

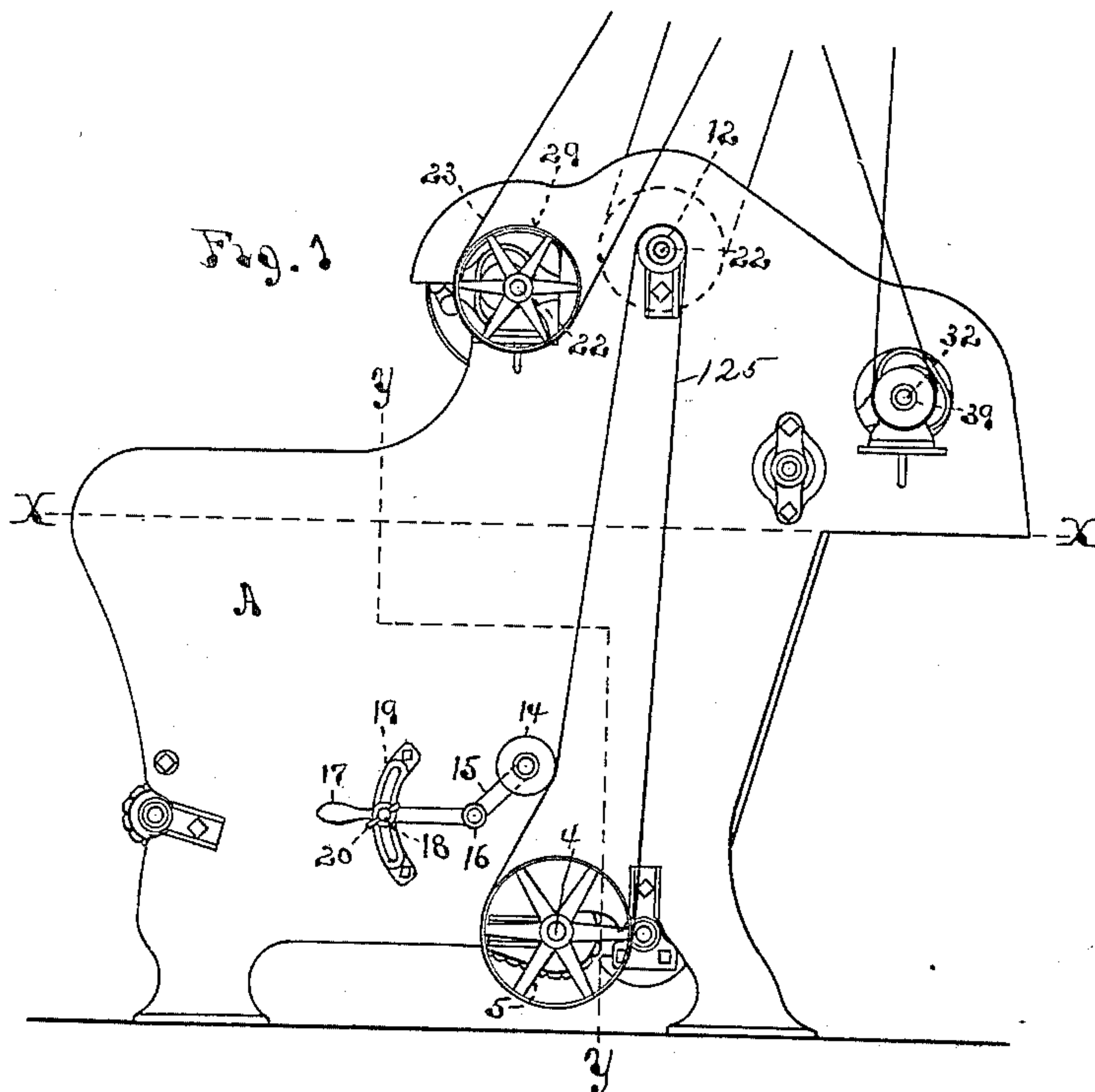
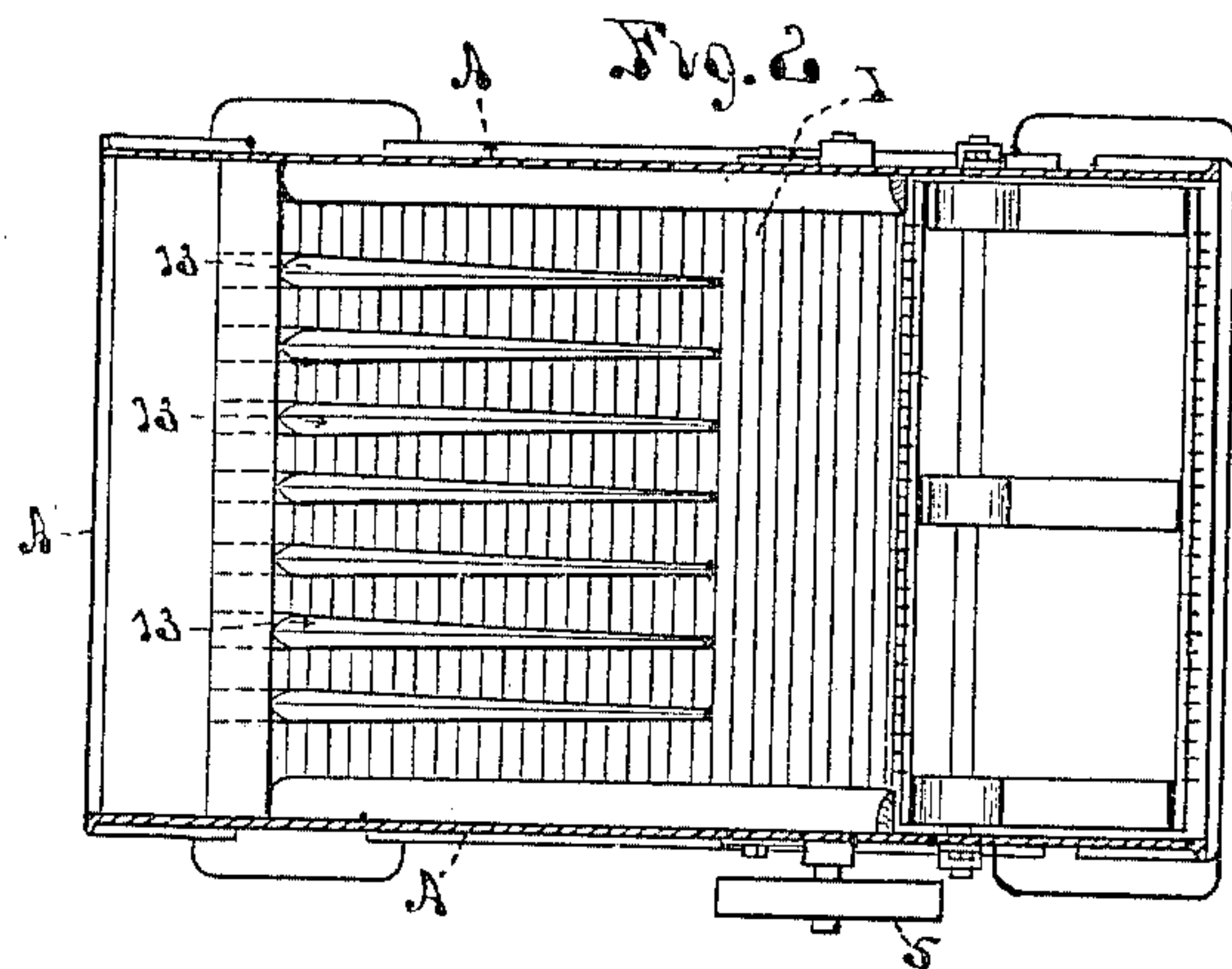
(No Model.)

F. G. & A. C. SARGENT.
FIBER FEEDING MACHINE.

3 Sheets—Sheet 1.

No. 450,804.

Patented Apr. 21, 1891.



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(No Model.)

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Fig. 4

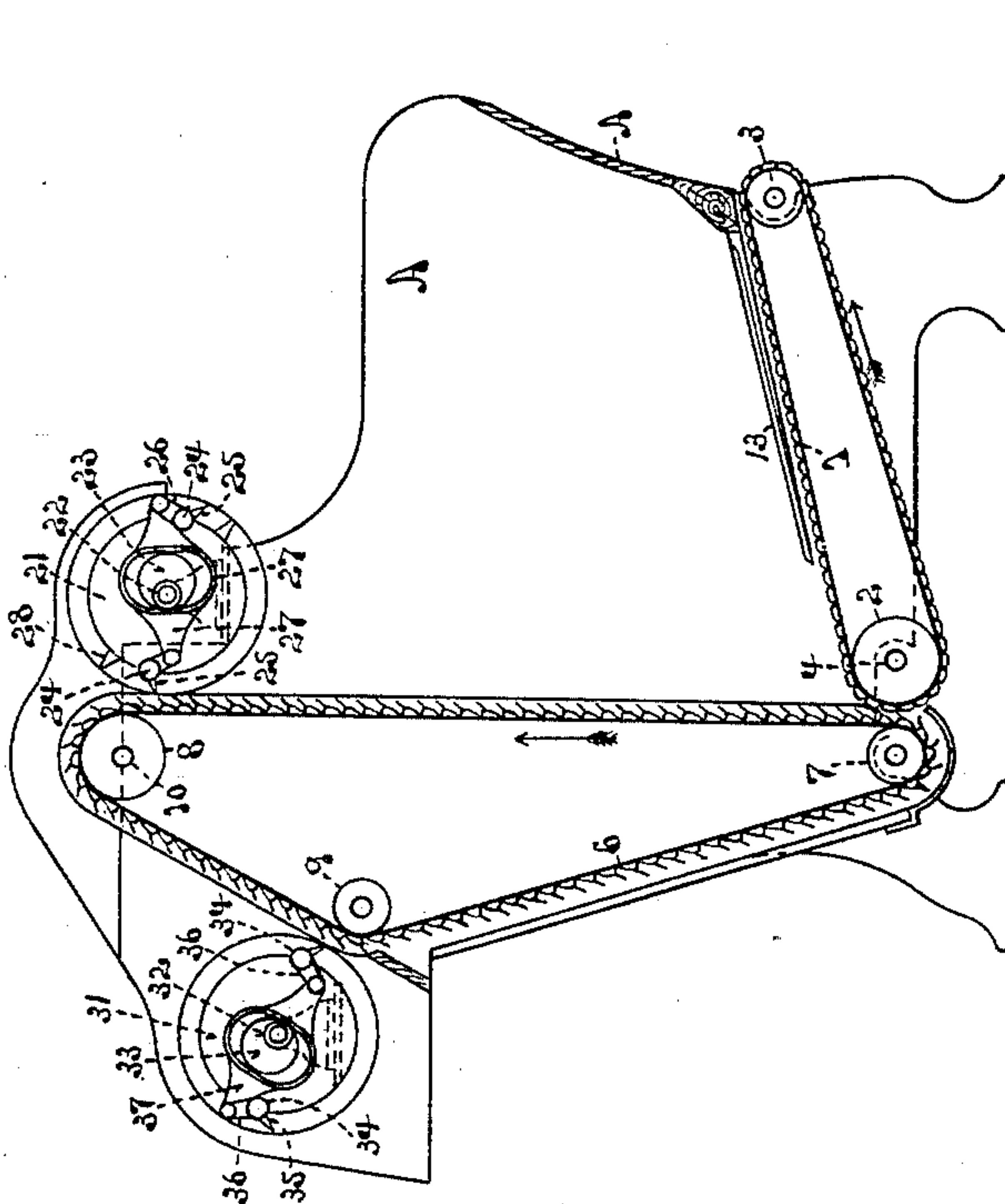
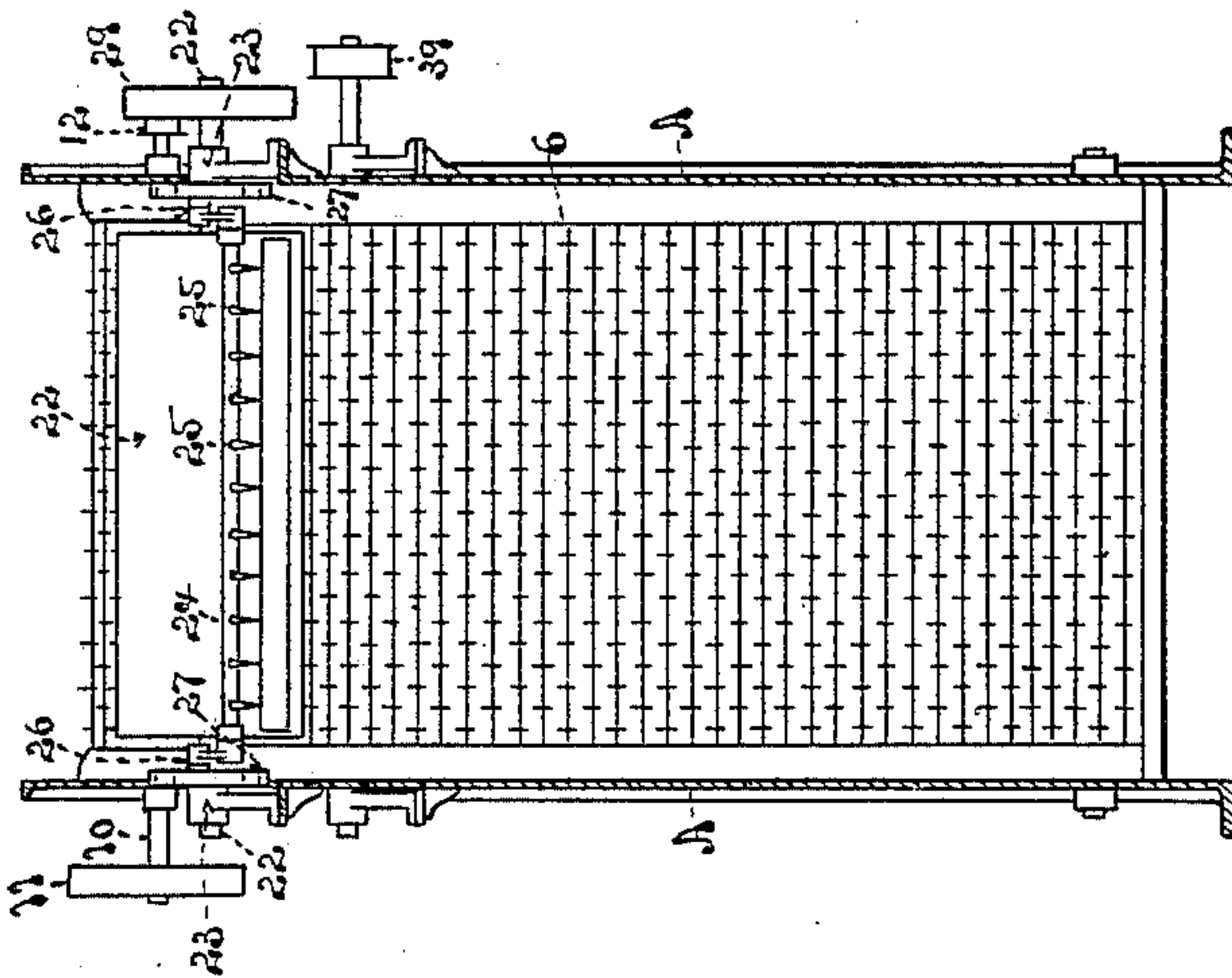


Fig. 3



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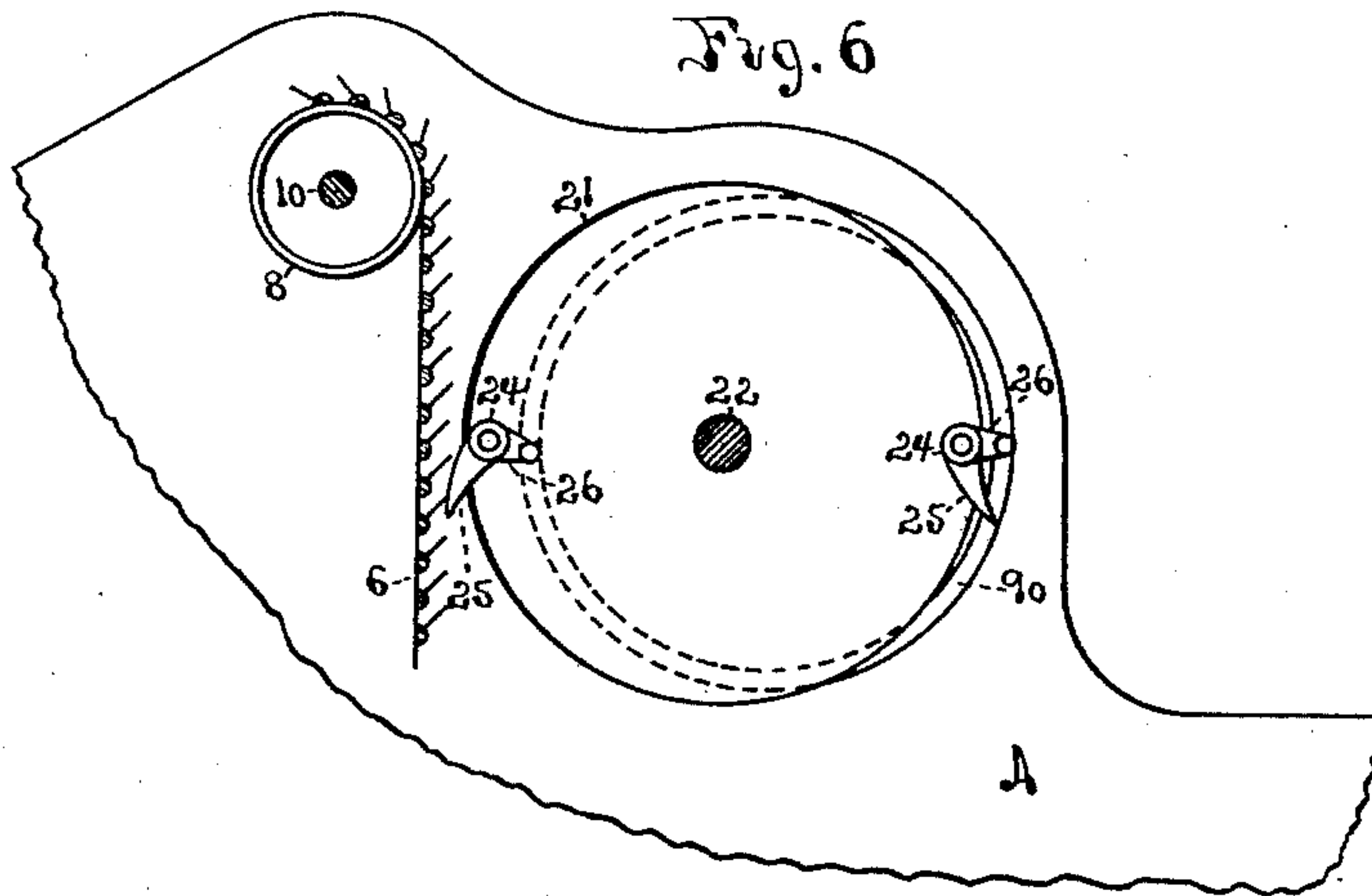
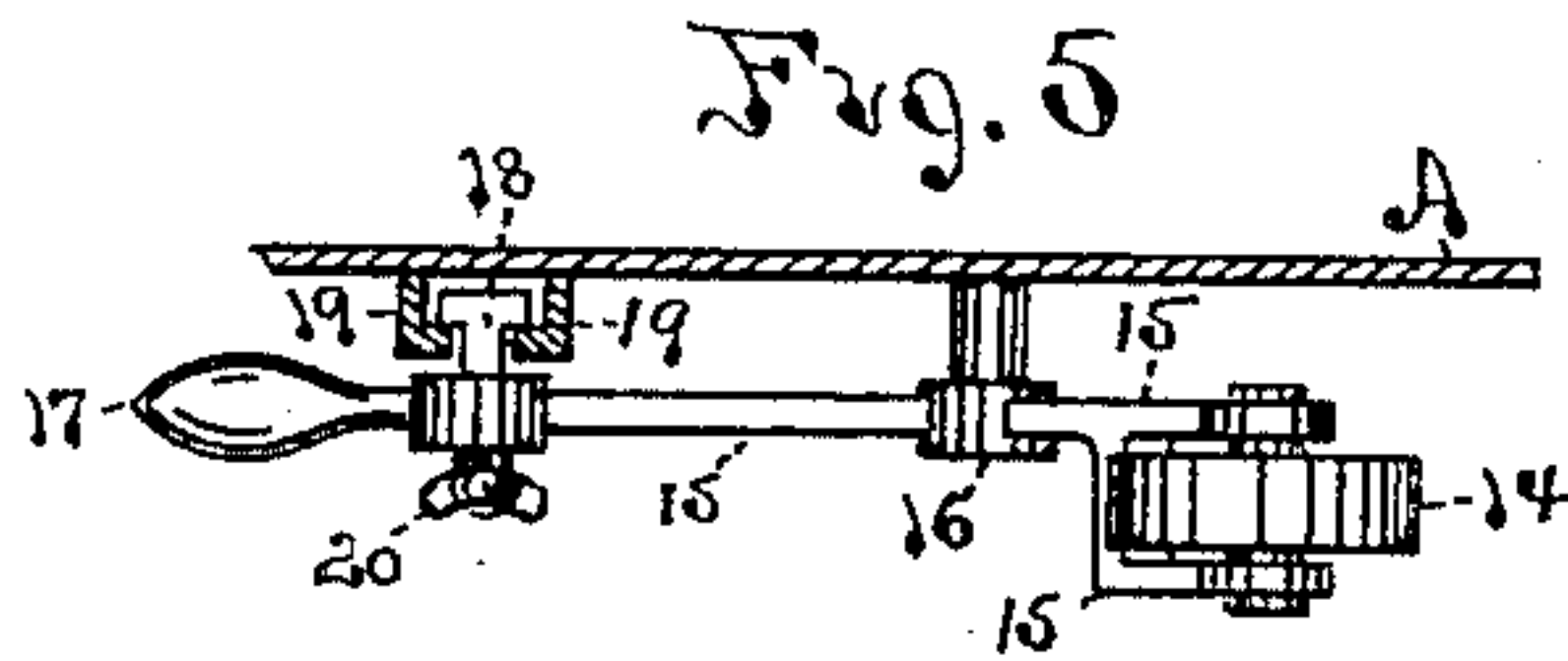
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UNITED STATES PATENT OFFICE.

FREDERICK G. SARGENT AND ALLAN C. SARGENT, OF GRANITEVILLE,
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FIBER-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 450,804, dated April 21, 1891.

Application filed April 3, 1890. Serial No. 346,413. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK G. SARGENT and ALLAN C. SARGENT, of Graniteville, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Fiber-Feeding Machines, of which the following is a specification.

Our improvement relates to mechanism for feeding fiber automatically to machines, such as wool-washers, burring-machines, &c.; and it consists in certain new and useful constructions and combinations of the various parts of the same, substantially as hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of our improved machine, showing the driving-pulleys, belts, &c. Fig. 2 is a horizontal section of the same on dotted line xx , Fig. 1. Fig. 3 is a vertical section through the same on the dotted line yy , Fig. 1. Fig. 4 is a side elevation of the same with one side of the casing removed. Fig. 5 is a top plan view of the binder-pulley and its attached parts removed from the machine, partly in section, to show their relative position to each other when attached thereto. Fig. 6 is an end view of a portion of the machine as shown in Fig. 4, with a modification for operating the rocking teeth.

The casing A forms three sides of a receptacle for the wool and is provided with feet to support it beneath, and the sides of it extend toward the rear of the machine to support the boxes for the running parts. The bottom of the receptacle is formed by the endless apron 1, which passes in a direction approximately horizontal around rollers 2 3, mounted on shafts revolving in boxes in the sides of the casing. The shaft 4 of roller 2 extends beyond the side of the machine and has upon it the pulley 5. An endless apron 6 passes around rollers 7, 8, and 9, so that the face of it, running from roller 7 to roller 8, shall be vertical, or nearly so, and that it shall run around roller 7 in juxtaposition to the apron 1 to receive the fiber carried forward by the latter and feed it regularly upward, which is accomplished by means of the spines or teeth of the apron 6, which catch into the fiber as it is brought forward by the

apron 1. These aprons 1 and 6 respectively run in the directions indicated by the arrows.

The shafts of rollers 7, 8, and 9 revolve in boxes in the side casing of the machine, and shaft 10 of roller 8 has the pulley 11 on its outer end, which projects beyond the machine, and has the pulley 12 upon its other end, which also projects beyond the side of the machine, the pulley 12 being in line with pulley 5 and they being belted together by belt 125. One great difficulty with the feeding of the fiber to the apron 6 has been that an increase in the amount of fiber in the receptacle caused it to press with greater weight upon apron 1 and caused the latter to feed the fiber forward faster and compress it harder against apron 6, causing the latter to take up more fiber as this pressure increased and less fiber as the pressure diminished on apron 1, thereby creating an irregularity in the feeding action. In order to overcome this difficulty, we have provided a number of bars or slats 13, projecting inward from the casing A just above and parallel to the direction of movement of the apron 1 and placed at intervals apart, so as to leave spaces between them, through which the wool thrown upon them may fall and rest upon the apron 1. These bars 13 are made tapering toward their points, which allows the fiber to slide easily in that direction. When the wool fiber thrown into the receptacle is not large in quantity, it presses lightly upon bars 13 as well as the apron 1 and is carried forward at a certain rate to apron 6. As the amount of wool thrown into the receptacle is increased, it presses harder upon the bars 13, which relieve the apron 1 from the added pressure and tend to hold back or retard the increased delivery of the fiber forward by apron 1, which would occur in the absence of the bars, thus equalizing the feed of the wool by apron 1 to apron 6.

The belt from pulley 12 to pulley 5, which drives apron 1, is provided with binder-pulley 14, which is hung in the bifurcated end of lever 15. The latter is pivoted near its center on stud 16 and has a handle 17. The handle 17 has passing through it the headed bolt 18, the head of which works in the sector 19, at-

attached to the side of the frame, and is held in this sector by the latter being undercut on each side of the slot and having the head of the bolt 18 projecting into this undercut part. On the outer end of the bolt 18, which is threaded for the purpose, is screwed the thumb-screw 20, by turning which the handle 17 is secured in any desired position in the slot of the sector 19. By loosening the nut 20 the lever 15 can be moved by its handle up or down, causing the binder-pulley to press more or less against the belt 125, driving pulley 5, and can be secured in place by the thumb-screw. The belt which drives pulley 5 being thus loosened or tightened may be made to slip more or less, thus regulating the rate of feed of the apron 1, because the increased pressure of a greater quantity of wool upon the apron would increase the slipping of the belt and cause the apron to feed forward more slowly in proportion to such increased pressure.

In order to avail ourselves of the advantages of a rotating doffer, while at the same time enabling it to work more perfectly than heretofore, we construct it in the following manner: The cylinder 21 is mounted on the shaft 22, which revolves in boxes fixed on the sides of the casing. These boxes 23 project inward from their standards parallel to the shaft 22, but are turned off eccentric to it on their exterior, as shown in Figs. 1 and 4, the eccentric part of the boxes being alike and opposite to each other on each side of the machine. In the outer surface of the cylinder 21 on each side of it are mounted in bearings the rock-shafts 24 24, so as to partly lie in its surface, which rock-shafts are provided with rows of teeth 25, projecting outward to remove the surplus wool from apron 6 as they pass by it. At each end of each rock-shaft is a crank 26, and a pitman-bar 27 27 on each side of the machine has its opposite ends pivoted to the outer ends of the cranks 26 26. The middle part of this pitman-bar is made in the form of an elongated ring or loop embracing the eccentric projecting part of the box 23, so as to bear against the sides of this eccentric part in a line with its pivoted ends. The length of the pitman-bar is such that it rocks the shaft 24, so as to bring its teeth at the proper angle to clean off the surplus wool from apron 6 as it passes by it, and also so as to cause the end of the teeth to travel in a more nearly vertical direction as they are brought around opposite the apron by the cylinder 21; but when the teeth have passed the apron 6 the fixed eccentric box 23 causes the pitman-bar to rock the teeth backward, so as to drop off the excess of wool freely into the receptacle beneath. A float 28 is attached to the cylinder 21 behind each rock-shaft 24, so that as the rock-shaft throws its teeth backward to drop off the wool the float will assist in cleaning the wool from the teeth by its being brought against the edge of the float.

In this way the advantages of speed and easy working of the rotating doffer are combined with such a movement of the teeth as to give time for the wool to drop off while it is running at a high speed, since the rocking backward of the rock-shaft 24 and its teeth enables the wool to slide off of them during more than half a revolution of the cylinder.

The cylinder 31 is mounted upon its shaft 32 like the cylinder 21, and is provided with similar rock-shafts 34, with teeth 35, cranks 36, and a pitman-bar 37, moving around a fixed projecting eccentric part 33 of its box in a similar manner to the like parts of cylinder 21. By these improvements we are enabled to remove the surplus fiber from the vertical side of apron 6, so as to even the amount which is fed out of the receptacle and carried over roller 8 by it, and we are enabled to doff the fiber from the apron on its opposite side and drop it or deliver it upon the feed mechanism of the next succeeding machine or into another receptacle or upon the floor in the most perfect manner, because in the latter case the points of the doffer-teeth 35 travel for the greater distance more nearly parallel to the surface of apron 6 than if the doffer-teeth were attached in a fixed position to the cylinder 31.

The shaft 22 of the cylinder 21 is driven by a pulley 29 upon its projecting outer end, and the shaft 32 is driven by a pulley 39 on its projecting outer end. The pulleys 29, 39, and 11 are all belted to a counter-shaft of the mill and driven thereby.

It is obvious that one of the pitman-bars 27 or 37 at one end of cylinder 21 or 31 might be omitted or removed and the rock shaft or shafts be operated by the remaining pitman-bar at the other end of the cylinder. We prefer, however, to have two—one at each end.

We do not intend to limit ourselves to the precise construction of the pitman and eccentric projection of the frame-box shown, as other forms of cam or eccentric mechanism may be substituted for these to operate the rock-shafts 24 or 34, as the cylinder which carries them revolves around. For instance, the outer end of the crank 26 might be provided with a laterally-projecting pin, and the side plate of frame A might be extended upward past cylinder 21 and a cam-groove be made in the inner face of the side plate around the axis of the cylinder to receive this pin of the crank, such cam-groove being of the proper shape to rock the rock-shaft, as described above, by the pin being guided in it. This is shown in Fig. 6, wherein instead of the eccentric and its reciprocating bar attached to the wrist-pins of the cranks 26, attached to rock-shaft 24, we employ a circular groove 90, described around the axis 22 of cylinder 21 in the casing A of the machine, so as to be eccentric thereto, and we extend the wrist-pins of the cranks into this groove 90, so that as the cylinder 21 rotates the groove will cause the

teeth 25 of the rock-shafts to assume substantially the same positions as when the eccentric is used—i. e., the position when next to the upwardly-moving apron 6, as shown, which removes the surplus wool from the apron, and thence downward, keeping the teeth 25 in a vertical position until they have passed around to the opposite side of the cylinder, so as to allow the fiber to drop off of them into the receptacle of the machine.

What we claim as new and of our invention is—

1. The combination, with the casing A, of the vertical feeding-apron 6, the approximately horizontal carrying-apron 1, arranged to feed the fiber forward thereto, and the bars 13, projecting from the casing in the direction of the movement of apron 1 and just above the same, substantially as described.

2. The combination of the vertical upward-running apron 6, provided with spines or teeth, the cylinder 21, provided with a rock-shaft with outwardly-projecting teeth on its exterior, and mechanism attached to said rock-shaft arranged to rock the same and throw the teeth backward after they have passed by apron 6 and removed the surplus wool from the same, substantially as described.

3. The combination of the apron 6, the doffer-cylinder 31, placed on the downwardly-running side of the same, provided with a rock-shaft with outwardly-projecting teeth on its exterior, and mechanism attached to said rock-shaft arranged to rock the same and throw the teeth backward after they have passed by apron 6 and doffed the fiber therefrom, substantially as described.

4. The combination of the vertical upward-running apron 6, provided with spines or teeth, the cylinder 21, provided with a rock-shaft 24, having teeth 25, the eccentric box projection, and the pitman-bar 27, attached to the rock-

shaft at one end and embracing the eccentric box projection, substantially as described.

5. The combination of the vertical upward-running apron 6, provided with spines or teeth, the cylinder 21, provided with two rock-shafts 24 24, having teeth 25, the eccentric box projection, and the pitman-bar 27, having its middle part embracing said eccentric projection and attached at its opposite ends to said rock-shafts, substantially as described.

6. The combination of the apron 6, the doffer-cylinder 31, placed on the downward-running side of the same, a rock-shaft 34, having teeth 35, the eccentric box projection, and the pitman-bar 37, attached to the rock-shaft at one end and embracing the eccentric box projection, substantially as described.

7. The combination of the apron 6, the doffer-cylinder 31, placed on the downwardly-running side of the same, the eccentric box projection, two rock-shafts 34 34, having teeth 35, and the pitman-bar 37, attached to the rock-shafts at its ends and embracing the eccentric projection at its middle part, substantially as described.

8. The combination of cylinder 21, rock-shaft 24, provided with teeth 25, the eccentric box projection, and the pitman-bar 27, attached to the rock-shaft at one end and embracing the eccentric box projection, substantially as described.

9. The combination of cylinder 21, rock-shaft 24, provided with teeth 25, the cylinder-float 28, the eccentric box projection, and the pitman-bar 27, attached to the rock-shaft at one end and embracing the eccentric projection, substantially as described.

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