

(No Model.)

W. H. GOLDSMITH.

COTTON PICKING AND CLEANING MACHINERY.

No. 365,125.

Patented June 21, 1887.

Fig. 1.

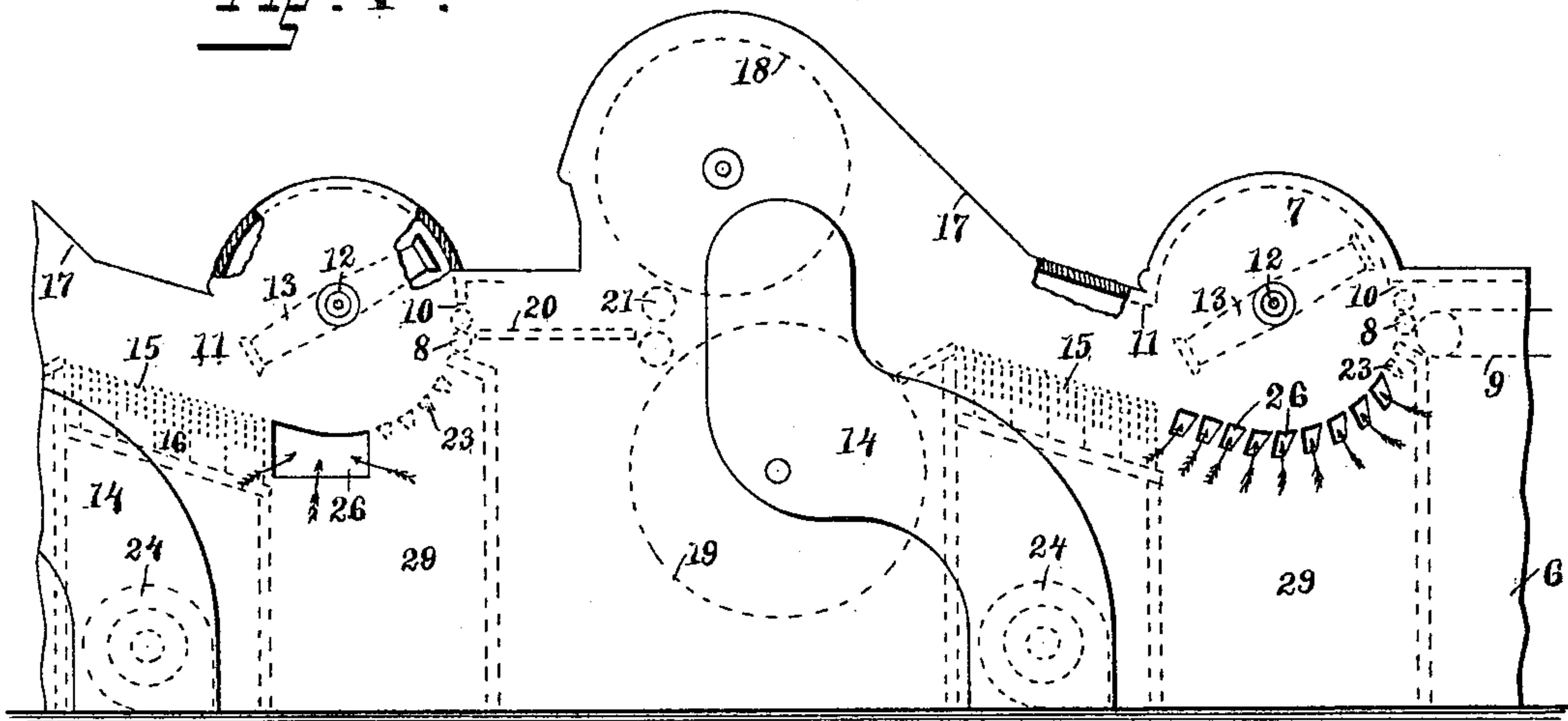


Fig. 2.

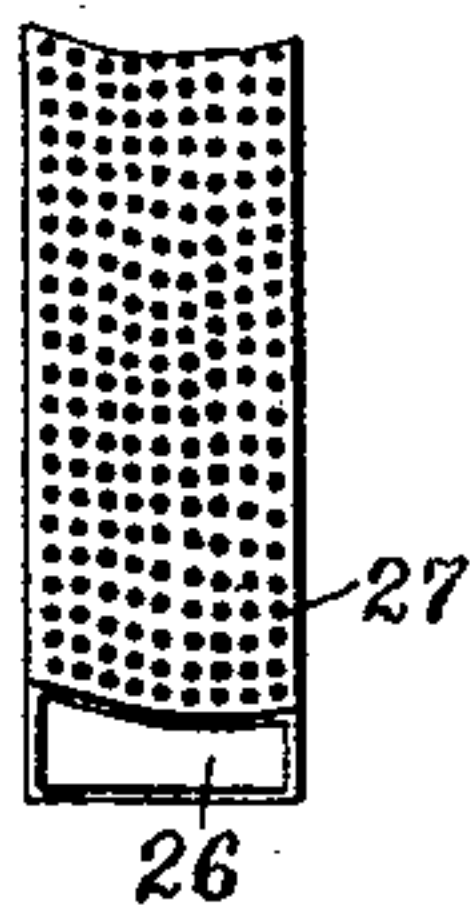
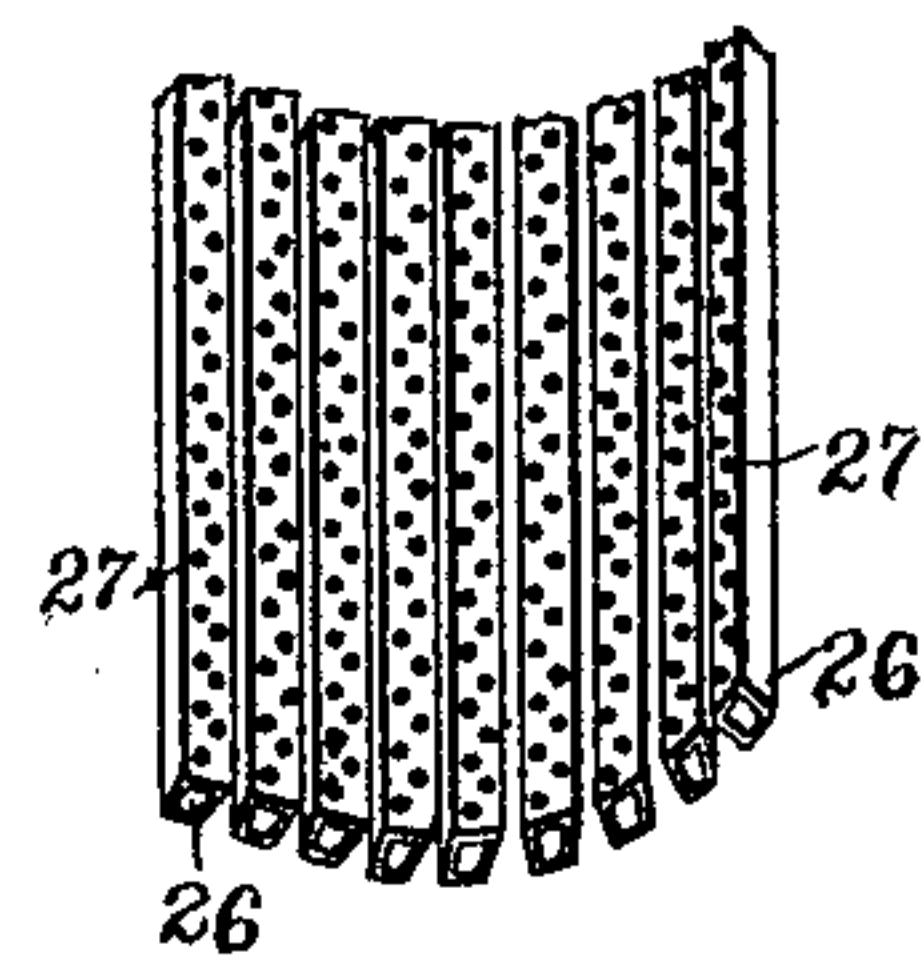


Fig. 3.



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COTTON PICKING AND CLEANING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 365,125, dated June 21, 1887.

Application filed July 8, 1886. Serial No. 207,390. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. GOLDSMITH, of Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Cotton Picking and Cleaning Machinery, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to cotton-working machinery generally employed in the preliminary working of bale-cotton to open out, clean, and form the same into a clean, light, and soft fleece called "lap."

My invention is here illustrated as embodied in a particular kind of machine known as a "combined opener and lapper," in which the former consists, essentially, in a picker or scutcher for opening out the tufted and matted bale-cotton and extracting the dirt and foreign matter therefrom, and the latter consists in gauze drums or catching and lapping devices for forming the cleaned cotton into lap. As is well-known, this class of machinery exists in variously-combined forms.

My invention relates particularly to the devices in such combinations wherein suction-drafts are employed for blowing the cotton as it is beaten or whipped, as hereinafter fully explained.

The objects of my invention are to provide a machine for working cotton whereby the bale-cotton is opened out, cleaned, and formed into an even lap in a rapid and efficient manner, and whereby the cotton is rendered very clean and lapped with comparatively little manipulation.

To the above ends my invention consists, essentially, in the provision of a casing or housing of a picking or cleaning device with peculiar air ways or inlets; and, further, in the combinations and constructions of said airways, all as hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 represents a side view of a portion of a combined opener-lapper, illustrating the employment of both the primary and modified forms of my invention. The view is shown partly in broken and full lines and with some parts as broken away and

in section. Fig. 2 represents a perspective view of a portion of a single air-tube of my construction. Fig. 3 represents a perspective view of portions of a series of air-tubes as constructed and combined in my invention.

In the said drawings like numbers of reference designate corresponding parts throughout.

Referring to the drawings, 6 designates a portion of the side frame of part of an ordinary form of a combined cotton opener and lapper machine. The casing or housing 7 of the opening or picking devices consists of an approximately cylindrical-shaped drum having suitable closed or solid ends, in order to form a suitable imperforate or closed housing for the pickers or openers. At one side of casing 7 is formed a longitudinally-disposed feed-opening, 10, near to which are arranged a pair of feed-rolls, 8, which, in case of the initial picker at the right hand, are fed by the endless feed-apron 9, running on suitable revolving rollers, and shown in portion. Nearly opposite the feed-opening 10 the delivery-chute 11 is set into the casing 7 longitudinally thereof. The rotary shaft 12 lies in the axial line of the cleaning device and is suitably provided with beaters or whippers 13. The beaters are suitably actuated and co-operate with the feed-rollers and perform their functions in a manner well known.

The general and ordinary construction of the picking or cleaning devices shown are similar.

The sifting gratings or grids 15 are a series of bars or equivalents placed, as shown, in the bottom of the delivery-chute 11, and are provided with the dead-air chambers 16 beneath them. The delivery-chutes 11 lead directly into the trunks or passages 17, which open widely onto the wire-gauze drums 18 and 19, placed, as shown, and suitably mounted and actuated to revolve on their respective axes. The feed-rolls 21 are arranged and operate at the mouth of the passage-way 20, which leads to the feed-opening 10 of the left-hand cleaning device. The gratings or grids 23 are set in the casing 7 longitudinally thereof and near the bottom of the same. The suction or exhaust fans 24 are placed at points intermediate of the cleaning devices and the gauze

drums or catchers, and are arranged so as to effect a suction-draft for said drums by means of the ordinary suction-flues, 14, constructed in a well-known manner, and to in no wise affect the parts above them or to the sides opposite the drums, as these points are securely closed or air-tight.

So far this description is of an old form of machine, which, in addition to what is shown, has the bottom of the casings of the cleaners quite completely supplied with grids like the grids 23, and these grids in the old form alluded to are well supplied with air-currents from below, which pass up through the same. In the old form of machine, the air being freely admitted to the grids at the bottom of the cleaning devices, the air-currents were forced up from beneath said grids as the dirt and foreign matter were supposed to fall down through the grids when the cotton was whipped or beaten over the grids. By this construction the exhaust-fans, which co-operate with the gauze drums, were supplied with air coming up through the grids, through the chute and trunk, and through the gauze drums. Such a construction is manifestly inefficient for the purpose of the machine and requires frequent handling of the cotton in order to thoroughly clean it, for the reason that the grids at the bottom of the cleaners or pickers, where they are most necessary, were supplied solely with live air, thereby defeating the purpose of the same to a great extent.

My invention seeks to remedy the above-referred-to defect by constructing the housing or casing of the pickers or cleaners substantially closed or imperforate and arranging the grids with dead-air chambers beneath them, and supplying the exhaust-fans with air introduced from the exterior to the interior of the cleaning devices, at definite places in the housing or casing of said devices, by means of the perforated air-tubes or the perforations near the upper side of the drum.

Considering, now, the embodiment of my invention with the machine here shown, the air-tubes 26 are, as shown, four-sided and with one face perforated, as at 27, and have one or both ends opened to freely admit air. These may be constructed of sheet metal, wood, or any suitable material, and they form the air ways or supplies of my invention. One or more of these tubes 26 are fixed longitudinally across the bottom of the casings 7 of the cleaning devices, and may displace several or all of the grids 23, according to the number of air-tubes used. The air-tubes are arranged with the perforated portions of their bodies and the open ends in communication with the interiors and exteriors, respectively, of the casings of the cleaning devices. Below the air-tubes 26, and below the grids 23 when used, I construct still or dead air chambers 29, and I close practically all parts of the housings or casings of the cleaning devices which are provided with the feed and delivery openings, as above described. By virtue of this construction it will

be seen that the only means of entrance of the air-supply for the fans is practically from the side of the machine into the open ends of the air-tubes 26, as per the arrows shown, through the perforations 27 and about the interior of the housing, over the grids when therein used, out of the delivery-chute and over the grids therein, through the trunk to the gauze drums or catchers, and so to the fan.

When a series of the air-tubes 26 are employed, as shown in the drawings in the right-hand cleaner, I construct them quite narrow and space them slightly from one another, so that, considering the group of the tubes 26, a grid is formed of themselves, and by virtue of the spaces between leading into a dead-air chamber 29 below the dust can readily drop out of the cotton passing thereover down through the dead-air spaces immediately upon being loosened by the air-currents from the perforations 27.

It is to be observed that the air-tubes 26 may be of any desired cross-section and may have more or less perforations, and may be set in the casing of the picker or cleaner drum at any place. When the perforated air-tubes are used as I have shown them in the picker or cleaner drum at the right hand of Fig. 1, the tubes perform the function of a hollow perforated grid-bar, through which the air-supplies may be obtained, as hereinbefore described. It is evident that these air-tubes can be used with most any ordinary form of a drum or cylinder of a cotton picking or cleaning device or any analogous device.

In cleaning and opening out bale-cotton by beating and blowing the same, the blowing or use of the air-currents forms a most important feature of the process, since the more perfect the supply and arrangement of said currents of air the more rapidly and perfectly is the cotton cleaned and opened out, so that when the soft fleecy cotton is caught by the catchers and lapped the lap is rendered even. I claim these advantages for my invention, and, since my construction admits of the cotton being more rapidly finished as lap, the cotton is manipulated accordingly less, which is an important advantage in this art.

Beyond the trunk 17 of the left-hand cleaner another set of cotton catching or lapping mechanisms similar to that shown may be supposed to be arranged, as is the case generally in this class of machinery wherein the above-described process is repeated several times before the cotton goes to the finisher, lapper, or even.

It is obvious that my invention may be readily employed in the cleaning and opening out of any fiber material otherwise than cotton, as herein alluded to, and that various modifications may be made in the several parts of my invention without a substantial departure from the spirit of the same as herein described and claimed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a picker or cleaner drum provided with a feed and a delivery opening, of one or more air-tubes perforated, substantially as described, and having one or both
5 ends thereof open, said air-tubes placed in the casing of said drum with the perforations opening into the interior of the drum, substantially as and for the purpose herein described.

2. The combination, with a picker or cleaner
10 drum provided with a feed and a delivery opening, and provided with grids having a dead-air chamber, of one or more open-air tubes having perforations in the sides thereof, and said tubes placed in the casing of the drum, substantially as and for the purpose herein described.
15

3. The combination, with a picker or cleaner drum mounted horizontally, as described, and provided with a feed and a delivery opening,
20 of a set of perforated air-tubes or hollow grid-bars set in the bottom of the casing of said drum with interspaces, and a dead-air chamber beneath said set of air-tubes, substantially as and for the purpose herein described.

25 4. The combination, with a picker or cleaner drum provided with a feed and a delivery opening, substantially as described, of grids set in the bottom of the casing of said drum, a set of spaced perforated air-tubes placed in the bottom of said casing, and a dead-air chamber
30 disposed beneath said grids and the set of air-tubes, substantially as and for the purpose herein described.

5. The combination, with a picker or cleaner drum provided with a feed-opening and with
35 a delivery-chute having dead-air gratings in the bottom thereof, of one or more perforated air-tubes set in the bottom of said drum and slightly spaced from each other, a dead-air chamber arranged beneath said tubes, catching or lapping mechanism disposed near the
40 exit of the delivery-chute, an exhaust-fan co-acting with said mechanism, substantially as described, whereby a suction-draft may be created from the exterior of said drum through
45 the air-tubes and through the interior of the drum, and thence through the chute to said mechanism, substantially as and for the purpose described.

6. The combination, with a picker-drum or
50 analogous fiber-working device, of the open perforated air-tubes or hollow grid-bars disposed in the walls of said drum or device, substantially as herein described.

7. The combination, with a picker or cleaner
55 drum provided with a feed and a delivery opening, of one or more of the air-tubes or hollow grid-bars 26, having perforations 27, substantially as and for the purpose herein described.

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Witnesses:

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