

(No Model.)

J. D. SCHOFIELD.
COTTON CHOPPER.

3 Sheets—Sheet 1.

No. 504,756.

Patented Sept. 12, 1893.

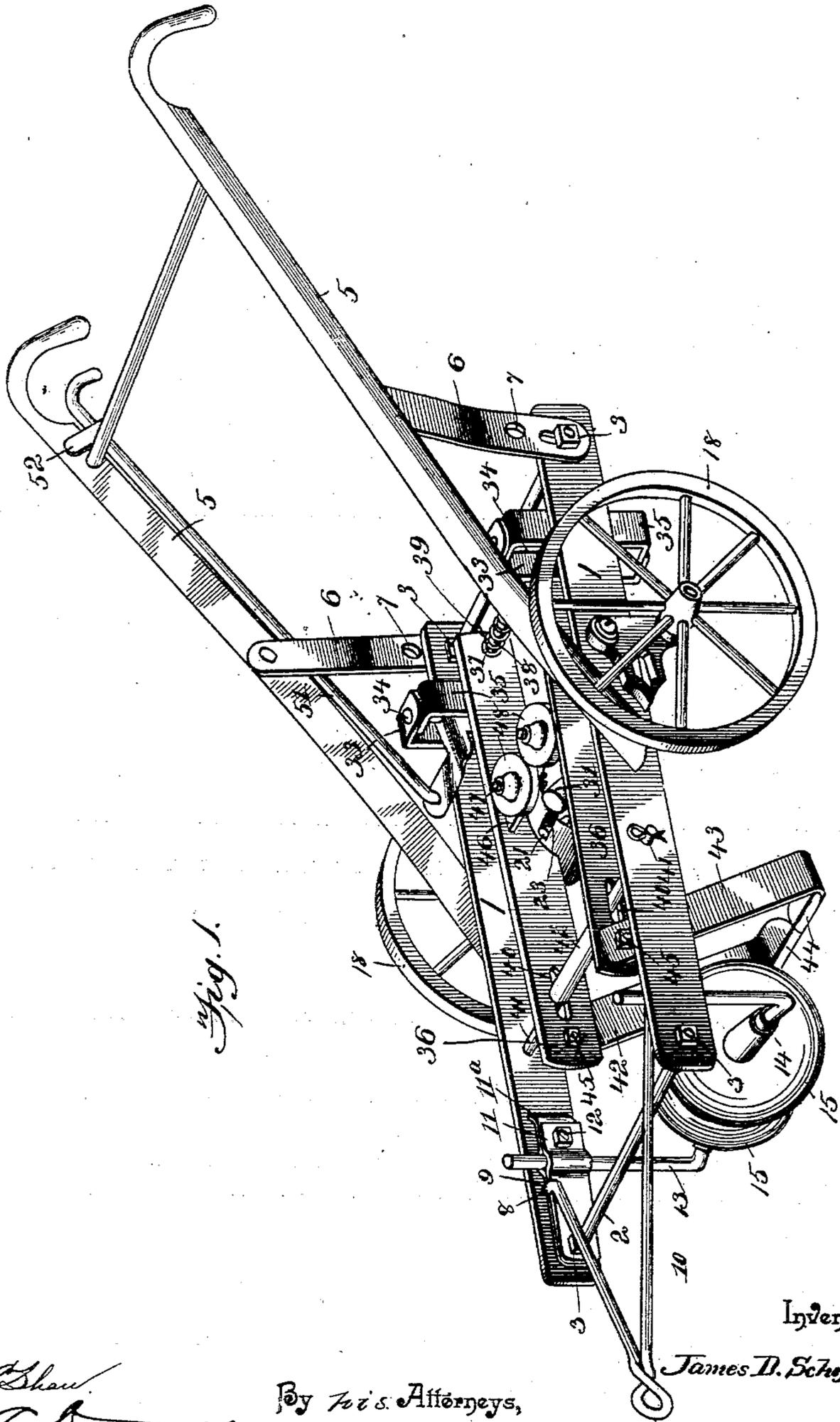


Fig. 1.

Witnesses:

John Shaw
M. S. Duwall

By *his* Attorneys,

C. Brown & Co.

Inventor

James D. Schofield

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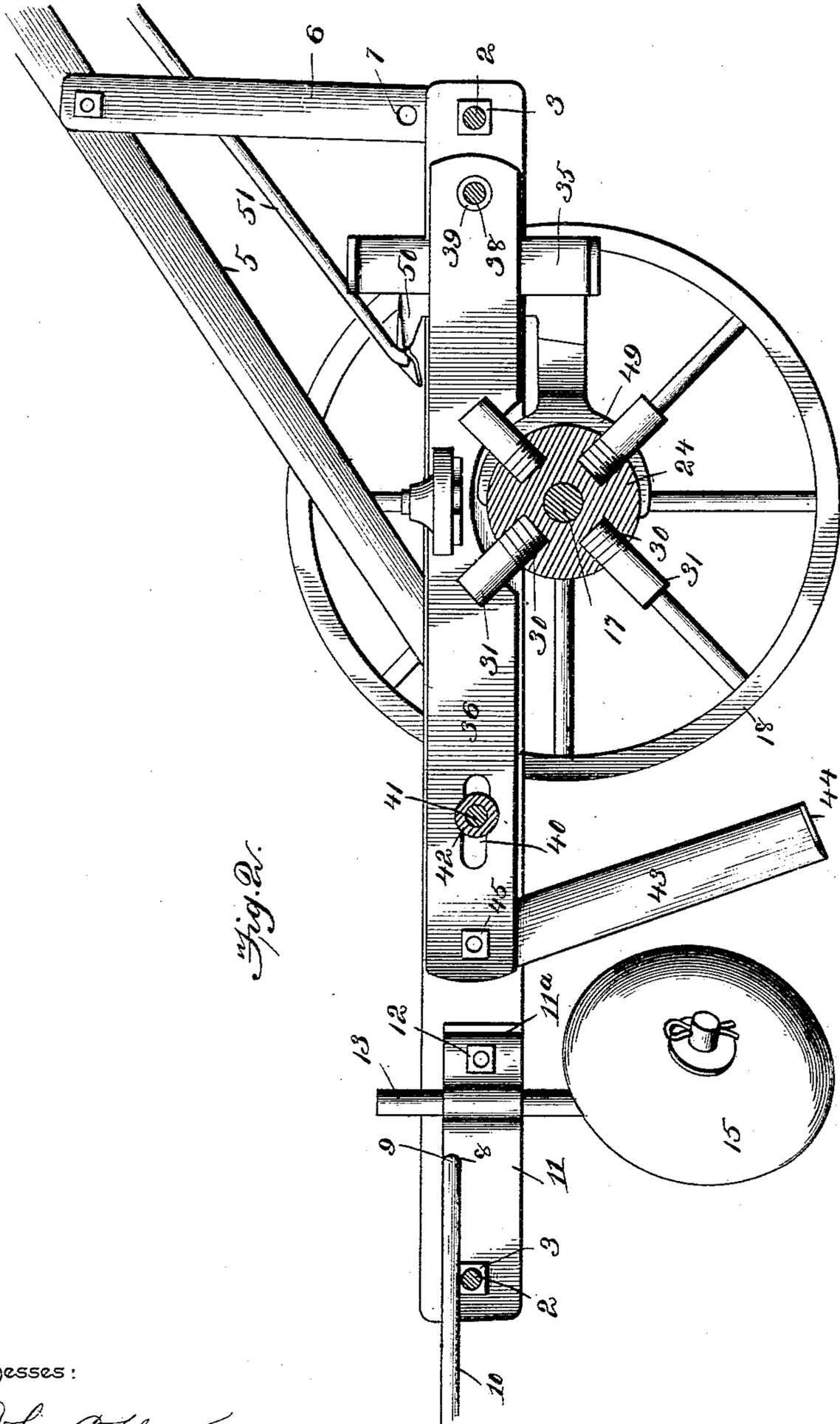


Fig. 2.

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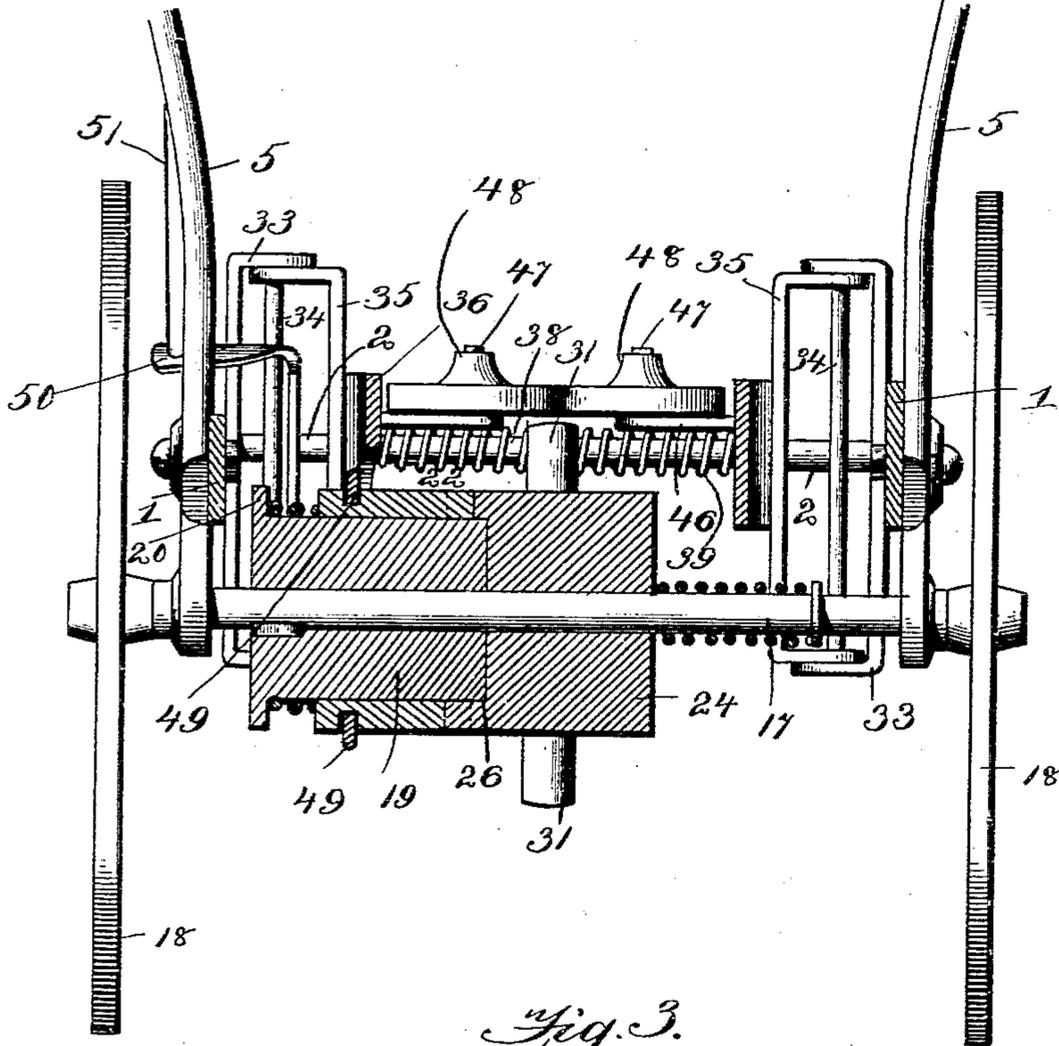
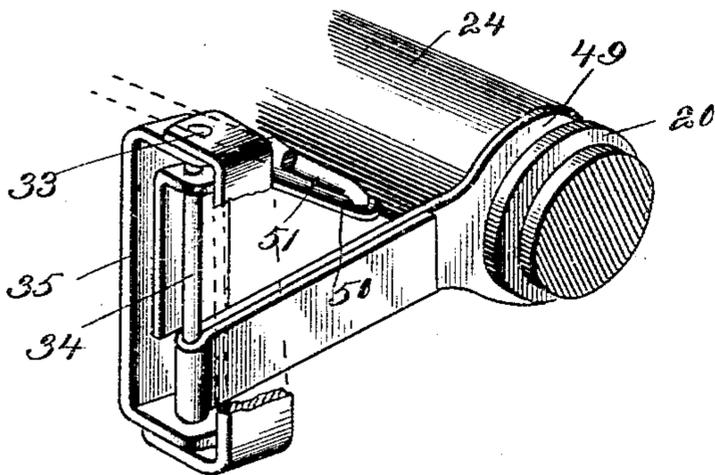


Fig. 4.



Witnesses:

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By *W. S. Attorneys,*

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UNITED STATES PATENT OFFICE.

JAMES DROMMOND SCHOFIELD, OF DALLAS, TEXAS, ASSIGNOR OF TWO-THIRDS TO CHARLES W. PARKER AND PAUL FURST, OF SAME PLACE.

COTTON-CHOPPER.

SPECIFICATION forming part of Letters Patent No. 504,756, dated September 12, 1893.

Application filed March 30, 1893. Serial No. 468,384. (No model.)

To all whom it may concern:

Be it known that I, JAMES DROMMOND SCHOFIELD, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented a new and useful Cotton-Chopper, of which the following is a specification.

My invention relates to improvements in cotton-choppers.

10 The objects in view are to provide a machine of cheap and simple construction and adapted for simultaneously forming rows and cross-chopping the same, thus bringing plants, such as cotton, &c., to a stand, all in one operation, and thereby avoiding the necessity, as occurs in some cases of plowing or cultivating two ways in a field for the purpose of forming rows and then the stands or for any hand hoeing, as is also commonly done.

20 A further object of the invention is to provide means for adjusting or setting the machine so as to form the stands at proper and desired distances apart uniform or not as preferred, and hence capable of cleaning those portions of the drill not covered by a growth of the plants from whatever cause.

30 With these and various other objects in view the invention consists in certain features of construction and combinations of parts hereinafter described but more particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a perspective view of a cotton-chopper constructed in accordance with my invention. Fig. 2 is a vertical longitudinal sectional view. Fig. 3 is a transverse sectional view through the axle. Fig. 4 is a detail in perspective of the clutch-operating mechanism and its adjacent parts, portions being broken away to give a clearer illustration.

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

In practice I employ any framework adapted for the purpose in view, but in the present instance, for the purpose of lending rigidity and strength as well as lightness, I employ opposite metal frame-bars 1, which I connect at their front and rear ends by tie-rods 2, the same being provided at the inner and outer sides of the bars with clamping-nuts 3. In

the present instance, the machine being of the class adapted to be followed by the operator, I bolt to the opposite frame-bars at or near their centers upwardly-inclined diverging handle-bars 5, connecting the same at their upper ends by a proper rung and bracing them against the rear ends of the frame-bars by vertical standards or braces 6 whose upper ends are bolted to the handle-bars and whose lower ends are provided with a series of bolt-holes 7, through the medium of which and the rear tie-rod 2 the said standards may be adjusted and consequently the handles raised and lowered to accommodate themselves to the person operating the machine. Perforations 8 are formed in the frame-bars 1 near their front ends, and in these perforations loosely engage the bearing ends 9 of a V-shaped draft-bail 10, whereby, as will be obvious, the motions of the machine will not be imparted to the draft-bail, nor the horse-motion imparted to the machine, but each will be independent of the other, and may rise and fall according to the undulations of the ground without fear of imparting like motion to the other. The draft-bail, it will be understood, as may also the various details of construction which I have shown and will hereinafter describe, may be changed at the will of the manufacturer, and I would state that I do not limit my invention to the details of construction herein shown and described, but hold that I may vary the same to any extent within the knowledge of the skilled mechanic.

85 Pairs of clamping straps 11 have their front ends interposed between the inner nuts 3 of the front tie-rod and the frame-bars, the rear ends of said clamping-straps being perforated to receive binding-bolts 12, which extend through the straps and also, in this instance, through the frame-bars 1. Half-bearings are formed in the pairs of straps in front of the clamping-bolts, and in rear of the clamping-bolts the inner strap of each pair is bent inward to form a lip 11^a, which lips bear upon the inner sides of the frame-bars 1. Between their ends the clamping-straps are concaved, and each pair receives an L-shaped standard 13, whose upper end or shank is vertically

within the clamping-straps, and whose lower horizontally or inwardly-disposed end terminates in bearings 14, and each receives the hub of a concavo-convex cotton-chopping-wheel or cultivator-disk 15. These standards, it will be observed, are not only vertically adjustable but they are also swiveled or horizontally adjustable, and hence the disks may be disposed at any desired angle to each other.

Bearing-brackets 16 are secured to the bars in rear of the longitudinal centers of the latter, and in these brackets there is bolted the transverse main axle or shaft 17, which beyond the brackets is provided with ground wheels 18, said wheels being fast upon and adapted to move with the shaft.

A cylindrical boss 19 is fixedly mounted upon and adapted to revolve with the axle, said boss being provided at its outer end with an annular flange 20 and in advance of the same with a stud 21.

A loose clutch-sleeve 22 is mounted upon the boss and slotted as at 23 to receive the stud; a coiled spring being located between the outer end of the clutch-sleeve and the annular flange of the boss, whereby said clutch-sleeve is normally pressed inward.

A cylinder 24 is mounted loosely on the axle at the inner side of the boss, and has its inner face provided with an annular recess 26 that receives the inner end of the boss. The cylinder has its inner edge toothed around the annular recess, and when the clutch-sleeve is not otherwise influenced its teeth engage those of the cylinder by reason of the presence of the spring before mentioned. The cylinder at its center, which occurs directly at the center of the machine, is provided with an annular series of threaded sockets or mortises 30, and in the same are threaded tappets or pins 31. These tappets or pins are removable, and their number may be decreased if desired, which, as will hereinafter appear, will cause the stands to be further apart, the width between the stands being decreased by the addition of pins, for which purpose said pins are made removable. In order to effect a ready removal of the tappets, they are provided with perforations, through which an ordinary rod may be inserted and employed as a suitable handle for rotating the tappets.

To the opposite frame-bars 1, near their lower ends and upon their inner sides, there is secured a pair of opposite stationary brackets or clevises 33, and in each is hinged by means of a pintle-rod 34 a companion and similar clevis or bracket 35. To each of these inner swiveled brackets or clevises 35 there is rigidly secured a forwardly extending vibratory bar 36, said bars at their rear extending beyond the brackets and there provided with perforations 37, through which loosely passes a rod 38, said rod having stops beyond the bars to prevent disengagement therewith.

Coiled upon the rod is an expansion spring 39, the same being designed to spread the bars at their rear ends and consequently draw the same together at their front ends. The bars are provided near their front ends with elongated slots 40, and through the same passes a transverse guide-rod 41, whose ends pass through the side-bars 1 of the frame.

Interposed between the vibratory bars and mounted upon the guide-rod is a sleeve 42 the same serving as a stop to prevent the expansion-spring forcing the vibratory bars closer together. Of course other forms of stops may be employed instead of the sleeve.

Secured to the front ends of the vibratory bars beyond the guide-rod are the shanks 43 of a pair of hoes 44, said hoes being triangular in shape, that is, having their rear portions cut away. The hoes are arranged directly opposite to each other, and when the vibratory bars are in their closed position the points of the hoes about contact. Any suitable means may be employed for securing the hoes in position upon the vibratory bars, and in the present instance I have simply shown ordinary bolts 45. Immediately above the axle each of the vibratory bars is provided with an inwardly-projecting bracket 46, and axially pivoted upon each bracket, as at 47, is a disk or roller 48, the same meeting at a point directly in the path of travel of the tappets when the latter revolve.

A clutch-operating arm 49 loosely engages with the annular groove of the clutch-sleeve and extends rearward to the pintle for connecting the clevises at that side of the machine, and above the same and secured to the same pintle is a bell-crank lever 50. An operating-rod 51 is loosely connected to the outer end of the bell-crank lever, and is mounted for reciprocation in a suitable guide-eye 52 secured to the adjacent handle of the machine. It will be seen that normally the clutch-sleeve is pressed into engagement with the cylinder, and hence the cylinder will revolve with the boss upon which the clutch-sleeve is non-rotatably mounted, so that as the tappets are brought successively around and passed between the rollers or disks of the vibratory bars, said bars are spread to be afterward retracted by the spring and thus said bars are caused to vibrate and the hoes to be spread and contracted in a manner that will be obvious. When the hoes are together or contracted they scrape the cotton, weeds, and all undergrowth in their paths from the soil, and when they spread they omit such scraping operation, thus leaving a series of stands. The rows are produced by the obliquely-disposed cultivating-disks which are arranged directly in advance of the hoes. By retracting the operating-rod, which is within convenient reach of the person following the machine, the clutch-sleeve is withdrawn from engagement with the tappet-carrying cylinder, so that said cylinder is prevented from

rotating, and the hoes serve as scrapers until the operating-rod is released, the clutch returned to the sleeve, and the sleeve rotated to again separate the hoe-carrying vibratory-arms. In case the hoes should meet with an obstruction sufficient to injure them, it will be seen that they being only frictionally held by disks interposed between the nuts and heads of the bolts and the vibratory bars and standards or shanks of the hoes will yield to any undue pressure sufficient to injure them and thus be forced to the rear so as to glide over the obstruction. The standard-carrying disks may be adjusted both vertically and horizontally and by increasing or diminishing the relative angle of their dispositions the width between the rows may be regulated.

Various changes in the details of construction of my invention will readily suggest themselves to this and analogous classes of machines, and I therefore do not limit the invention to those herein shown and described, but hold that I may vary the same to any extent and degree found necessary.

Having described my invention, what I claim is—

1. In a machine of the class described, the combination with a framework, an axle, and ground-wheels carried by the axle, of a pair of vibratory hoe-carrying horizontally disposed bars pivotally mounted in the frame, brackets carried by the bars, rollers on the brackets, and a tappet-carrying cylinder operated by the axle, substantially as specified.

2. In a machine of the class described, the combination with a frame, an axle, and ground-wheels, of a pair of vibratory bars pivotally mounted at the rear ends and extending over and in front of the axle, devices mounted on the axle for vibrating the bars, and L-shaped hoes depending from the front ends of the bars, substantially as specified.

3. In a machine of the class described, the combination with the frame, the axle, and the ground-wheels, of the vibratory bars fulcrumed between the ends in the frame, an expansion-spring between the rear ends of the bars, depending hoes carried by the bars, and devices mounted on the axle and operated thereby and adapted to spread and liberate said bars in advance of their fulcrum, substantially as specified.

4. In a machine of the class described, the combination with the framework, the axle, and the ground-wheels, of a pair of vibratory bars provided with hoes at their front ends and pivotally mounted between their ends in the framework, an expansion-spring between the rear ends of the bars, rollers mounted on brackets at the inner sides of the bars in advance of their points of fulcrum, a toothed cylinder mounted loosely on the axle and provided with tappets for taking between the rollers, a clutch-sleeve mounted on the axle and adapted to engage the teeth of the cylinder, a spring for normally throwing the

clutch-sleeve into engagement with the teeth of the cylinder, and a lever engaging the clutch-sleeve and adapted to withdraw the same from engagement with the cylinder, substantially as specified.

5. In a machine of the class described, the combination with the frame, the rotatable axle, and the ground-wheels, of a flanged boss fast upon the axle and provided with a stud, the slotted clutch-sleeve engaging the stud and mounted on the boss, the spring interposed between the flange of the boss and the end of the clutch-sleeve, the cylinder provided with radial tappets mounted on the axle, toothed at its inner end to engage with the clutch-sleeve and recessed to receive the boss, the vibratory hoe-carrying bars pivotally mounted in the frame above and at opposite sides of the cylinder, the spring for normally expanding the rear ends of the bars and contracting the front ends, and loose rollers supported at the inner sides of the bars and meeting in the path of the tappets, substantially as specified.

6. In a machine of the class described, the combination with the frame, the axle, and the ground-wheels, of the opposite stationary brackets secured to the inner sides of the frame, the swiveled brackets received thereby, the vibratory bars rigidly secured to the swiveled brackets and provided at their rear ends with holes, a rod passing loosely through the holes, a coiled expansion spring mounted on the rod and interposed between the rear ends of the bars, a front guide-rod, elongated slots formed in the bars for the reception of the rod, hoes depending from the front ends of the bars, frictional rollers arranged between the bars, and a cylinder mounted upon and rotated with the axle and having tappets adapted to take and pass between the rollers of the bars, substantially as specified.

7. In a machine of the class described, the combination with the framework, the axle, the ground-wheels, the vibratory bars, hoes at the front ends thereof, and an expansion spring at the rear ends of the bars, of a cylinder mounted upon and rotated with the axle, holes formed in the cylinder, removable tappets threaded in the holes, and a pair of antifriction rollers arranged between the bars and meeting in the path of the tappets, substantially as specified.

8. In a machine of the class described, the combination with the framework, the axle, the ground-wheels, a tappet-carrying cylinder mounted on the axle and having teeth, a reciprocating clutch-sleeve arranged at the sides of the cylinder, a spring for normally throwing the clutch-sleeve into engagement with the cylinder, stationary brackets at the inner sides of the frame, companion brackets arranged therein, pintles for pivoting the companion brackets to the stationary brackets, a bell-crank lever mounted upon one of the pintles and having one branch engaging

the clutch-sleeve, handles extending from the framework, a keeper located upon one of the same, a bell-crank operating rod arranged in the keeper, of vibratory hoe-carrying arms 5 secured to the companion brackets, and an expansion-spring at the rear ends of the brackets, substantially as specified.

9. In a machine of the class described, the combination with the framework, the hoe- 10 mechanism, and means for operating the same, of the tie-rod at the front end of the frame, the spring-plates perforated to receive the tie-rod, said plates having half-bearings 15 each pair inwardly bent to form a lip bearing at the side-bar of the frame, binding-bolts passed through the side-bars and perforations in the plates in rear of the half-bearings, clamping-nuts arranged on the tie-rod, L- 20 shaped standards swiveled in the half-bear-

ings, and disks carried by the standards, substantially as specified.

10. In a machine of the class described, the combination with the framework, the axle, and 25 the ground-wheels, of the vibratory-bars fulcrumed in the framework, expansion springs for the rear ends of the bars, slots formed in the front ends of the bars, a guide-rod extending through the slots and the frame, a spacing- 30 sleeve upon the rod between the bars, hoes carried by the bars, and devices mounted on the axle for intermittently spreading the bars, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 35 the presence of two witnesses.

JAMES DROMMOND SCHOFIELD.

Witnesses:

A. V. LANE,
PAUL FURST.