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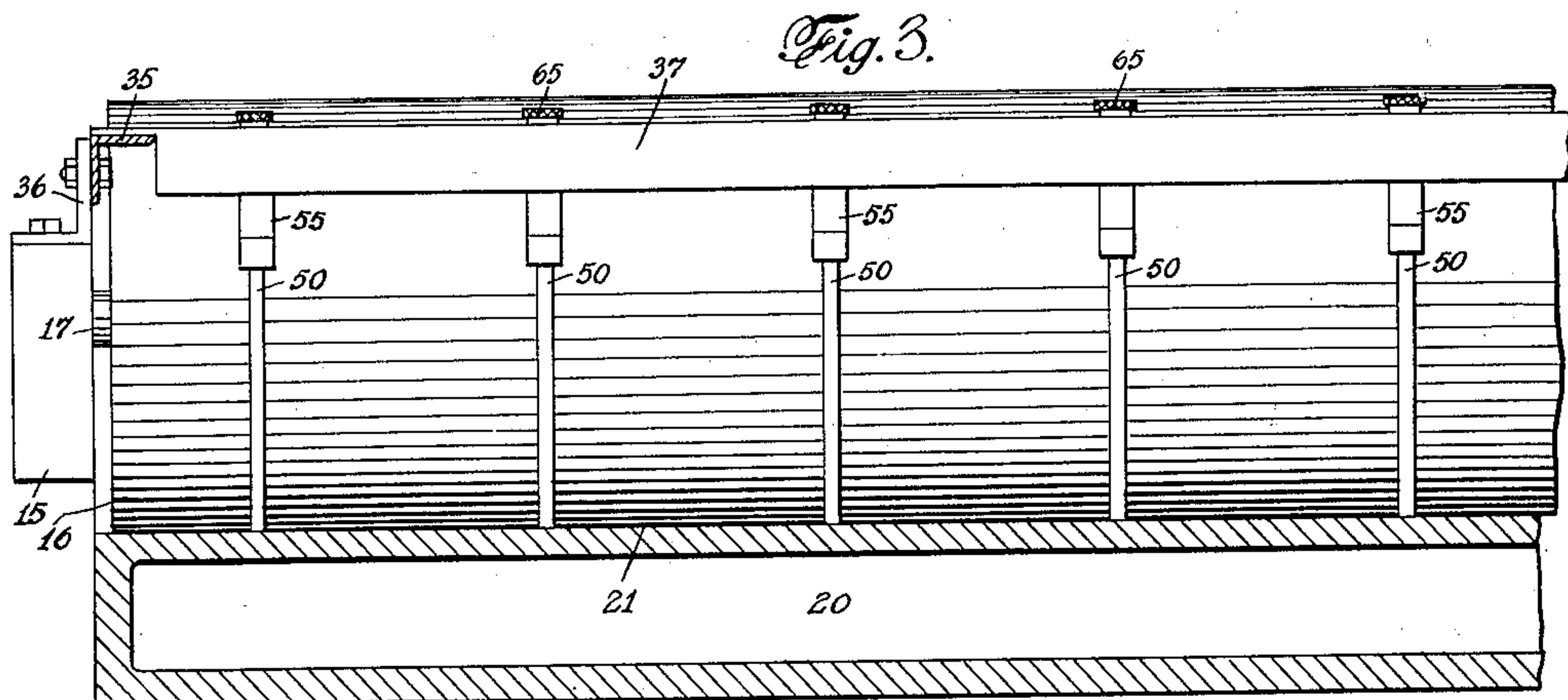
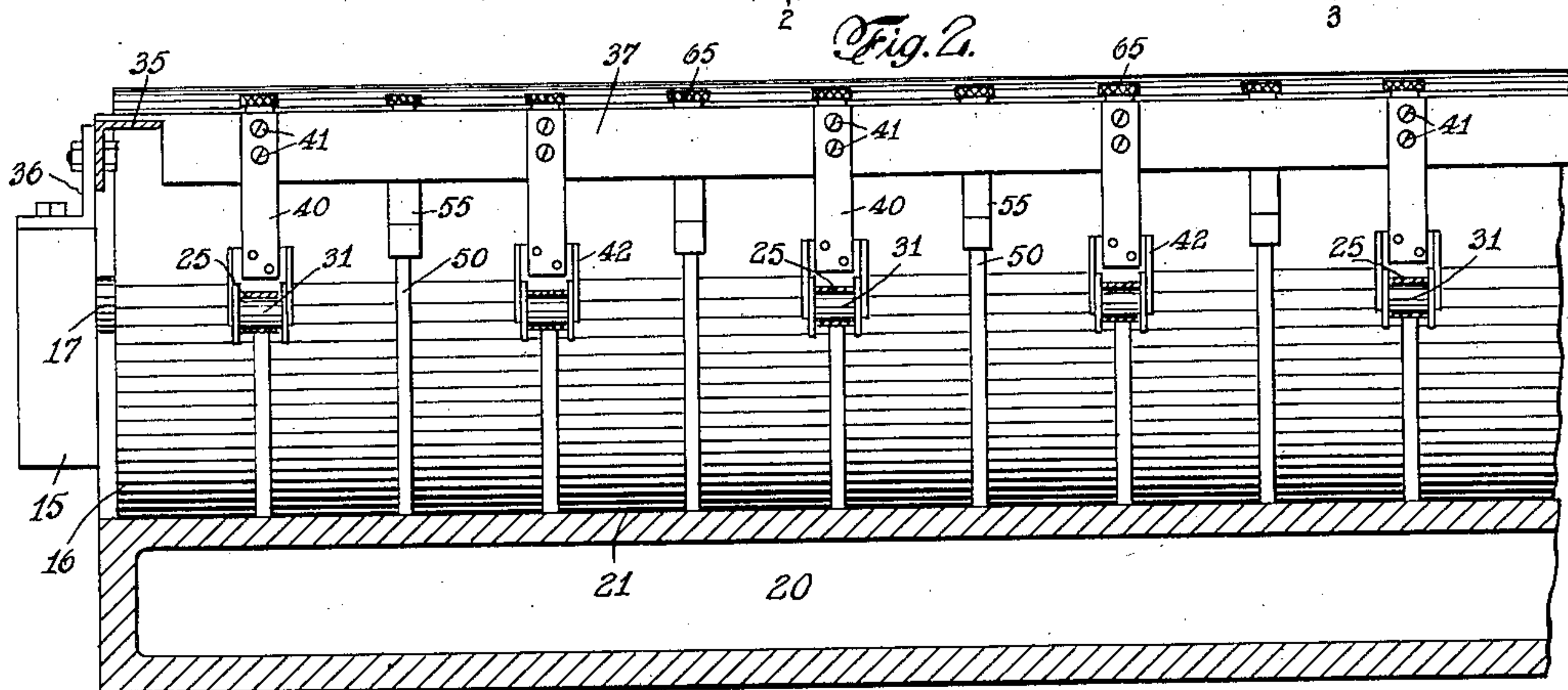
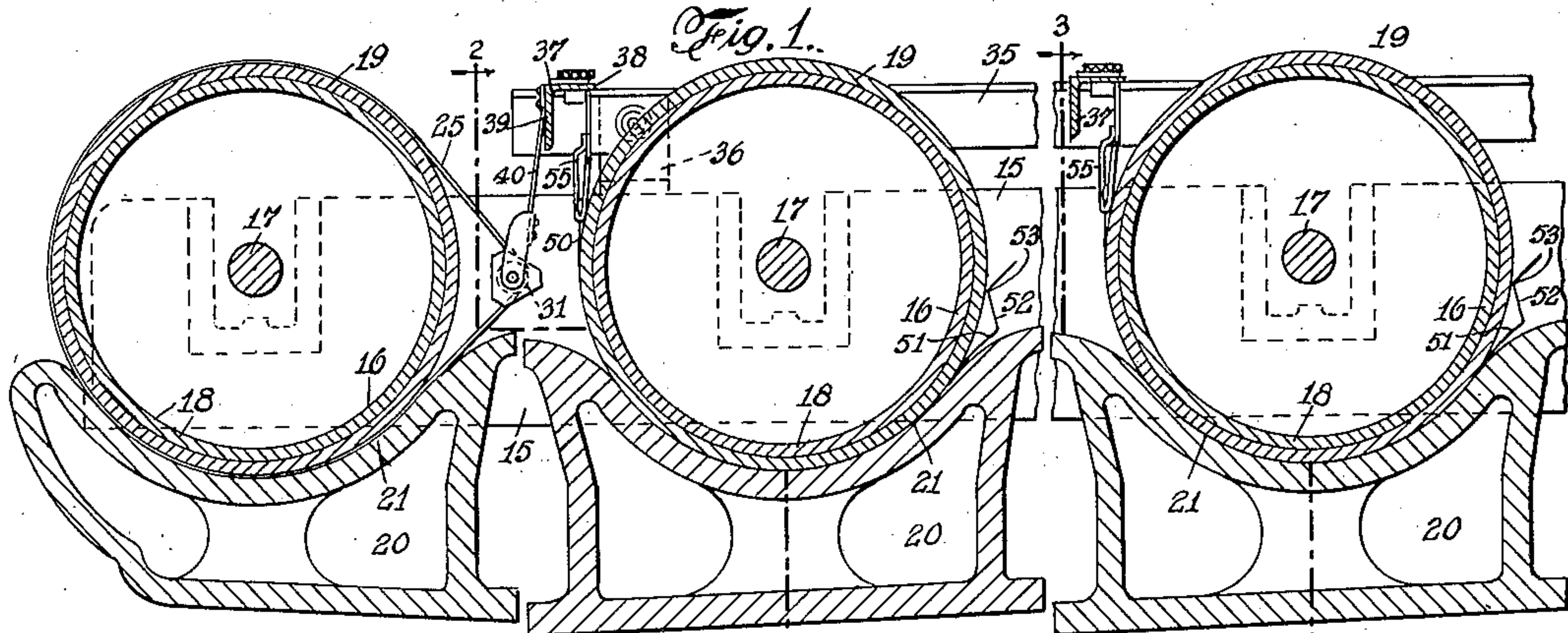
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IRONING MACHINE

Filed June 16, 1933

2 Sheets-Sheet 1



Joseph R. Crockford INVENTOR  
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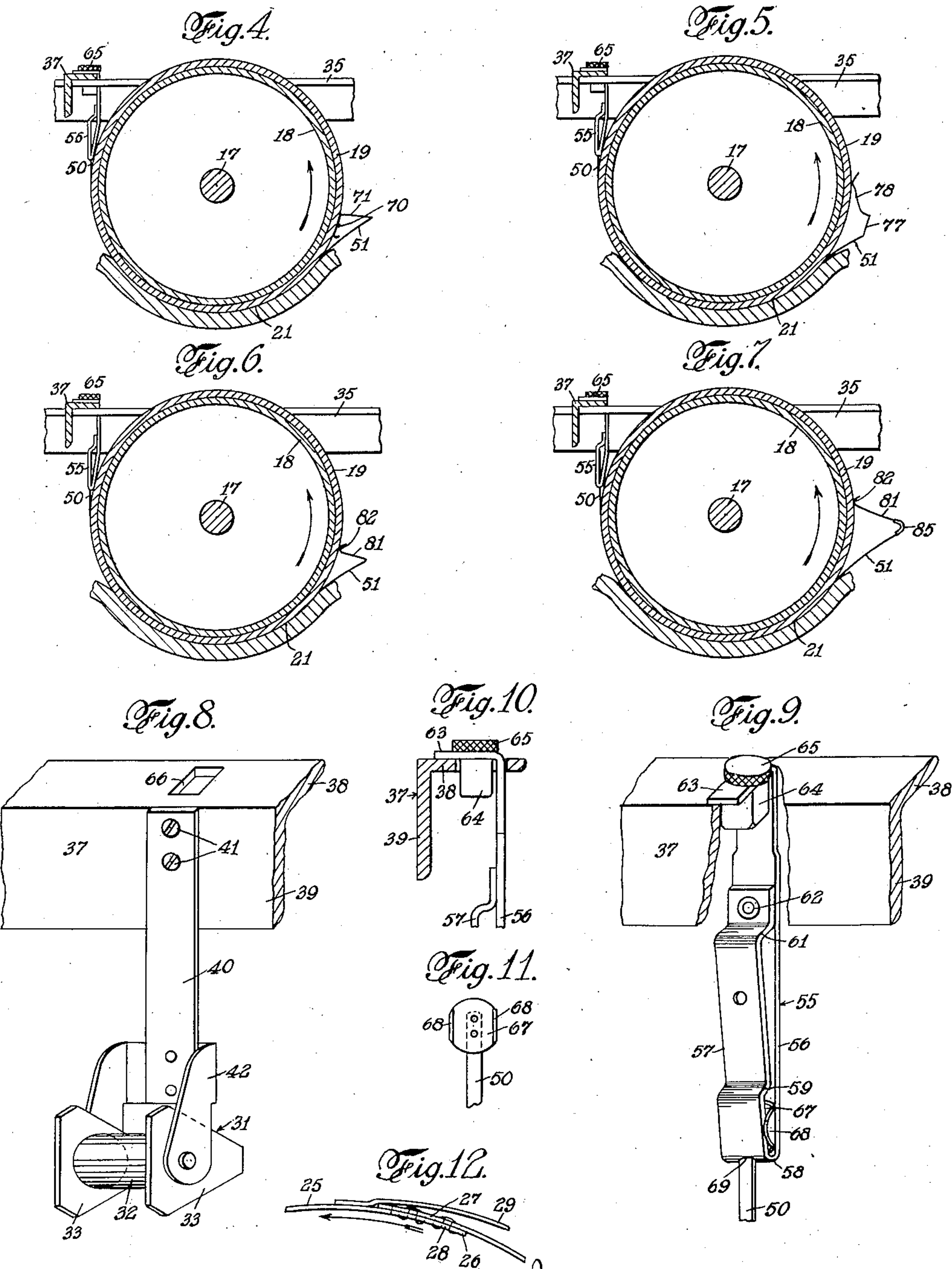
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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

2,022,368

## IRONING MACHINE

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Application June 16, 1933, Serial No. 676,030

7 Claims. (Cl. 68—9)

This invention relates to ironing machines and more particularly to a stripping means for stripping fabric from the rotating rolls of ironing machines.

5 "An object of this invention is to provide a convenient, simple and effective device of the type above indicated.

10 Various other objects and advantages will become apparent as the nature of the invention is more fully disclosed.

Although the novel features which are believed to be characteristic of this invention will be pointed out more particularly in the claims appended hereto, the invention itself, as to its objects and advantages and the manner of its operation, may be better understood by referring to the embodiments thereof set forth in the following description and shown in the accompanying drawings forming a part thereof and in which:

20 Figure 1 is a broken longitudinal section through an ironing machine, showing certain of the rotating rolls and the stripping means;

25 Figure 2 is a section taken on the line 2—2 of Figure 1;

Figure 3 is a section taken on the line 3—3 of Figure 1;

30 Figures 4, 5, 6 and 7 are partial sectional views similar to Figure 1, showing modified forms of stripper fingers;

Figure 8 is an enlarged perspective view of the support for the idler pulleys;

Figure 9 is an enlarged perspective view of the carrier for the stripper fingers;

35 Figure 10 is a section taken on the line 10—10 of Figure 9;

Figure 11 is a detail view showing the end of the stripper finger which is adapted to seat in the carrier; and

40 Figure 12 is a detail view showing the means for forming the endless band.

In the various figures of the drawings, like parts are identified by like reference characters. Referring more particularly to Figures 1, 2 and 3, the invention is shown as applied to an ironing machine having a side frame 15 which is adapted to receive and rotatably support a plurality of rotating rolls 16, each roll comprising, for example, an axle 17 which is mounted in suitable bearings in said side frame 15 and carries a tube 18 having a padded cover 19 which is adapted to engage the fabric or other material being ironed. For holding the fabric in pressure engagement with the rolls 16, there are provided ironing shoes, such as steam chests 20, which may, for

example, be stationary and adapted to receive the pressure of the rolls and to hold the fabric against the face of the rolls. Each steam chest 20 is provided with a top surface 21 having a contour similar to that of the surface of the roll and adapted to hold fabric in ironing engagement therewith. The part of the machine thus far described is well known in the art and only so much thereof has been set forth as is necessary to an understanding of the invention. 5 10

The material to be ironed is fed into the entrance side of the machine, which is indicated as the left side of Figure 1, between the first rotating roll 16 and its steam chest 20. The roll rotates in the direction of feed of the material and causes the material to frictionally slide over the surface of the steam chest and to be discharged at the exit side in a position to be acted upon by the succeeding roll. As the material progresses through the machine, it is progressively ironed and dried and is finally delivered at the exit side of the machine. 15 20

When the material emerges at the exit side of the various rolls, it may tend to adhere to the surface of the roll instead of following the surface of the ironing shoe to the entrance side of the next roll. This tendency is greater at the first roll where the material is comparatively wet and decreases somewhat as the material is treated by the following rolls. In order to overcome this disadvantage, I have provided stripper means at each roll which are adapted to strip the material from the surface of each roll after passage over the ironing means and to cause the material to be properly fed to the succeeding roll. 25 30 35

For this purpose I have provided a plurality of endless bands 25 which are spaced along the surface of the first roll 16 and are adapted to travel with the material in response to rotation of the roll. Each of the bands may comprise a thin fabric strip having ends 26 and 27 (Figure 12) which are overlapped and secured by rivets 28, preferably with the trailing end 27 on the outside. A flap 29 is secured, as by sewing, to the band 25 at a point ahead of the overlapped portion in the direction of travel of the band. The flap 29 extends rearwardly and overlies the trailing end 27 and the rivets 28 to prevent them from contacting with the fabric being ironed. 40 45 50

Each of the bands 25 passes over an idler pulley 31 which is located at the exit side of the roll and may comprise a cylindrical section 32 (Figure 8) over which the band 25 passes, and flanges 33 which are mounted on opposite ends of the 55



cylindrical section 32 and are adapted to rotate therewith. The flanges 33 are preferably cam shaped, for example triangular, and extend radially beyond the cylindrical surface so as to strike against and vibrate the fabric and to thereby prevent the fabric from adhering to the band 25.

For supporting the idler pulley 31, there may be provided a support 35 comprising, for example, an angle iron which extends longitudinally of the machine and parallel to the side walls 15 and may be mounted on said side walls by struts 36. A bar 37, extending transversely of the machine and longitudinally of the axis of the roll, is carried by the supports 35 and may comprise, for example, an angle iron having a horizontal flange 38 and a vertical flange 39. A resilient member 40 (Figures 1 and 8) may be secured to the vertical flange 39, as by screws 41, and may carry at its free end a yoke 42 in which the idler pulley 31 may be rotatably mounted. The resilient member 40 is adapted to hold the idler pulley 31 in engagement with the band 25 and to maintain the band under tension as it passes around the roll 16. It is to be noted that the idler pulley is driven by the band and that cam flanges 33 rotate with the pulley to intermittently strike the fabric which may adhere to the bands 25.

For stripping the material from the following rolls, I utilize stationary stripper fingers 50, which are preferably formed of thin, flexible, metallic material, such as a thin strip of stainless steel, and extend between the material and the ironing means and above the fabric being ironed. These fingers 50 each project on the exit side of the roll and have a projecting portion 51 on the exit side adapted to strip the fabric from the face of the roll. Suitable means may be provided to bear against the surface of the roll to hold the projecting portion 51 of the finger 50 in stripping position and to prevent said portion from being deflected toward the roll by the fabric which may adhere to the surface of the roll. In the embodiment shown in Figure 1, the projecting portion is provided with an inturned flange 52 which may be provided with a reverse bend, as at 53, adapted to bear against the surface of the roll for the above purpose.

A carrier (Figure 9) may be provided for each of the fingers 50 and may comprise, for example, a substantially V-shaped metal strip 55, the sides of which form spaced members 56 and 57 joined by a rolled section 58. The member 57 may be bent to form a shoulder 59 for the purpose to be described. The free end of the member 57 may be provided with an inturned flange 61 which may be secured to the member 56, as by rivets 62.

The top of the member 56 may be bent at right angles to form a horizontal flange 63 which is adapted to seat over the horizontal flange 38 of the bar 37. A positioning member, such as a square stud 64, may be secured to the horizontal flange 63, as by a screw 65, which may have a knurled surface to provide a grip for removing the carrier from the machine.

The horizontal flange 38 of the bar 37 is provided with a plurality of rectangular holes 66 having a length, transversely of the bar 37, corresponding to the width of the V-shaped strip 55 and having a width, longitudinally of the bar 37, adapted to receive the studs 64.

Each carrier is passed through a hole 66 with the V-shaped strip 55 edgewise with respect to

the roll and is turned at right angles before the stud 64 enters the hole 66. In this position, the horizontal flange 63 of the carrier is supported upon the horizontal flange 38 of the bar 37.

Each finger 50 may be provided with an enlarged head 67, which may comprise a substantially flat disc secured to the end of the finger in any convenient manner, and having upturned flanges 68 formed at the two sides thereof. An aperture 69, of sufficient size to permit the stripper finger to freely pass therethrough, is formed in the rolled section 58 of the carrier. The finger 50 passes through this aperture 69 until the head 67 engages the rolled section 58. Thereafter the head is firmly seated between said rolled section and the shoulder 59 above described, with the upturned flanges 68 extending on opposite sides of the member 57. It is to be noted that the square stud 64 prevents the carrier from rotating and maintains the fingers in a proper position with respect to the roll.

Inasmuch as the fabric becomes drier and smoother as it passes under the successive rolls, the tendency thereof to adhere to the surface of the rolls decreases. Hence, fewer stripper fingers may be used with the end roll or rolls of the machine than with the intermediate rolls. In the form disclosed, the fingers associated with the end rolls have approximately double the spacing of the fingers associated with the intermediate rolls. The fingers associated with the various rolls are preferably staggered so as to avoid leaving a crease or mark on the finished fabric.

The construction of the projecting portion 51 of the stripper fingers may be varied to provide means for holding the same away from the surface of the roll. In the embodiment shown in Figure 4, the end of the finger 50 is bent inwardly and downwardly in substantially triangular form to provide a flange 70 bearing against the surface of the roll which is separated by a flange 71 from the projecting portion 51 of the finger. In the embodiment shown in Figure 5, the projecting portion 51 is provided with a double bend forming a vertical section 77 and a flange 78 adapted to bear against the surface of the roll. In the embodiment illustrated in Figure 6, the projecting portion 51 is provided with an inturned flange 81 having a rolled end 82 which contacts with the surface of the roll to hold the projecting portion in stripping position. The embodiment illustrated in Figure 7 is similar to Figure 6 with the addition of a reinforcing means 85 at the bend between the projecting portion 51 and the inturned flange 81, which is adapted to impart sufficient strength to prevent deformation of the flange 81 and to maintain the same in proper position. This reinforcing means 85 may comprise, for example, a flattened tube which may be machined to provide a smooth surface.

The fingers above described may be threaded through the machine while in operation by merely applying the same at the entrance side of the roll, whereupon the rotation of the roll will cause the finger to be threaded thereunder and will exert a pull for seating the carrier on the bar 37. Obviously, the roll may be elevated a slight distance from the ironing means to provide clearance for threading the fingers, if desired.

The fingers 50 are stationary with respect to longitudinal movement as distinguished from the endless bands 25 which are adapted to travel with the material in the direction of feed. It is



to be noted that all of the stripping means are supported by side supports 35 which may be applied to the machine as a unit or may be readily removed therefrom. The various fingers themselves are independently removable from the supports and may be removed from the carrier with or without first removing the carrier from the support. The carriers prevent the fingers from twisting and maintain the proper spacing where they engage the roll. The carriers are free to swing toward the roll in response to the pull of the fingers and provide a comparatively stiff support for the fingers, but are readily removed to permit replacement of a broken finger. The heads 67 are resiliently held by the shoulders 59, but may be easily removed therefrom. It is obvious that the rotating bands may be applied to more than one roll if desired, although in the usual form of machine, it is contemplated that it will only be necessary to apply these bands to the first roll which removes the greater portion of the moisture from the fabric.

Although several embodiments of the invention have been shown and described for purposes of illustration, it is to be understood that various changes and modifications may be made by a person skilled in the art, and the invention is only to be limited in accordance with the following claims when interpreted in view of the prior art.

I claim:

1. In an ironing machine, stationary ironing means, a rotatable roll in pressure engagement therewith and adapted to feed fabric to be ironed over said ironing means, stripping means adapted to strip the fabric from said roll after passage over said ironing means, comprising a relatively stationary finger extending between the roll and the ironing means from the entrance side to the exit side of the roll, means to anchor said finger against the pull of the roll, comprising a stationary support extending longitudinally of said roll, and a comparatively rigid carrier seated on said support and extending downwardly therefrom, said carrier having an aperture at its lower end, said finger extending through said aperture and having means associated therewith adapted to seat in said carrier adjacent said aperture to thereby anchor said finger.

2. In combination, a stripper for an ironing machine comprising a thin, flexible, metallic finger having an enlarged head, and a carrier therefor comprising a V-shaped metal strip having spaced members joined by a rolled section, one of said members having a shoulder spaced from said rolled section, said enlarged head being seated between said shoulder and said rolled section and secured thereby.

3. In an ironing machine, stationary ironing means, a rotatable roll in pressure engagement therewith and adapted to feed fabric to be ironed over said ironing means, stripping means adapted

to strip the fabric from said roll after passage over said ironing means, comprising a thin, flexible, metal finger extending between said roll and said ironing means and having a portion projecting at the exit side of said roll and spaced therefrom, and spacing means engaging the surface of the roll to hold the projecting portion of said finger in spaced relationship with said roll.

4. In an ironing machine, stationary ironing means, a rotatable roll in pressure engagement therewith and adapted to feed fabric to be ironed over said ironing means, stripping means adapted to strip the fabric from said roll after passage over said ironing means, comprising a thin, flexible, metal finger extending between said roll and said ironing means and having a portion projecting at the exit side of said roll and spaced therefrom, said portion having a flange adapted to engage the surface of the roll to hold said portion in spaced relationship with said roll.

5. In an ironing machine, stationary ironing means, a rotatable roll in pressure engagement therewith and adapted to feed fabric to be ironed over said ironing means, stripping means adapted to strip the fabric from said roll after passage over said ironing means, comprising a thin, flexible, metal finger extending between said roll and said ironing means and having a portion projecting at the exit side of said roll, the free end of the projecting portion being bent toward said roll and adapted to engage the surface thereof to thereby maintain the other part in stripping position, and stiffening means secured to the bent part to prevent substantial deformation thereof.

6. In an ironing machine, stationary ironing means, a rotatable roll in pressure engagement therewith and adapted to feed fabric to be ironed over said ironing means, stripping means adapted to strip the fabric from said roll after passage over said ironing means, comprising a thin, flexible, metal finger extending between said roll and said ironing means and having a portion projecting at the exit side of said roll, said projecting portion being bent back into substantially triangular form, one leg of the triangle forming a flange adapted to engage the roll so as to hold the projecting portion in stripping position.

7. In an ironing machine, stationary ironing means, a rotatable roll in pressure engagement therewith and adapted to feed fabric to be ironed over said ironing means, stripping means adapted to strip the fabric from said roll after passage over said ironing means, comprising a thin, flexible, metal finger extending between said roll and said ironing means and having a portion projecting at the exit side of said roll, the free end of said projecting portion having a reverse bend adapted to engage the surface of the roll for maintaining the projecting portion in stripping position.

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