

Feb. 7, 1939.

J. C. ROGERS

2,146,698

LINT FLUE AND CONDENSER

Filed Jan. 14, 1936

2 Sheets-Sheet 1

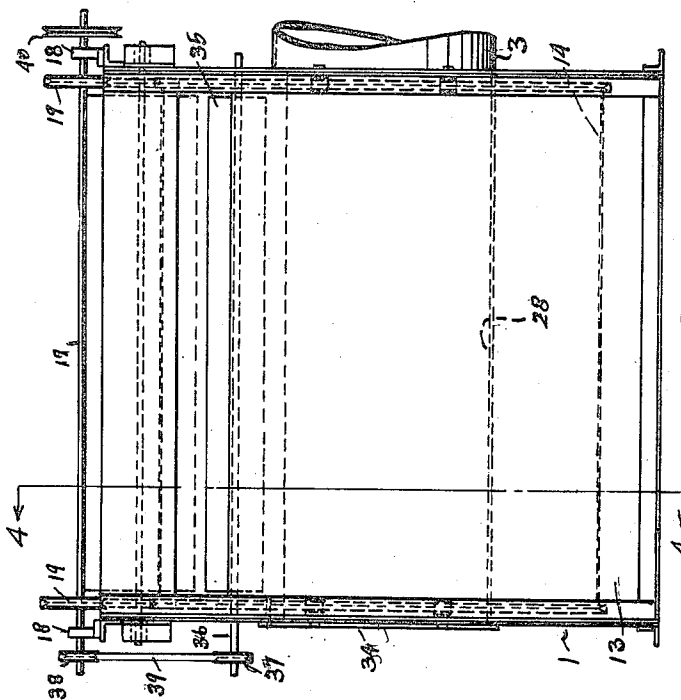


Fig. 2.

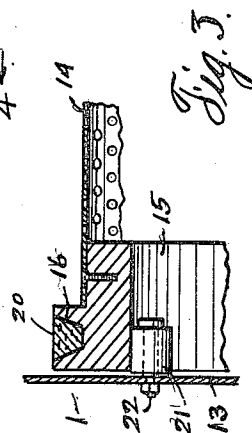


Fig. 3.

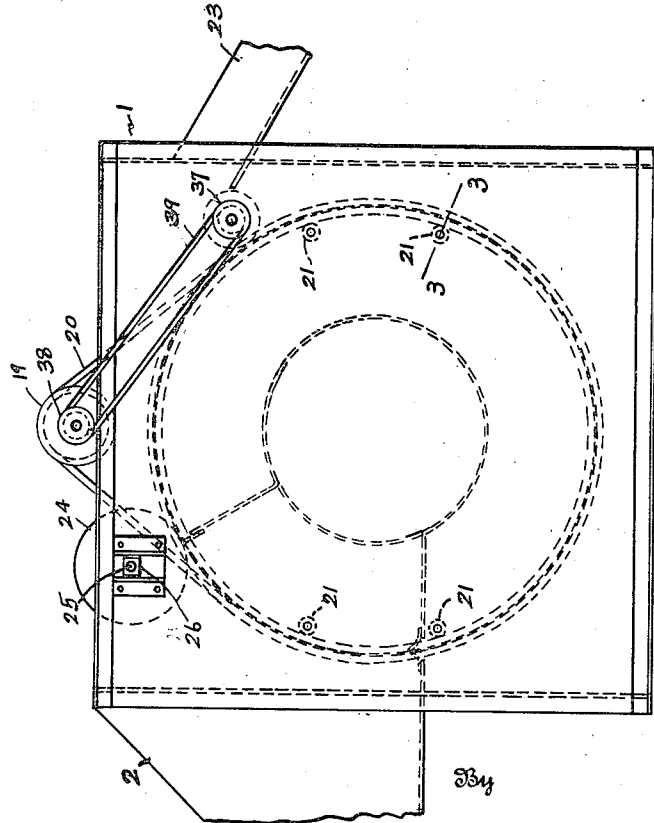


Fig. 1.

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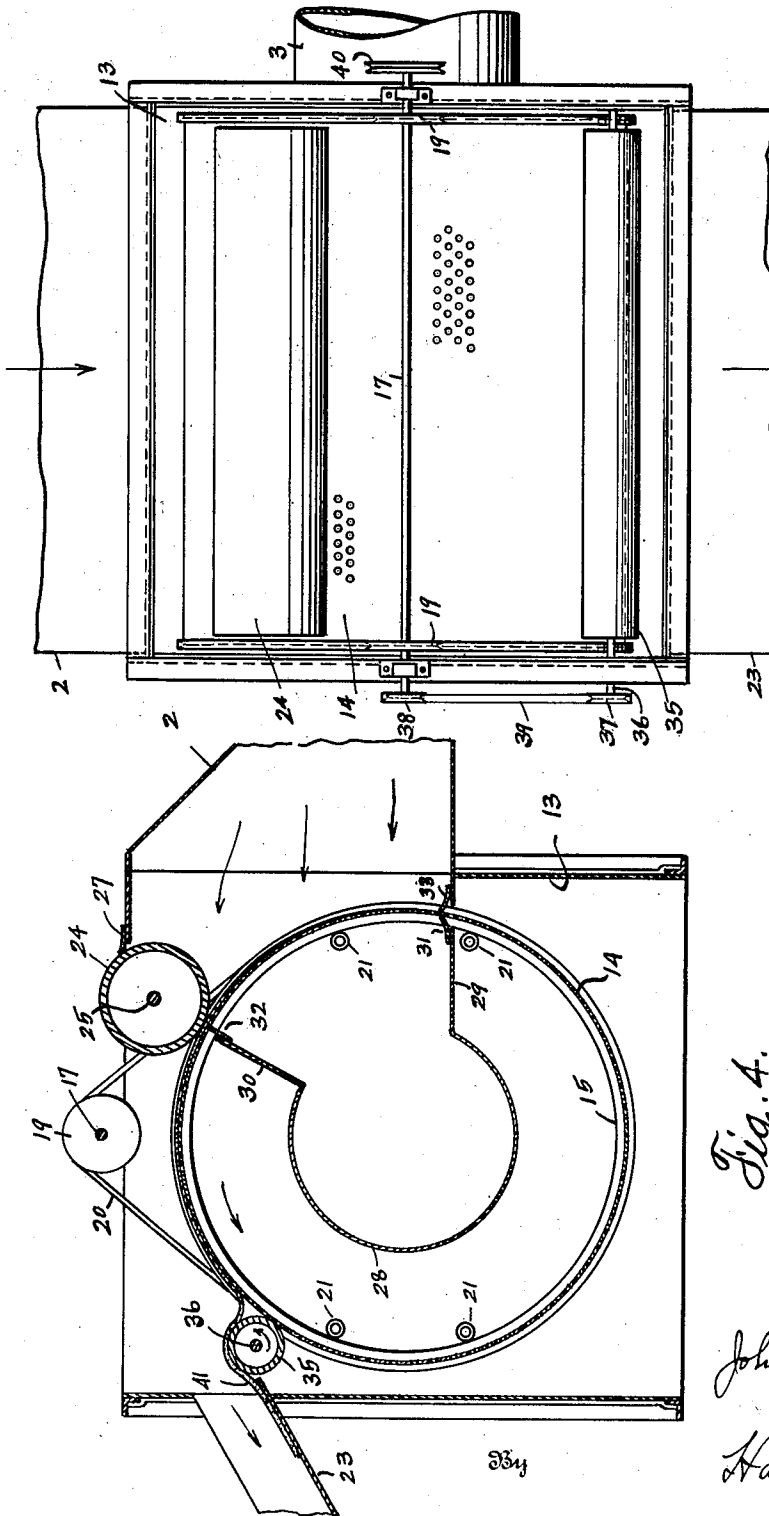


Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE

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LINT FLUE AND CONDENSER

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3 Claims. (Cl. 19—156)

This invention relates to a condenser.

An object of the invention is to provide a novel type of condenser whereby the lint cotton or other similar material may be formed into a bat preparatory to baling the same, said condenser embodying a novel type of foraminated drum mounted to rotate in a novel manner.

Another object of the invention is to provide, in combination with the drum, a novel type of apron located within the drum and cooperating therewith for confining the current of air entering the drum to a confined area of said drum.

With the above and other objects in view, the invention has particular relation to certain novel features of construction, operation, and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawings wherein:

Figure 1 shows an end view of the condenser. Figure 2 shows a rear elevation thereof.

Figure 3 shows an enlarged fragmentary sectional view taken on the line 3—3 of Figure 1.

Figure 4 shows a vertical sectional view taken on the line 4—4 of Figure 2, and

Figure 5 shows a plan view.

Referring now more particularly to the drawings wherein like numerals of reference designate similar parts in each of the figures, the numeral 1 designates the condenser as a whole. Entering the rear of the condenser there is the lint flue 2 and leading out from one end thereof there is the outlet flue 3 incorporated into which there is the conventional suction fan (not shown) whereby a current is created through the lint flue 2 and through the condenser. The lint flue 2 is connected with the gins.

The fan will generate a constant air current through the lint flue 2, thus causing a constant flow of lint from the gins to the condenser. The condenser is formed with the usual casing 13 in which there is located a rotatable drum 14. This drum consists of the end pulleys 15, 15, which are ringlike in form and the main body of the drum is formed of sheet metal, preferably aluminum, and whose ends are suitably anchored to the annular pulleys 15. The drum is foraminated, as shown in Figure 3, and its external surface is formed smooth. The pulleys 15 have the external annular grooves 16 therearound.

Above the casing 13 there is a transverse shaft 17 which is mounted to rotate in suitable bearings 18 and which has the pulleys 19 fixed thereon and in alignment with the respective grooves 16. Belts 20 operate over the pulleys 19 and sur-

round and work in the grooves 16 of the pulleys 15 and serve to drive the drum 14 as well as assist in supporting it. The drum extends across the casing 13, the pulleys 15 working closely adjacent the ends of said casing. Rollers 21 are mounted to rotate on inwardly extended spindles 22 which are anchored to the ends of the casing. These rollers bear against the inner sides of the pulleys 15 at the front and rear and hold the drum centered in the casing.

The lint flue 2 enters the front of the casing 13 and is widened laterally to the full width of said casing and is also widened upwardly to the top of the casing as shown in Figure 4. At the rear side of the casing there is a discharge chute 23 along which the bat passes to the press to be baled. There is a transverse idler 24 arranged above the drum 14 and in rolling contact with the bat formed thereon. This drum 24 is fixed to the transverse shaft 25 which is mounted in the vertically slidable bearings 26, 26, at opposite sides of the casing. The top wall of the discharge end of the flue 2 is extended back to the roller 24 and is provided with a transverse flexible tongue 27 whose free margin is in frictional contact with the surface of the roller 24 to prevent the inlet of air. The ends of the drum 14, as will be noted, are open and said drum is of a length to extend approximately from side to side of the casing 13.

Within the drum 14 and anchored to the sides of the casing there is a semi-cylindrical apron 28 which is disposed opposite the discharge end of the flue 2. The margins of the apron 28 are turned outwardly, one of said outwardly turned margins 29 being arranged approximately in alignment with the bottom of the flue 2 and the other outwardly turned margin 30 extending approximately radial with respect to the roller 24. Transverse flexible tongues 31, 32 are fastened to the outer margins of the apron 28 and are in frictional contact with the inside of the drum 14 and a similar transverse flexible tongue 33 is attached to the bottom of the flue 2 and extends transversely across said flue and is in frictional contact with the outer surface of the drum 14. The discharge flue 3 leads out from one side of the casing 13 and is in alignment with the apron 28 and the other side of said casing is closed but is provided with a removable cover 34 for access to the interior of the condenser. The current of air entering through the lint flue is thus confined, in its course, to the outlet or discharge flue 3 and is forced to pass through that portion of the drum 14 facing the lint flue 2.

There is a transverse guide roller 35 extending across the condenser casing from side to side thereof and arranged adjacent the inner end of the chute 23 and in rolling contact with the drum 14. This roller 35 is fixed to a transverse shaft 36 which is mounted in suitable bearings in the sides of the casing. One end of the shaft 36 has a pulley 37 fixed thereon in alignment with a similar pulley 38 which is fixed on the corresponding end of the shaft 17 and a belt 39 operates over said pulley 37 and 38 and transmits rotation from the latter to the former. The opposite end of the shaft 17 has a driving pulley 40 fixed thereon over which a suitable driving belt may operate to drive the shaft 17, the drum 14 and the roller 35.

The drum 14 will be driven at the required rate of speed and the lint cotton being delivered through the flue 2 will be deposited on that portion of the condenser drum facing said flue, the air passing on through the apron 28 and out through the flue 3. The drum 14 rotates in the direction shown by the arrow in Figure 4, carrying the cotton deposited on the condenser drum underneath the roller 24 which compacts the cotton into a loose bat indicated by the numeral 41. This bat will be lifted from the surface of the roller 14 by the guide roller 35 and directed down the chute 23 toward the press. As hereinabove stated, the drum is composed of perforated sheet metal such as sheet aluminum and its outer surface is smooth so that there will be no tendency of the bat to adhere thereto, but said bat may be readily lifted off of the condenser drum by the roller 35 and directed down the chute 23.

The drawings and description disclose what is now considered to be a preferred form of the invention by way of illustration only while the broad principle of the invention will be defined by the appended claims.

What I claim is:

1. In a condenser annular end pulleys formed with inside tracks, the inner ends of the pulleys being reduced in diameter, a foraminated drum whose ends are fitted over the reduced ends of the pulleys and secured thereto, said pulleys each having an annular groove therearound located beyond the end of the drum.

2. In a condenser, a casing, a lint flue entering the casing and a discharge flue leading from the

casing, a rotatable foraminous drum in the casing spanning the lint flue, means within the drum confining the current of air entering through the lint flue to a restricted active area of the drum and for directing air passing through said area into the discharge flue, said means including an apron member having a body portion of semi-cylindrical shape defining a suction conduit in communication with the discharge flue of a materially reduced diameter with respect to the drum, the conduit portion of the apron having an entrant side inlet opening opposite the lint flue and the apron having marginal walls defining said opening extended outwardly to a point adjacent the inner wall of the drum providing a mouth for the opening whose diameter adjacent the inner wall of the drum is greater than the diameter of the conduit portion of the apron, one of said walls lying in substantial alignment with the bottom of the lint flue and the other of said walls extending radially approximately to the inner wall of the drum.

3. In a condenser, a casing, a lint flue entering the casing and a discharge flue leading from the casing, a rotatable foraminous drum in the casing spanning the line flue, a bat compressing roller coacting with the drum and located between the upper wall of the line flue and the drum, means within the drum confining the current of air entering through the line flue to a restricted active area of the drum and for directing air passing through said area into the discharge flue, said means including an apron member having a body portion of semi-cylindrical shape defining a suction conduit in communication with the discharge flue of a materially reduced diameter with respect to the drum, the conduit portion of the apron having an entrant side inlet opening opposite the lint flue and the apron having marginal walls defining said opening extended outwardly to a point adjacent the inner wall of the drum providing a mouth for the opening whose diameter adjacent the inner wall of the drum is greater than the diameter of the conduit portion of the apron, one of said walls lying in substantial alignment with the bottom of the lint flue and the other of said walls extending outwardly approximately to the inner wall of the drum and in substantial radial alignment with said roller.

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