mounted. Upon one end of the shaft 46 is a bevel-gear
15 47, which meshes into the bevel-gear 26 on the shaft 25, and upon the opposite end of said shaft 46 is a bevel-gear 48, which meshes into the bevel-gear 34 upon the shaft 32. Mounted upon the hubs of the truck 2 and
20 rigidly fixed thereto are sprocket-wheels 49 and 50.

The shaft 51 is mounted transversely of the machine between the timbers 4 and 5 and below the platform 12, and a blower 52 is mounted upon one end of said shaft and just inside
25 of the timber 5, and a similar blower 53 is mounted upon the opposite end of said shaft and just inside of the timber 4.

The pipe 54 leads from the blower 52 toward the ground and a similar pipe 55 leads from the blower 53. A pulley 56 is mounted upon the center of the shaft 51 and is designed to receive a belt for operating said shaft. A series of bars 57 are attached to the timber 5
30 and project downwardly and are curved backwardly and inwardly. A series of bars 58, similar to the bars 57 in every respect, are attached to the timber 4.

Within the rectangular frame formed by the timbers 21 and 22 and the cross-pieces 17 and 20 is a second rectangular frame mounted for vertical adjustment relative to the first frame. Posts 59, 60, 61, and 62 are positioned in the corners of the first-mentioned frame and extend a considerable distance above said
45 frame. The posts 59 and 60 are connected by the timbers 63 and 64, and the posts 61 and 62 are connected by the timbers 65 and 66. The posts 59 and 61 are connected by the end board 67, and the posts 60 and 62 are connected by the end board 68. The end boards 67 and 68 are connected at their bottom edges by the bottom 69. Intermediate posts 70, 71, and 72 are interposed between
55 the timbers 65 and 66 at points equidistant from each other and from the ends of said timbers, and similar posts 73, 74, and 75 are interposed between the timbers 63 and 64.

A leaf-spring 76 is attached at its center to the center and under side of the cross-piece 17. Screw-eyes 77 and 78 are inserted in the front side of the end board 68 and near the lower edge of said board, the eye 77 being in a vertical line beneath the end 79 of the spring
65 76 and the eye 78 being in a vertical line beneath the end 80 of the spring 76. A rope or cable 81 connects the end 79 of the spring 76

with the eye 77, and a similar rope or cable 82 connects the end 80 of the spring 76 with the eye 78, and thus supports the front end
70 of the inner frame. A leaf-spring 83, similar in every respect to the spring 76, is attached to the cross-piece 20, and ropes 84 connect the end of said spring with the screw-eyes 85, inserted in the lower edge of the end board 67,
75 thus supporting the rear end of the inner frame.

The upper ends of the corner-posts of the inner frame extend some distance above the timbers 63 and 65, and the upper ends of said
80 posts are connected transversely by cross-timbers 86 and 87. Upon the center of the cross-piece 86 is mounted a bearing 88, and upon the center of the cross-piece 87 is mounted a bearing 89, and a shaft 90 is mounted in said
85 bearings 88 and 89. Upon the rear end of the shaft 90 is a bevel-gear 91, and upon the front end of said shaft is a sprocket-wheel 92. A pulley 93 is mounted upon the shaft 90 near its front end, and a belt 94 runs over
90 said pulley 93 and drives the pulley 56 upon the shaft 51.

A bracket 95 is mounted upon the rear side and near the upper end of the post 61, and a similar bracket 96 is mounted upon the post
95 59. In bearings formed in the upper end of said brackets is mounted a shaft 97, carrying the sprocket-wheels 98 and 99 upon its ends. Near the center of said shaft 97 is a bevel-gear 100, meshing into the bevel-gear 91. A
100 chain 101 connects the sprocket-wheels 49 and 99, and a similar chain 102 connects the sprocket-wheels 50 and 98. The sprocket-wheels 98 and 99 are loosely mounted on the shaft 97, and pawls 103, carried by said
105 sprocket-wheels, engage ratchet-faces which are rigidly fixed to the shaft 97.

Upon the inner faces of each of the posts 15, 16, 18, and 19 are recesses 104 in horizontal alinement with the shafts 25 and 32.
110 Upon the outer faces of the posts 59, 60, 61, and 62 are toothed racks 105, which operate in the recesses 104 and engage the spur-gears upon the shafts 25 and 32, as shown in Fig. 10.

A pawl 106 is pivoted to the front face of the cross-piece 17 in position to engage the ratchet-wheel 43 upon the shaft 39. By operating the lever 42 the shaft 39 is rotated, thus rotating the shafts 25 and 32 and operating the racks 105, which operation raises or
120 lowers the inner frame, as desired. When the pawl 106 engages the ratchet-wheel 43, the shaft 39 is held from rotation as required to prevent the inner frame from being depressed.
125

Bearings 107 and 108 are mounted upon the upper sides of the timbers 21 and 22, and shafts 109 and 110 are mounted in said bearings. Arms 111 and 112 are attached to the inner ends of said shafts, and the free ends
130 of said arms are pivotally and slidingly connected to the posts 71 and 74, respectively. An arm 113 is attached to the outer end of the shaft 109, and the free end of said arm is

connected to the axle of the pulley 114. An arm 115 is attached to the outer end of the shaft 108, and its free end is connected to the axle of the pulley 116. The pulleys 114 and 116 act as tighteners for the chains 101 and 102, respectively. When the inner frame is depressed, the distance between the axles of the sprocket-wheels over which these chains run is decreased and the pulleys 114 and 116 are operated to take up the slack thus caused in the chains.

Slots 117 are formed transversely in the bottom 69, and the cleats 118 are attached to the under side of said bottom 69, surrounding said slots. Picker-guards 119, one of which is shown in detail in Fig. 8, are attached to the lower sides of the cleats 118 with their points projecting inwardly. Plates 120 are hinged at their lower edges to the end cleats 118, and are designed to nearly close the slots 117. The plates 120 are constructed of sheet metal, and their lower edges are rolled to form bearings for the rods 121, which rods project through bearings in the end cleats 118 and coil-springs 122 are placed upon the outer ends of said rods in such a way that the tension of said springs is exerted to hold the plates 120 in position to nearly close the slots 117. (See Figs. 12 and 4.)

The inner faces of the posts 70, 71, 72, 73, 74, and 75 have recesses 123, and picker-frames, comprising the side pieces 124 and 125 and the cross-piece 126, operate in said recesses.

Eccentric cams 128, 129, and 130 are mounted upon the shaft 90 directly above the picker-frames, one cam for each frame. A strap 131 surrounds each of the eccentric cams, and bifurcated arms 132 connect the straps 131 with the picker-frames as required to give said frames a vertically-reciprocating motion by the operation of the shaft 90. The eccentric cams are connected to the shaft 90 by means of the keys 133, as shown in Fig. 9. The key 133 is bent at right angles, and the faces of the cams have the recesses 134 and 135. When the free end 136 of the key is in the recess 134, the cam is locked to the shaft, and when the end 136 is in the recess 135 the shaft is free to turn within the cam. Heart-shaped cams, crank-arms, or any device which will impart a reciprocating motion from the shaft 90 to the picker-frames may be substituted for the eccentric cams shown.

Projecting upwardly from the cross-pieces 126 are pipes 137, within which pipes operate the pickers 138. One of the pickers 138 is shown in detail in Fig. 7, and it is constructed of a length of square steel rod having the upwardly-projecting barbs 139 formed upon its corners and at its lower end, and the central part of the picker is twisted to form the screw-threads 140. It is only necessary that the pickers be polygonal in cross-section. They may have more or less than four sides. The lower part of the threads 140 have a greater pitch than the upper part. A plate of sheet

metal 141 has its side edges attached to the lower edges of the timbers 64 and 66, and said plate has square perforations designed to receive the pickers 138, and as the pickers are reciprocated through said perforations the action of the threads 140 against the walls of the perforations imparts a rotary motion to the pickers. The apertures through the plate 141 conform to the shape of the screw-threads 140, thus performing the functions of nuts. Upon the upper end of each of the pickers 138 are collars or flanges 142, designed to operate against the upper ends of the pipes 137, and coil-springs 143 are placed around the pipes 137 and have their lower ends attached to the cross-pieces 126. The upper ends of said springs are looped around the upper ends of the pickers 138 above the collars 142. Collars 144 may be placed upon one or more of the pickers above the plate 141 to limit the downward motion of said pickers, as shown in Fig. 6. The cams 128, 129, and 130 are set in such positions relative to each other upon the shaft 90 that when one of the picker-frames is at its lowermost point of travel another frame is at its uppermost point of travel, and another is in a central position. The pickers operate in the slots 117 between the edges of the plates 120 and between the points of the picker-guards 119.

The bracket 145 is attached to the post 60 near its lower end and projects outwardly therefrom, and a similar bracket 146 is attached to the post 59. A crank-shaft 147 is mounted in bearings in the outer ends of said brackets. A bracket 148 is attached to the post 62 and a similar bracket 149 is attached to the post 61. A crank-shaft 150, identical with the crank-shaft 147, is mounted in bearings in the outer ends of said brackets 148 and 149. The shafts 147 and 150 are bent or offset to form the crank-arms 151, and said crank-arms are connected by the beater-brushes 152. The brushes 152 consist of boards 153, positioned transversely of the machine above the bottom 69 and between the slots 117, and a series of wire teeth 154 project downwardly from said boards. Projecting from each end of the boards 153 are the arms 155, and straps 156 pass around the ends of said arms and form bearings for the crank-arms 151.

Upon the front ends of the shafts 147 and 150 are sprocket-wheels 158. A chain 159 passes over the sprocket-wheel 92 and around the sprocket-wheels 158, as shown in Fig. 5, for the purpose of operating the brushes 152. Arms 160 are attached to the outer side of the timber 4 and project downwardly therefrom, and a conveyer-trough 161 is attached to said arms. The conveyer-trough 161 is positioned horizontally and extends from the rear end of the machine to a point adjacent the lower end of the post 15.

Shafts 162 and 163 are mounted transversely of the trough 161, and upon the outer end of the shaft 162 is mounted a sprocket-

wheel 164 and upon the outer end of the shaft 163 is mounted a spur-gear 165.

An endless carrier 166 operates in the trough 161 and around the drums 167 and 168 upon the shafts 162 and 163. A chain 169 connects the sprocket-wheel 164 with the sprocket-wheel 170 upon the shaft 97.

An elevator-trough 171 connects with the front end of the conveyer-trough 161 and extends forwardly and upwardly to a position above the front truck. A shaft 172 is mounted at the lower end of said trough and a shaft 173 is mounted at the upper end of said trough. Upon the outer end of the shaft 172 is a spur-gear 173^a. A stub-shaft 174 is mounted above and between the shafts 163 and 172, and a spur-gear 175 upon the outer end of said shaft 174 connects the gear 165 with the gear 173^a. An endless carrier 176 operates in the elevator 171 and over drums 177 and 178 upon the shafts 172 and 173, respectively. The boards 12 extend outwardly under the upper end of the elevator 171 and form a platform upon which a basket or other suitable receptacle may be placed to receive the cotton as it comes from the elevator.

Thumb-screws 179 are inserted near the upper ends of the posts 70, 71, 72, 73, 74, and 75 and are designed to engage recesses 180, formed in the outer surface of the side pieces 125 and 124 of the picker-frames. When the machine is in operation, the thumb-screws 179 are operated until they are out of engagement with the recesses 180; but when it is desired to transport the machine or to render the same inoperative for any purpose the thumb-screws 179 are operated to engage the recesses 180 and thus hold the picker-frames from rattling or sliding up and down.

In the practical operation of our improved cotton-harvester the wheels of the rear truck act as the driving-wheels for the machinery, motion being imparted thereto by means of the chains 101 and 102, operating upon the sprocket-wheels 49 and 50, which are rigidly fixed to the hubs of said driving-wheels. By means of the ratchet-and-pawl connection between the sprocket-wheels 98 and 99 and the shaft 97 the machinery is rendered inoperative when the trucks are running backward; but the machinery will continue to operate when but one wheel is running forward, as required to turn a corner. By means of the bevel-gear connection between the shafts 90 and 97 the cams 128, 129, and 130 will operate, thus imparting a reciprocating vertical motion to the picker-frames, and as the pickers are reciprocated through the plate 141 a rotary motion is imparted to said pickers. Assuming that the points of the pickers are upon the ground and the machine is started, the points of said pickers will be raised and the pickers will be rotated in a certain direction. The barbs 139 will catch the cotton, and the rotary motion of the pickers will wind said cotton upon the pickers, and the cotton will be elevated to the plates 120, and pres-

sure against the under sides and inner edges of said plates will open the same, allowing the cotton to pass upwardly above said plates. The cotton cannot pass above the plate 141. When the vertical motion of the picker is reversed and the picker begins to descend, its rotary motion will also be reversed, and the cotton that was wound upon the picker will be unwound and will spread out above the upper edges of the plates 120. Then as the picker continues to descend the cotton will be held above said plates, or if it has not been carried above said plates it will catch upon the points of the guards 119 and will be held by said guards until the picker again ascends, when it will be carried upwardly between the plates and to a position above said plates. As fast as the cotton accumulates above the plates 120 the brushes 152 will push it sidewise upon the bottom 69 and into the conveyer 161, and by the endless carrier 166 it will be carried to the front end of said conveyer, and from thence it will be taken by the endless carrier 176 up the conveyer 171, and from the upper end of said conveyer it will fall into the basket or other receptacle upon the platform formed by the boards 12.

The guards 119 below the slots 117 serve the double purpose of preventing rubbish from being carried upwardly with the cotton and of holding the cotton from falling down after it has once been carried above the points of said guards. The springs 143 impart a yielding downward pressure to the pickers and thus make it possible to run the machine over uneven ground or even over stones, stumps, and other obstructions without injury, as when the point of the picker strikes an obstruction the spring 143 upon that picker will give and allow the picker to remain in a position above the obstruction without injury.

When the land upon which the machine is to be operated has been back-furrowed or the cotton has been hilled up, forming ridges, the collars 144 (shown in Fig. 6) may be set upon the pickers to limit the downward motion of the pickers which will strike the top of the ridge.

A medium-sized machine will employ about twenty of the picker-frames, and each frame will carry about thirty pickers.

The bars 57 and 58 are designed to bend the cotton-stalks inwardly and hold them against the pickers. The blowers 52 and 53 are intended to send a current of air through the pipes 54 and 55, which current of air will operate to blow away leaves and rubbish which may have accumulated in the furrows between the rows of cotton and thus make it possible to pick up the bolls that may have fallen off and accumulated in said furrows. Under ordinary circumstances the inner frame is left to be supported by the ropes and the leaf-springs 76 and 83; but when for any reason it is desired to raise the range of the pickers the lever 42 may be operated to raise

the inner frame, and by means of the pawl 106 said frame may be held rigidly in the desired position. It sometimes occurs that the ground is soft and the wheels will settle into the mud, and then it will be necessary to raise the inner frame in order to keep the pickers from operating in the mud. If desired, the plate 141 may be omitted, and then the picker will operate with the same vertical motion and the rotary or oscillating motion will not take place. If this rotary or oscillating motion is not desired, the pickers may be constructed without the threads 140, and in some cases this construction will be satisfactory.

In the drawings one wheel of the front trucks is shown to be close beside the front end of the timber 4 and under the end of the elevator 171, while the rear wheel upon the same side of the machine is outside of the conveyor 161. If desired, both trucks may be made of the same width; but it is not necessary that the wheels of the front and rear trucks should track, and this construction may be varied at will.

We claim—

1. In a cotton-harvester, the pickers 138, each of said pickers being constructed of a length of square steel rod mounted in a vertical position and having the upwardly-projecting barbs 139 formed upon the corners of its lower portion and having its central portion twisted to form the screw-threads 140, the lower part of said screw-threads having a greater pitch than the upper part of said threads; the plate of sheet metal 141 secured in position and having square perforations through which the screw-threaded portions of said pickers operate, and means for reciprocating said pickers, substantially as specified.

2. In a cotton-harvester, picker-frames comprising the side pieces 124 and 125 and the cross-piece 126 connecting the lower ends of said side pieces, guides in which said side pieces operate, a series of the pickers 138 carried by said cross-piece 126; each of said pickers being constructed of a length of square steel rod mounted in a vertical position and having the upwardly-projecting barbs 139 formed upon the corners of its lower portion and having its central portion twisted to form the screw-threads 140, the lower part of said screw-threads having a greater pitch than the upper part of said threads; the plate of sheet metal 141 secured in position and having square perforations through which the screw-threaded portions of said pickers operate, and means of reciprocating said picker-frames within said guides, substantially as specified.

3. In a cotton-harvester, reciprocating frames, a series of the pickers 138 carried by each of said frames; each of said pickers being constructed of a length of square steel rod mounted in a vertical position and having the upwardly-projecting barbs 139 formed

upon the corners of its lower portion and having its central portion twisted to form the screw-threads 140, the lower part of said screw-threads having a greater pitch than the upper part of said threads; the plate of sheet metal 141 secured in position and having square perforations through which the screw-threaded portions of said pickers operate, and means of reciprocating said frames, substantially as specified.

4. In a cotton-harvester, reciprocating frames, a series of the pickers 138 carried by each of said frames; each of said pickers being constructed of a length of square steel rod mounted in a vertical position and having the upwardly-projecting barbs 139 formed upon the corners of its lower portion and having its central portion twisted to form the screw-threads 140, the lower part of said screw-threads having a greater pitch than the upper part of said threads; the plate of sheet metal 141 secured in position and having square perforations through which the screw-threaded portions of said pickers operate, means of reciprocating said frames, and a bottom having slots through which said pickers operate, substantially as specified.

5. In a cotton-harvester, the bottom 69 having the slots 117 formed transversely therein, vertically-reciprocating frames, a series of pickers carried by each of said frames and operating through said slots 117, the cleats 118 attached to the under side of said bottom and upon opposite sides of said slots, and the picker-guards 119 attached to the lower sides of said cleats and projecting toward each other and below said slots, substantially as specified.

6. In a cotton-harvester, the bottom 69 having the slots 117 formed transversely therein, vertically-reciprocating frames, a series of pickers carried by each of said frames and operating through said slots 117, the cleats 118 attached to the lower side of said bottom and surrounding said slots, the plates 120 hinged at their lower corners to the end cleats 118 and operating to nearly close said slots, and springs operating to hold said plates yieldingly in position, substantially as specified.

7. In a cotton-harvester, the bottom 69 having the slots 117 formed transversely therein, vertically-reciprocating frames, a series of pickers carried by each of said frames and operating through said slots 117, the cleats 118 attached to the lower side of said bottom and surrounding said slots, the sheet-metal plates 120 having their lower edges rolled to form bearings, the rods 121 in said bearings and extending through bearings in the end cleats 118, and the coil-springs 122 upon the outer ends of said rods and operating to hold said plates yieldingly in position, substantially as specified.

8. In a cotton-harvester, the bottom 69 having the slots 117 formed transversely therein, vertically-reciprocating frames, a series of

pickers carried by each of said frames and operating through said slots 117, the cleats 118 attached to the lower side of said bottom and surrounding said slots, the sheet-metal plates 120 having their lower edges rolled to form bearings, the rods 121 in said bearings and extending through bearings in the end cleats 118, the coil-springs 122 upon the outer ends of said rods and operating to hold said plates yieldingly in position, and the guards 119 attached to the lower sides of said cleats 118 and projecting toward each other and below said plates 120, substantially as specified.

9. In a cotton-harvester, reciprocating frames, the pickers 138 carried by said frames; each of said pickers being constructed of a length of polygonal steel rod mounted in a vertical position and having the upwardly-projecting barbs 139 formed upon the corners of its lower portion and having its central portion twisted to form the screw-threads 140, the lower part of said screw-threads having a greater pitch than the upper part of said threads; a plate having polygonal apertures through which the twisted portions 140 of said pickers operate, a bottom having slots through which said pickers operate, guards attached to said bottom and designed to keep out the rubbish and allow the cotton to pass upwardly, and spring-actuated plates pivotally mounted in said slots and designed to allow the cotton to pass upwardly and to prevent its returning downwardly, substantially as specified.

10. In a cotton-harvester, reciprocating frames, the pickers 138 carried by said frames; each of said pickers being polygonal in cross-section and having the twisted portion forming the screw-threads 140; a plate having polygonal apertures through which the twisted portions 140 of said pickers operate, a bottom having slots through which said pickers operate, guards attached to said bottom, spring-actuated plates pivotally mounted in said slots, and brushes operating above said bottom to carry the cotton away as it is elevated by said pickers, substantially as specified.

11. In a cotton-harvester, reciprocating frames, a series of vertically-arranged pipes attached to each of said frames, the pickers 138 in said pipes, collars upon the upper ends of said pickers and operating against the upper ends of said pipes, and retractile coil-springs placed around said pipes with their lower ends fixed to the picker-frames and their upper ends engaging said collars in such a way that the tension of said springs will be exerted to depress said pickers, relative to said frames, substantially as specified.

12. In a cotton-harvester, reciprocating frames, a series of vertically-arranged pipes attached to each of said frames, the pickers 138 in said pipes; each of said pickers being polygonal in cross-section and having the twisted portion forming the screw-threads 140; collars upon the upper ends of said pickers and operating against the upper ends of

said pipes, and retractile coil-springs placed around said pipes with their lower ends fixed to the picker-frames and their upper ends engaging said collars in such a way that the tension of said springs will be exerted to depress said pickers relative to said frames, a plate of sheet metal 141 secured in position and having polygonal apertures through which the screw-threaded portions 140 of said pickers operate, and collars adjustably mounted upon said pickers and above said plate, substantially as specified.

13. In a cotton-harvester, reciprocating frames, a series of vertically-arranged pipes attached to each of said frames, the pickers 138 in said pipes; each of said pickers being polygonal in cross-section and having the twisted portion forming the screw-threads 140; collars upon the upper ends of said pickers and operating against the upper ends of said pipes, retractile coil-springs placed around said pipes with the lower ends fixed to the picker-frames and their upper ends engaging said collars in such a way that the tension of said springs will be exerted to depress said pickers relative to said frames, a plate having polygonal apertures through which the twisted portions 140 of said pickers operate, and collars adjustably mounted upon said pickers and above said plate as required to limit the downward motion of said pickers, substantially as specified.

14. In a cotton-harvester, reciprocating frames, the pickers 138 carried by said frames; each of said pickers being polygonal in cross-section and having the twisted portion forming the screw-threads 140, springs connecting said pickers to said frames and operating to depress said pickers, and a plate having polygonal apertures through which the twisted portions 140 of said pickers operate, substantially as specified.

15. In a cotton-harvester, reciprocating frames, the pickers 138 carried by said frames; each of said pickers being polygonal in cross-section and having the twisted portion forming the screw-threads 140, springs connecting said pickers to said frames and operating to depress said pickers, a plate having polygonal apertures through which the twisted portions 140 of said pickers operate, and collars adjustably mounted upon said pickers and above said plate to limit the downward motion of said pickers, substantially as specified.

16. In a cotton-harvester, a frame rigidly mounted upon trucks, a second frame mounted for vertical reciprocation within said rigid frame, springs attached to said rigid frame and supporting said second frame, vertically-reciprocating picker-frames carried by said second frame, the pickers 138 carried by said picker-frames; each of said pickers being polygonal in cross-section and having the twisted portion forming the screw-threads 140, the plate 141 having polygonal apertures through which the twisted portions of said pickers op-

erate, a bottom in said second frame through which said pickers operate, and brushes operating to remove the cotton from above said bottom as it is elevated by said pickers; said brushes consisting of the boards 153 and the wire teeth 154 fixed in said boards and projecting downwardly, and the arms 155 projecting from each end of said boards; the corresponding crank-shafts 147 and 150 rotatably mounted at opposite sides of the machine, and the straps 156 attached to said arms 155 and passing around the cranks of said crank-shafts and forming bearings substantially as specified.

17. In a cotton-harvester, a frame rigidly mounted upon trucks, a second frame mounted for vertical reciprocation within said first frame, racks and pinions connecting said frames for adjusting the position of said second frame relative to said rigid frame, means of operating said pinions, means of holding said second rack in the desired position, ver-

tically-reciprocating picker-frames carried by said second frame, the pickers 138 carried by said picker-frames; each of said pickers being polygonal in cross-section and having the twisted portion forming the screw-threads 140; springs forming a yielding connection between said pickers and said picker-frames, a plate having polygonal apertures through which the twisted portions 140 of said pickers operate, an endless carrier supported by said first frame, brushes operating to remove the cotton elevated by said pickers onto said endless carrier, and means of operating said endless carrier, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

LEWIS C. McCARTY.
CHARLES W. FORD.

Witnesses:

W. E. BAILEY,
J. F. HIGGINBOTHAM.