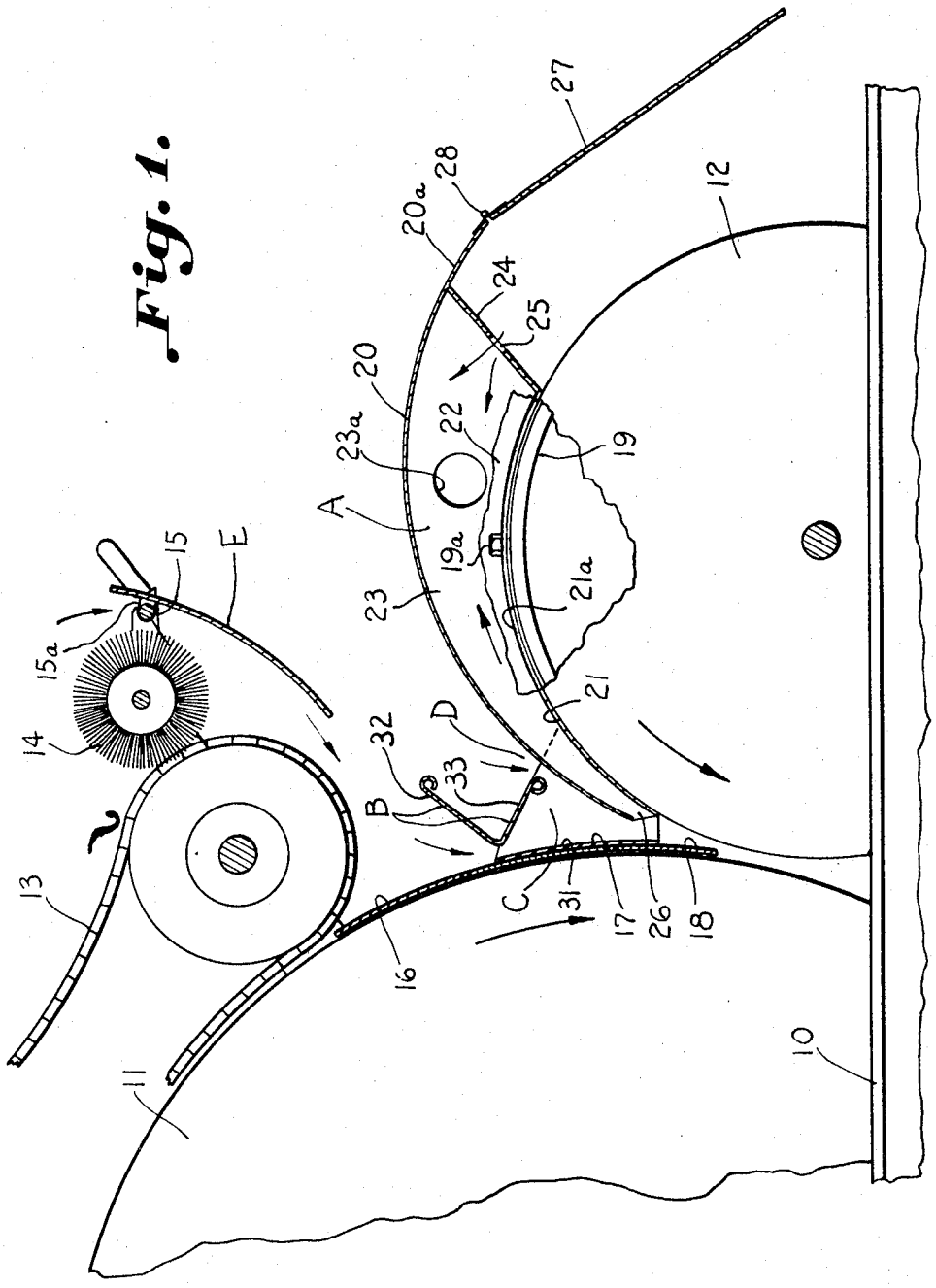
June 11, 1968 J. E. CROWLEY, JR 3,387,336

TRAY FOR CARDING MACHINE CLEANER

Filed May 8, 1967 2 Sheets-Sheet 1

Fig. 1.



INVENTOR.
JOHN E. CROWLEY, JR.
BY Bailey & Doity
ATTORNEYS.

June 11, 1968 J. E. CROWLEY, JR 3,387,336

TRAY FOR CARDING MACHINE CLEANER

Filed May 8, 1967 2 Sheets-Sheet 2

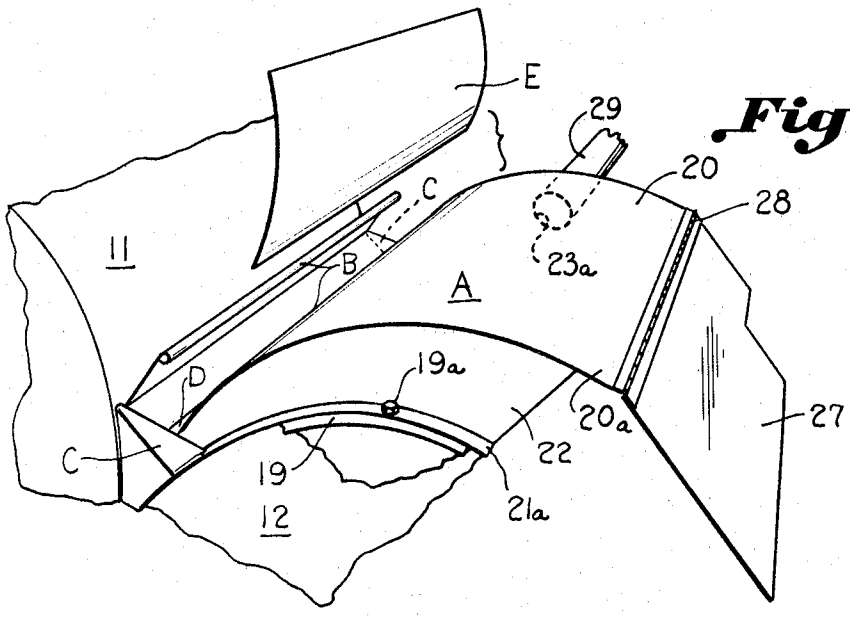


Fig. 2.

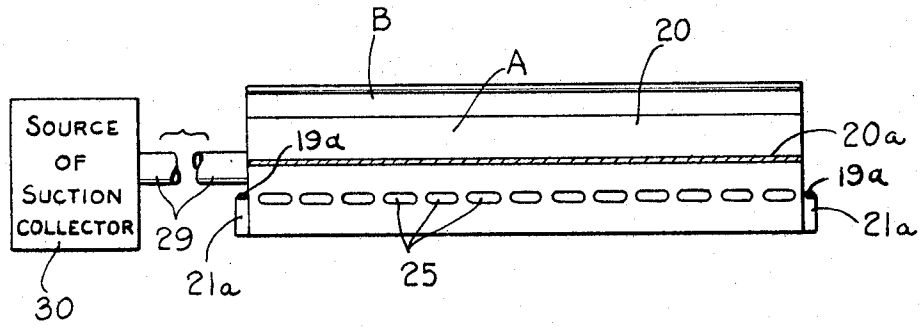


Fig. 3.

INVENTOR.
JOHN E. CROWLEY, JR.
BY Bailey & Hoisty
ATTORNEYS.

United States Patent Office 3,387,336 Patented June 11, 1968

3,387,336

TRAY FOR CARDING MACHINE CLEANER

John E. Crowley, Jr., P.O. Box 15511, Charlotte, N.C. 28210

Filed May 8, 1967, Ser. No. 636,782
4 Claims. (Cl. 19—107)

ABSTRACT OF THE DISCLOSURE

An elongated tray is provided for use with a suction plenum having an elongated suction orifice across and adjacent the area in which the lap is transferred from the main cylinder to the doffer cylinder of a carding machine. The tray is positioned by spaced longitudinal supports for guiding waste material into the orifice. The tray is spaced from an upper surface of the plenum thus, providing a suction orifice to clean the upper surface of the plenum and guard against foreign objects falling into the card clothing. A guide or guard is positioned forwardly and adjacent the brush for guiding waste from the flats into the tray.

This invention relates to cleaning devices for textile carding machines, and more particularly to a tray for use with suction equipment which guides waste into the orifice of the suction equipment and serves as a guard to prevent foreign objects from falling into the card clothing.

Heretofore, suction equipment has been provided adjacent the point at which the lap is transferred from the main cylinder to the doffer cylinder of a carding machine. Such a device is shown in my copending application executed Oct. 16, 1966, entitled Doffer Plenum, bearing Ser. No. 587,277, filed Oct. 17, 1966. Such devices perform two important functions namely; reduce the fly generated at the transfer point by sucking-off air currents generated beneath the main cylinder and the doffer cylinder which result from the differential in their high rates of rotation, and removes such air-borne lint and waste as are generated. It has been found, however, that toppings from the card flats and other waste escape the action of the equipment described above because they do not come within the influence of the rather confined suction area effected by the suction orifice and foreign objects such as hammers, wrenches and other tools slide down the inclined surface of the plenum and fall between the main cylinder and the doffer cylinder causing damage to the card clothing.

Accordingly, it is an important object of this invention to provide a guide for introducing waste into the effective area of the orifice so that it may be removed by the suction action thereof, and guard against foreign objects falling between the main cylinder and the doffer cylinder.

Another object of the invention is to provide a guard for guiding toppings and the like into the tray described above so as to be effectively removed by the suction generated by the plenum.

Another important object of the invention is to provide a means for keeping the plenum itself free from undesirable waste and avoid 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 topping guide positioned upon a carding machine in accordance with the present invention,

FIGURE 2 is a perspective view of the tray illustrated in FIGURE 1 looking toward the front of the main cylinder, and

FIGURE 3 is a rear elevation further illustrating the tray.

Referring more particularly to the drawings, a cleaning device for a textile card having flats, a main cylinder, and a doffer cylinder, is illustrated. 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 is positioned below the flats and extends across the main cylinder and the doffer cylinder. Supports C are spaced longitudinally of the tray positioning the tray for guiding waste into the orifice. The tray is spaced from an upper surface of said plenum so as to define an elongated suction orifice D for receiving waste from the upper surface of the plenum. The tray also guards against foreign objects passing over the plenum between the main cylinder and the doffer cylinder. The tray B includes an upper topping guiding surface inclined rearwardly and downwardly toward the main cylinder for guiding toppings into the orifice, and a lower guard surface inclined forwardly and downwardly from a lower portion of the upper surface toward the upper surface of said plenum. A downwardly and rearwardly extending guide E is positioned forwardly and adjacent the brush for guiding waste material into the tray.

FIGURE 1 illustrates a carding machine upon which a cleaning device and tray are positioned. The carding machine has a frame **10**, a main cylinder **11** and a doffer cylinder **12**. Card flats **13** are provided with the usual brush **14** for cleaning purposes and the usual comb is carried by the comb bar **15**. The main cylinder **11** is provided with a front top plate **16**, a door **17** and a bottom plate **18**. The bonnet is removed from the bonnet assembly **19** to accommodate the suction plenum A.

The suction plenum A includes an arcuate top **20** which is positioned above the doffer cylinder and generally conforms thereto except that it approaches the periphery of the doffer cylinder in the area where the lap is transferred from the main cylinder to the doffer cylinder during carding. The suction plenum A has a bottom **21** which is closely adjacent the doffer cylinder and has side portions **21***a* on each side thereof, which are fastened to the bonnet assembly as by the bolts **19***a* which normally secure the bonnet thereto. The suction plenum A has sides **22** and **23** and an opening **23***a* communicating with a source of suction. A front wall **24** has an elongated orifice **25** extending across the doffer cylinder which is defined by a plurality of aligned horizontal slots. The other end of the plenum is open as at **26** to define a suction orifice extending across and in between the main cylinder and the doffer cylinder adjacent the transfer point of the lap. A hood which is preferably constructed of plexiglass extends over the web delivery and crush roll elements (not shown). The hood **27** is attached as by a piano hinge **28** to a forwardly extending portion **20***a* of the top **20**.

Referring now to FIGURES 2 and 3, it will be noted that a duct **29** connects the opening **23***a* in the suction plenum to a source of suction which is provided with a collector for accumulating the waste drawn into the suction orifices. The source of suction and collector is schematically illustrated at **30**.

The tray B has a curved back plate **31** conforming to the main cylinder which is placed against the door **17** and the bottom plate **18**. The back plate **31** extends between and is joined to the spaced supports C to which, in turn, the tray is suitably connected as by welding (not shown). The tray has an upper topping guiding surface **32** inclined

rearwardly and downwardly toward the main cylinder for guiding toppings into the orifice **26**. A lower guard surface **33** is inclined forwardly and downwardly from a lower portion of the upper surface toward the upper surface **20** of the plenum and thereby defines an orifice D therebetween. The toppings from the card flats **13** fall upon the inclined surface **32** and are guided downwardly over the back plate **31** into the orifice **26**. The orifice D cleans the top **20** of the suction plenum and prevents tools, such as wrenches and hammers, which are placed thereon from falling between the main cylinder and the doffer cylinder causing damage to the card clothing.

A downwardly and rearwardly extending guide E is positioned forwardly of the brush and is carried as by brackets **15***a* which are connected to the comb bar **15**. Thus, the toppings are guided downwardly and rearwardly toward the downwardly and rearwardly inclined surface **32** of the tray B. Air-borne lint is also guided toward the tray B and falls downwardly over the back plate **31** and through the orifice D into the orifice **26**. It is thus seen that toppings from the flats are guided into the orifice, as well as provision being made for collecting air-borne lint. The tray B also serves as a guard against foreign objects falling between the main cylinder and the doffer cylinder.

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 beneath 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, and said tray being spaced from 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 and thence between the main cylinder and the doffer cylinder while permitting such sucking-off of air currents.

2. The structure set forth in claim **1**, wherein said tray includes an upper topping guiding surface inclined rearwardly and downwardly toward the main cylinder for guiding toppings into the orifice, and a lower guard surface inclined forwardly and downwardly from a lower portion of the upper surface toward the upper surface of said plenum.

3. The structure set forth in clam **1**, wherein said card has a brush assembly for cleaning said flats, the improvement including, a downwardly and rearwardly extending guide positioned forwardly and adjacent the brush assembly for guiding waste material into the tray.

4. 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 beneath 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, and said tray being spaced from 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 upper surface of the plenum and thence downwardly between the main cylinder and the doffer cylinder while permitting such sucking-off of air currents.

References Cited

UNITED STATES PATENTS

3,357,062	12/1967	O'Neal et al.	19—107
3,315,320	4/1965	Bass et al.	19—107

FOREIGN PATENTS

1,025	2/1963	Japan.
7,565	5/1916	Great Britain.
20,065	9/1915	Great Britain.
762,403	11/1956	Great Britain.
1,301,384	7/1962	France.
1,366,786	6/1964	France.
1,400,608	4/1965	France.

MERVIN STEIN, *Primary Examiner.*

IRA C. WADDEY, JR., *Assistant Examiner.*