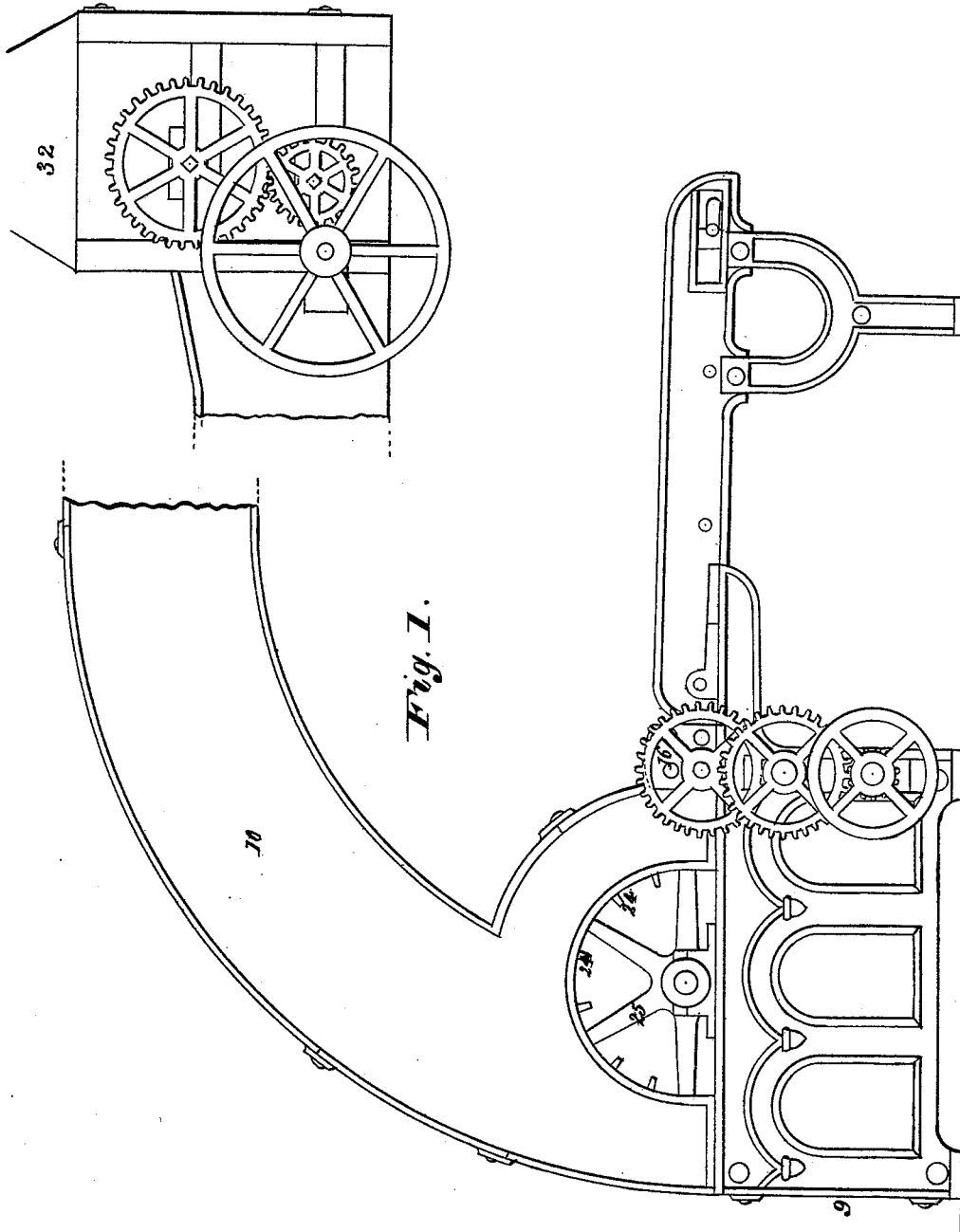


J. R. MILES & H. F. ROBINSON.

COTTON CLEANING AND STRAIGHTENING MACHINE.

No. 188,164.

Patented March 6, 1877.



WITNESSES

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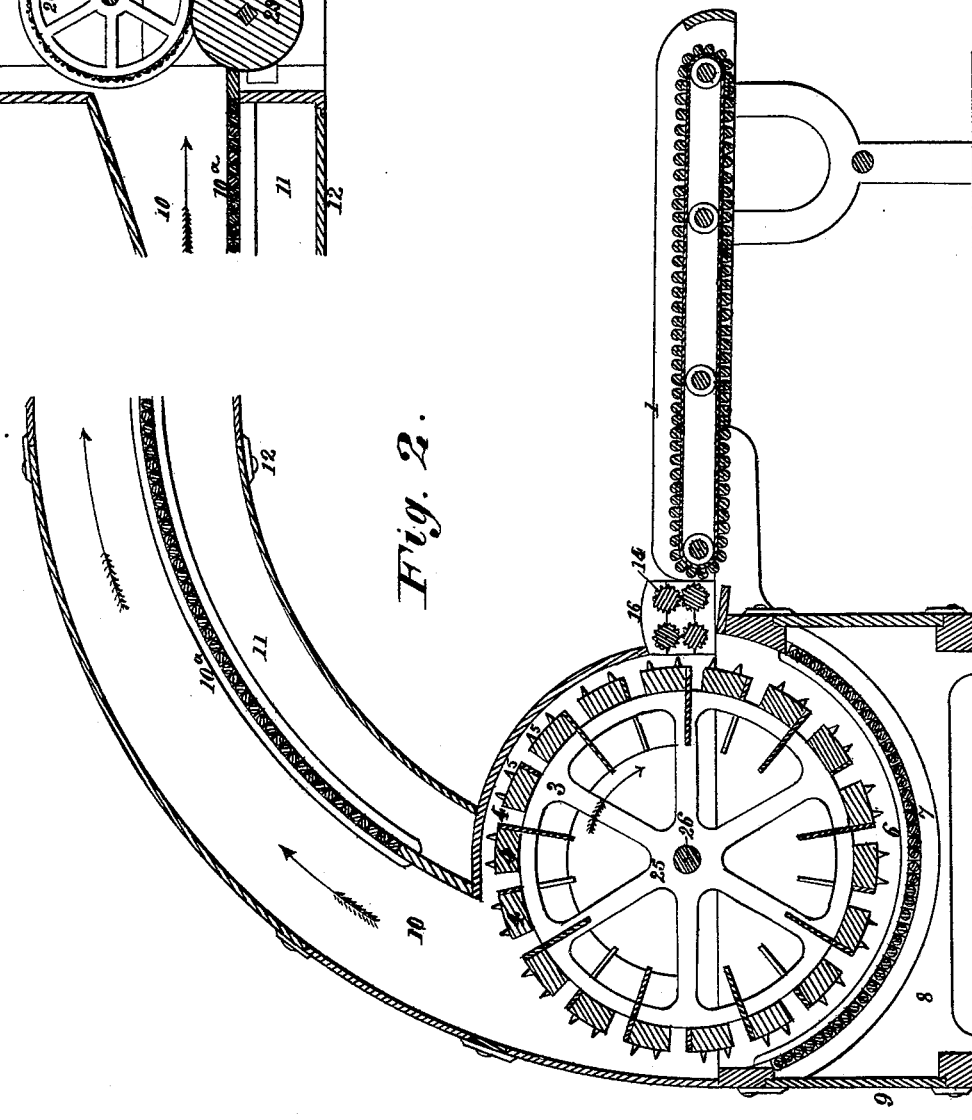
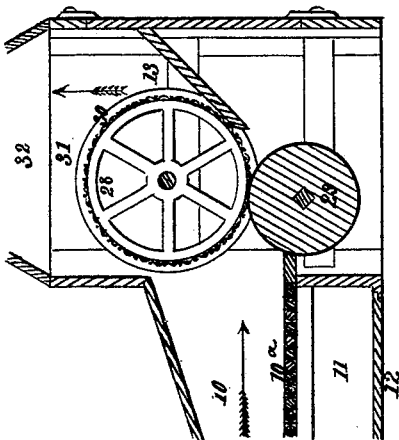


Fig. 2.

WITNESSES

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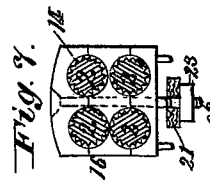
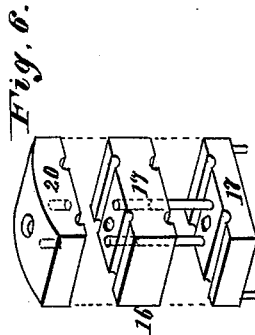
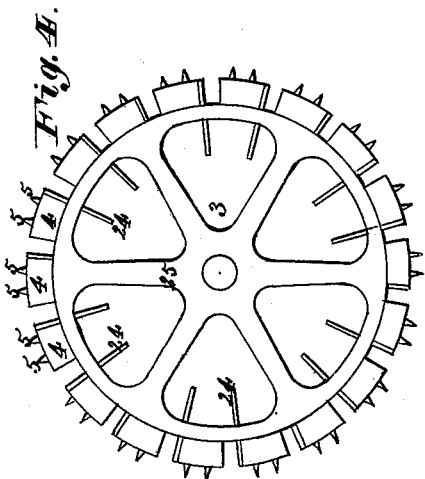
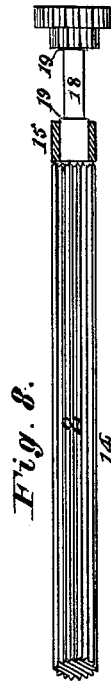
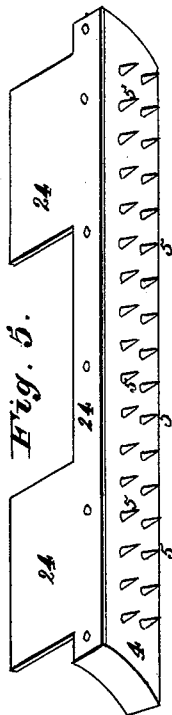
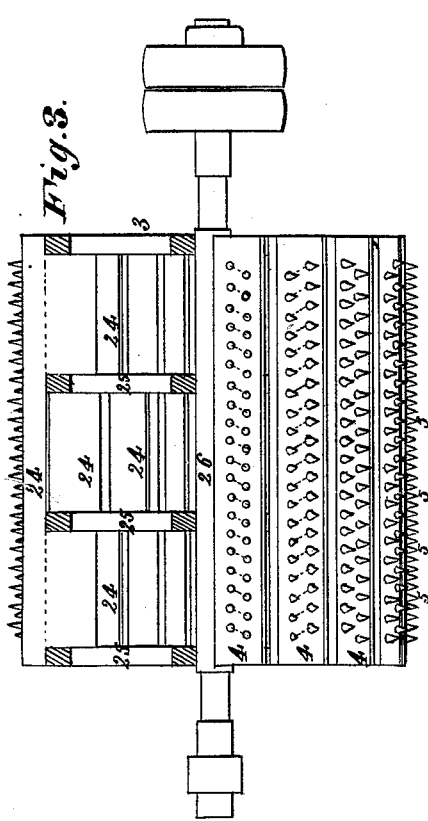
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UNITED STATES PATENT OFFICE.

JOHN R. MILES AND HENRY F. ROBINSON, OF MEMPHIS, TENNESSEE,
ASSIGNORS TO C. C. SELDEN, OF SAME PLACE.

IMPROVEMENT IN COTTON CLEANING AND STRAIGHTENING MACHINES.

Specification forming part of Letters Patent No. 188,164, dated March 6, 1877; application filed
September 8, 1876.

To all whom it may concern:

Be it known that we, JOHN R. MILES and HENRY F. ROBINSON, of Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Machines for Cleaning and Straightening Cotton Fiber, of which the following is a specification:

Our improvement relates to a machine for cleaning and straightening cotton fiber, freeing it from all dust, dirt, or other foreign matter; at the same time straightening the fiber, or disentangling it, causing the fiber to lie more uniformly, and placing it in a better condition for the spinner.

Our invention consists, first, in providing the ends of the rollers with movable sleeves or collars for filling up the space between the journal-boxes and said ends. The object of this movable sleeve is that, in case any cotton fiber, in feeding, should get to the end of the rollers, it will not clog the same, but will be arrested by these sleeves and allow the rollers to revolve.

Our invention further consists in journal-bearings for the feed-rollers, of peculiar construction, consisting of pillow-blocks having revolving boxes provided with a flange at each end, in order to hold the boxes in their places within the bearings. This is a perfect anti-friction arrangement for the bearings of the rollers, preventing heating and clogging.

Our invention further consists in a compensating arrangement adapted to permit the rollers to rise and fall and adjust themselves to the thickness and quantity of cotton passing between them. This device consists of pillow-blocks having a bolt passing down through the center thereof and out at bottom, a rubber spring, and screw and nut. The spring gives and allows play to the boxes and rollers as the feed is light or heavy between the rollers, compensating and keeping the rollers close up to their work.

Our invention further consists in the distribution of the teeth on the cards, which is very important for the proper straightening of the fiber. Each lag or card has ten rows of pins, and sixty-one in each row. On one card they are placed diagonally in one direction; on the

next card diagonally in the opposite direction, thus being in diagonally opposite direction on alternate lags. The object of this reverse distribution is to avoid the teeth of one card coinciding with the teeth on the next card. The advantage of this arrangement of the teeth is that the cotton fiber is straightened out with greater certainty.

Our invention further consists in the combination of a picking-cylinder, having vanes and peripheral air-passages, an air and fiber connecting-flue, a perforated cylinder, and pressure roller arranged at the end of said flue, and a duct, open at its lower end, leading from said cylinder.

In the accompanying drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a vertical longitudinal section thereof. Fig. 3 is a detail and side view of the drum. Fig. 4 is an end view thereof, the shaft being removed. Fig. 5 is a perspective view on a larger scale of a card and attached fan-plates, detached from the cylinder. Fig. 6 is a perspective view of the journal-bearing. Fig. 7 is a transverse section of the feed and detaining rollers. Fig. 8 is a side view of one of the rollers.

In carrying out our invention, 1 may represent an endless table, constructed with slats of wood, connected together by links or bands. This table is caused to move round by gearing from the drum 3. The cotton fiber to be cleaned and straightened is placed on this table and is carried forward between feed and detaining rollers 2; from thence it is dragged downward by the revolving drum 3. This drum is covered with a series of lags or cards, 4, of wood spaced regularly, leaving peripheral air-spaces between the lags. At certain and well-ascertained intervals on these lags or cards are arranged a series of steel points or teeth, 5, close and in a certain geometrical order. As the drum revolves these teeth take the cotton from the feed-rollers 2 in a simple form of carding, the fiber falling down into the receptacle 6, which is formed of a series of steel or wooden slats, 7, spaced so that any dust or dirt can fall through into a box, 8, beneath. This dirt can be removed at will through traps 9. The drum 3 is driven at a

high rate of speed, creating in its revolutions a strong and upward current of air through the flue 10, as indicated by the arrows. The cotton-fiber by its extreme lightness is engulfed in this current and is carried with it upward, as shown by the same arrows, and falls upon slats 10^a, spaced as at 7. Any dust or dirt that may have been carried forward by this current is here partly arrested, and falls through into boxes 11, provided with hinged bottoms 12, to be opened or shut at will. The fiber next enters the upper chamber or condenser 13, and removed for use.

The feed and detaining rollers 2 are four in number. Each roller is constructed with flutes 14, as shown in Figs. 2, 7, and 8. Each end is provided with a movable sleeve, 15, located at the end of the flutes and next to the journal-bearings 16, to fill up the space between the same. The journal-bearings 16 are each constructed with pillow-blocks 17, boxes 18, adapted to turn therein, provided with flanges 19, cap 20, central screw-bolt 21 passing therethrough, rubber spring 22, and nut 23.

The interior of the cylinder 3 is provided with strips 24 forming a fanning device. These strips are secured to the backs of the lags or cards, and are supported at each end by radial frames 25, mounted on a shaft, 26. The lags or cards 4 (see Fig. 5) have teeth 5. The cylinder or drum 3 is provided with eighteen of these lags, four inches wide and three feet long. On these lags ten rows of steel pins are distributed, sixty-one pins in each row. The pins are inserted diagonally in each lag, and in an opposite direction on every alternate lag, so that each lag may have teeth mounted in contrary direction.

The flue 10 we prefer to make about twenty feet long, more or less, and at its outer end we provide a condenser-box, 13, forming an upper chamber. Within this chamber is a condens-

er, 28, and roller 29. The roller 29 is solid, and arranged to act against the condenser. The condenser-box has an opening, 31, at top, continuing up with a flue, 32, out at top of building. The cotton, after passing through the flue 10, is condensed on the net-roller by the wooden roller, and the current of air through the flue passes up and out at the flue 32, and carries with it the dust. The condenser 28 may have a covering, 30, of any suitable material.

Having thus described our invention, the following is what we claim as new, and desire to secure by Letters Patent—

1. The feed-rollers 2, having sleeves 15, in combination with the toothed drum 3, as and for the purpose set forth.

2. The journal-bearing 16, consisting of pillow-blocks 17 and flanged boxes 18 19, in combination with the rollers 2 and cylinder 3, as and for the purpose set forth.

3. The central screw-bolt 21, rubber spring 22, and nut 23, in combination with the journal-bearing 16 and rollers 2, as and for the purpose set forth.

4. The combination, with the cylinder 3, of the lags or cards 4, provided with teeth arranged diagonally in opposite direction on alternate lags, as and for the purpose set forth.

5. The combination of a picking-cylinder, having vanes and peripheral air-passages, an air and fiber connecting flue, a perforated cylinder, and pressure-roller, arranged at the end of said flue, and a duct open at its lower end leading from said cylinder.

In testimony of which invention we hereunto set our hands.

JOHN R. MILES.

HENRY F. ROBINSON.

Witnesses:

JAMES B. COOK,
A. F. SCHULZE.