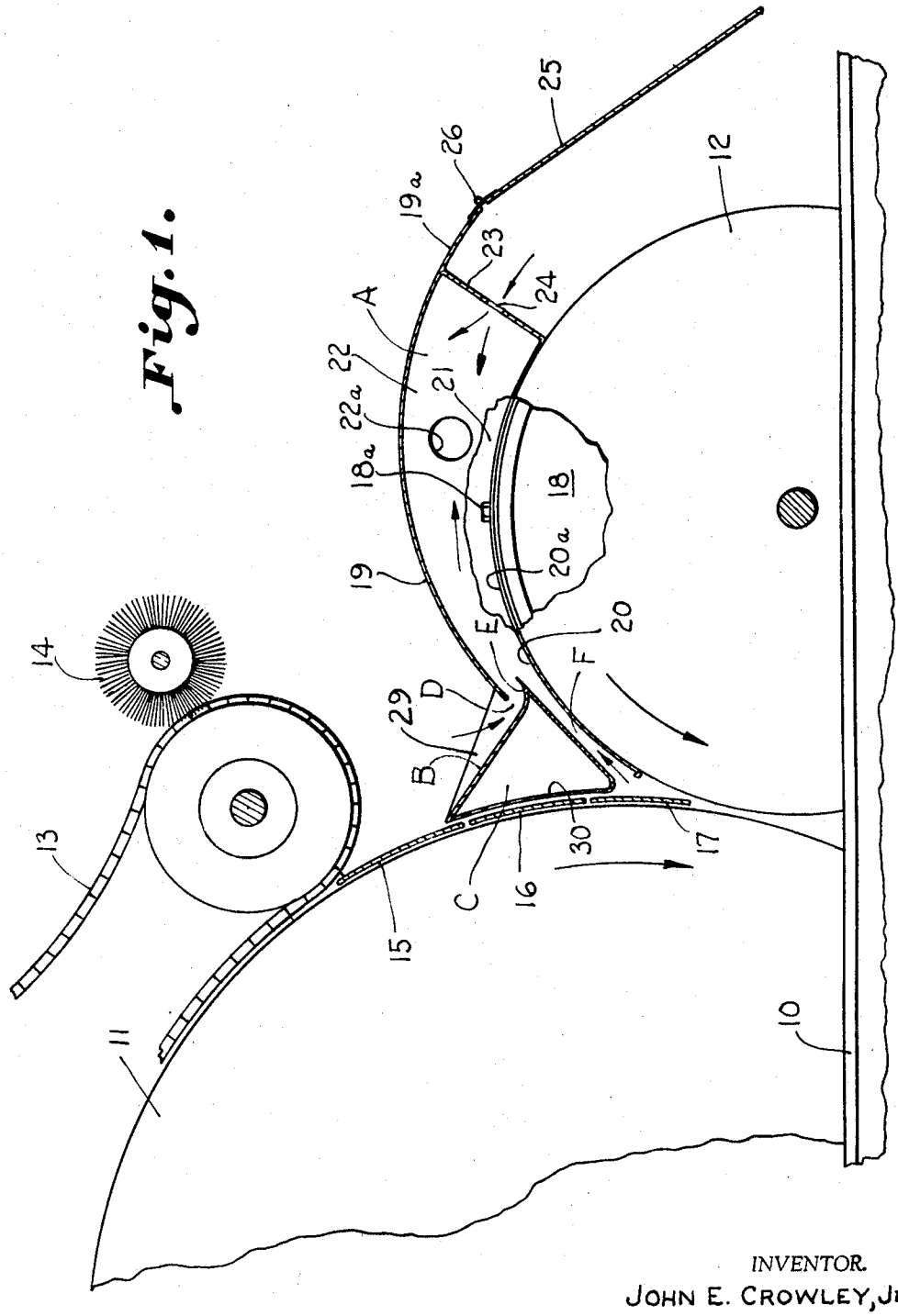
June 11, 1968 J. E. CROWLEY, JR 3,387,337

TRAY AND SHELF FOR CARDING MACHINE CLEANER

Filed May 8, 1967 2 Sheets-Sheet 1

Fig. 1.



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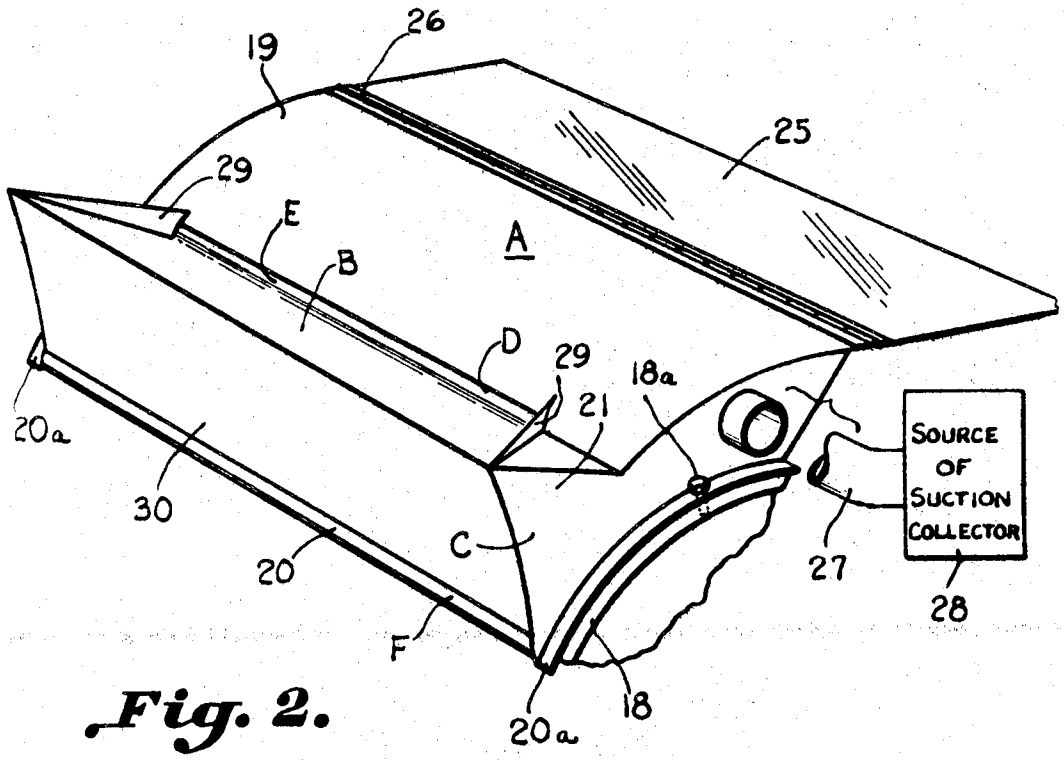


Fig. 2.

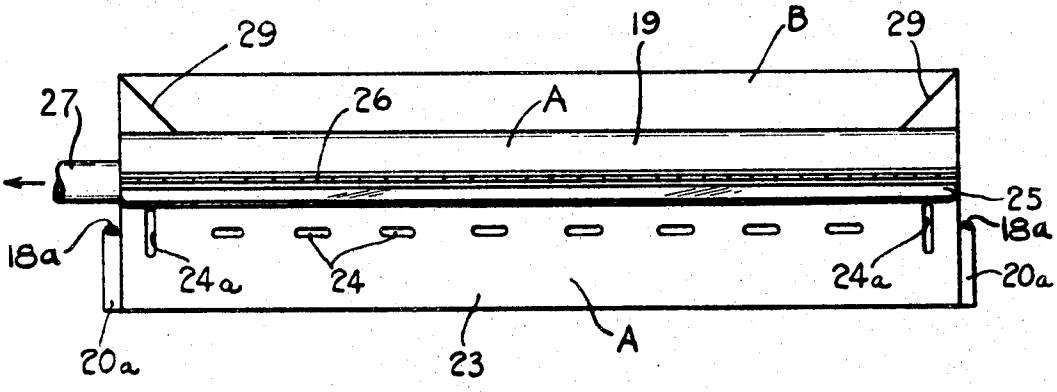


Fig. 3.

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TRAY AND SHELF FOR CARDING MACHINE CLEANER

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3 Claims. (Cl. 19—107)

ABSTRACT OF THE DISCLOSURE

An elongated tray having a shelf therein is positioned across a suction orifice which is positioned at the transfer point of the lap between the main cylinder and the doffer cylinder. A shelf is carried by the tray, which extends forwardly thereof, adjacent the suction orifice for catching relatively small foreign objects preventing impingement thereof upon the main cylinder and the doffer cylinder. The tray guides toppings and other waste directly into the orifice and the shelf prevents the toppings from falling between the main cylinder and the doffer cylinder when the suction equipment is shut down for cleaning out the waste collection areas therein.

This invention relates to cleaning devices for textile carding machines, and more particularly to a tray and shelf for use with suction equipment for guiding waste into an orifice of the suction equipment and guarding against foreign objects large and small falling into the card clothing with resulting damage thereto.

Suction equipment formerly used adjacent the point at which the lap is transferred from the main cylinder to the doffer cylinder of a carding machine has proved deficient in that an excessive amount of waste is not captured thereby because of the relatively confined area in which the suction is effective. It is, therefore, desirable to guide the toppings, air-borne lint, and other waste directly into the orifice. The present invention is directed to an improvement for carding machine cleaners, such as illustrated in my copending application Ser. No. 636,782, executed and filed contemporaneously herewith, entitled Tray for Carding Machine Cleaner. Devices embodying the invention of the said copending application, while effective in carrying out their objective have demonstrated a deficiency in that when the suction equipment is turned off for cleaning purposes toppings fall between the main cylinder and the doffer cylinder into the card clothing. The present invention also provides a more effective guide for the toppings and the like, since they are guided directly into the suction orifice. The suction orifice is extended to relieve the winds generated by the differential in speed between the main cylinder and the doffer cylinder. Heretofore, difficulties were also brought about by small objects, such as nuts and screws, which slide down the plenum surface and between the tray of the copending application and the plenum. Such objects can cause extensive damage to the relatively expensive card clothing.

Accordingly, it is an important object of this invention to provide a means for effectively guiding waste into a suction cleannig device for a carding machine, and yet prevent their falling between the main cylinder and the doffer cylinder when the suction equipment is shut down for cleaning and maintenance.

Another important object of the invention is the provision of an improved guiding means for guiding toppings and the like directly into the orifice of the suction equipment.

Still another important object of the invention is to provide a guard which effectively prevents foreign objects large and small from falling between the main cylinder and the doffer cylinder of a carding machine with consequent damage to the card clothing.

The construction designed to carry out the invention will be hereinafter described, together with other features thereof.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings forming a part thereof, wherein an example of the invention is shown and wherein:

FIGURE 1 is a schematic side elevation, with parts broken away and parts in section, illustrating a tray and shelf constructed in accordance with the present invention positioned upon a carding machine,

FIGURE 2 is a perspective view looking toward the rear of the doffer cylinder further illustrating the tray and shelf of the present invention, and

FIGURE 3 is a rear elevation further illustrating the tray.

The drawings illustrate a cleaning device for a textile card having flats, a main cylinder and a doffer cylinder. The cleaning device has a suction plenum A with an elongated suction orifice positioned across and above the main cylinder and the doffer cylinder closely adjacent thereto. An elongated tray B for receiving waste material is positioned below the flats and extends across the main cylinder and the doffer cylinder. Supports C are spaced longitudinally of the tray positioning said tray for guiding waste material into said orifice. The tray is spaced from an upper surface of said plenum so as to define an elongated suction orifice D receiving waste material from the upper surface of the plenum and yet guarding against foreign objects passing over the plenum between the main cylinder and the doffer cylinder. A shelf E extends forwardly of the tray adjacent the orifice for catching relatively small foreign objects preventing impingement thereof upon the main cylinder and the doffer cylinder. The tray includes a guard surface inclined forwardly and downwardly from closely adjacent the main cylinder toward the upper surface of the plenum, the guard surface terminating in and supporting said shelf so that this shelf extends into the orifice. The upper surface of the plenum is spaced forwardly of the guard surface, and an extension F of the plenum projects rearwardly of the shelf downwardly toward the main cylinder.

A carding machine is illustrated in FIGURE 1 which has a frame **10**, a main cylinder **11** and a doffer cylinder **12**. The card is provided with flats **13** and the usual brush **14** for cleaning the flats. The main cylinder is provided with the usual front top plate **15**, door **16** and bottom plate **17**. The bonnet has been removed from the bonnet assembly **18** in order to accommodate the suction plenum A.

The suction plenum A includes an arcuate upper surface spaced above the main cylinder and which inclines downwardly toward the area of transfer of the web between the main cylinder and the doffer cylinder. The plenum has a bottom plate conforming to the periphery of the doffer and this is indicated at **20**. The bottom extends outwardly as at both sides at **20***a*, and bolts **18***a* pass therethrough to attach the plenum A to the bonnet assembly **18**. The bolts **18***a* may be those which formerly attached the bonnet to the bonnet assembly. The plenum includes sides **21** and **22** and a front plate **23**.

Referring to FIGURE 3, it will be noted that an orifice **24** extends in the front plate **23** across the doffer cylinder **12** and is formed by a plurality of spaced horizontal slots together with a vertical slot **24***a* at each end. By positioning the end slots vertically it has been found that there is less chance for lint to escape therefrom. A forward extension **19***a* of the plenum top **19** carries a plexiglass

hood 25 by means of a piano hinge 26. The hood extends over the web delivery and crush roll assemblies to gather air-borne lint to conduct same to the orifice 24. The suction plenum A has an opening 22*a* therein for communication with a source of suction and collector for waste. The duct 27 communicates between the opening 22*a* and the source of suction and collector 28 illustrated schematically in FIGURE 2.

It will be noted that the tray B inclines forwardly and downwardly from the main cylinder toward the doffer cylinder and is suitably supported as by welding same to the spaced end supports C. The forward edge of the tray is spaced from the top of the plenum A so as to define an orifice D. The shelf E extends forwardly from the lower edge of the tray B into the orifice and is preferably in a fish-hook configuration as best illustrated in FIGURE 1. In order to cut down on the length of the orifice D converging side members 29 are carried by the upper surface of the tray B to guide waste into the orifice D. It will be noted that the bottom plate 20 extends rearwardly closely adjacent the transfer area between the main cylinder and the doffer cylinder in order to define an orifice F to suck off the drafts created by the rotation of the main cylinder and the doffer cylinder in that area to reduce lint. A back plate 30 is defined to set off slightly from the front top plate of the main cylinder. This is done so that leaf and trash falling from the flats will slide down into the orifice F. The back plate extends between the spaced supports C which are extensions of the side walls 21 and 22 of the plenum A.

It will be observed that toppings and other waste which fall from the card flats 13, together with air-borne lint and lint which collects on the top 19 of the suction plenum are drawn into the suction plenum through the orifice D. Any foreign objects including not only the large ones, such as hammers and wrenches, but also the small ones, such as nuts and screws are prevented from falling between the doffer cylinder and the main cylinder by the tray B and its extending shelf portion E. Thus, air-borne lint together with toppings from the flats are guided directly into an orifice of the plenum A. A second orifice is provided adjacent the area where the winds generated by rotation of the main cylinder of the doffer cylinder are most apt to collect lint and fly. Upon stoppage of the cleaning equipment for the purpose of cleaning the collector or for any other reason, toppings which continue to fall from the card flats will fall upon the tray B and be trapped by the shelf E and thus avoid their falling between the main cylinder and the doffer cylinder. A distinctive advantage is offered since it is impractical to stop all of the cards when the cleaning operation is taking place, thus damage to the card clothing is avoided while permitting the machines to continue production.

While a preferred embodiment of the invention has been described using specific terms, such description is for illustrative purposes only, and it is to be understood that changes and variations may be made without departing from the spirit or scope of the following claims.

What is claimed is:

1. In combination with a cleaning device for a textile card having flats, a main cylinder and a doffer cylinder, said cleaning device having a suction plenum with an elongated suction orifice positioned across and above the main cylinder and the doffer cylinder closely adjacent thereto for sucking-off air currents generated between the main cylinder and the doffer cylinder in the area where the lap is transferred from the main cylinder to the doffer cylinder during carding, the improvement including, an elongated tray for receiving waste material positioned below the flats extending across the main cylinder and the doffer cylinder, supports spaced longitudinally of the tray positioning said tray for guiding waste material into said orifice, said tray being spaced from said plenum so as to define an elongated suction orifice receiving waste material from an upper surface of the plenum and yet guarding against foreign objects passing over the plenum and thence between the main cylinder and the doffer cylinder while permitting sucking-off of air currents, and a shelf below said upper surface of the plenum extending across said tray for catching relatively small foreign objects preventing impingement thereof upon the main cylinder and the doffer cylinder.

2. The structure set forth in claim 1, wherein said tray includes a guard surface inclined forwardly and downwardly from closely adjacent the main cylinder toward the upper surface of said plenum, said guard surface terminating in and supporting said shelf so that the shelf extends into the orifice, said upper surface of the plenum being spaced forwardly of said guard surface, and an extension of said plenum projecting rearwardly of said shelf downwardly toward the main cylinder.

3. A cleaning device for a textile card having flats, a main cylinder and a doffer cylinder including, a suction plenum with an elongated suction orifice positioned across and above the main cylinder and the doffer cylinder closely adjacent thereto for sucking-off air currents generated between the main cylinder and the doffer cylinder in the area where the lap is transferred from the main cylinder to the doffer cylinder during carding and an upper surface inclined downwardly from above the doffer cylinder toward the main cylinder, an elongated tray for receiving waste material positioned below the flats extending across the main cylinder and the doffer cylinder, supports spaced longitudinally of the tray positioning said tray for guiding waste material into said orifice, said tray being spaced downwardly from an upper surface of said plenum so as to define an elongated suction orifice receiving waste material from the upper surface of the plenum and yet guarding against foreign objects passing over the plenum between the main cylinder and the doffer cylinder while permitting such sucking-off of air currents, and a shelf connected to and extending forwardly of and across said tray for catching relatively small foreign objects preventing impingement thereof upon the main cylinder and the doffer cylinder.

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