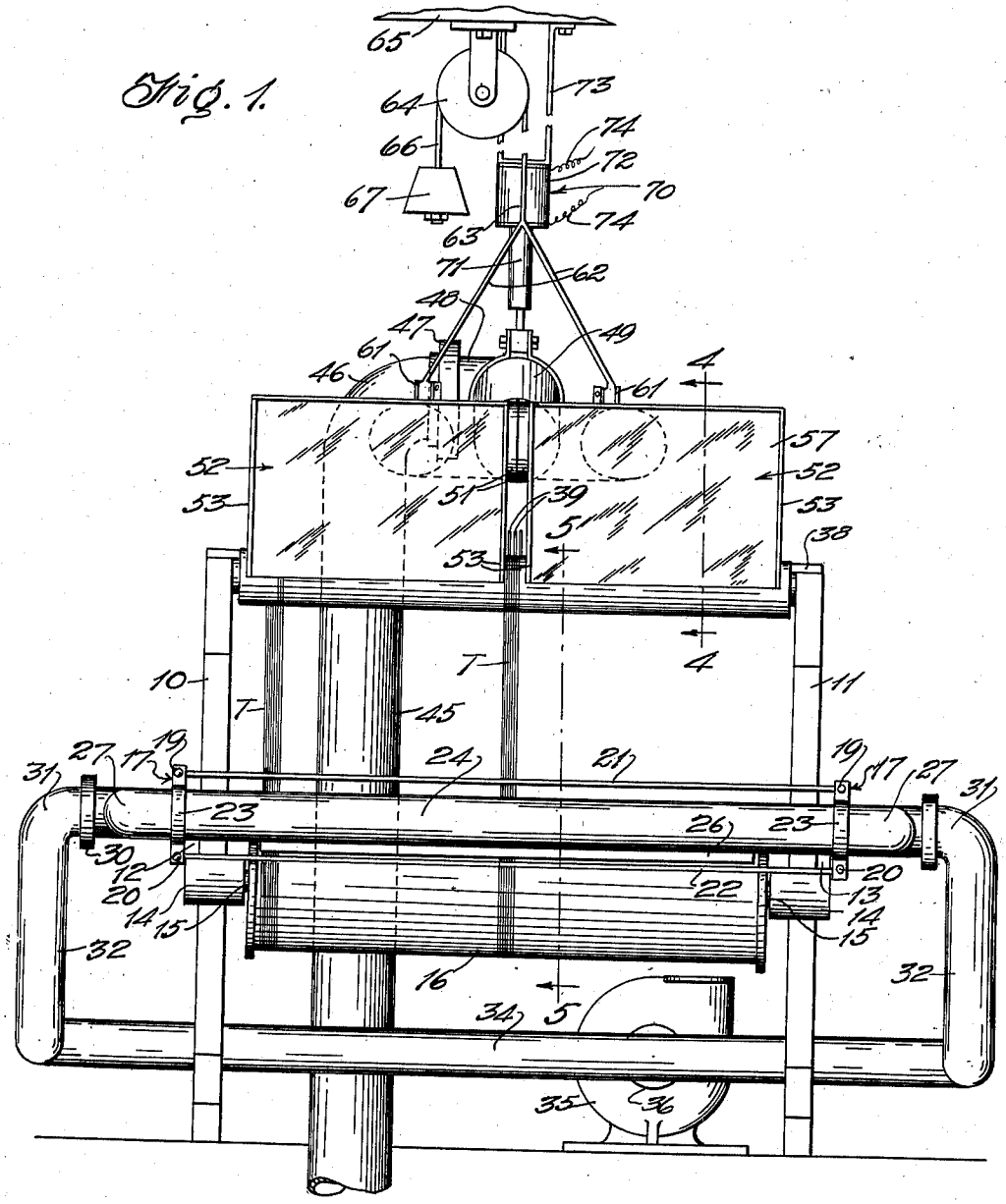
Aug. 2, 1938. E. J. EADDY 2,125,774

CLEANING HOOD FOR TEXTILE MACHINERY

Filed April 20, 1937 3 Sheets-Sheet 1

Fig. 1.



Inventor

ERNEST J. EADDY,

By Kimmel & Crowell

Attorneys.

Aug. 2, 1938. E. J. EADDY 2,125,774

CLEANING HOOD FOR TEXTILE MACHINERY

Filed April 20, 1937 3 Sheets-Sheet 2

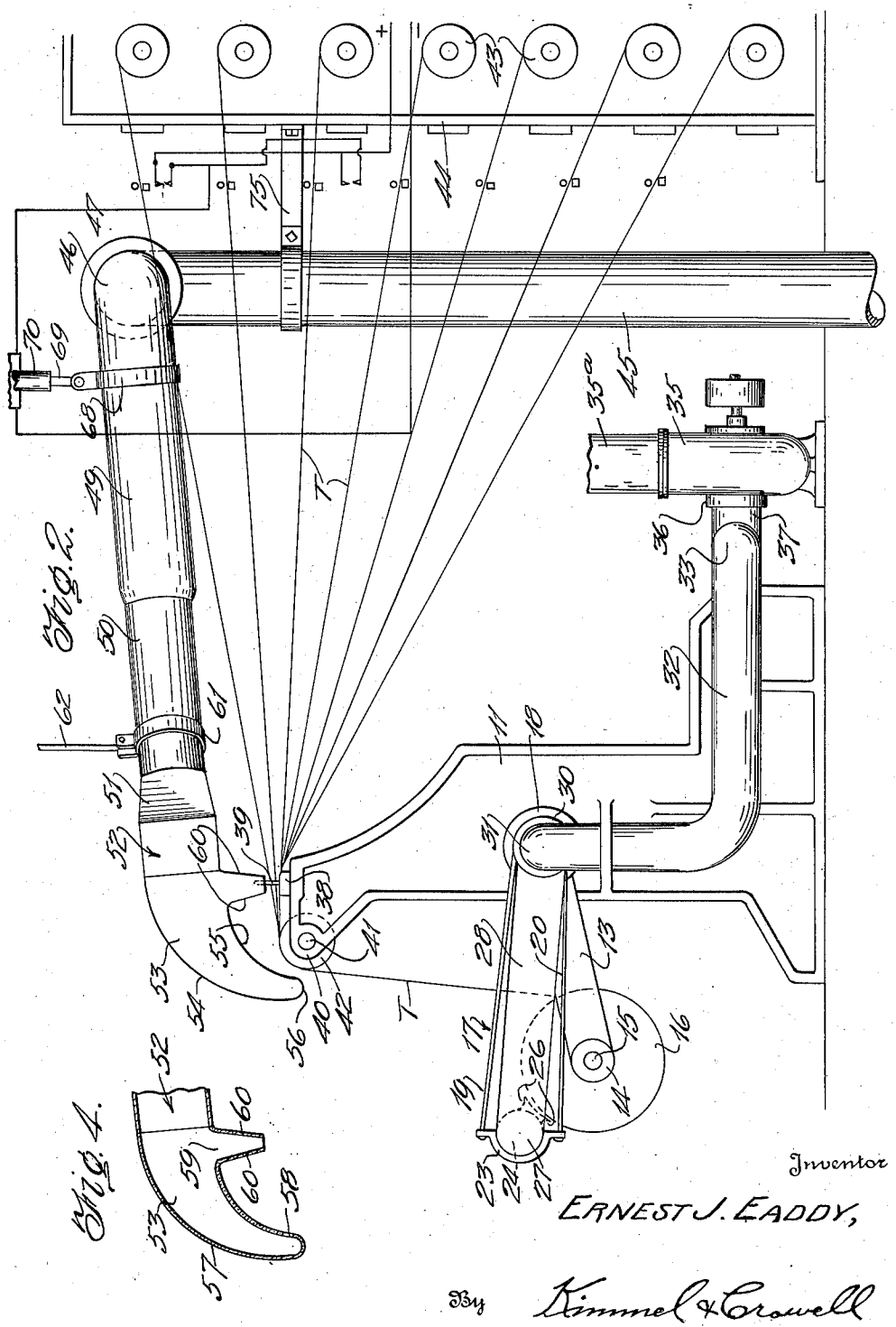


Fig. 2.

Fig. 4.

Inventor

ERNEST J. EADDY,

By Kimmel & Crowell

Attorneys.

Aug. 2, 1938. E. J. EADDY 2,125,774

CLEANING HOOD FOR TEXTILE MACHINERY

Filed April 20, 1937 3 Sheets-Sheet 3

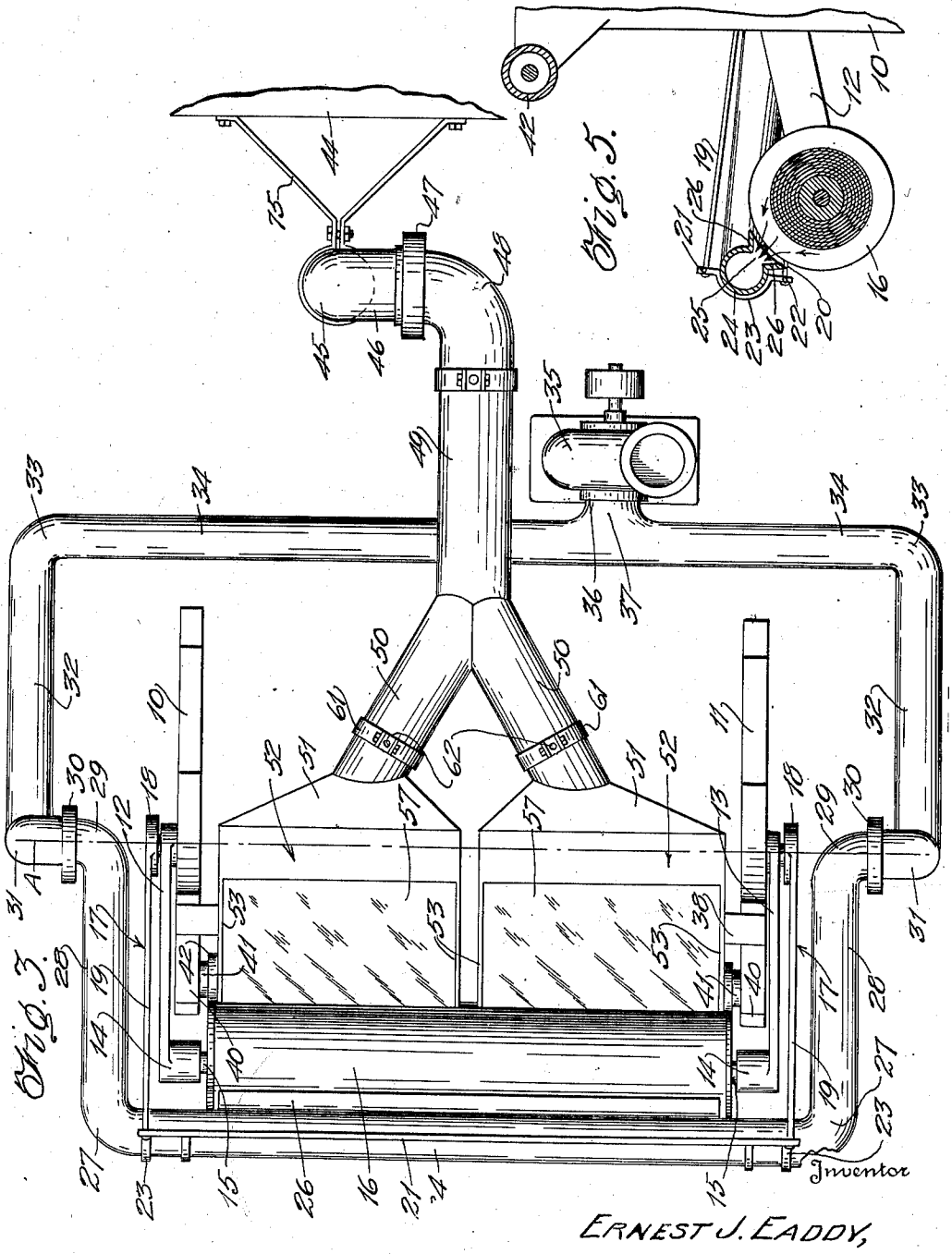


Fig. 3.

Fig. 5.

Inventor

ERNEST J. EADDY,

By Kimmel & Crowell,

Attorneys.

Patented Aug. 2, 1938

2,125,774

UNITED STATES PATENT OFFICE

2,125,774

CLEANING HOOD FOR TEXTILE MACHINERY

Ernest J. Eaddy, Spartanburg, S. C.

Application April 20, 1937, Serial No. 138,055

11 Claims. (Cl. 28—22)

This invention relates to a cleaning hood for textile machinery and has special reference to hood means adapted for association with a warping machine.

One important object of the invention is to provide a novel hood arrangement as hereinafter described whereby air suction will be produced adjacent the comb associated with a warping machine.

A second important object of the invention is to provide a novel hood arrangement as hereinafter described, wherein the hood is provided with certain portions enveloping the upper part of the comb of a warping machine.

A third important object of the invention is to provide a novel suction hood, as hereinafter described, whereby air will be drawn into the hood at those points in a warping device whereas threads passing through the device and wound on the beam change in direction of movement.

A fourth important object of the invention is to provide a novel suction hood arrangement as hereinafter set forth, wherein the hood, adapted to be associated with the comb of a warping machine and with the idler roll over which threads moving through the comb pass after leaving said comb, the hood having intake ports associated with said comb and roll.

A fifth important object of the invention is to provide a novel suction hood for a textile warping machine as hereinafter set forth, wherein the hood has an intake opening extending over the surface of the thread massed on the beam and maintaining constant distance from said thread surface.

A sixth important object of the invention is to provide a suction hood for a warping machine, as hereinafter set forth, wherein the hood is mounted in a novel manner to swing about the axis on which the beam swings whereby to maintain constant spatial relation to said beam.

A seventh important object of the invention is to provide for such a hood, as hereinafter described, a suction pipe connected thereto and swiveled to swing with the hood about the axis of the beam.

An eighth important object of the invention is to provide for the comb of a warping machine, as hereinafter described, a suction hood so mounted and arranged that it may be readily swung into and out of operative relation to said comb.

A ninth important object of the invention is to provide a suction hood for a comb, as hereinafter described, so associated with the stop motion of the machine that the hood will be raised clear of the comb upon operation of such stop motion.

With the above and other objects in view, as will be presently understood, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings and particularly pointed out in the appended claims.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and:

Figure 1 is a front elevation of a warper showing the invention applied thereto,

Figure 2 is a side elevation thereof, the view illustrating a portion of the creel usually associated with a warper.

Figure 3 is a plan view thereof.

Figure 4 is a fragmentary section on the line 4—4 of Figure 1, and

Figure 5 is a fragmentary section on the line 5—5 of Figure 1.

The machine here illustrated is to be understood as merely typical of warpers and much of the detail is omitted as being unnecessary to an understanding of the invention and as tending to obscure the latter. As here shown the warper includes a pair of parallel side frame members 10 and 11. Swinging arms 12 and 13 are pivoted to the respective frames 10 and 11 to swing about a common axis A—A (Figure 3). At the free ends of these arms are provided bearings 14 for the pintles 15 of a warp beam 16. The warp beam is thus mounted so that it may swing vertically about the axis A—A. In many warpers an idler roll revolving on a fixed axis is provided beneath the warp beam on which the latter rests so that, as the warp is wound thereon and the diameter of the warp mass increases the beam rises. This construction is not deemed necessary to show in the present disclosure.

At each side of the warper is a frame 17 each consisting of a bearing member 18 from which extends forwardly a pair of diverging arms 19 and 20. The free ends of the arms 19 are connected by a cross-bar 21 and the arms 20 are connected by a cross-bar 22. The arms 19 and 20 of each member 17 carry yokes 23. Fixed in the yokes 23 is a suction hood 24 extending across the beam somewhat above the center of said beam. This hood 24 is provided on the side facing the beam with an inlet slot 25 from which extend flaring lips 26 so as to provide a tapered intake for the hood 24. Each end of the hood 24 is provided with a rearwardly extending elbow

27 from which extends rearwardly a suction pipe 28 having an outturned elbow 29 which connects with a swivel pipe joint 30. Each of the swivel joints 30 has a downwardly extending elbow 31 connected thereto and extending from these elbows are pipe lengths 32 bent inwardly at their rear ends to form elbows 33 which are connected by a cross-pipe 34. At 35 is a suction fan to the intake 36 of which is connected a T branch 37 leading from the pipe 34. It is particularly to be noted that the axes of the joints 30 coincide with the axis A—A so that the hood 24 may rise and fall with the beam 16 while maintaining a constant positional relation with said beam. The fan 35 may have its output end connected to any desired place by a pipe line such as 35a, and a suitable filter may be provided to receive air and entrained material from the fan as clearly shown in my prior Patent No. 2,057,139 of October 13, 1936.

On the upper ends of the side frames 10 and 11 is mounted a transverse bar 38 provided with the usual guide comb teeth 39. Bearings 40 are provided forwardly of the bar 38 and these bearings receive the journals 41 of an idler roll 42. The yarn or warp threads T run from yarn cheeses 43 on a creel 44 (Figure 2) to the comb and thence over the idler roll 42 and down to the beam. Only a few of these warp threads are here shown but it is, of course, well understood that the beam is filled from end to end.

A suction pipe 45 leads from a suitable fan (not shown) and extends upwardly between the creel and warper. This pipe has a lateral elbow 46 at its upper end and this elbow is connected to a swivel pipe joint 47 having a horizontal axis of revolution parallel to the axis A—A. Connected to this swivel joint is a pipe elbow 48 from which the pipe extends forwardly as at 49. The forward end of the pipe 49 is branched to provide a pair of Y branch arms 50. The forward ends of the arms 50 are connected to flaring casings 51 from the forward ends of which extend hood sections 52 arranged side by side in spaced relation. Each of these hood sections is provided with semi-lunate sides 53 extending normally forward over the comb and downwardly in front of the idler roll 42. The upper and forward edges of these sides are convex as at 54 and the lower and rear edges of said sides are concave as at 55 and the edges 54 and 55 merge at their forward ends into a semi-circular edge 56. Supported by these sides is a wrapper sheet 57 of Celluloid or other suitable transparent material which follows the contour of the edges of the sides 53. Adjacent the edges 56 between the edges 54 this wrapper sheet 57 is provided with an intake slot 58 which thus confronts the idler roll 42. The under side of the wrapper sheet above the comb is provided with an intake slot 59 and from the front and rear edges of the slot extend downwardly converging lips between which the upper ends of the teeth 39 are received when the hood is in active position. It will now be plain that the hoods 52 may swing up and down about the axis of the joint 47.

In order that the operator may easily handle the hoods 52 to raise them and obtain access to the comb, each of the branches 50 is provided with a collar 61 to which is connected the lower end of a cable or wire 62. These members 62 unite with a single cable or wire 63 which leads upwardly and passes over a pulley supported in a hanger 64 attached to the ceiling 65. The end portion 66 of the cable 63 depends from the pulley 64 and carries a counterweight 67 of sufficient mass to counterbalance substantially all of the effective weight of the hoods 52 and the parts connecting them with the swivel joint 47. By these means the operator need exert but slight lifting effort to raise the hoods.

It is desirable that the hoods 52 be lifted whenever it happens that the electric creel stop motion (not shown) operates to stop the winding of yarn on the beam. To this end the pipe 49 is provided with a collar 68 adjacent the joint 47 and to this collar is connected a link or rod 69 which is in turn connected to a lift mechanism 70 operative upon operation of the stop motion of the machine to which this invention is applied. As here shown the mechanism 70 includes a solenoid core 71 the upper part of which is surrounded by a solenoid winding 72 supported by a bracket 73 carried by the ceiling 65. Wires 74 connect the solenoid winding 72 with the stop motion circuit of the machine so that whenever this circuit is energized the solenoid will also be energized and draw up the core 71 and thus lift the hoods, but little power being required for this because of the counterweight arrangement above described.

In the operation of this device the suction produced by the fan or fans causes a very considerable draft to flow into the hood or hoods through the slot therein. The consequence is that any floating lint or the like is entrained in the air stream flowing into the hood and carried away from those points at which it tends to deposit on the machine and be picked up by the moving yarn or threads. Also, if for any reason there has been a deposit of lint, dust or the like at these points as soon as the suction is produced to set up the air currents above mentioned the deposited material will be caught by these currents and drawn into the hood and thus conveyed away from the points of deposit. For instance, if the threads or yarn has picked up any dust or lint in passing to the hoods it will be removed as it passes thereunder to the hood. By having the wrapper sheet transparent the operator is enabled to observe at all times the condition of the warp threads as they pass through the comb. Thus, even without any connection to a stop motion, the operator can note if a thread breaks so that he may stop the machine and make any necessary connections for broken threads. The manner in which the hood is suspended over the comb enables this to be done very readily since the operator may raise the hood from its normal position and thus obtain ready access to the comb. This lifting of the hood also enables the yarn or thread to be properly positioned in the comb in preparing the warper or other machinery for operation. The control of the hood position by the stop motion device relieves the operator from the necessity of lifting the hood when a break occurs.

While the hoods herein described have been set forth as associated particularly with a warper beam and the comb of a warper mechanism yet it is to be understood that these hoods may be used with other forms of textile machinery. For instance, it is common in continuous dyeing operations to use one or more guide combs in connection with the dyeing machine and such a hood as has been above described could be advantageously used in connection with these guiding combs.

What I claim is:

1. A lint removing device for the comb of a

warping machine comprising a transparent hood, means to support the hood normally over said comb and having an intake passage normally positioned above said comb, and means to produce suction in said hood, said hood also extending to a point forwardly of the comb and having a second intake passage at said forward point.

2. A cleaning device for the combs of warping machines including a hood adapted to extend over a comb and having an intake opening on its underside adapted to lie close to said comb, a mounting for said hood including a suction pipe provided with a swivel joint having its axis of rotation parallel to the comb means for holding the hood in operative position, and means to produce suction in said pipe.

3. A cleaning device for the combs of warping machines including a hood adapted to extend over a comb and having an intake opening on its underside adapted to lie close to said comb, a mounting for said hood including a suction pipe provided with a swivel joint having its axis of rotation parallel to the comb, means to produce suction in said pipe, and a counterbalance having operative connection to said hood and pipe to counterbalance substantially all of the weight thereof.

4. A cleaning device for the combs of warping machines including a hood adapted to extend over a comb and having an intake opening on its underside adapted to lie close to said comb, a mounting for said hood including a suction pipe provided with a swivel joint having its axis of rotation parallel to the comb, means to produce suction in said pipe, and a stop motion device associated with the hood to raise the latter from the comb upon operation of the stop motion device.

5. A cleaning device for the combs of warping machines including a hood adapted to extend over a comb and having an intake opening on its underside adapted to lie close to said comb, a mounting for said hood including a suction pipe provided with a swivel joint having its axis of rotation parallel to the comb, means to produce suction in said pipe, a counterbalance having operative connection to said hood and pipe to counterbalance substantially all of the weight thereof, and a stop motion device associated with the hood to raise the latter from the comb upon operation of the stop motion device.

6. A cleaning device for the combs of warping machines including a hood adapted to extend over a comb and having an intake opening on its underside adapted to lie close to said comb, an idler roll adjacent thereto, a mounting for said hood including a suction pipe provided with a swivel joint having its axis of rotation parallel to the comb, means to produce suction in said pipe, a forwardly projecting and downwardly curved extension on said hood having an intake slot in its rear surface adapted to lie adjacent the forward side of the idler roll associated with the comb.

7. A cleaning device for the combs of warping machines including a hood adapted to extend over a comb and having an intake opening on its underside adapted to lie close to said comb, an idler roll adjacent thereto, a mounting for said hood including a suction pipe provided with a swivel joint having its axis of rotation parallel to the comb, means to produce suction in said pipe, a counterbalance having operative connection to said hood and pipe to counterbalance substantially all of the weight thereof, and a forwardly projecting and downwardly curved extension on said hood having an intake slot in its rear surface adapted to lie adjacent the forward side of the idler roll associated with the comb.

8. A cleaning device for the combs of warping machines including a hood adapted to extend over a comb and having an intake opening on its underside adapted to lie close to said comb, a mounting for said hood including a suction pipe provided with a swivel joint having its axis of rotation parallel to the comb, means to produce suction in said pipe, a stop motion device associated with the hood to raise the latter from the comb upon operation of the stop motion device, and a forwardly projecting and downwardly curved extension on said hood having an intake slot in its rear surface adapted to lie adjacent the forward side of the idler roll associated with the comb.

9. A cleaning device for the combs of warping machines including a hood adapted to extend over a comb and having an intake opening on its underside adapted to lie close to said comb, a mounting for said hood including a suction pipe provided with a swivel joint having its axis of roration parallel to the comb, means to produce suction in said pipe, a counterbalance having operative connection to said hood and pipe to counterbalance substantially all of the weight thereof, a stop motion device associated with the hood to raise the latter from the comb upon operation of the stop motion device, and a forwardly projecting and downwardly curved extension on said hood having an intake slot in its rear surface adapted to lie adjacent the forward side of an idler roll associated with the comb.

10. A lint removing device for the comb of warping machines comprising a movable hood with a transparent top normally mounted to lie over and adjacent the comb and also having an intake passage located forward of the comb and an intake passage adacent the comb, means to produce suction in said hood and a counterbalance means to maintain it in position and permit its vertical adjustment.

11. A lint removing device for the comb of a warping machine comprising a hood mounted to lie normally adjacent said comb and with one end extending forward and downward therefrom, an intake passage normally positioned above the comb and an intake passage near the end of the downwardly extending portion, means to produce suction in said hood and means for supporting the hood in operative or non-operative position as desired.

ERNEST J. EADDY.