

No. 777,897.

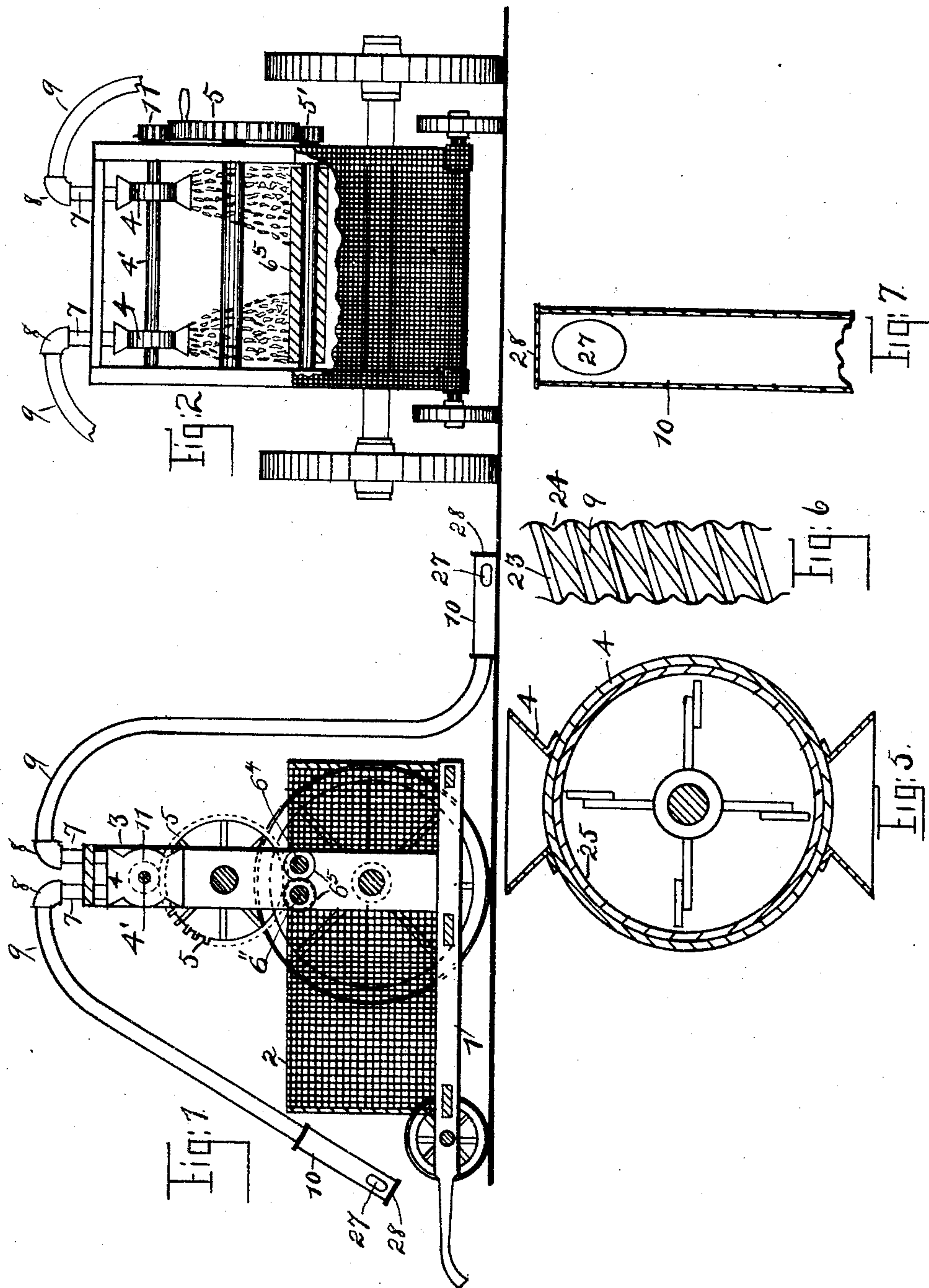
PATENTED DEC. 20, 1904.

B. R. HEYWARD.
COTTON PICKING APPARATUS.

APPLICATION FILED MAR. 27, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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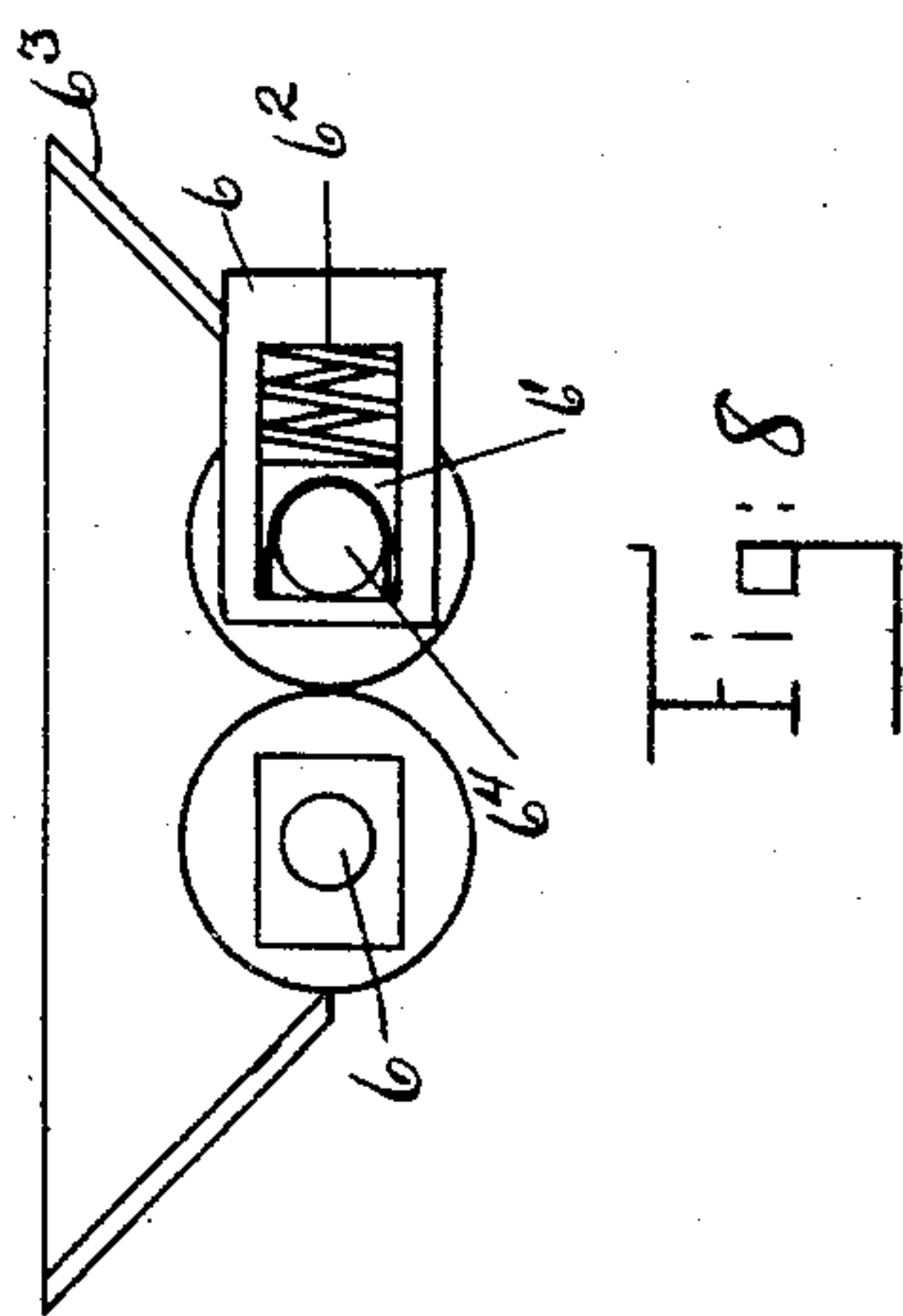


Fig: 8

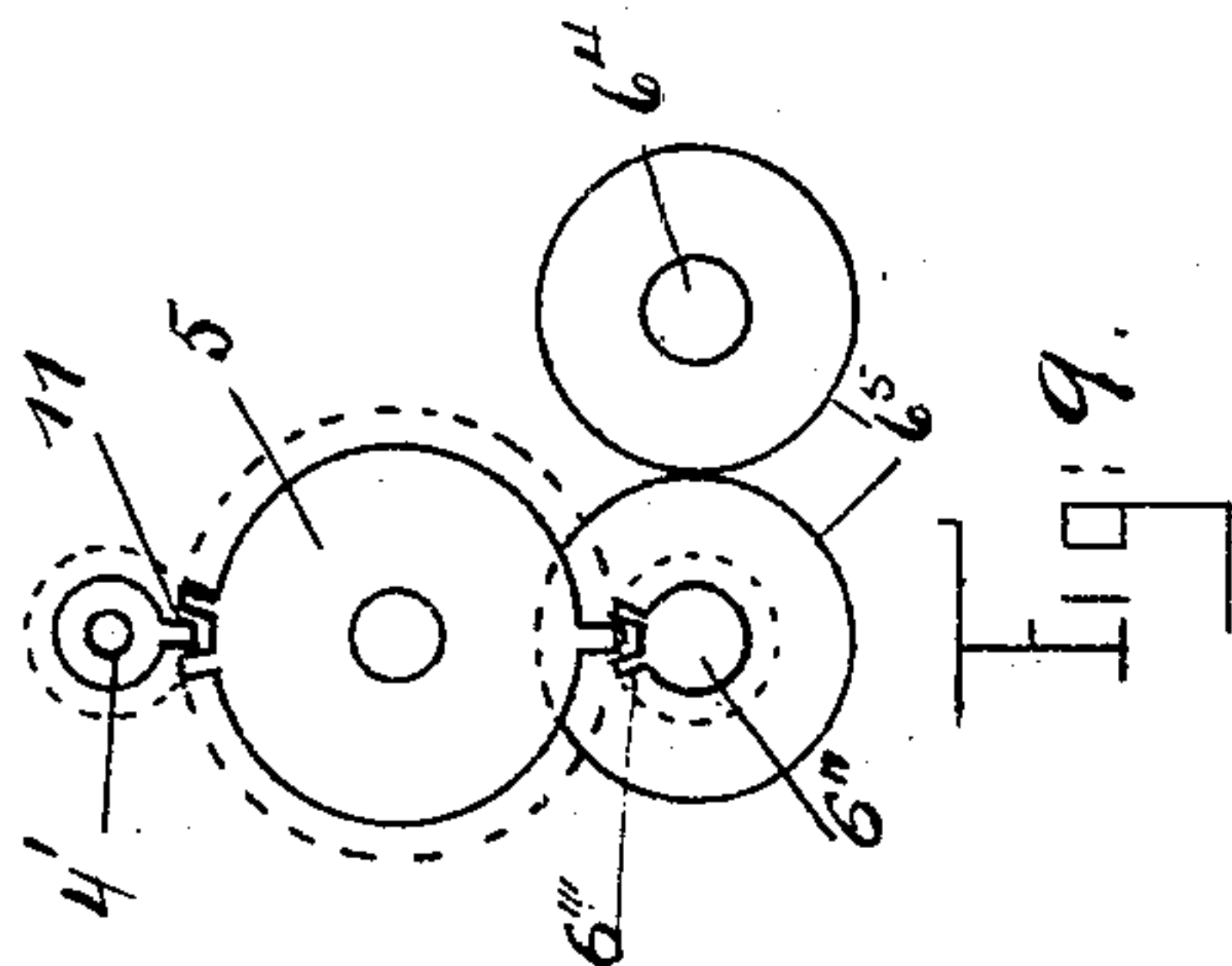


Fig: 9.

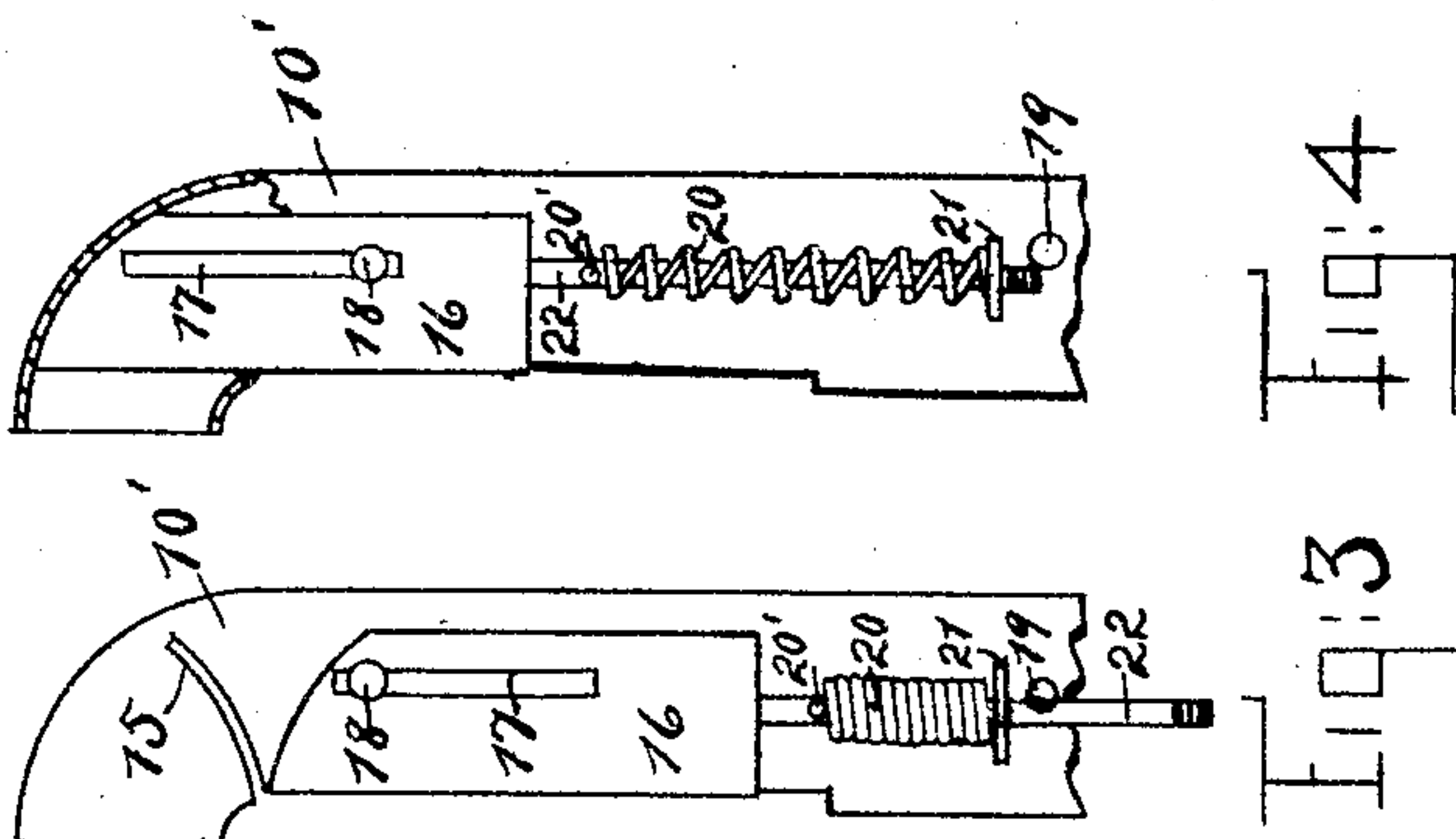


Fig: 4

Fig: 3

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UNITED STATES PATENT OFFICE.

BARNWELL RHETT HEYWARD, OF ALBANY, NEW YORK.

COTTON-PICKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 777,897, dated December 20, 1904.

Application filed March 27, 1903. Serial No. 149,799.

To all whom it may concern:

Be it known that I, BARNWELL RHETT HEYWARD, a citizen of the United States, residing at Albany, New York, have invented certain
5 new and useful Improvements in Cotton-Picking Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make
10 and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to cotton-harvesting
15 apparatus in which air-suction is caused to draw the cotton off the plant into a selective handle or tube and through a hose and deposit it in any desired receptacle adapted to be moved with the apparatus about the cotton-field.
20

In the drawings, Figure 1 shows a longitudinal sectional view of my apparatus; Fig. 2, an end view thereof; Fig. 3, Sheet 2, a side elevation of a selective tube; Fig. 4, Sheet 2,
25 a similar view of that tube broken away at the elbow to show the operation of the damper; Fig. 5, a sectional view of the suction device, showing the cushioning; Fig. 6, a longitudinal sectional view of the hose; Fig. 7, a vertical
30 cal sectional view of the preferred form of selective I use with my device; Fig. 8, an enlarged end view of my device for producing a resilient compressor-roll and an end view of the hopper into which the cotton falls, (not shown
35 in Figs. 1 and 2;) and Fig. 9, a side elevation of one of the ways I arrange for the operation of the rolls.

The numeral 1 shows a hand-cart upon which my apparatus is mounted, although any form
40 of vehicle may be used, and 2 a wire basket to hold the picked cotton.

3 shows the framework, having one or more suction devices, preferably fans, mounted thereon by means of the shaft 4', having a
45 gear-wheel 11 meshing with gear 5 and 5 meshing with gear 5', which operates the rollers 6⁵, which are used to condense the cotton after it is picked. Connected with the fans 4 are pipes 7 7, having revoluble elbows 8 8, to
50 which are operatively connected the hose 9,

which is formed of a coiled spring 23, loosely covered by a fabric 24, in order that the hose as a whole may be elongated at will and close or shorten automatically. To the hose is operatively attached the selective tube 10, having
55 its free end closed, as seen at 28, and having an opening in its wall 27, forming a mouth through which the cotton enters. The suction device 4 has its interior cushioned, as seen at 25, with felt or other soft material, so
60 that when the cotton, with its seed, passes through the suction device it will not be hulled or otherwise damaged. The journal 6⁴ of the right-hand roller is set in a spring journal-box so as to allow of the two rollers coming
65 together and receding by means of the spring 6², which is described as follows, to wit: The journal 6⁴ has a movable block or yoke 6', with a U-shaped opening in one end, and a spring 6², which presses the journal and
70 roller longitudinally and against the other roll, and when a seed or bunch of seeds comes between the rolls the tension of the spring is such as to allow the movable roll to recede
75 from the other and allow the cotton-seed to pass without crushing them, the hopper 6³ being used to catch the falling cotton, the pressure of the spring being sufficient to press the cotton passing between the rollers
80 sufficient to condense it, and thus allow of the wire box 2 carrying more than it otherwise could.

In Fig. 3, 10' shows another form of selective tube from that shown in Figs. 1 and 7 in having an elbow with a slot 15 and a damper
85 16, the damper partly encircling the tube 10' and held thereto movably by the pin 18, located in the slot 17, the damper having an actuating rod or handle 22 movable in an eye 21 and passing through the spring 20 and having
90 a pin or stop 20' arranged to compress the spring when the handle or rod 22 is drawn downward. A catch or stop 19 engages with a notch in the rod 22 and secures the rod when drawn down, as seen in Fig. 3. When it is
95 desired to have the tube 10' open, the damper is secured, as seen in Fig. 3, as follows: The rod 22 is drawn, causing the pin 20' to compress the spring and draw the damper 16 out of the slot 15 and assume the position shown
100

in Fig. 3. The tube 10' is now open ready to receive the cotton drawn into it by the air-suction. When it is desired to close the tube 10', the rod 22 is swung to one side until it is clear
 5 of pin or stop 19, when the spring 20 will force the damper into slot 15 and against the top inner surface of the elbow, when the tube will be closed, shutting off all entrance of air or cotton, and this is done so that when one
 10 of the tubes 10' is not in actual use the suction in it may be cut off and that in the other tubes augmented by the amount of force that would be wasted in a tube not in actual use picking cotton. In this manner I am enabled
 15 to use more or a greater number of hose 9 and selective tubes 10 on a single apparatus than I otherwise could.

In Fig. 6 the numeral 24 represents the fabric covering the spring 23, which fabric is
 20 loosely arranged somewhat like the folds in a bellows, and when the spring 23 is elongated the bellows-like folds in the fabric draw out, and thus allow of considerable elongation of the hose as a whole, and when the strain put
 25 upon the hose as a whole and which elongates it is removed the hose contracts and shortens and is thus kept from dragging on the ground and over the plants.

The selective tube shown in Fig. 7 and Fig. 30 1 has the opening 27 through one of its side walls, as is shown in Fig. 7. This is an improvement over end openings and elbows in such tubes, for the reason that the mouth 27 may be brought to the cotton-boll no matter
 35 how located on the plant, either on top, bottom, sides, or among the stems and leaves, with the least opposition therefrom, and while I claim this tube in this application only as in connection with the apparatus as a whole I
 40 reserve the right to hereafter make application for a patent thereon separately, as I also do upon those shown in Figs. 3 and 4.

In Fig. 9 I show one way of gearing the gear 6''' to the gear-wheel 5, and the journal
 45 6⁴, with its roll turning by friction only and set in spring-box 6', will operate to draw the cotton between the rolls, and in Fig. 1, it will be seen, the left-hand roll 6⁵ alone is geared to the gear-wheel 5, the journal 6⁴ having no
 50 gear and running by friction only, the two rolls being set practically directly under the center of the large gear-wheel 5, while in Fig. 9 journal 6⁴ sits to one side of it. Either manner of setting may be adopted as may be
 55 deemed best.

The operation of the apparatus is as follows: The gear-wheel 5 being revolved by means of the handle or by any other means desired, the
 60 small gear 11 is also revolved and revolves shaft 4' and the blades of the fans 4, and at the same time the small gear 5' is revolved, which revolves the rollers 6⁵ of the condenser. The fans produce a suction in the hose 9 9 and selective tubes 10, and as the mouths of the
 65 selective tubes are applied to the cotton hang-

ing on the plants it is drawn into the tubes 10 and through hose 9 into fans 4 and out of them and is discharged upon the condensing-rollers 6⁵ and passes between them, and as they operate in spring-boxes the seeds pass through
 70 or between the rollers without being crushed or damaged, while the fleecy cotton is condensed and drops into the wire basket 2. As the interior of the fans 4 are cushioned with felt or other like material, as seen at 25, the
 75 cotton-seed is not damaged. The elbows 8 8 being revoluble on the pipes 7 7 can be swung around so as to allow of the hose 9 9 being directed in any and all directions.

In Fig. 9 it will be seen that the small gear 80 6''' on the end of the journal of the roll 6⁵ meshes with the large gear-wheel 5 and is revolved by the gear 5, which revolves the right-hand roll 6⁵ by friction only, the gear 6''' and gear 5 being shown in conventional form only,
 85 the small gear-wheel 6''' being carried on the journal 6''.

Having described my invention so that those skilled in the art to which it appertains may know how to make and use the same, what I
 90 claim, and desire to secure by Letters Patent, is—

1. In a cotton-harvesting apparatus, a cushioned suction device; a hose in operative connection therewith; a selective tube in opera-
 95 tive connection with the hose and means for operating the suction device, all operating to draw the cotton from the boll and through the hose and suction device and prevent damage to the seeds in the cotton substantially as de-
 100 scribed.

2. In a cotton-harvesting apparatus a suction device; a resilient spring loosely covered with a fabric forming an extensible and automatically-contracting tube or hose in operative
 105 connection with the suction device; a selective tube having an opening through its side wall forming a mouth therefor, in operative connection with the said hose and means for operating the suction device substantially as de-
 110 scribed.

3. In a cotton-harvesting apparatus a suction device; a tube or hose in operative connection with the said suction device; a selective tube
 115 having an opening in its side wall forming a mouth thereto through which the cotton may be drawn by the suction, in operative connection with the said hose, and means for operating the suction device substantially as de-
 120 scribed.

4. In a cotton-harvesting apparatus a cushioned suction device; a resilient spring loosely covered with a fabric forming an extensible and automatically-contracting tube or hose in
 125 operative connection with the suction device; a selective tube having an opening through its side wall forming a receiving-mouth therein into which the cotton can be drawn in operative connection with the said hose; condens-
 130 ing-rolls arranged to receive the seed-cotton

and condense it and means for operating the suction device and the condensing-rolls substantially as described.

5 5. In a cotton-harvesting apparatus a suction device; a hose in operative connection there- with; a selective tube in operative connection with the said hose; a condensing apparatus arranged to receive the cotton and condense the same and means for operating the suction
10 device and the condenser substantially as described.

6. In a cotton-harvesting apparatus a suction device; a hose in operative connection there-

with; a selective tube in operative connection with the hose; a condensing apparatus ar- 15 ranged to receive the cotton and condense the same and means for operating the suction device and condenser, the selective tube having a damper therein arranged to be opened and closed at will substantially as described. 20

In testimony whereof I affix my signature in presence of two witnesses.

BARNWELL RHETT HEYWARD.

Witnesses:

A. M. TURNER,
E. C. FASOLDT.