2 Sheets--Sheet 1.

J. RALSTON.

Cotton-Cleaners.

No. 135,586. Patented Feb. 4, 1873.

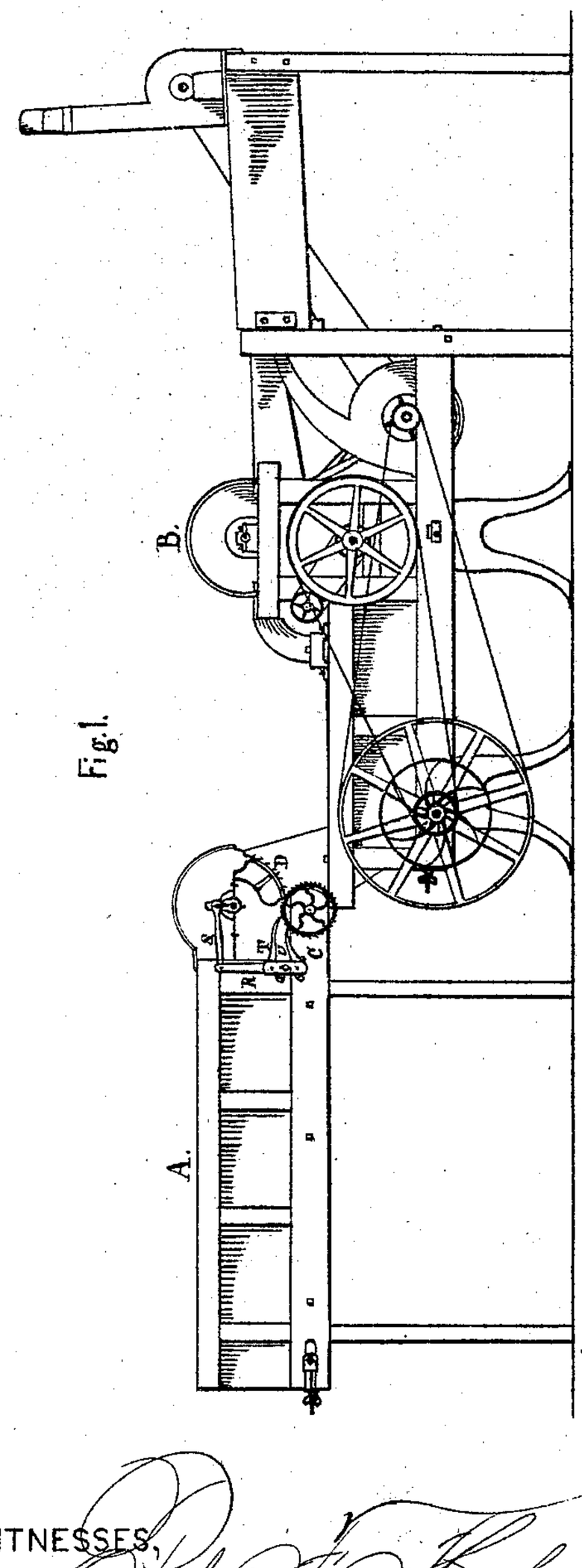


Fig. 1.

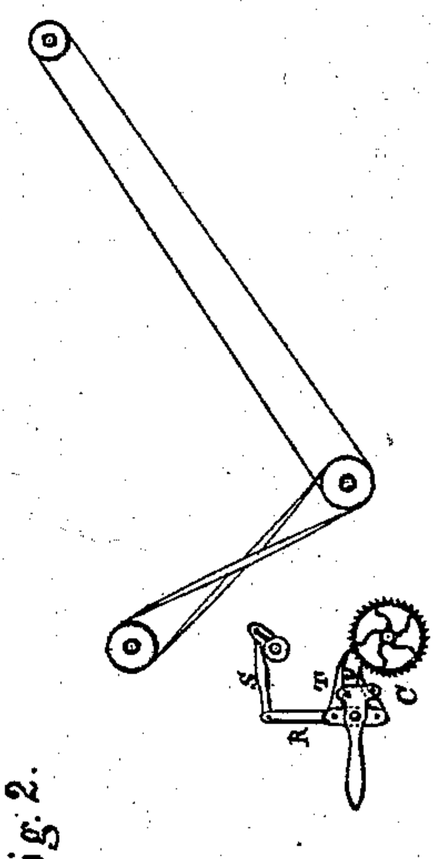
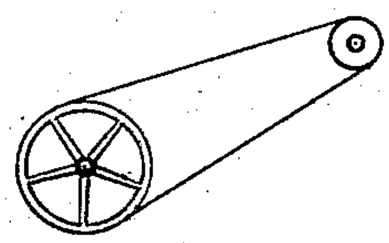


Fig. 2.



WITNESSES,

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A. J. Cushing

INVENTOR.

Joe Ralston

Per Chas L. Spencer

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2 Sheets--Sheet 2.

J. RALSTON.

Cotton-Cleaners.

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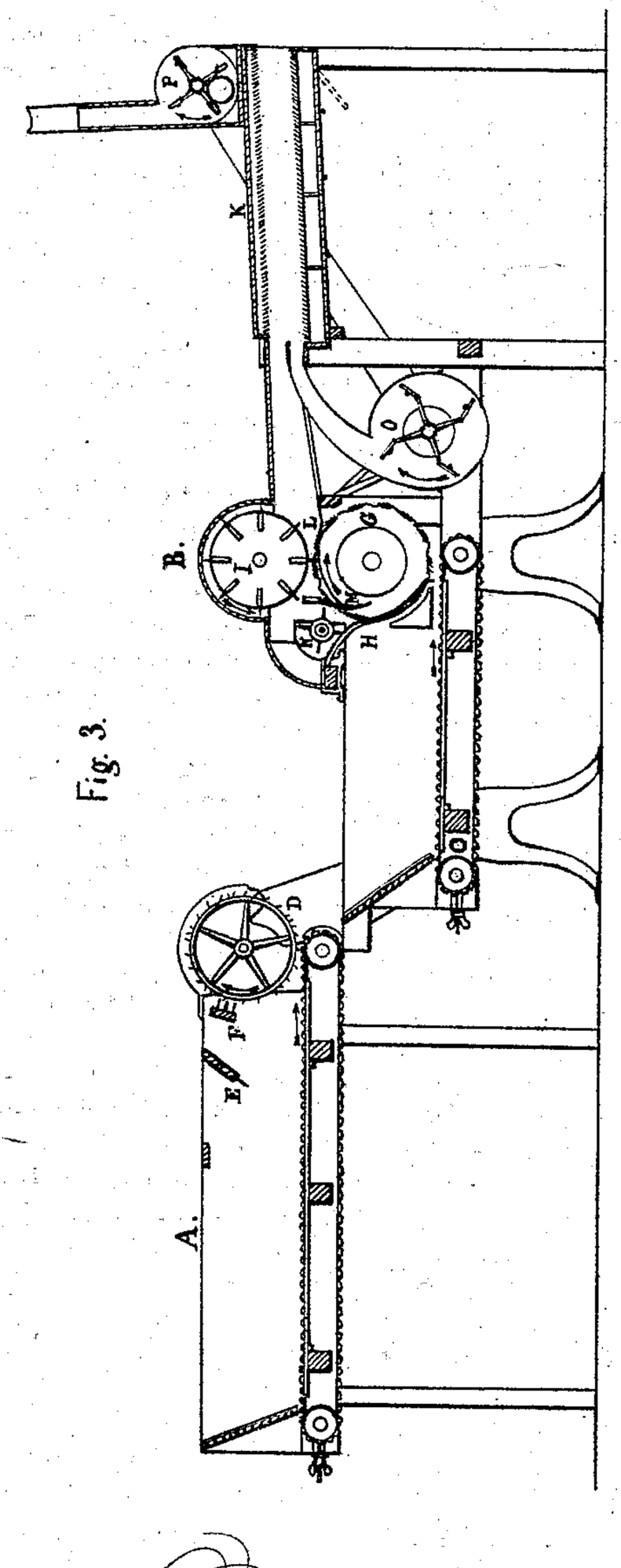

Fig. 3.

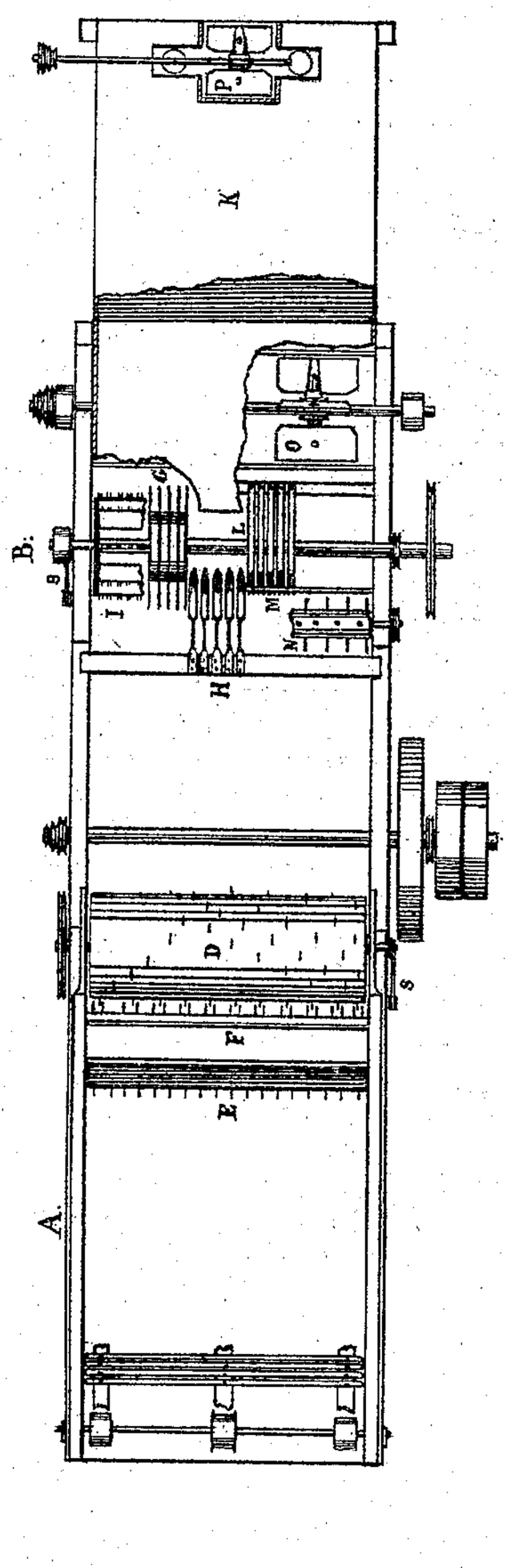

Fig. 4.

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UNITED STATES PATENT OFFICE.

JOE RALSTON, OF BRENHAM, TEXAS, ASSIGNOR OF PART INTEREST TO DARIUS S. SKINNER, NATHAN B. HAIL, AND EDWARD J. BICKNALL, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN COTTON-CLEANERS.

Specification forming part of Letters Patent No. **135,586**, dated February 4, 1873.

To all whom it may concern:

Be it known that I, JOE RALSTON, of Brenham, in the county of Washington and State of Texas, have invented a new and Improved Cotton-Cleaner; and I do hereby declare that the following specification, taken in connection with the drawing making a part of the same, is a full, clear, and exact description thereof, in which—

Figure 1 is a side elevation of my improved cotton-cleaner, showing the outside connections. Fig. 2 represents the connections on the opposite side. Fig. 3 is a longitudinal sectional elevation, and Fig. 4 is a sectional plan view.

My invention relates to machines employed in cleaning cotton preparatory to passing through cotton-gins heretofore used; and it is designed to enable such machines to more thoroughly extend the fibers and remove from or clean the cotton of superfluous matter before it reaches the gin, that in removing the seed therefrom the full length of the staple may be preserved and its value enhanced. My invention resides principally in what I will term a breaker in connection with a cleaner for more readily attaining the result required.

In the drawing, similar letters of reference indicate corresponding parts.

A is the breaker, and B the cleaner. In some respects they are similar, each having a case or frame with two side walls, and open at the top and ends. They are also provided with endless aprons, arranged on rollers in the bottom of said cases, one of the rollers of each of which is provided with a ratchet-wheel, C, for imparting motion to the apron. D is a toothed cylinder, placed at one end of the breaker A above the apron to take the cotton therefrom and deliver it into the case of the cleaner B, the said end of breaker A in which it is placed being suitably arranged and so attached to said cleaner as to bring the teeth on the delivery side in the proper position for that purpose, the teeth being inserted in spiral lines of one-half the diameter of the cylinder, and inclining toward the apron when in motion, one spiral line of which contains an additional tooth alternately between the others on that line, which additional teeth are inserted in a direction inclining reverse to the other teeth, thereby bringing the cotton that may come between the other or carrying teeth into such position as to be taken up by them. The movement of the cylinder at the under side is opposite to that of the apron, and the cotton is, consequently, taken from the said apron in advance of the point where the apron passes under the end roller thereof. E is a toothed equalizing-bar, placed in advance of the cylinder D across the apron between the sides of the breaker A, with the teeth projecting downward, and arranged to be adjusted to or from said apron. It is intended to equalize the delivery of the cotton from the apron to cylinder D. F is a similar toothed bar, placed at a suitable distance from the cylinder D, with its teeth standing horizontally, and used for the purpose of breaking open the cotton-pods and expanding the cotton as it is carried by the said cylinder, and delivered into the case of cleaner B. At the same time the cotton is freed from heavy matter, which drops to the apron of breaker A, and is carried under cylinder D and delivered over the end roller into any receptacle. In the delivery the cotton falls upon the apron of cleaner B, and is carried by it to the toothed plates G, called cotton-saws, which saws are located at a suitable distance above one end of said apron near the center of the machine. I use twenty-six saws, more or less, according to the width of said cleaner. H represents ribs or clearers fastened to a cross-bar, and arranged to be adjusted near the circumference of the cotton-saws G in the spaces between said saws. They are made curving, and flattened toward the lower end, and extend nearly to the apron under said saws, leaving the saws free to turn. I is both a toothed stripper and a fan, placed over the cotton-saws G, with the teeth set on the outer edge of the wings or paddles to pass on either side of said saws. The movement of this fan-stripper, at its under side, being in the same direction with the upper side of the cotton-saws G, and with an increased velocity, the teeth thereby remove the cotton from said saws, and it is propelled by the current of air caused by said fan-stripper into the central

chamber of trunk K. The cotton-saws G are made with teeth inclined and in sets, having a plane between each set. In the arrangement of said saws on their shaft the teeth of one is brought on a line with the plane of the next, and alternately throughout.

When these are in operation the cotton is taken from the apron and drawn between the ribs or clearers H and flanged ribs M, separating it from any hulls or superfluous matter that might not be removed by breaker A.

L are thin strips of metal arranged between the upper side of the cotton-saws. They are curved and fastened at their ends, one being secured within the circumference of said saws by a set of short ribs or supports, M, fitted for that and other purposes. The opposite ends, extending out from between the upper side of the saws, are secured to a cross-bar. By this arrangement the cotton, when forced from the saw-teeth, is conducted through the passage leading to the central chamber of trunk K. M represents inclined flanged ribs, which flanges form a recess, and are screwed to a cross-bar, and are so formed and arranged to separate, hold back, and conduct downward to ribs or clearers H any hulls or superfluous matter, which is then conducted by ribs H upon apron of cleaner B at a point near that which said apron turns over the end rollers, and in advance of the lower ends of ribs H, thereby preventing such superfluous matter from remixing with the cotton coming forward on said apron, and which is thence carried upon said apron over the end roller into any receptacle. N is a toothed roller, situated above the ribs or clearers H, in advance of the cotton-saws G and ribs M, for the purpose of obviating the collecting of a surplus of cotton over the said ribs or clearers, and removing any surplus upon the saws. The cleaner B is also provided with two blowers, O and P, for extending the fibers and at the same time removing any fine dust.

The current of air coming from blower O intersects the current from the fan-stripper I at the entrance of the central chamber of trunk K. At this point of intersection, by the action of the two currents, the fibers of cotton around the seed are extended and freed from any fine dust or sand they may contain. The finer dust, passing through the slatted wall of the central chamber of trunk K, is drawn through openings leading to blower P, and forced through the discharge-pipe at the top. The heavy sand falls between the bottom slats of said central chamber into the apartments underneath, which apartments are provided with doors to be used in removing what may collect. The aprons being made of slats riveted across endless belts, the width always remains the same; and to guide said apron from the sides of the cases the center inside belt turns in two flanged rollers.

The ends of the aprons may be raised or lowered beneath the cylinder D and cotton-saws G by screws operating with end rollers. The opposite end rollers are also adjustable in tightening the said aprons.

The said cylinder and cotton-saws are operated by belts from any suitable power; and one end of their shafts is furnished with a crank for working a pawl-lever, R, by connecting-rod S. This pawl-lever has two pawls, T and U, one above, the other below, its fulcrum, working in the teeth of the ratchet-wheel C for driving the aprons.

The rod S is connected to the crank in a radial slot, so that its movement may be made greater or less for varying the speed of the aprons.

The cotton being cleaned and extended, it is delivered at the further end of trunk K.

I am aware that hooked-tooth cylinders and cotton-saws for conveying cotton are not new; and I, therefore, have no desire to claim them specially as a part of my invention.

I claim as new and desire to secure by Letters Patent of the United States—

1. The endless apron of cleaner B, in combination with the saws G, clearers H, roller N, ribs M, substantially as described.

2. The endless apron of cleaner B, in combination with the saws G, stripper I, conductor L, and ribs M, substantially as described.

3. The endless apron of cleaner B, in combination with the saws G, clearers H, ribs M, roller N, stripper I, conductors L, blowers O and P, and trunk K, all as herein described, and for the purpose described.

JOE RALSTON.

Witnesses:
B. F. SADLER,
W. H. WRIGHT.