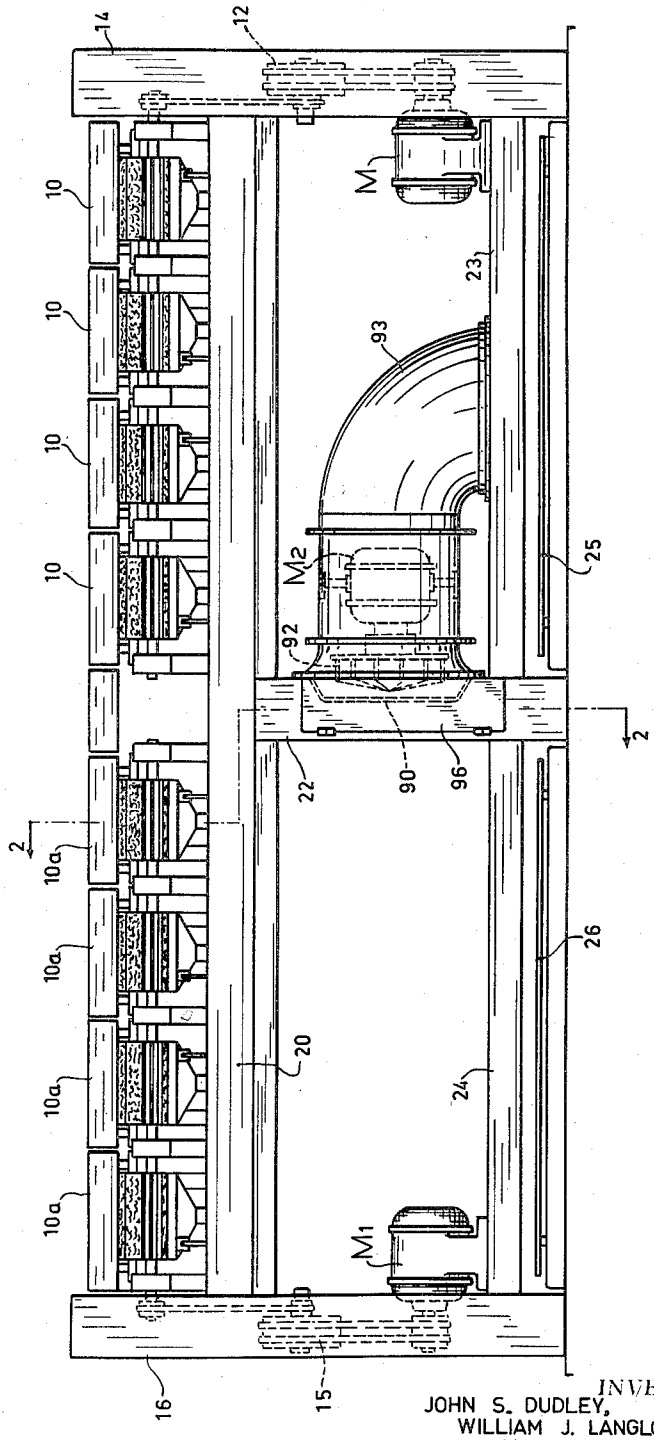
Dec. 2, 1958 J. S. DUDLEY ET AL 2,862,249

DRAWING FRAME AND CLEARER SYSTEM THEREFOR

Filed March 6, 1956 2 Sheets-Sheet 1

Fig. 1



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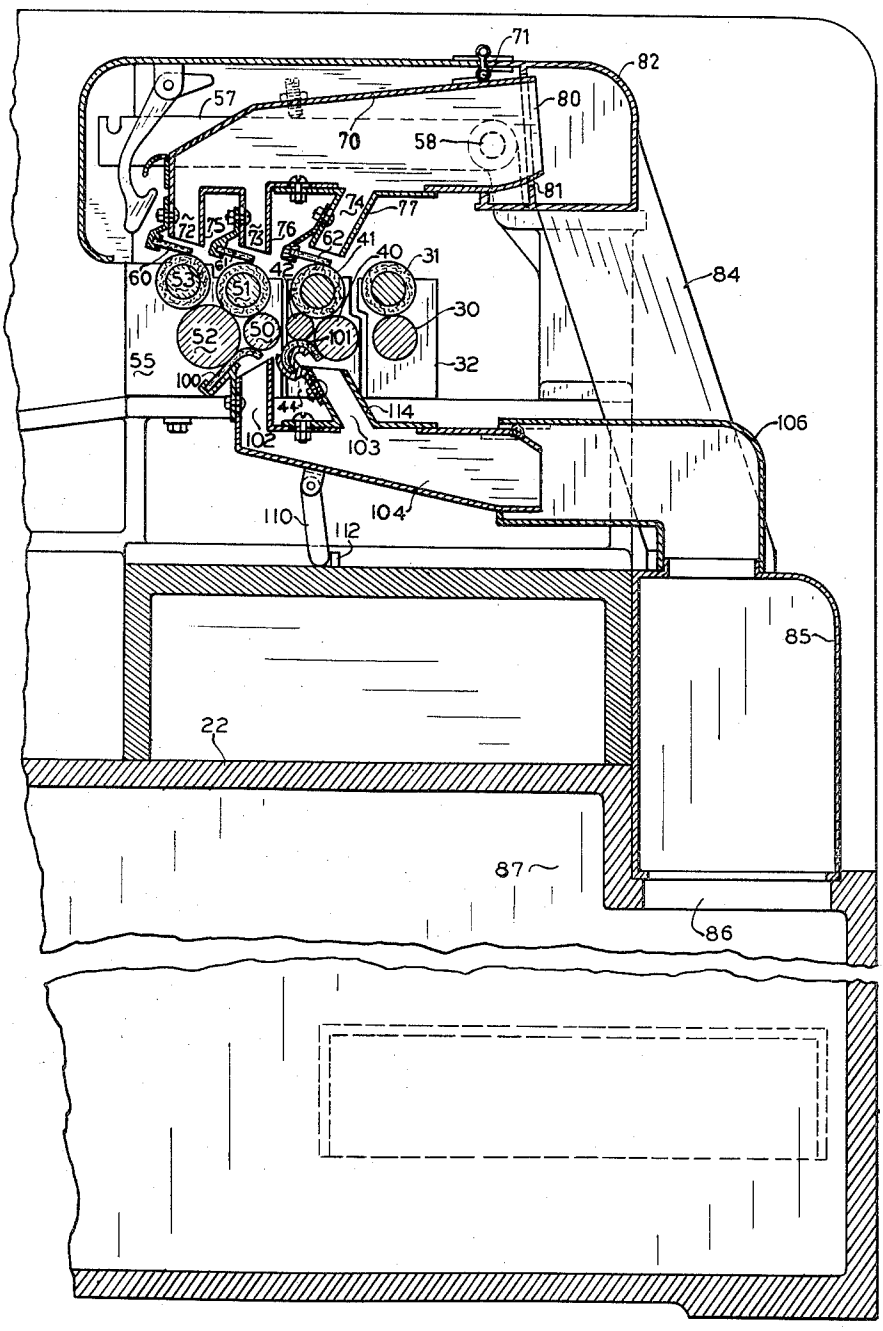


Fig. 2

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United States Patent Office 2,862,249
Patented Dec. 2, 1958

2,862,249

DRAWING FRAME AND CLEARER SYSTEM THEREFOR

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Application March 6, 1956, Serial No. 569,742

2 Claims. (Cl. 19—139)

This invention relates to machines for drawing textile fibers preliminary to spinning and twisting operations. More specifically, the invention relates to improved pneumatic apparatus for removing fly and lint from the drawing rolls and for collecting and holding the waste material.

Machines are known in which lint and fly are thus removed by pneumatic clearing apparatus, and it is the general object of this invention to improve the drawing frames and the pneumatic clearing apparatus associated therewith in such manner that less power is consumed, more uniform and more satisfactory operation is attained, and that neither the surrounding floor space nor the over-all dimensions of the machine are increased.

We also provide a construction by which a drawing frame can be built double and with separate roll driving mechanism at both ends of the machine, and with the pneumatic clearer apparatus disposed in a central and otherwise comparatively unobstructed space, well removed from all driving mechanism.

We also provide a machine in which the lint-collecting ducts are only one-half as long as were previously required in machines of equal capacity. Lower and more uniform air exhaust may thus be utilized.

Our invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawings, in which

Fig. 1 is a front elevation of our improved machine; and

Fig. 2 is an enlarged partial transverse section of the machine, taken along the irregular line 2—2 in Fig. 1.

Referring to Fig. 1, we have shown a double drawing frame having four drawing heads **10** at the right-hand end of the machine and which are driven from the motor M through suitable driving connections **12** which are mounted in the end frame member **14**. Four additional drawing heads **10***a* are mounted in the left-hand portion of the machine, and the heads **10***a* are driven by a motor M′ through suitable driving connections **15** in the opposite end frame member **16**.

The end frame members **14** and **16** are connected by a longitudinal frame member **20** which is supported at its middle point by a center frame member **22**. Lower cross girts **23** and **24** are provided between the frame members **14** and **22** and **16** and **22**, respectively.

Tables **25** and **26** are mounted in front of the girts **23** and **24** to support the roving cams, and these tables may be moved in closed paths in horizontal planes by any suitable mechanism, such as that shown in Hendrickson Patent 2,355,071 issued August 8, 1944.

All of the drawing heads **10** and **10***a* are duplicates, and one of these heads is shown in section in Fig. 2. Referring to Fig. 2, the drawing mechanism comprises back rolls **30** and **31** mounted in adjustable bearing blocks **32**, intermediate rolls **40**, **41** and **42** mounted in adjustable intermediate bearing blocks **44**, and front rolls **50**, **51**, **52** and **53** mounted in fixed bearing members **55**. All of the bottom rolls **30**, **40**, **42**, **50** and **52** are rotated in predetermined speed relation by the motors M and M′ and the driving connections **12** and **15**, as shown in Fig. 1.

All of the upper rolls **31**, **41**, **51** and **53** are rotated by frictional engagement with the driven lower rolls. The back and intermediate bearing blocks **32** and **44** may be adjusted forward and back to provide the desired spacing between the rolls.

Arms **57** (Fig. 2) are pivoted at **58** and may be pressed downward to apply yielding pressure to the top drawing rolls through any usual connections.

The arrangement of the drafting rolls and the driving connections and adjustable bearings therefor form no part of the present invention, which relates particularly to the clearing of fly, lint or other waste from the drafting rolls.

For this purpose, we provide clearer devices **60**, **61** and **62** for the upper rolls **53**, **51** and **41**. The members **60**, **61** and **62** for each drafting head are vertically adjustable in a separate collecting chamber or hood **70**, mounted to swing about a fixed pivot **71** and extending forward over the associated top rolls. No clearers are provided for the back rolls **30** and **31**, as fly and lint does not commonly collect on these rolls.

Exhaust passages **72**, **73** and **74** are formed in depending portions **75**, **76** and **77** of each hood or collecting chamber **70**. The portions **75** and **76** are fixed with respect to the hood **70** but the portion **77** has a bolt-and-slot connection thereto, permitting the portion **77** to be adjusted forward and back with the intermediate bearing block **44**.

The hood or collecting chamber **70** has an end portion **80** which extends through an opening **81** into an upper header **82** which extends at the rear of a group of drawing heads, as **10** or **10***a*. The upper header **82** is connected by a down pipe **84** to a lower header **85**, which in turn is connected through an opening **86** to the upper part of a chamber **87** formed in the hollow center support **22**.

A screen **90** (Fig. 1) is mounted in one side wall of the center support **22**, and air is exhausted from the chamber **87** by a fan **92** rotated by a motor M2. The exhausted air is discharged through a pipe **93** and through an opening in the upper surface of the lower girt **23**. This air is then returned to the atmosphere through a suitable directing baffle structure.

The fly, lint and other waste material which is separated from the air drawn from the clearer devices by the screen **90** is deposited in the chamber **87**, from which it may be removed through a door **96**.

Clearers **100** and **101** are provided for the bottom rolls and are connected through passages **102** and **103** to a lower collecting chamber **104**, the open end of which extends through a discharge pipe **106** to the lower header **85** previously described.

The collecting chamber **104** is held in raised or operative position by a brace **110**, which may be moved manually to engage a stop **112**. The rear exhaust passage **103** is formed in an upwardly projecting member **114** having a bolt-and-slot connection for forward and back adjustment, as previously described.

With the construction above described, provision is made for connecting a single exhaust apparatus, such as the fan **92**, to remove all of the fly or lint and other waste material from two separate sets of drawing heads, as **10** and **10***a*, and with the use of relatively short upper and lower headers for each group of drafting heads.

The waste material is thus more quickly and easily removed to the collecting chamber **87**, and reduced suction or exhaust pressure may be used.

It will also be noted that the exhaust apparatus, comprising the fan **92**, motor M2 and discharge pipe **93**, are located in a relatively unobstructed space between the end frame **14** and the center frame **22**, so that there is no interference with the roll-driving mechanism, and so that the floor space and outside dimensions of the machine may remain unchanged.

Having thus described our invention and the advantages thereof, we do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what we claim is:

1. A drawing frame comprising two axially-aligned series of drawing roll units, a supporting frame for all of said units, said frame comprising two full-height upright and spaced end frame sections and a hollow part-height upright middle frame section, said end frame sections being connected by a cross member which overlies and is supported by said middle frame section, separate roll driving mechanism in each spaced end frame section to drive the adjacent series of drawing roll units, a separate motor to drive each separate roll-driving mechanism, a separate set of pneumatic clearer apparatus for the drawing rolls of each series of units, direct exhaust connections from each set of clearer apparatus to said hollow middle frame section, a single common air-exhausting mechanism mounted adjacent one side of said hollow middle frame member and connected to exhaust air from both sets of clearer apparatus through

said hollow frame member and said exhaust mechanism, a discharge outlet passage for the exhausted air, and means to screen the waste material from the air as it approaches said common air-exhaust mechanism, and said exhaust mechanism and said discharge outlet passage being located in the unobstructed space beneath the drawing roll units and between said hollow middle frame section and one of said end frame sections.

2. In a machine having two separate series of drawing roll units, a supporting frame for said units comprising cross girts, upright and spaced end frame sections and a hollow upright middle frame section, separate driving mechanism for each series, a pneumatic roll-clearer device for each drawing roll unit, a common air-exhaust conduit system associated with all the roll-clearer devices in said machine but separately connected to each series and including the hollow upright middle frame section, and suction means for said air-exhaust conduit system mounted adjacent said hollow middle frame member and in communication therewith and effective to exhaust the air from all of the drawing roll units in both series through said hollow middle frame section to atmosphere.

References Cited in the file of this patent

UNITED STATES PATENTS

2,147,190	Cadden	Feb. 14, 1939
2,719,335	Buchanan	Oct. 4, 1955

FOREIGN PATENTS

1,014,922	France	June 25, 1952