May 9, 1933. S. BUTCHER ET AL 1,908,284

MOISTURE EXTRACTING APPARATUS

Filed April 12, 1930

FIG. I.

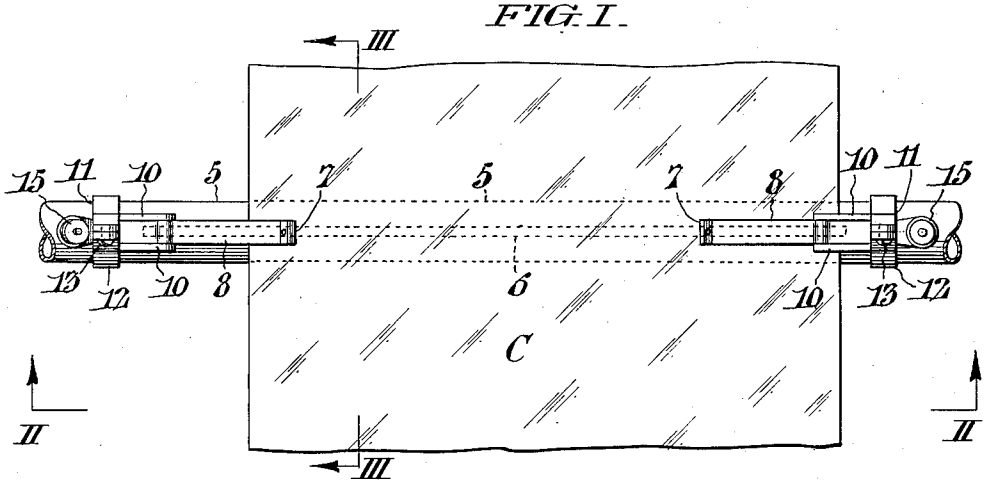


FIG. IV.

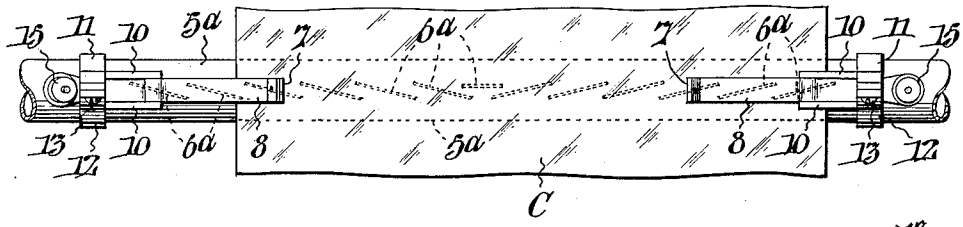


FIG. II.

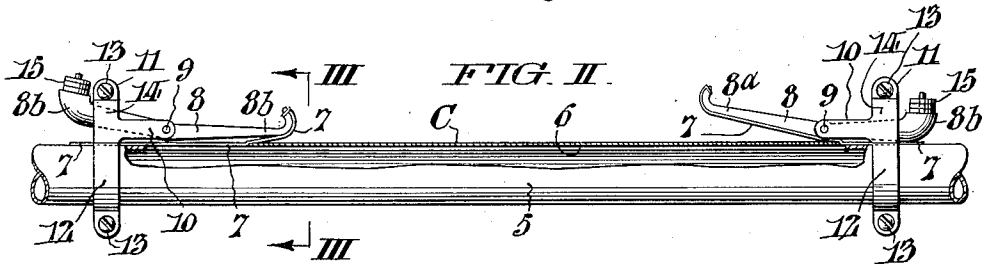
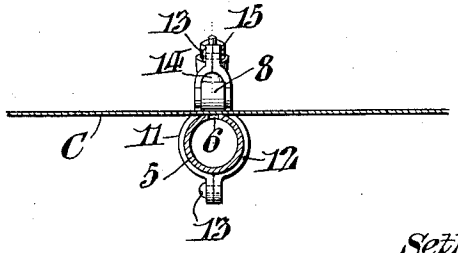


FIG. III.



WITNESSES

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UNITED STATES PATENT OFFICE

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MOISTURE EXTRACTING APPARATUS

Application filed April 12, 1930. Serial No. 443,907.

This invention relates to machines or apparatus for extracting moisture or dust from cloth and the like incident to processing or cleaning operations. More specifically, our invention has reference to what are known as "tube extractors" wherein the cloth undergoing treatment is passed crosswise over a tube having longitudinally thereof, either a single slot or multiple slots, and which is in communication with a source of vacuum, so that the moisture or dust is removed from the cloth by suction.

In connection with machines or apparatus of the specific type referred to, the primary object of our invention is to keep the ends of the slot or slots in the suction tube, beyond the edges of the passing material, covered at all times.

Another object is to attain the indicated desideratum through provision of a simple and reliable automatic suction-responsive means capable of accommodating lateral shifting or "teetering" of the material as it passes over the tube without imposing any restraint to free progression of said material thereover.

In the drawing:

Fig. I is a fragmentary plan view of a moisture extracting apparatus conveniently embodying our invention.

Fig. II is a view taken as indicated by the arrows II—II in Fig. I, with a portion of the slotted extractor tube broken away and in section to expose important structural details.

Fig. III is a cross-sectional view taken as indicated by the arrows III—III in Figs. I and II; and,

Fig. IV is a view similar to Fig. I showing our invention in connection with an extractor of slightly different construction.

Referring first to Figs. I–III of the illustrations, the numeral 5 designates the extractor tube, said tube being in communication with a source of vacuum not shown). In the form of extractor here represented, the tube 5 has a continuous longitudinal slot 6 across which cloth C, for example, undergoing treatment is passed with incidental removal therefrom of moisture or dust by suction action.

The novel automatic means which we provide for keeping the ends of the tube slot 6 beyond the edges of the passing cloth C closed, comprises a pair of elements 7 which are made from flexible material like felt or rubber in strip form. The two elements 7 are adapted to overlie the ends of the tube slot 6, and, as shown, each is secured at one end only to the inwardly directed extremity 8*a* of a medially pivoted member 8. The fulcrum axes 9 for the members 8 are supported between inwardly directed side arms 10 of brackets 11. From Fig. III, it will be noted that the brackets 11 are made in two parts, with formation, in each instance, of a clamp portion 12 to embrace the tube 5; screws 13 being employed at the tops and the bottoms of said brackets to secure them to the tube 5. It will, moreover, be noted that the upper portions of the brackets 11 are yoked or arched, as at 14, to afford the necessary clearance for free swinging movement of the outer ends 8*b* of the members 8 whereon are mounted a number of interchangeable counterbalancing weights 15.

In the operation of our invention, the flexible elements 7 in responding to the suction of the tube 5, will be held down over the ends of the slot 6 after the manner illustrated in Fig. II; while the portions of said strips which are inactive are held raised free of surface contact with the cloth C under the influence of the counterbalancing weights 15 on the members 8. By virtue of the described arrangement, the ends of the slot 6 in the tube 5 are kept closed at all times up to the side edges of the cloth C, without imposition of drag likely to interfere with progression of said cloth over the tube 5. Incident to lateral shifting or "teetering" of the cloth C, for ex-

ample toward the right of the center of the tube 5 as shown in the illustrations, in adapting itself to such action, the flexible element 7 at the left will automatically cover up the further exposed portion of the tube slot 6 with incidental yielding of the associated counterbalanced member 8. The slot end is thereby closed, as before, up to the edge of the cloth C, while the inactive portion of the flexible element 7 is held raised from contact with said cloth. With the device at the opposite or right hand side of Figs. I and II, the reverse of the above takes place concurrently, that is to say: more of the flexible element 7 is released and raised through clockwise movement of the member 8 under the influence of the counterbalanced weights 15.

The form of extractor illustrated in Fig. IV is like the type of Figs. I–III except that the longitudinal slot of the vacuum tube 5*a* is interrupted, or, to be more precise, comprises a number of short slot lengths 6*a* which are disposed at an inclination to each other. The modified construction of the tube 5*a* does not entail any change whatever in the slot end closing devices, which are again illustrated in Fig. IV and identified by the same reference numerals previously employed.

Obviously, the character of the slots 6, or 6*a*, in the extractor tubes 5 may be varied considerably and be continuous, staggered, or of composite arrangement, and the term "longitudinal slot" as used in the appended claims is to be construed as inclusive of any such variations, as may be fairly considered within the scope of our invention.

From the foregoing it will furthermore be apparent that the slot closing means of our invention is responsive solely to suction and capable of accommodating the teetering action of the cloth or other material passed thereover.

Having thus described our invention, we claim:

1. The combination with a vacuum extractor tube having a single longitudinal slot, of automatic suction-responsive means adapted to accommodate teetering of cloth passing over the tube in maintaining the ends of said slot closed beyond the cloth edges, said means including a pair of flexible elements to cover the slot ends, and counter-weighted pivoted members operative to yieldingly hold the inactive portions of said flexible elements free of surface contact with the passing cloth.

2. The combination with a vacuum extractor tube having a single longitudinal slot, of automatic suction-responsive means adapted to accommodate teetering of cloth passing over the tube incident to maintaining the ends of said slot closed beyond the cloth edges, said means including a pair of flexible elements to cover the slot ends, counterbalanced members to yieldingly hold the inactive portions of the flexible elements free of surface contact with the passing cloth, and means on the tube affording said counter-weighted members pivotal support.

In testimony whereof, we have hereunto signed our names at Lawrence, Essex County, and Commonwealth of Massachusetts, this 5th day of April, 1930.

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CHARLES J. WILDER.