

No. 756,394.

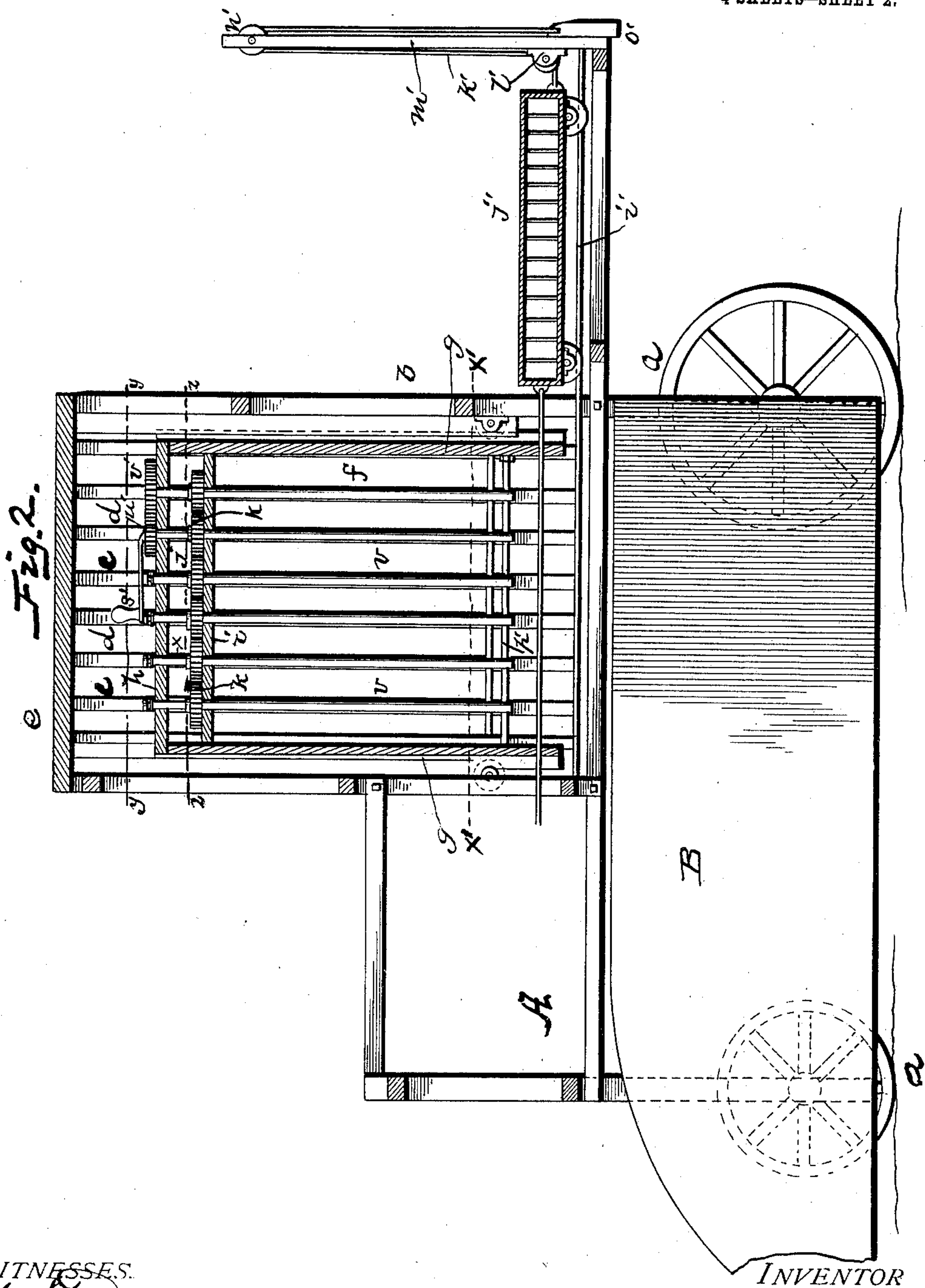
PATENTED APR. 5, 1904.

J. T. McDONALD.
COTTON PICKER.

APPLICATION FILED OCT. 27, 1903.

NO MODEL.

4 SHEETS—SHEET 2.



WITNESSES.

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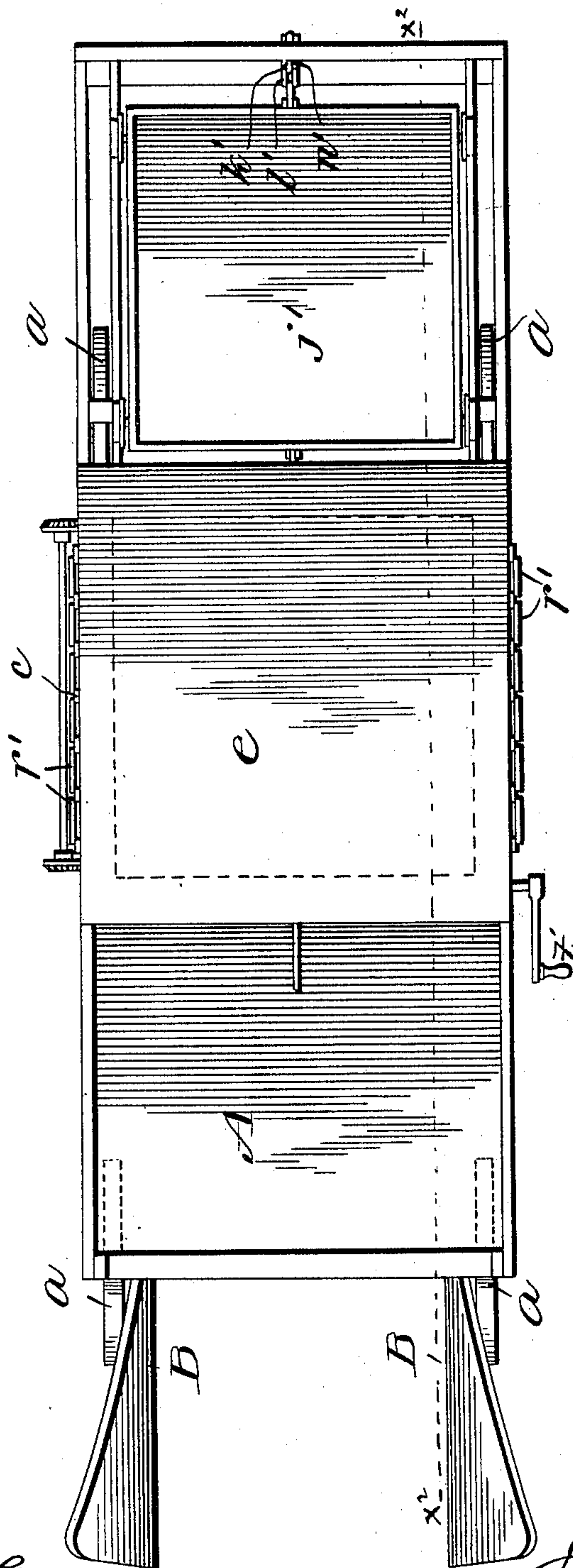
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UNITED STATES PATENT OFFICE.

JAMES T. McDONALD, OF LITTLE ROCK, ARKANSAS.

COTTON-PICKER.

SPECIFICATION forming part of Letters Patent No. 756,394, dated April 5, 1904.

Application filed October 27, 1903. Serial No. 178,679. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. McDONALD, a citizen of the United States, residing at Little Rock, in the county of Pulaski and State of Arkansas, have invented new and useful Improvements in Cotton-Pickers, of which the following is a specification.

This invention has relation to improvements in cotton-picking machines; and it consists in the novel construction, combination, and arrangement of the same whereby the cotton is taken from the bolls on the standing stalks and conveyed to a receptacle, all as will be hereinafter more fully explained, and particularly pointed out in the appended claims.

The annexed drawings, to which reference is made, fully illustrate my invention, in which—

Figure 1 represents a side view of my improved cotton-picking machine. Fig. 2 is a vertical sectional view of the same, taken on line x^2 , Figs. 3 and 10. Fig. 3 is a horizontal sectional view of the inclosing frame of the device, taken on line $y y$, Fig. 2. Fig. 4 is a horizontal sectional view of the inclosing frame, showing clearly the manner of arranging the numerous pinions, taken on line $z z$, Fig. 2; and Fig. 5 is a side view of one of the spindles detached from the machine. Fig. 6 is a central vertical sectional view of one of the spindles. Fig. 7 is a side view of the same. Fig. 8 is an enlarged detail sectional view of one of the spindles, showing the lower portion thereof. Fig. 9 is a horizontal sectional view of the vertically-movable frame, taken on line x' , Fig. 2; and Fig. 10 is a plan view of my cotton-picker.

Referring by letter to the accompanying drawings, A designates the frame of the machine mounted in transporting-wheels a , and b indicates an inclosing frame which is mounted on the main frame of the machine, the sides of which being inclosed by the vertical strips or slats c , which are set at equal distances apart, leaving a space d between the adjacent slats, and the same is covered by a top or roof e , that is supported by the uprights of the inclosing frame. Within this inclosing frame, upon the main frame of the machine,

is arranged a vertically-sliding frame f , which comprises the vertical bars $g g$, an upper plate or top h , and a second plate i , arranged beneath the top plate, leaving a space j for the operating-pinions k , as will be hereinafter further explained. This vertically-sliding frame is provided at each of its four corners with vertical toothed bars l , each of which engages a gear-wheel m , mounted on a front transverse shaft n , a rear transverse shaft p , and a side shaft o , said horizontal shafts being journaled in brackets r , secured to the inclosing frame of the machine. This vertically-sliding frame is provided with front and rear bars $s s$, that slide up and down in grooves $t t$ in the vertical uprights w of the inclosing frame, as shown clearly in Fig. 3. The top plate and the plate immediately beneath it are provided with vertical perforations, through which the upper ends of the spindles v pass and which serve as bearings in which these spindles revolve. These spindles being exactly alike in construction, I will describe one, which description will answer for all. This spindle v is what I denominate a "split" spindle, the same comprising two vertical members capable of expansion and contraction, and the same join a tubular upper portion x at their upper end, and the lower end is provided with an inverted-V-shaped notch or opening y , in which is arranged a cone-shaped knob a' on the lower end of a stem b' , arranged between the two members and extending up and through the tubular upper portion of said spindle. This stem is provided with a button or cap c' at its extreme upper end and a coiled spring d' interposed between the same and the top of the spindle, which causes the stem to have an upward pressure, thus opening or spreading the members. At the same time a flat spring e' upon the upper portion of the spindle has a constant pressure thereon in order to contract or bring said members toward one another when released from the cone-shaped knob on the lower end of the spindle. This spindle is further provided at its upper end with a gear-wheel k and at its extreme lower end with a pivoted finger g' , having a pressure-spring h' , said finger being so arranged

that it spans the space between the lower ends of the members, thereby closing the lower point of the same.

The main frame of the machine is rearwardly extended, as shown in Fig. 2, and upon it is a track i' , upon which travels a receptacle j' for the cotton after the latter leaves the spindles. To the rear end of this receptacle or car is secured one end of a cord k' , which is under a pulley l' at the lower end of a standard m' of the extended frame, and said cord passes over a second pulley n' at the top of the standard, and its free end is provided with a weight o' , by which the car is drawn rearwardly when the front cord is released by the operator.

At the lower ends of the vertically-traveling frame are arranged horizontal rods p' , and which form a stop for the transverse vertically-moving bars r' , which latter pass between the vertical spindles and the side slats of the fixed frame.

B B represent vertical guide-pieces arranged between the transporting-wheels and serve to collect the branches of the stalk having the bolls—*i. e.*, bunch the same directly beneath the group of spindles.

Having thus described the different parts of which my improved cotton-picking machine is composed, I will now explain its operation. The machine being drawn by a team to the row of cotton-stalks and the side pieces inclosing the same directly beneath the spindles and while the machine remains still, the operator grasps the crank-handle t' and turning the same causes the vertically-movable frame to descend through the medium of the toothed bars and gear-wheels aforesaid, thus bringing the spindles in contact with the bolls of cotton at the same time the transverse bars r' rest upon the supporting-bars p' and the car or receptacle rests upon the rearwardly-extended frame, after which the operator grasps the crank-handle s' , turning the same, and through the medium of the pinion u' and large cog-wheel v' the grouped intermeshing pinions on the upper portion of the spindles are revolved, thus revolving the entire group of spindles, which take the cotton from the bolls by grasping and wind it in balls upon said spindles. After the spindles take up the cotton the operator again turns the crank-handle t' in a reverse direction, thereby elevating the vertically-moving frame and its spindles, with the cotton thereon. At the same time the movable-weight bars are carried up by the cotton, and when sufficiently raised the receptacle is drawn forward and beneath the suspended cotton balls, when the crank-handle t' is further turned, thus bringing all the buttons at the upper end of each spindle in contact with the under side of the top plate of the inclosing frame, when the cotton is automatically released from the spindles and drops into the receptacle and the latter, with its

load, carried rearward by means of the weight drawing the cord and in turn the latter drawing said receptacle. These spindles are of a peculiar construction, and by such construction I am enabled to provide each in a manner whereby the same can be expanded and contracted. In Fig. 5 the members are shown expanded by means of the cone-shaped knob wedging the members apart, which is desirable when the cotton is being wound upon the same. At the same time the spring-actuated finger crossing the opening in the lower end of the spindle closes the same, and said finger accommodates itself to the in-and-out movement of said members, always keeping the end closed. After the cotton is balled upon the spindles and the button pressed by the roof of the inclosing frame the cone-shaped knob on the lower end of the stem becomes disengaged from the members, and the springs e at the upper portion of said spindles come into play, the same pressing the two members toward one another, thus contracting the same and leaving the balls of cotton free upon each spindle, when the transverse bars by their own weight descend, carrying with them the cotton, thus stripping the spindles and depositing the same in the receptacle. It will be readily seen by reference to the annexed drawings and description that I group the spindles to such a nicety that when they descend upon the cotton there is no chance for the latter to escape, and every boll is relieved, after which the machine is moved forward and the same operation is performed as above described.

I do not wish to be confined to the exact construction of my improved cotton-picking machine, as various changes may be made in the construction and expansion of the spindle members, as well as in other parts thereof, without departing from the spirit of my invention.

My object in reference to the grouping of the spindles mainly is to regulate the distances between each spindle, whereby each four thereof form a square, and to enlarge or reduce the spaces therein. The same may be accomplished by selecting the proper-sized pinions—smaller pinions for less space and larger spindles for greater spaces. At the same time a machine as herein described is easily operated, relieving the bolls of all cotton, and inexpensive to manufacture.

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

1. In a cotton-picking machine provided with transporting-wheels and fixed frame mounted thereon, of the vertically-sliding frame, the expansible spindles arranged in said frame and provided with the pinions, and means substantially as described for revolving said spindles.

2. In a machine of the character described,

the vertical collapsible spindles for gathering retaining and releasing the cotton wound thereon by means substantially as described, and provided with intermeshing pinions 5 grouped together, and the vertically-movable frame, as set forth.

3. In a machine of the character described, a vertically-movable frame and expansible spindles therefor, said spindles operating simultaneously with one another by means of intermeshing pinions, said spindles with their pinions grouped to the proper distances apart to insure contact with the bolls of cotton, whereby each boll is stripped at the same time, 15 substantially as described.

4. In a machine of the character described, the combination with the inclosing frame having slatted sides, of the vertically-movable frame provided with the toothed bars, the 20 pinions engaging said bars, the transverse bars having vertical movement in the spaces between the slatted sides of the inclosing frame, the spindles provided with the pinions, the crank-handle, operating these spindles and 25 the horizontal rods connecting the lower end of the movable frame and forming a stop for the transverse bars, all substantially as described.

5. In a cotton-picking machine, the combination therewith of collapsible spindles comprising two members separated at the lower end and joined at their upper end to a tubular 30 portion, said members having the inverted-V-shaped notch and a stem, provided with a cone-shaped knob engaging said notch, and the spring for forcing the members toward one another. 35

6. In a cotton-picking machine of the character herein described, the same comprising 40 the main transporting-frame and inclosing frame mounted thereon, having the vertical grooved guide-strips, pinions, beveled gear-wheels, the horizontal shafts journaled in

brackets, and a crank-handle for operating these gear-wheels, said frame provided with 45 the top plate and side strips, and openings between said strips, the vertically-sliding frame, comprising the corner-uprights having the vertical toothed bars, and at the upper end a top plate and a lower plate arranged below 50 the same, leaving a space between said plates, each of which being provided with vertical perforations, horizontal supporting-rods at the lower end connecting these uprights and the collapsible spindles provided with pinions 55 engaging one another, the large and small pinions, the latter having the crank-handle, the receptacle traveling back and forth upon the main and extended rear frame and the side boards arranged beneath the main frame 60 for straddling and gathering the cotton prior to the picking of the same by the spindles, substantially as described.

7. In a cotton-picking machine, a group of collapsible spindles, said spindle comprising 65 a split lower portion, having a closing-finger for the extreme end, an inverted-V-shaped space and a tubular upper end, a stem arranged within the vertical space between the two members, having at its lower end a cone- 70 shaped knob engaging the inner faces of the inverted-V-shaped opening, said stem extending through the upper tubular end of the spindle and provided with a button and coiled spring, and a spring secured to the spindle 75 near its upper portion for forcing the two members inward when released by the knob, all substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two sub- 80 scribing witnesses.

JAMES T. McDONALD.

Witnesses:

STURGEON M. COLFAX,
F. M. CHAMBERS.