(No Model.) 3 Sheets—Sheet 1.

J. C. WALL.

AUTOMATIC GRINDER FOR WOOLEN AND COTTON CARDS.

No. 347,847. Patented Aug. 24, 1886.

Fig. 1.

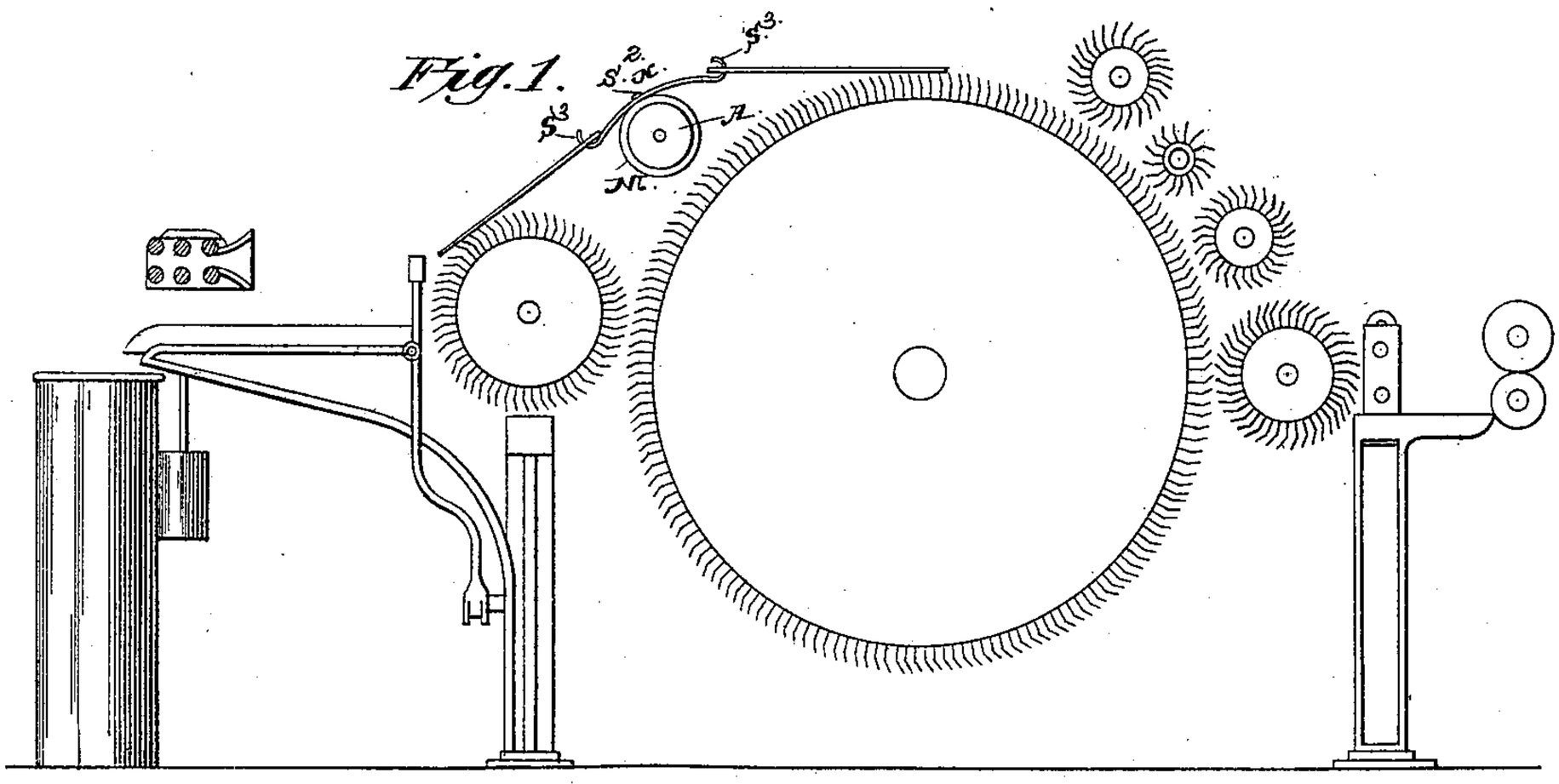


Fig. 2.

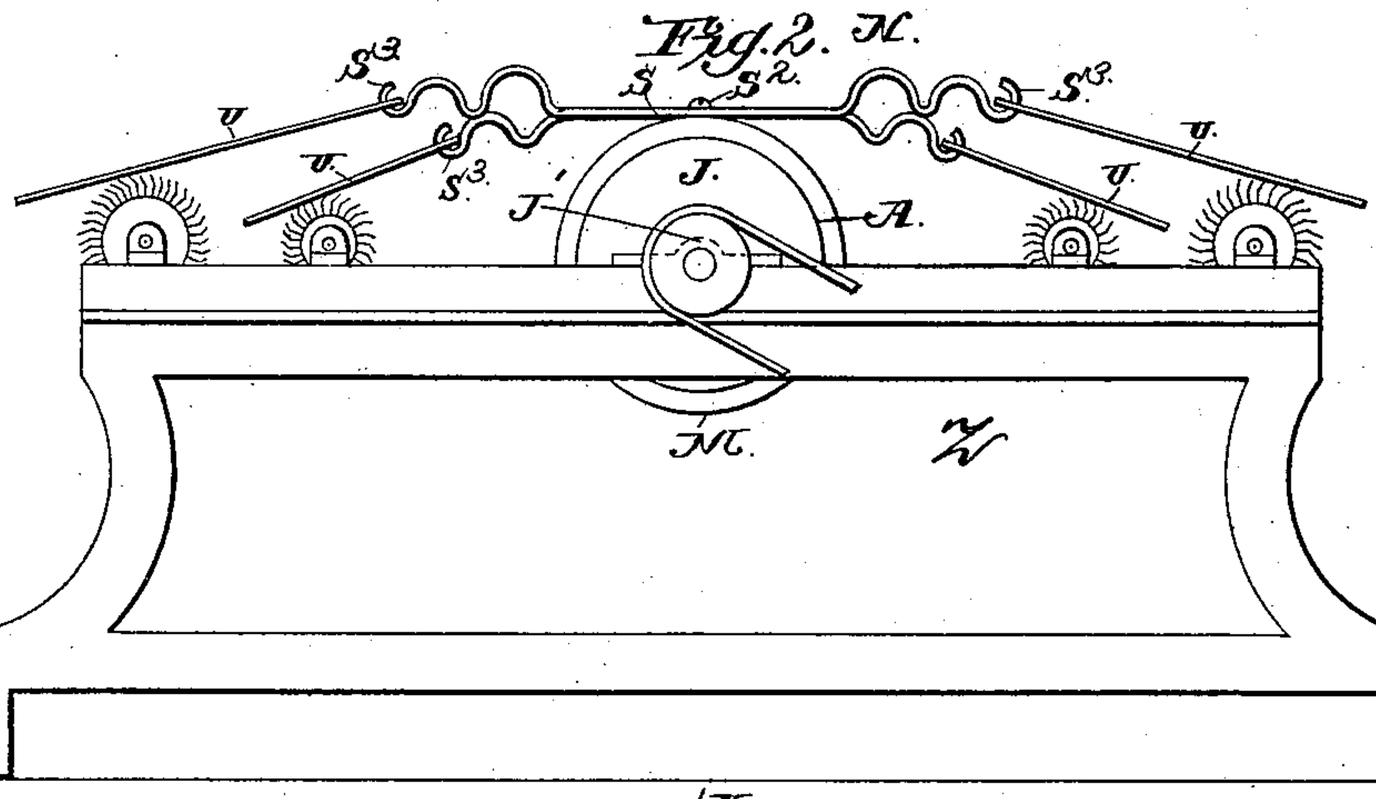
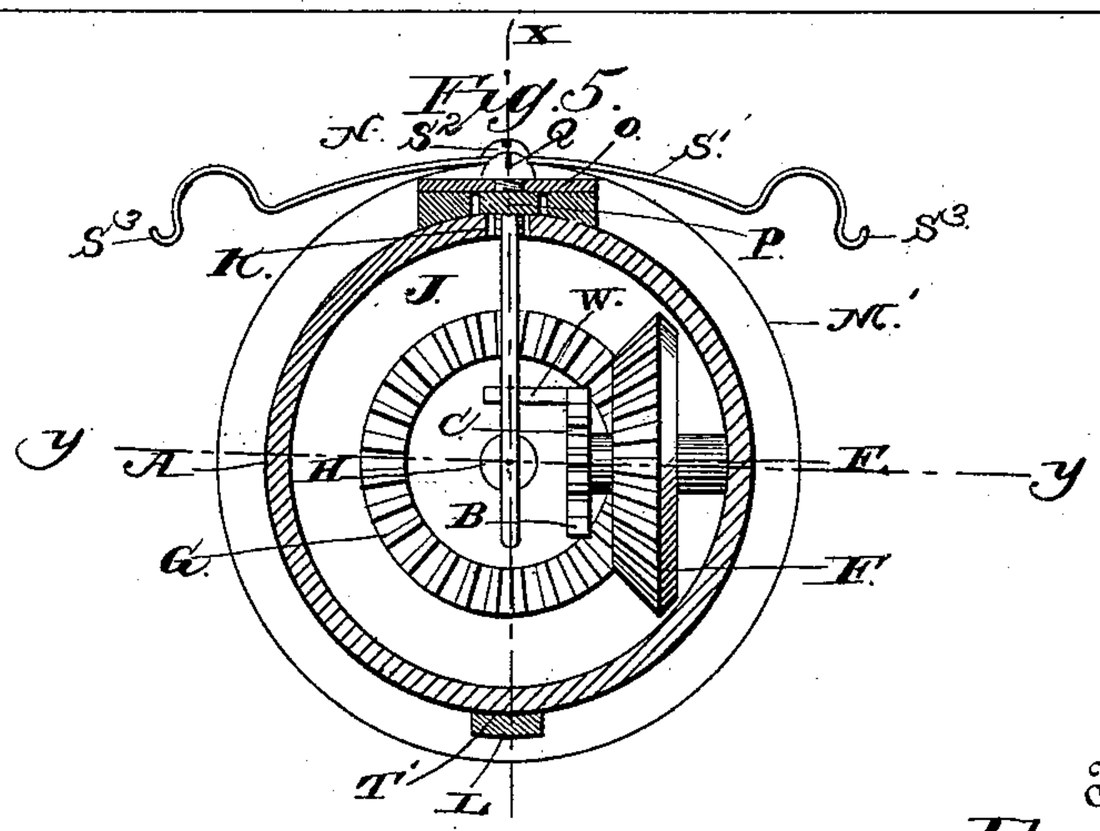


Fig. 5.



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(No Model.) 3 Sheets—Sheet 2.

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Fig 3

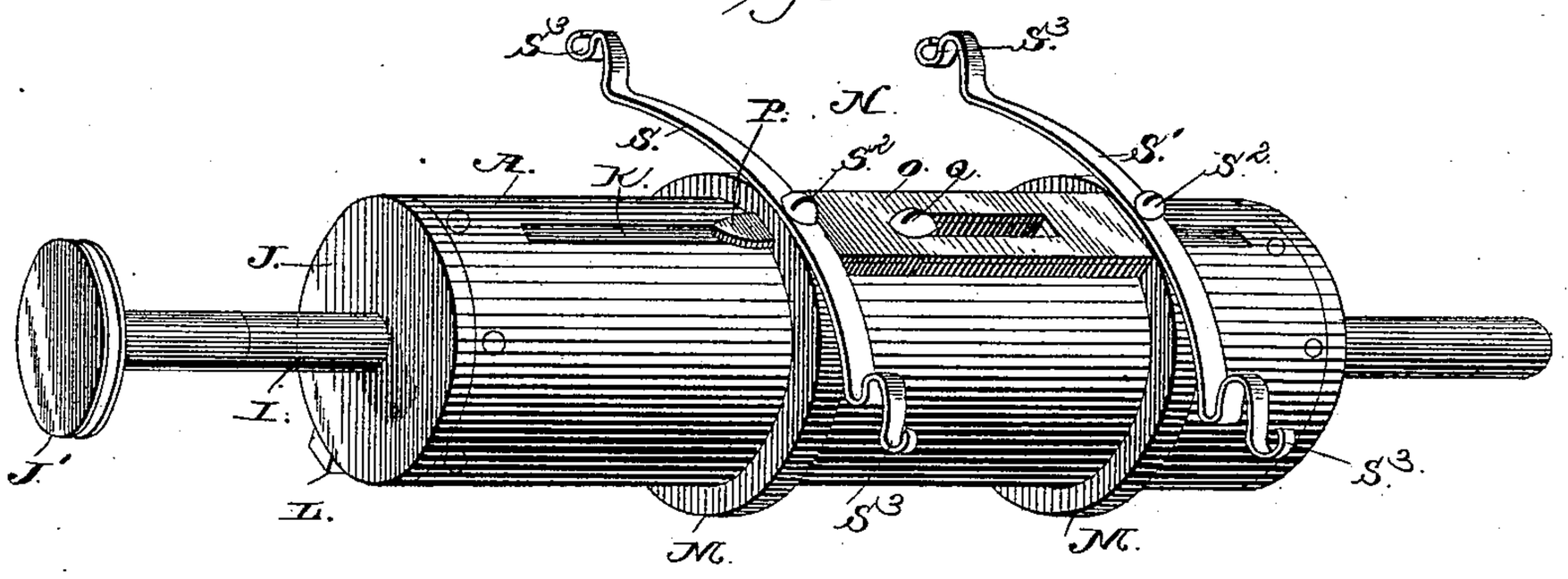
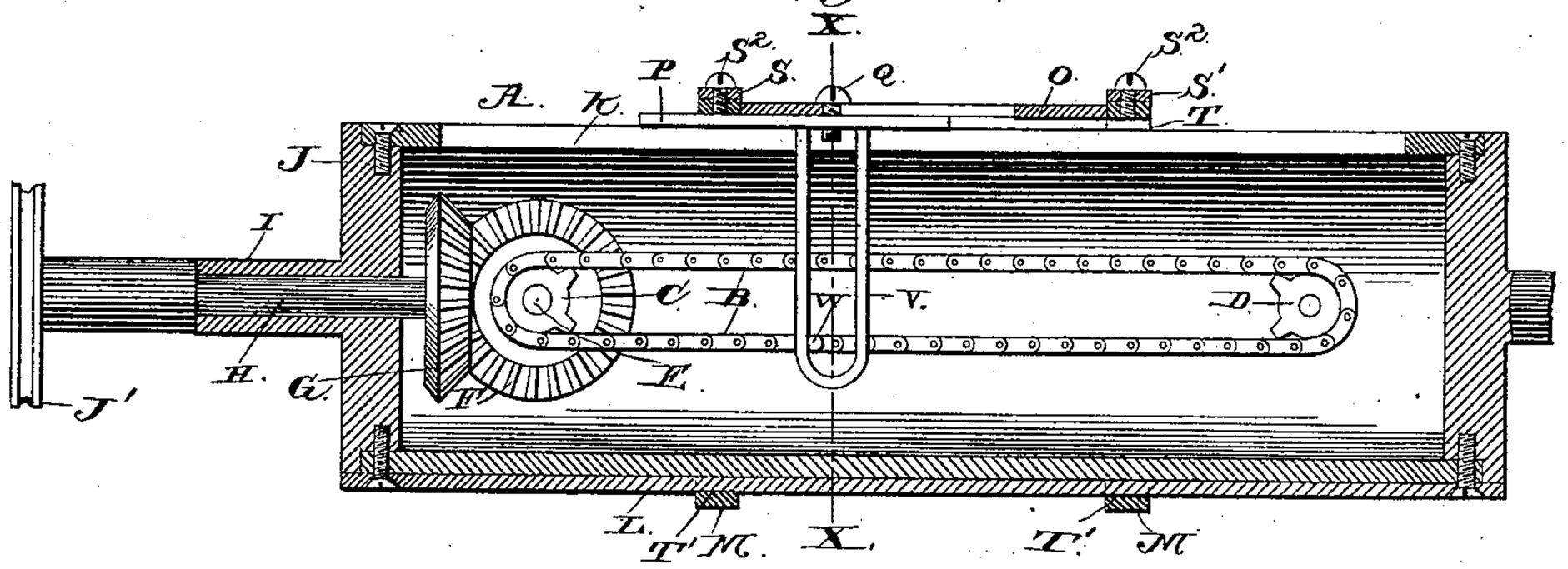


Fig 4.



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(No Model.) 3 Sheets—Sheet 3.

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AUTOMATIC GRINDER FOR WOOLEN AND COTTON CARDS.

No. 347,847. Patented Aug. 24, 1886.

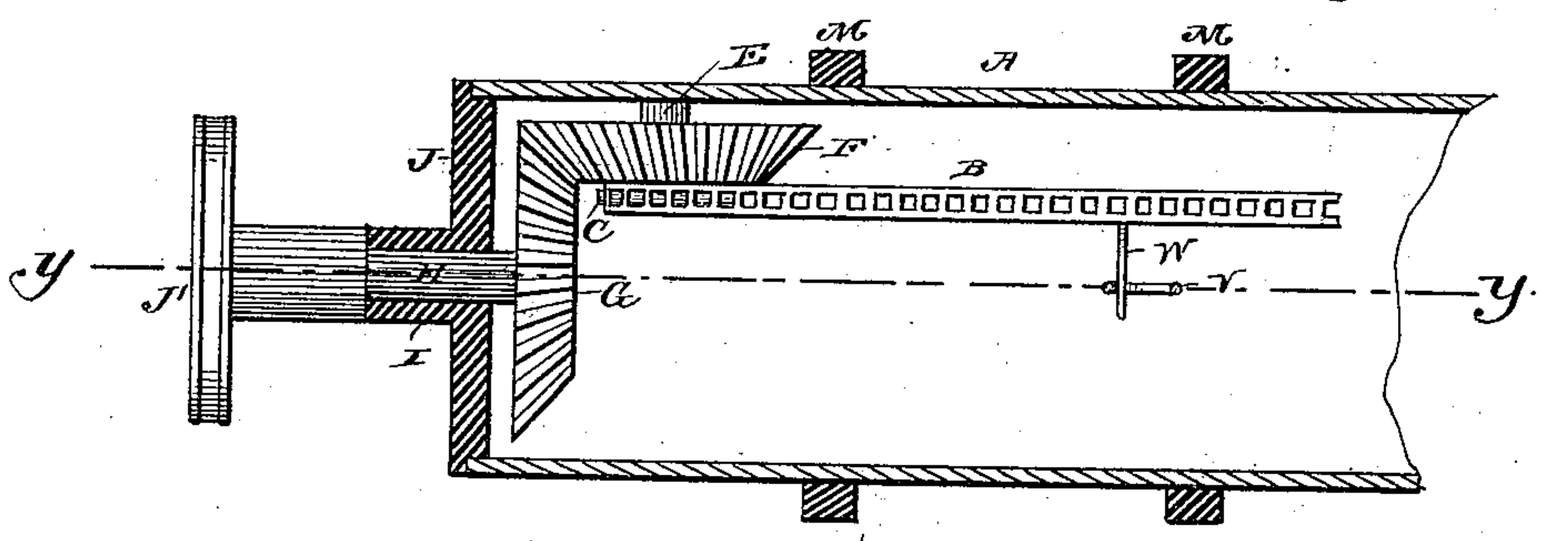

Fig. 5.

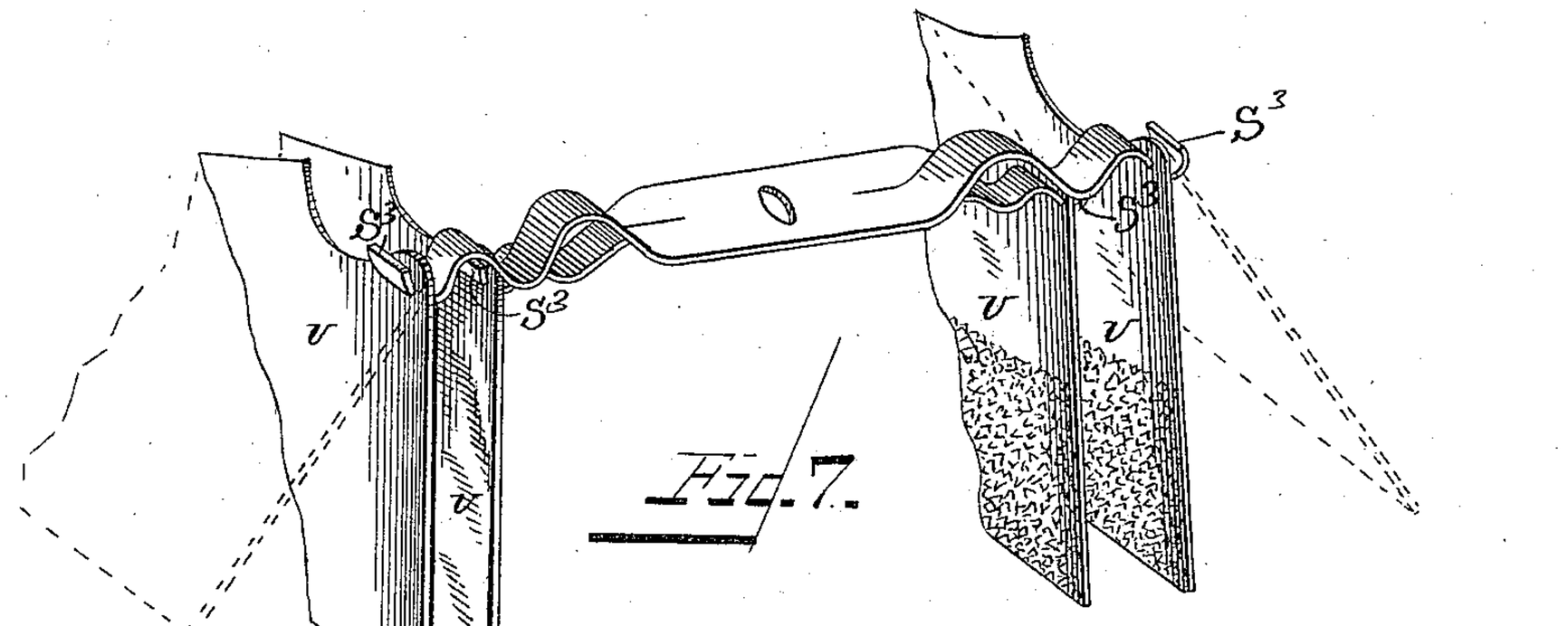

Fig. 7.

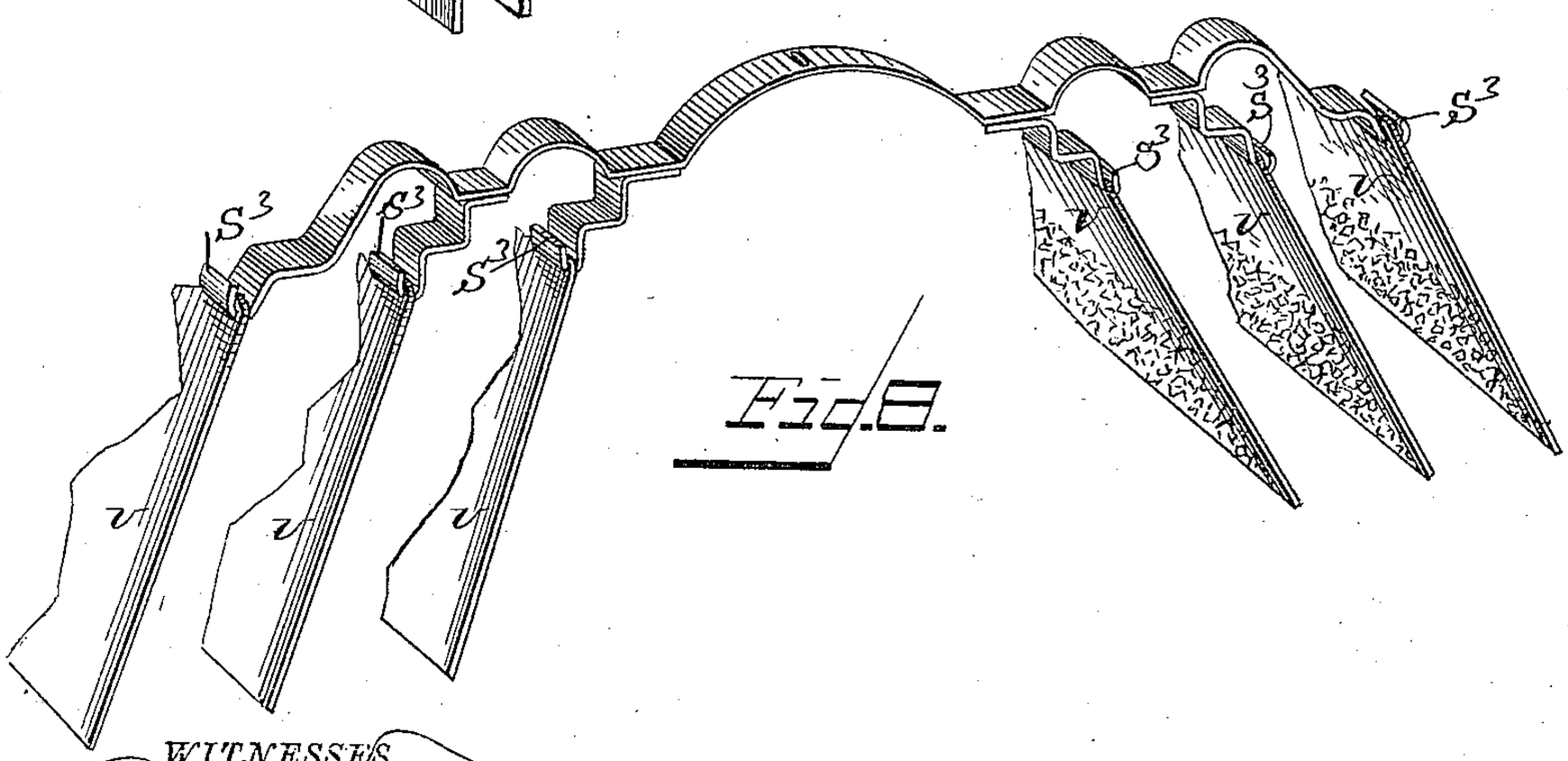

Fig. 8.

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UNITED STATES PATENT OFFICE.

JOHN C. WALL, OF AMSTERDAM, NEW YORK, ASSIGNOR OF ONE-HALF TO JOHN F. WALL, OF SAME PLACE.

AUTOMATIC GRINDER FOR WOOLEN AND COTTON CARDS.

SPECIFICATION forming part of Letters Patent No. 347,847, dated August 24, 1886.

Application filed March 28, 1885. Serial No. 160,505. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. WALL, a citizen of the United States, residing at Amsterdam, in the county of Montgomery and State of New York, have invented a new and useful Improvement in Automatic Card-Stricklers for Woolen and Cotton Cards, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in automatic grinders for woolen and cotton cards; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is an elevation of a carding-machine with my card-grinding apparatus applied thereto. Fig. 2 is a similar view of a grinding-frame with my improved apparatus applied thereto, and engaged in grinding the teeth of the strippers and workers of the carding-machine. Fig. 3 is a detailed perspective view of my improved apparatus, the abrading-straps being omitted. Fig. 4 is a vertical longitudinal sectional view of the same, taken on the line *x x* of Fig. 5. Fig. 5 is a transverse sectional view of the same, taken on the line *x x* of Fig. 4. Fig. 6 is a detailed horizontal sectional view taken on the line *y y* of Fig. 5. Figs. 7 and 8 are detailed perspective views showing modified forms of the arms for carrying the abrading-straps.

A represents a hollow cylinder, which is provided with removable heads secured in place by screws. Near the ends of this cylinder are journaled sprocket-wheels C and D, which are connected by an endless sprocket-chain, B. On the shaft E, on which the wheel C is journaled, is a miter gear-wheel, F, which is secured to the wheel C, so as to rotate the latter. One of the heads J of the cylinder has a hollow central spindle or sleeve, I, in which is journaled a shaft, H, having a miter gear-wheel, G, on its inner end to mesh with the wheel F, and a grooved pulley, J′, on its outer end, as shown. In the upper side of the cylinder is a longitudinal slot, K, which extends nearly the length thereof, and on the lower side of the cylinder is a longitudinal spline or feather, L.

N represents a spider or frame which is composed of the rings M, that encircle the cylinder, and a longitudinally-slotted plate, O, that connects the said rings. The rings are slipped over the cylinder, and have notches T on their under sides, to receive the spline or feather and guide the spider or frame back and forth thereon. The slot in the plate O is in line with the slot K in the cylinder, and on the latter is a slide, P, having pointed ends and secured in position by a screw, Q, that passes through the slotted plate O and enters the slide. The screw is loose in the slotted plate, and thereby the slide P may be moved back and forth independently of the plate O for a distance corresponding to the length of the slot in the latter. The rings M have notches T in their upper sides to admit the pointed ends of the slide.

V represents a U-shaped arm that depends from the slide P and works in the slot K. An arm, W, extends from the sprocket-chain and passes between the arms of the arm V.

S S′ represent curved arms that are secured on the upper sides of the rings M of the spider or frame by screws S^2. Straps U, which are faced with emery to grind the card-teeth, are hooked on the ends of the curved arms, which latter are provided with hooks S^3 to receive and secure the straps. It will be plain from this description and by reference to the drawings that when the pulley J′ is rotated the frame or spider carrying the grinding-straps will be caused to traverse the cylinder from end to end. When the frame reaches one end of the cylinder it remains there for a short time, until the screw Q traverses the length of the slot in the plate O, and then the frame begins its reverse movement. By this means it will be readily understood that the teeth at the ends of the card-cylinder and doffer will be ground more than those at a distance from the ends. This is necessary in order to keep the teeth perfectly true and of even length throughout the card-cylinder and doffer, as the teeth near the centers thereof wear faster than those at the ends, and consequently the latter have to be ground more than the former in order to keep them all of the same length.

My card-grinding apparatus may be applied direct to any ordinary form of cotton or wool

carding machine when it is desired to grind the teeth of the card-cylinder and doffer, first removing the top card, as shown in Fig. 1.

In Fig. 2 I show a frame, Z, having bearings to receive the spindles of the cylinder A, and of the strippers and workers when it is desired to grind the teeth thereof, the said strippers and workers being arranged in pairs on opposite sides of the cylinder, the arms S S′ of the latter being removed, and the form of arms shown in Fig. 7 being substituted. These arms have two straps at each end, which straps bear on the strippers and workers. It will be of course understood that the latter and the pulley J′ must be rotated, which may be done by any suitable means.

The form of arm shown at Fig. 8 has three grinding-straps at each end, which adapts the apparatus to grind six strippers and workers at the same time, instead of four, as shown at Fig. 2.

Having thus described my invention, I claim—

1. The combination of the slotted cylinder, the traversing slotted frame thereon, the slide working on the cylinder and having the depending arm working in the slot in the cylinder, the stud or screw Q, passed through the slotted frame and entering the slide, and the endless chain having the projecting arm for operating the slide, substantially as described.

2. The combination of the cylinder, the traversing slotted frame, and the reciprocating slide having the stud or screw working in the slotted frame, whereby the latter will dwell or stop at each end of the cylinder, for the purpose set forth, substantially as described.

3. The combination, with the slotted cylinder and the endless chain working therein, of the traversing frame carrying the grinding-straps, the reciprocating slide working independently in the traversing frame, and an arm on the slide actuated by the movement of the chain, as set forth.

4. The combination, with the cylinder, of the traversing frame carrying the grinding-straps and the reciprocating slide loosely connected to and working independently of the frame for a short distance, and with the frame the remaining portion of the length of the cylinder, whereby the traversing frame will dwell or stop at each end of the cylinder, for the purpose set forth.

5. The combination, with the slotted cylinder and the endless chain working therein, of the traversing frame working on the cylinder, the reciprocating slide working in the frame, and an arm depending from the slide to be operated by the chain, as set forth.

6. The combination, with the traversing frame, of the arms secured to the same and provided with hooks to receive the abrading-straps, as set forth.

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

JOHN C. WALL.

Witnesses:
LORENZO M. ARNOLD,
W. DAVIDSON JONES.