

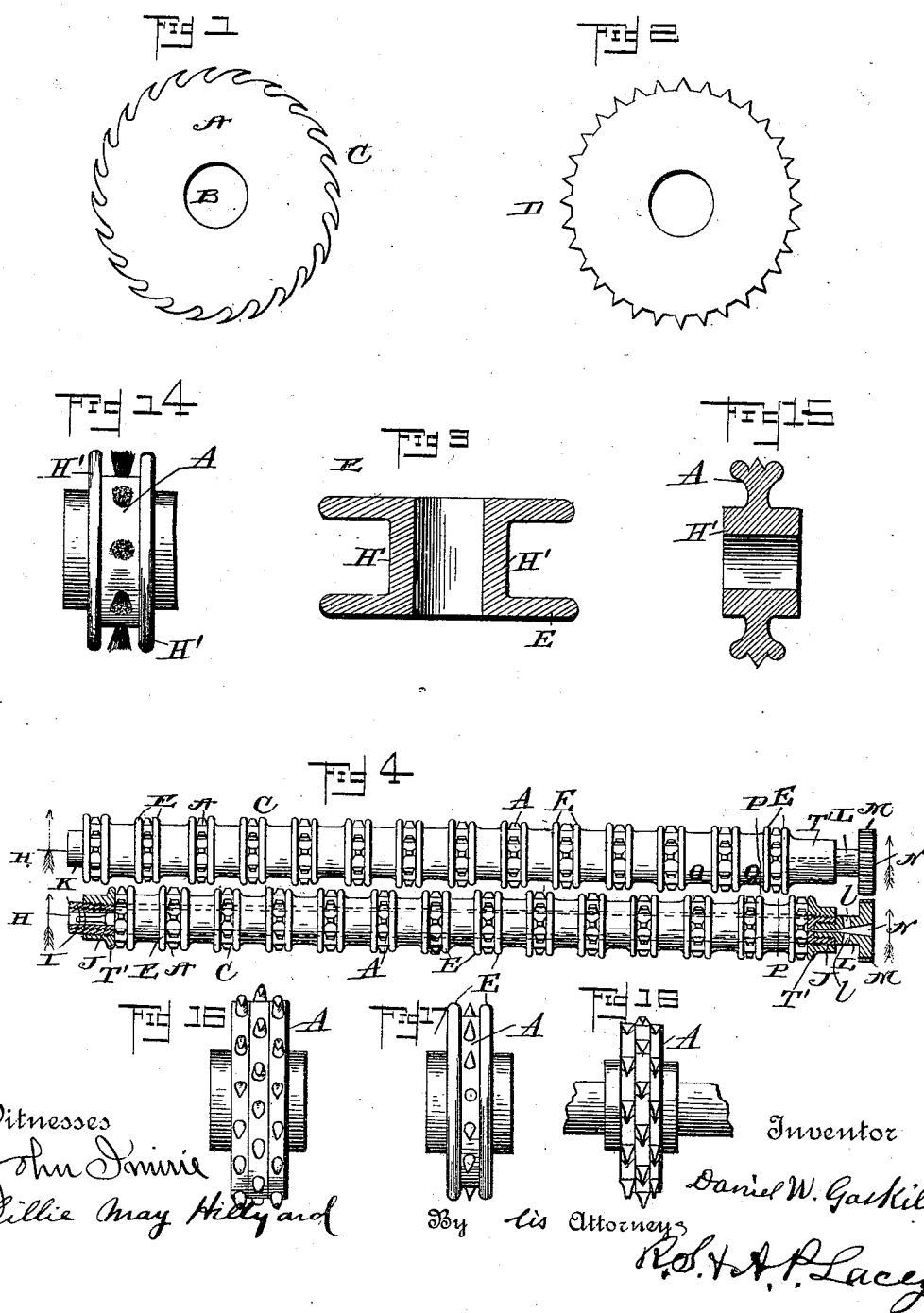
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6 Sheets—Sheet 1.

D. W. GASKILL.
COTTON PICKER.

No. 555,691.

Patented Mar. 3, 1896.



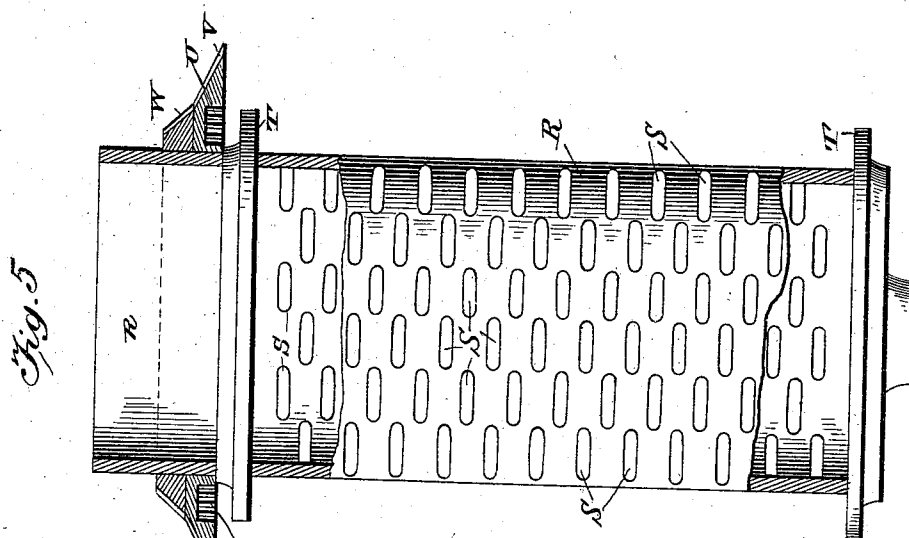
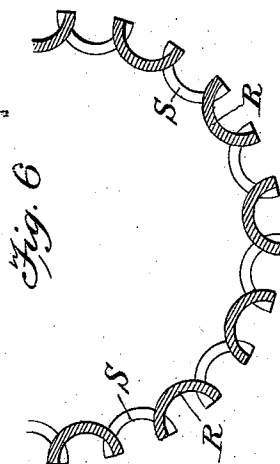
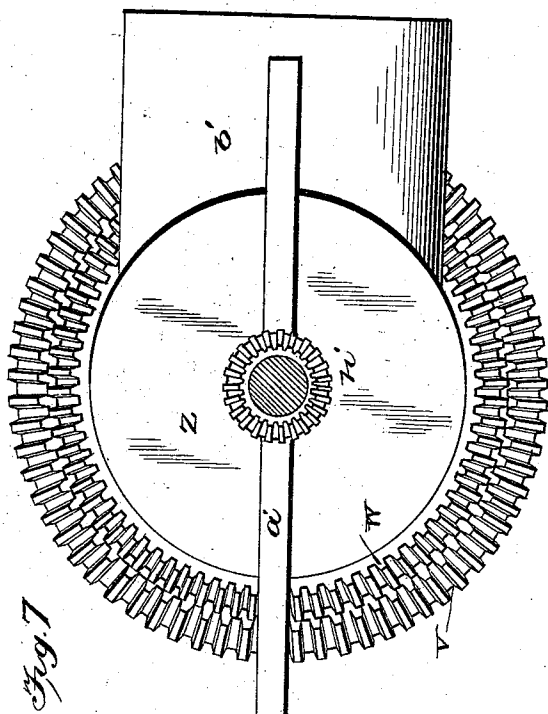
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By his Attorneys: *Robt. A. Lacey*

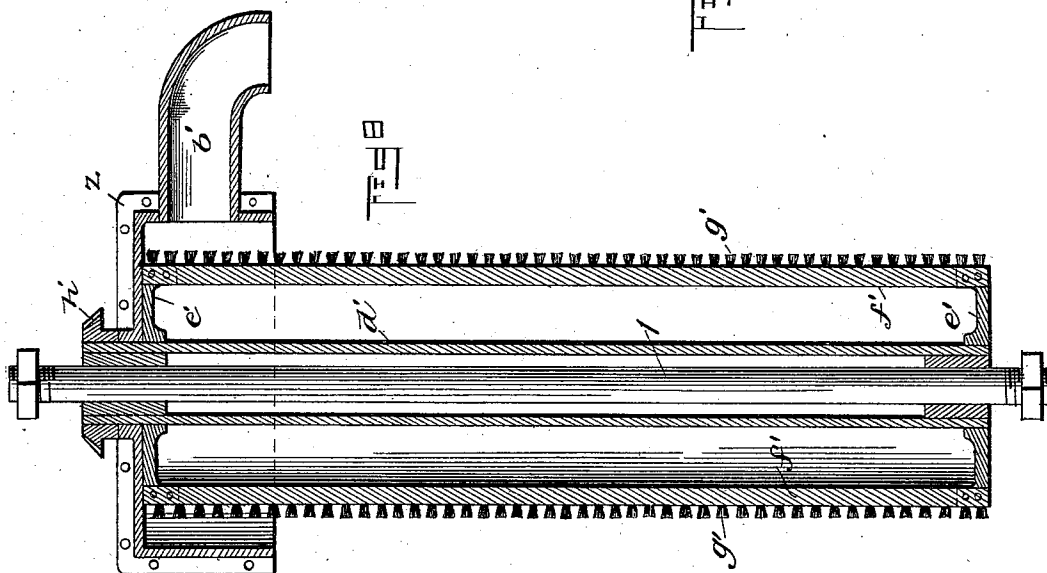
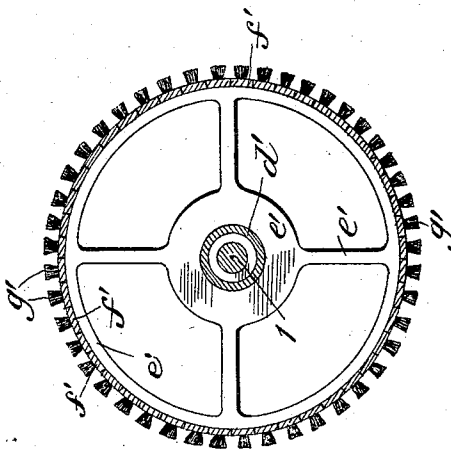
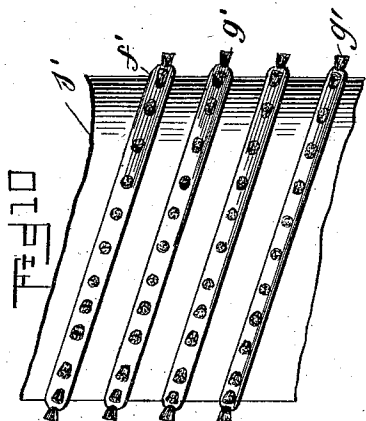
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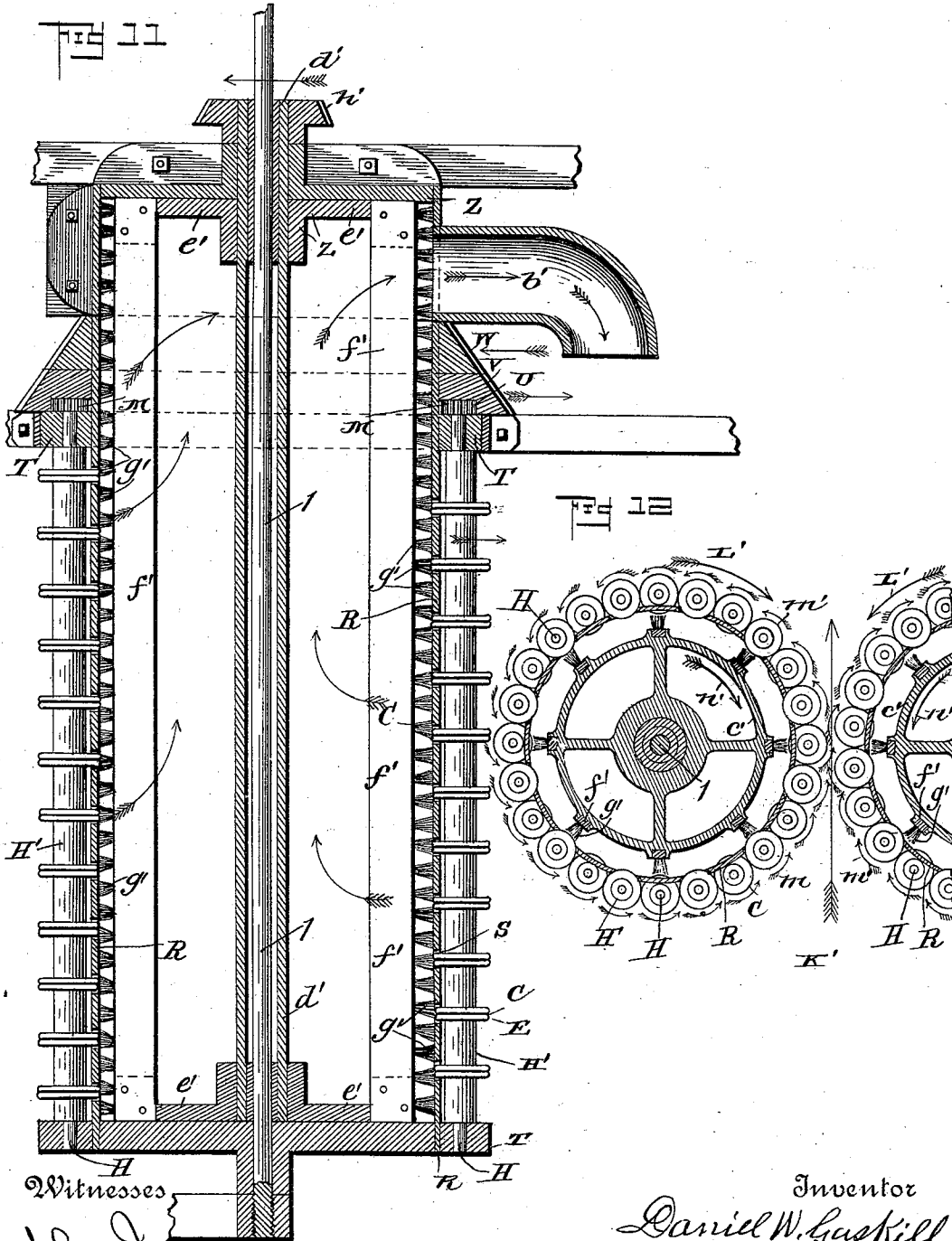
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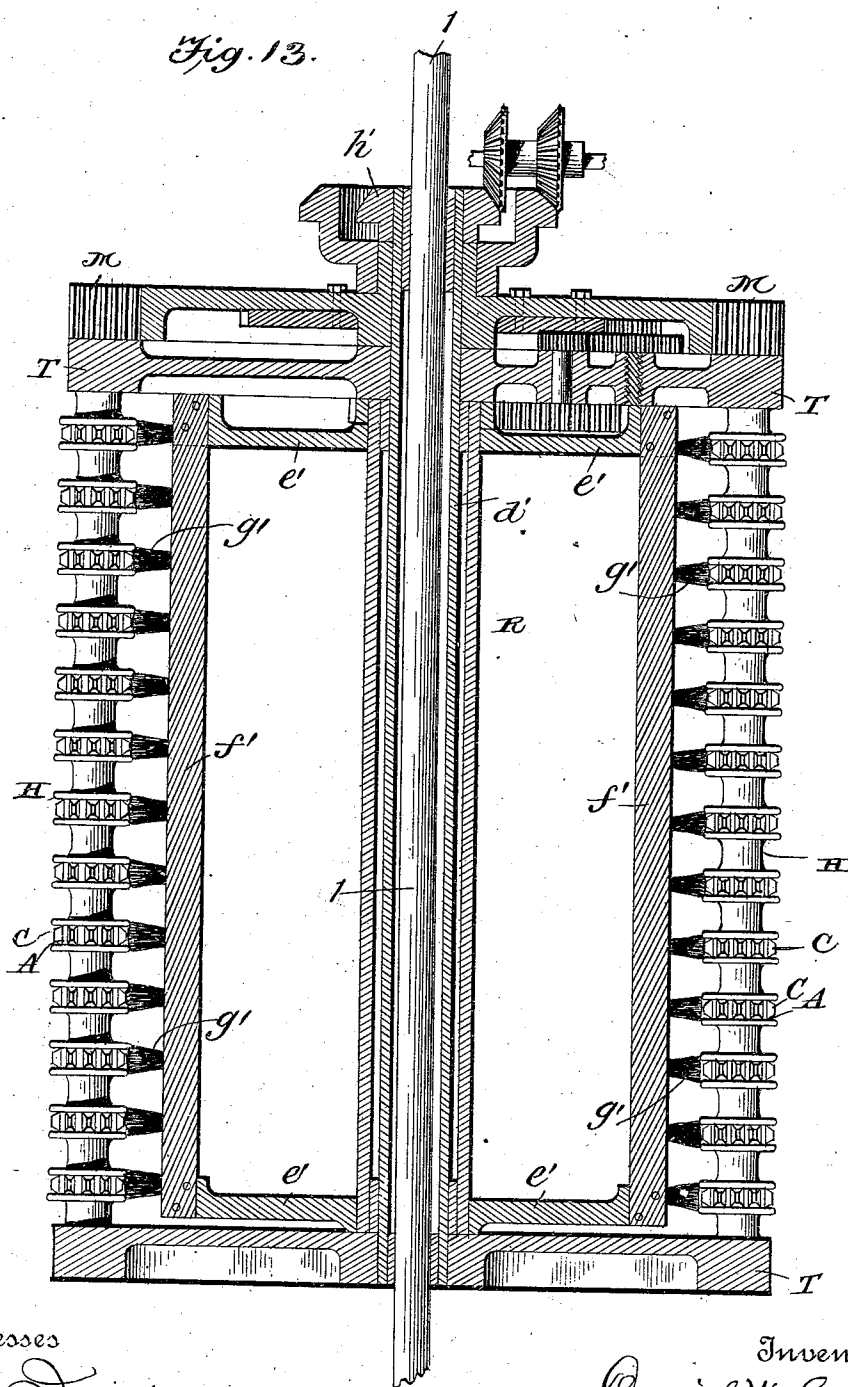
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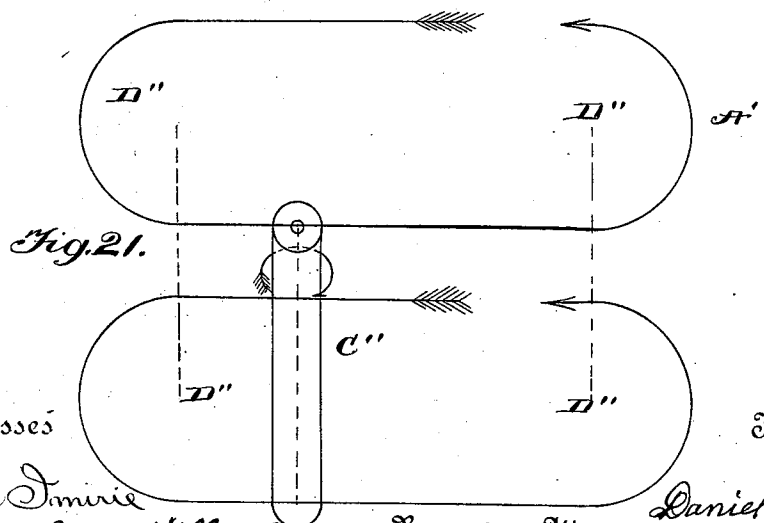
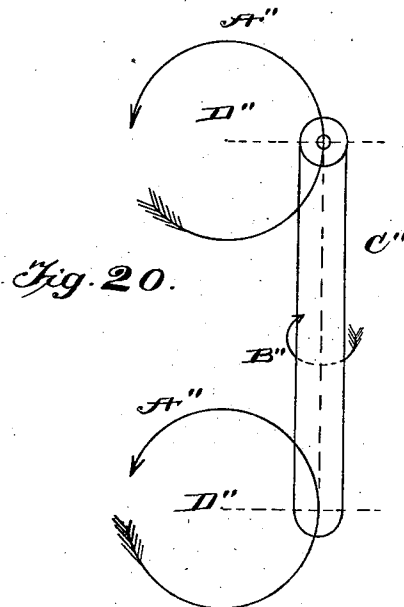
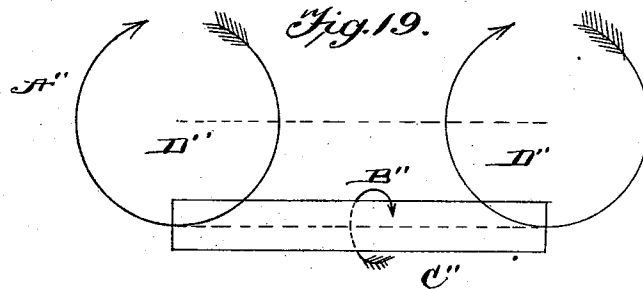
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UNITED STATES PATENT OFFICE.

DANIEL WILLIS GASKILL, OF LITTLE ROCK, ARKANSAS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO GEORGE N. TODD, TRUSTEE, OF NEW YORK, N. Y.

COTTON-PICKER.

SPECIFICATION forming part of Letters Patent No. 555,691, dated March 3, 1896.

Application filed May 18, 1891. Serial No. 393,234. (No model.)

To all whom it may concern:

Be it known that I, DANIEL WILLIS GASKILL, a citizen of the United States, and a resident of Little Rock, in the county of Pulaski and State of Arkansas, have invented certain new and useful Improvements in Cotton-Pickers, of which the following is a specification.

This invention relates to certain new and useful improvements in cotton-pickers; and it consists in the novel construction, arrangement and combination of parts hereinafter fully described.

Referring to the drawings, Figure 1 is a plan view of one of the picking-disks, its teeth or points being curved in the direction of their rotation. Fig. 2 is a plan view of a similar form of picking-disk, the points being straight or radial. Fig. 3 is a transverse section of one of the guards. Fig. 4 is an elevation of two adjacent pickers, showing the relative arrangement of the picker-disks. Fig. 5 is a side elevation, partly in section, of the rotary slotted picker-carrying cylinder. Fig. 6 is a detail section of a modification of the body of the cylinder. Fig. 7 is a plan of the stationary cap for the cylinder provided with a vent or spout for the passage of the cotton, and showing also the drive-gears for the cylinder and the pickers. Fig. 8 is a vertical section of the cleaner-brush or cylinder with cap and spout for the passage and delivery of the cotton. Fig. 9 is a horizontal section of the cleaner-brush. Fig. 10 is an elevation of the same, showing the brush formed spirally around the cylinder. Fig. 11 is a vertical central section of the picker-carrying cylinder, showing also the pickers, the cleaner, and mechanism for operating the same. Fig. 12 is a horizontal sectional detail indicating the movements of the cylinders and the pickers. Fig. 13 is a vertical section with the guard-cylinder, cap, and spout omitted. Figs. 14, 15, 16, 17, and 18 are details of modified forms of guarded picking-disks. Figs. 19, 20, and 21 are diagrammatic views illustrating the movement of the pickers when in operation.

Similar letters and numerals of reference indicate the same parts in the several figures of the drawings.

Referring to the drawings, the numeral 1 indicates the stationary post or fixed shaft mounted in upright position within a suitable frame. In practice two such shafts are employed, and the frame is mounted as usual upon suitable supporting and traction wheels, the frame having a central passage-way, or being arched in a manner now well understood, so that the machine may straddle the rows of plants. Suitable gearing is provided between the traction-wheels and the picking and cleaning mechanisms of the machine, whereby the latter are driven from the wheels of the machine. This general construction of machine is now common and well known, and no further description thereof appears to be necessary.

Upon the shaft 1 is rotatively mounted a hollow cylinder R, such cylinder being provided with vertical series of horizontal slots S, the slots of one series alternating in position with those of the adjacent series. Secured to the cylinder and projecting beyond the periphery thereof at its bottom and at or near its upper end are rings or collars T, and at or near its upper end the cylinder is provided with an annular gear W, by means of which the same is driven from the traction-wheels by intermediate gearing, such as hereinbefore referred to.

The cylinder R carries and supports the picking and cleaning mechanisms now to be described. The pickers consist generally of rotary shafts carrying suitably-spaced disks provided with picking-points or teeth, the disks on one shaft being arranged alternately in position with those of the adjacent shaft, as indicated in Fig. 4 of the drawings, so that the disks of one shaft stand opposite the spaces between the disks of the adjacent shafts. These pickers are arranged around the circumference of the cylinder R in proximity to one another, as indicated in Fig. 12 of the drawings, and are mounted and operated in the manner now to be described.

H H indicate the picker-shafts. These shafts are journaled at their upper and lower ends in the collars T secured upon the cylinder R. At their upper ends the picker-shafts are provided with pinions M, and these pinions engage an internal gear U surrounding

the cylinder and fixed to the frame of the machine so that, as the cylinder rotates and carries the pickers around bodily, the pinions M are rotated by the stationary gear so as to revolve the pickers on their individual axes in a direction reverse to that of the rotation of the cylinder, all of which is indicated in Fig. 12.

Upon the shafts H, and preferably throughout their length, are secured picker-disks A, said disks being suitably spaced apart so that the disks of one shaft may, as before described, alternate in position with those of adjacent shafts. These picker-disks are provided on their peripheries with picking-points, which latter may be shaped like saw-teeth, curved in the direction of rotation, as in Fig. 1, or straight and radial, as shown in Fig. 2, or said disks may be formed with radially-projecting bristles, fibrous tufts, or other kind of picking-points, as shown in Figs. 14 to 18. Upon the shafts H and between the picker-disks are secured collars or thimbles H', said collars alternating with the picker-disks and acting as spacing-blocks for the same. I also utilize these collars to form guards for the picking-points, and to this end I preferably provide the collars with flanges E at their ends, or construct them in the form of spools. When in place upon the shaft the disks lie between the end flanges of adjacent collars, the peripheries of which project to or slightly beyond the ends of the picking-points. The collars and disks may be secured to the shafts in any suitable manner. As shown herein they are clamped thereon by jam-nuts T' secured upon the threaded ends J of the shafts.

For the purpose of lubricating the picker-shafts I construct them hollow or with a central opening and provide them at their upper ends with oil-inlets N, by means of which the lubricant may be supplied to the interior. In the journal portion L of the shafts H are formed apertures l, the object being to permit the oil to lubricate the bearing in the collar T. The lower ends of the shafts are also provided with openings for a similar purpose.

In mounting the pickers upon the cylinder they are arranged close to the periphery thereof so that the picking-disks and guards for the points will correspond with and project into the slots S formed in the wall of the cylinder, as indicated in Figs. 11 and 12. The size of these openings relatively to the size of the disks should be such as to permit the latter to revolve freely therein and to carry the fiber adhering thereto through to the interior of the cylinder. They should not, however, be large enough to permit the entrance of leaves, twigs, hulls, &c.

The mechanism for stripping or cleaning the cotton from the picking-points is located within the picking-cylinder and is arranged to act upon the picking-points as the disks project through the slots in the cylinder. The cleaner consists of a cylindrical skeleton

frame, of which d' indicates the central shaft, which is made tubular, so as to loosely encircle the stationary shaft 1 of the machine, and e' indicates heads to which are secured longitudinal strips f' , which strips have secured to their outer surfaces brushes g' , these brushes being arranged in close proximity to the interior wall of the cylinder R, so as to sweep across the edges of the disks and strip the cotton from the picking-points. The cleaner-shaft d' is provided at its upper end with a pinion h' , by means of which pinion the cleaner-cylinder is rotated in the same direction as the picker-cylinder and of the parts of the picker-disks which project through the slots.

The present invention does not relate particularly to the intermediate gearing by which the pickers, the picker-carrying cylinders, and the cleaner-cylinders are driven from the drive-wheels of the machine, and as the same forms the subject-matter of another application of even date herewith, Serial No. 393,235, I deem it unnecessary to further illustrate or describe it.

In the construction shown in Fig. 11 the cleaner-cylinder is provided with vertical rows of brushes, and the cotton as it is stripped from the picker-disks is carried up by the air-current into a cap Z, which overhangs and closes the top of the picker and cleaner cylinders, whence it passes out through the delivery-spout b' into any suitable receptacle. If desired, I may, for the purpose of assisting the upward movement of the stripped cotton, arrange the cleaner-brushes spirally around the cylinder, as indicated in Fig. 10. If preferred, however, the bottom of the picker and cleaner cylinders may be open and the stripped cotton allowed to fall into or be conveyed to the receptacle by any suitable mechanism for that purpose. I also contemplate a modification in the construction of the picker-cylinder, the same being illustrated in Fig. 6 of the drawings, and consisting in corrugating the cylinder-wall vertically and forming horizontal slots in alternate corrugations.

The construction being as described, the operation of the machine is as follows: The frame being constructed to straddle the plants, as already explained, as the machine is drawn along the row the adjacent surfaces of the picker-cylinders are revolved toward each other and backwardly, or in a reverse direction to the movement of the machine. As the machine progresses the cylinders press the branches of the cotton-plants together and the pickers are forced between the branches, causing the picking-disks to come in contact with all parts of the bush, and as the backward bodily movement of the pickers compensates in whole or in part for the forward travel of the machine the picking-points remain stationary in the plants long enough to thoroughly gather all the ripe cotton. The unripe bolls, stems, and leaves of the plant

will not, however, be gathered or injured, for the reason that the picking-points are provided with guards, as before described, and for the further reason that as the disks revolve in one direction their adjacent surfaces travel in opposite directions and cause them to act in a measure as strippers for one another, thus preventing any unripe cotton, stems, or leaves from being caught. Furthermore, the slots in the picker-carrying cylinder serve to effectually prevent the entrance of such matter into the interior of the same. The alternate positions of the picker-disks on adjacent shafts also co-operate to the above results, for the reason that the guards of one disk approach very near to those of the opposing disks, while the picking-points draw the cotton into the spaces formed by the plane portions of the spacing-blocks between the guards. As the picker-disks pass through the slots in the cylinder they are swept by the cleaner-brushes and the cotton thoroughly detached therefrom. As before stated, the stripped cotton may be carried upward and out through the top of the cylinder by a current of air, or may be allowed to fall into the lower part of the same, whence it is conducted away by any suitable mechanism for that purpose.

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

1. In a cotton-harvester, the combination with a rotary brush, of a series of pickers journaled in suitable bearings and arranged circumferentially about the periphery of said brush, and means for rotating said brush and pickers about a common center, and for rotating the pickers about their individual axes; substantially as described.

2. In a cotton-harvester, the combination with a rotary brush, of a series of pickers journaled in suitable bearings and arranged circumferentially about the periphery of said brush, and means for rotating said brush and pickers about a common center, and for rotating the pickers in a reverse direction about their individual centers; substantially as described.

3. In a cotton-harvester, the combination with a rotary brush, of a series of pickers each consisting of a shaft having mounted thereon disks provided with picking-points and spool-shaped guards mounted on said shaft between said disks, and means for rotating said brush and pickers about a common center and for rotating the pickers in a reverse direction about their individual axes, substantially as described.

4. In a cotton-harvester, the combination with a rotary brush, of a series of pickers journaled in bearings surrounding said brush, each of said pickers consisting of a shaft having mounted thereon disks provided with picking-points, and spool-shaped guards mounted on said shaft between said disks,

and means for rotating said brush and pickers about a common center and for rotating the pickers in a reverse direction about their individual axes, substantially as described.

5. In a cotton-harvester, a series of pickers, each picker consisting of a rotary shaft having alternately mounted thereon disks carrying picking-points and spool-shaped guards, the disks of one picker lying opposite the guards of the adjacent picker, substantially as described.

6. In a cotton-harvester, a series of pickers journaled in suitable bearings and arranged in annular form, each of said pickers consisting of a shaft having mounted thereon disks provided with picking-points and spool-shaped guards mounted on said shaft between said disks, the disks of one picker lying opposite the guards of the adjacent picker, and means for revolving said pickers about a common center and for rotating the same about their individual axes, substantially as described.

7. The combination with a rotary slotted cylinder, a series of rotary pickers journaled about the periphery of said cylinder and projecting into the slots thereof, and means for cleaning the cotton from the pickers, substantially as described.

8. The combination with a rotary slotted cylinder, a series of rotary pickers journaled about the periphery of said cylinder and projecting into the slots thereof, and a rotary brush journaled centrally within said slotted cylinder, substantially as described.

9. The combination with a rotary slotted cylinder, a series of rotary pickers journaled about the periphery of said cylinder and projecting into the slots thereof, and means for rotating said brush, cylinder, and pickers about a common center, and for revolving said pickers about their individual axes, substantially as described.

10. The combination with a rotary slotted cylinder, a rotary brush journaled centrally therein, a series of rotary pickers journaled around the periphery of said cylinder and projecting into the slots thereof, and means for rotating said brush, cylinder and pickers about a common center in one direction and for revolving said pickers about their individual axes in the opposite direction, substantially as described.

11. The combination with a rotary slotted cylinder, a rotary brush journaled centrally therein, a series of rotary pickers journaled around the periphery of said cylinder, each of said pickers consisting of a shaft having mounted therein disks provided with picking-points and spool-shaped guards arranged between said disks, the pickers projecting into the slots of the cylinder, substantially as described.

12. The combination with a rotary support, a series of rotary pickers journaled in said support parallel to the axis thereof, and an

interior rotary cleaner, journaled to rotate continuously in contact with said pickers, substantially as described.

13. The combination with a hollow cylindrical rotary support, a stationary cap and spout, a combined rotary cleaner and elevator journaled within said support, apertures in said support, a series of rotary pickers journaled exteriorly in and parallel to the axes of said support, the said pickers being provided with picking-points projecting into the

apertures in said support and contacting with said cleaner and elevator, means for rotating said support on its axis about said stationary cap, and means for rotating the pickers on their individual axes and for rotating the combined brush and elevator, substantially as described. 15

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