May 15, 1934. J. R. CROCKFORD 1,959,020

GUIDE AND STRIPPER

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Fig. 1.

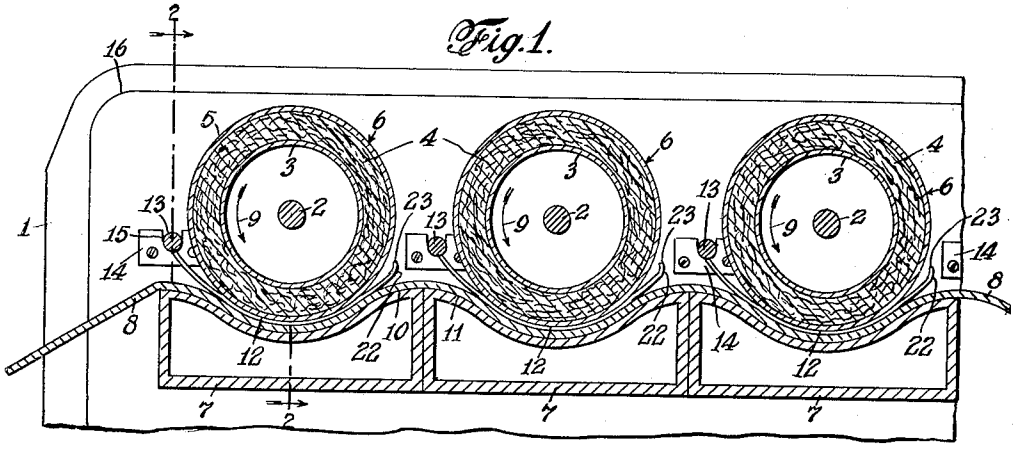


Fig. 2.

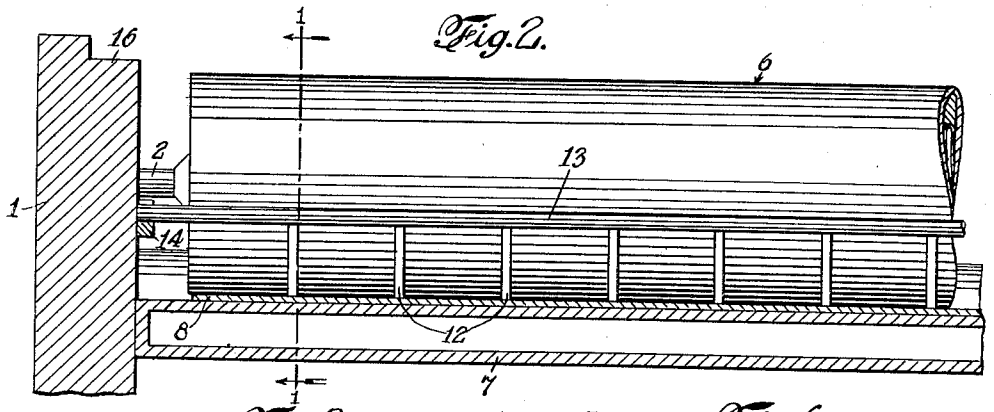


Fig. 3.

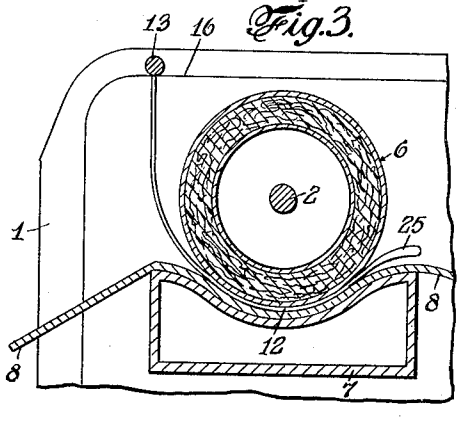


Fig. 6.

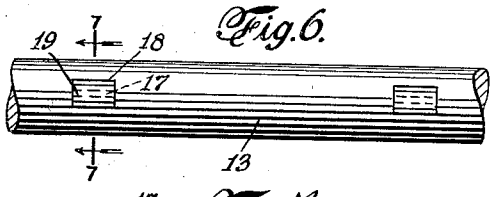


Fig. 7.

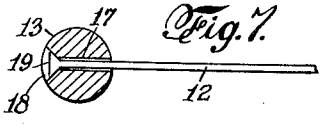


Fig. 8.

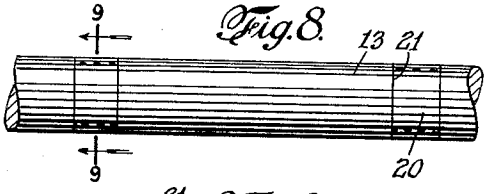


Fig. 4.



Fig. 9.

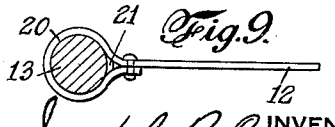
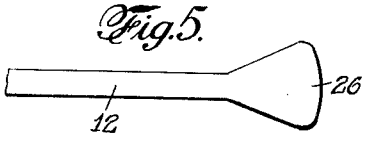


Fig. 5.



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Fig. 10.

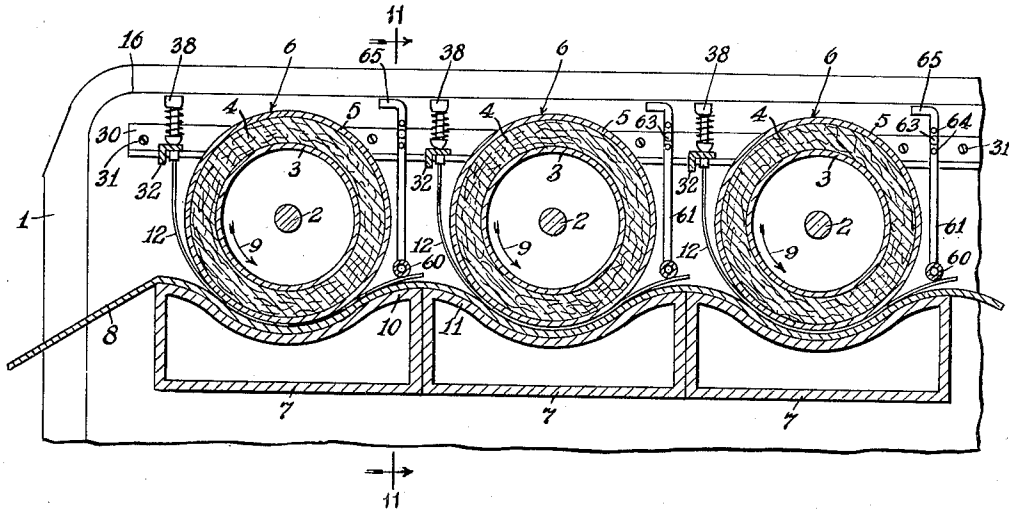
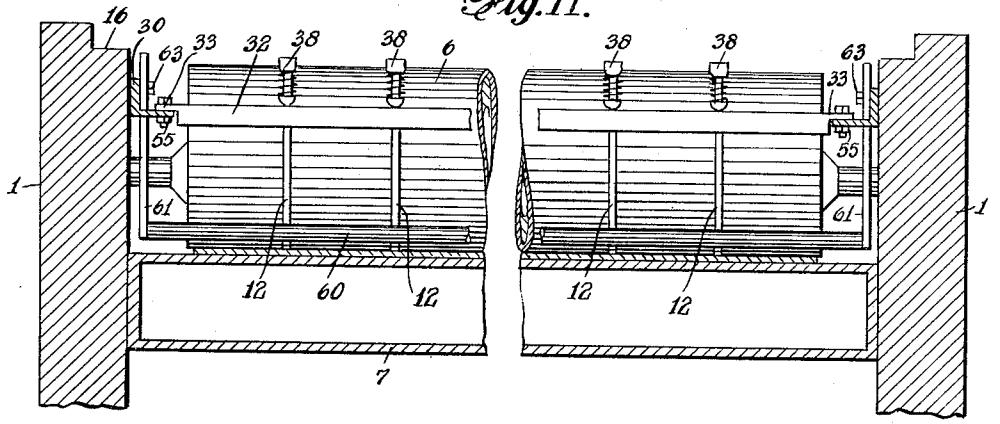


Fig. 11.



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GUIDE AND STRIPPER

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Fig. 12.

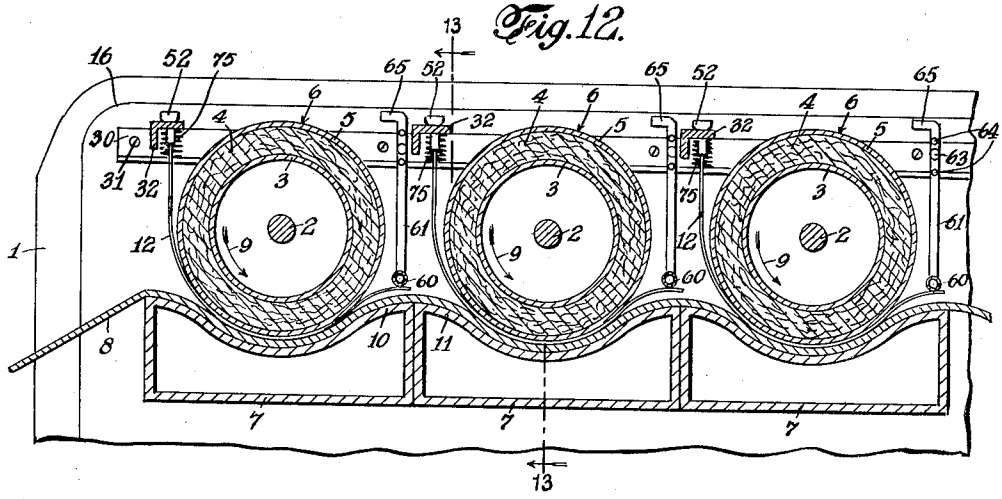


Fig. 13.

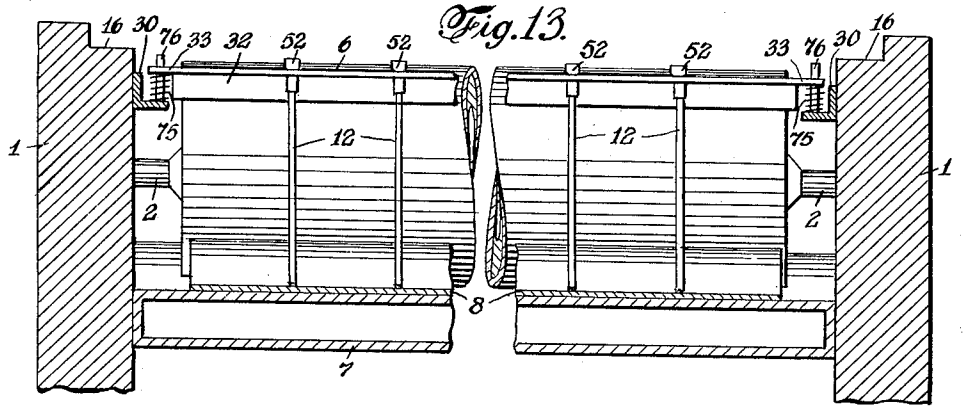


Fig. 14.

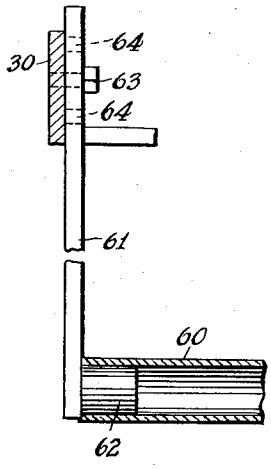


Fig. 15.

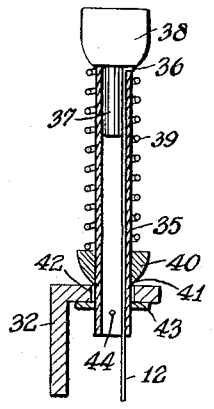
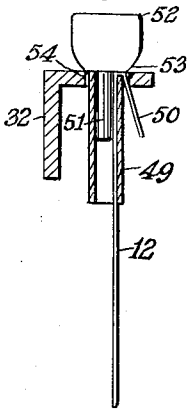


Fig. 16.



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UNITED STATES PATENT OFFICE

1,959,020

GUIDE AND STRIPPER

Joseph R. Crockford, Jackson Heights, N. Y., assignor to G. M. Co. Mfg. Company, Inc., Long Island City, N. Y., a corporation of New York

Application August 19, 1932, Serial No. 629,479

26 Claims. (Cl. 68—9)

This invention relates to strippers for stripping sheet material from a rotating roll, and more particularly to strippers for stripping from a rotating roll fabric being ironed between the roll and an ironing member.

This application is a continuation in part of my copending application for Guide and stripper, Serial No. 611,281, filed May 14, 1932.

One object of this invention is to provide simple effective means for stripping fabric being ironed, from the rolls of ironers.

Another object of this invention is to provide stripping means which acts to guide the fabric being ironed.

Another object of this invention is to provide stripping means in which the parts subject to wear are readily removable and renewable.

Another object of this invention is to provide a simple, convenient support for the stripping means.

The above and other objects will appear from the following description, appended claims and accompanying drawings forming a part of this specification and in which:

Figure 1 is a sectional view on line 1—1 of Figure 2 showing a part of a commercial ironing machine with the guide and stripper of this invention applied thereto;

Figure 2 is a sectional view on line 2—2 of Figure 1;

Figure 3 is a fragmental portion of a view similar to Figure 1 showing a modified construction of the stripping means and the manner of anchoring the same;

Figure 4 is an edge view of a fragmental portion of another modification of the end of a stripper finger;

Figure 5 is a plan view of Figure 4;

Figure 6 is an enlarged view of a portion of the supporting bar for the stripper fingers, showing a manner of anchoring the stripper fingers by means of enlarged ends on the latter seating in countersunk recesses in the bar, with the stripper fingers extending through apertures in the bar;

Figure 7 is a sectional view on line 7—7 of Figure 6;

Figure 8 is a view similar to Figure 6 of a modified construction for securing the stripper fingers to the supporting bar;

Figure 9 is a sectional view on line 9—9 of Figure 8;

Figure 10 is a longitudinal sectional view similar to Figure 1 showing a modified form of support for the stripper fingers;

Figure 11 is a transverse section taken on the line 11—11 of Figure 10;

Figure 12 is a longitudinal section of an ironing machine showing a different form of stripper finger and support therefor;

Figure 13 is a section taken on the line 13—13 of Figure 12;

Figure 14 is an enlarged detailed view showing the mounting for the guide bar;

Figure 15 is an enlarged sectional view of one type of support for a stripper finger; and

Figure 16 is an enlarged sectional view of a different type of support therefor.

Referring to the drawings wherein like reference numerals designate like parts, the reference numeral 1 designates a fragmental upper portion of one end of one of the two side frames, only one of which is shown, of a commercial ironing machine. Mounted to rotate in the side frames 1 are a plurality of axles 2. On each axle 2, near the opposite ends thereof, are secured two heads (not shown) on which are mounted steel or iron tubes 3 covered with padding 4, which padding carries on the outside a cover 5, usually of muslin or canvas so as to form a plurality of padded ironing rolls 6.

Beneath and in pressure engagement with each roll 6 is an ironing shoe 7, such as a steam chest, which may be heated with steam to accomplish ironing. The shoe 7 constitutes a pressure means which may, for example, constitute an abutment to receive the pressure exerted by the roll and to hold the fabric against the face of the roll. Each roll 6 is rotated in the direction of travel of the material being ironed 8, indicated by the arrows 9, and is in frictional engagement with said material 8, which is caused by rotation of the roll to slide along the top surface of the adjacent steam chest 7 in a well-known manner. The material 8 is fed into the entrance side of the machine in any convenient manner, as by an endless conveyor apron (not shown) and, as it passes between each roll 6 and the adjacent steam chest 7, is ironed and conveyed on toward the succeeding roll 6 and steam chest 7, where it passes through a further ironing operation. Frequently, however, the end of the material 8, instead of traveling along over the curved tops 10 and 11 of the steam chests to the succeeding roll, adheres to the surface of the roll 6 and travels upwardly therewith and around so as to wind itself upon the roll, thereby necessitating the delay and expense of stopping the ironing machine to remove the wound-up piece of goods and send it properly through the ironing machine.

To overcome this difficulty, I provide a series of substantially stationary stripper fingers 12 which extend between each roll 6 and the corresponding steam chest 7. The stripper fingers 12 are anchored against substantial longitudinal movement in any suitable way so as to extend in from the entrance side of the roll 6 and preferably have their ends at the exit side of the roll spaced therefrom so as to strip or detach from the roll the fabric which is being ironed, thus causing the fabric to fall upon the curved surface 10 of the steam chest and to pass onward to the succeeding feed roll 6.

The stripper fingers 12 are preferably connected in a suitable way to a supporting bar 13 which is preferably mounted at the entrance side of the roll. This supporting bar 13 may be mounted in any suitable way upon the side frames 1 of the machine. One way of providing this mounting is to attach to side frames 1 supporting blocks 14 (Figure 1) having upwardly-opened recesses 15, within which are seated the ends of the bar 13. Another way of mounting the bar 13 is to rest it upon the ledges 16 of the side frames of the machine, as shown in Figure 3, the bar 13 seating in the correct position on the ledges 16 by the friction of the rolls 6 on the stripper fingers 12.

The stripper fingers 12 are preferably made thin to readily flex under pressure of the roll 6 to conform to the curvature of the roll, and not take up much room so as to be readily pressed into the padded surface of the roll, and may be made of any desired width, preferably from ¼" to ½" in width. The stripper fingers may be made of any suitable metal, preferably of metal having substantial resilience or springiness, and preferably rustless, such as from Allegheny metal or stainless steel.

One way of attaching the stripper fingers 12 to the supporting bar 13 consists in providing apertures 17 (Figures 6 and 7) with countersunk portions 18, with the stripper fingers 12 having enlarged or headed portions 19 seated in the countersunk recesses 18 and extending through the apertures 17. This construction permits readily sliding any one or more of the stripper fingers 12 out through the apertures 17 to remove the stripper fingers for any purpose, such as repairing or substituting new stripper fingers.

Another way of securing the stripper fingers to the supporting bar is to provide a looped end portion 20 (Figures 8 and 9) on the stripper fingers engaging in annular recessed portions 21 in the supporting bar 13.

The ends 22 of the stripper fingers at the exit side of the roll 6 preferably extend outwardly away from the surface of the roll so as to strip or detach the fabric being ironed from the roll, and may have their extreme ends 23 curved upwardly and inwardly toward the roll, as shown in Figure 1, so that the ends 23 will not contact with the fabric being ironed. It will be understood, of course, that the stripper fingers, including their ends, will be finished smooth so as not to catch or roughen in any way any fabric materials with which they come in contact.

Instead of forming the extreme ends of the stripper fingers with the curved portions 23, as shown in Figure 1, they may be provided with enlarged weighted members 25, as shown in Figure 3, to aid in holding the ends of the stripper fingers down away from the roll 6.

A further modification of the end stripper fingers 12 is shown in Figures 4 and 5, where the weighted end 26 is made of a greater width and thickness than the stripper fingers.

Referring to the stripper finger support illustrated in Figures 10 and 11, the rolls 6, the supporting framework 1 and other parts similar to those shown in Figure 1 have been given similar reference numerals. In this form of the invention, however, the stripper fingers 12 are mounted by means of angle irons 30, which are secured to the side frames 1 of the ironing machine in any convenient manner, such as by screws 31.

A plurality of cross angle irons or supports 32 are formed with end flanges 33, which are adapted to seat on the horizontal portion of angle irons 30 and to extend across the machine in a position to carry the stripper fingers.

The stripper finger support is more clearly shown in Figure 15. Referring to this figure, a finger 12 is shown as extended through a tubular member 35 and secured against the end of said tubular member by means of a bent-over portion or flange 36, said flange being clamped between the tubular member 35 and a wedge 37, which is driven therein and forms a tight fit in said tubular member. The wedge 37 is provided with an enlarged head 38 which is adapted to form a hand grip. The head 38 also serves as a seat for a spring 39 which surrounds the member 35 and is held between said head 38 and a freely sliding collar 40, the latter being provided with a curved surface 41, preferably of substantially spherical shape, in order to permit free movement of the stripper fingers in the support 32. The stripper fingers 12 together with the tubular members 35 are passed through apertures 42 in the horizontal portion of the support 32, whereby the curved surfaces 41 of the collars 40 seat upon the upper surface of said support. The tubular members are held in this position by means of collars 43, which seat against the lower surface of said support and are held by cotter pins 44, which extend through suitable holes in the members 35.

In the above-described form of the invention, the supports 32 may be frictionally held upon the angle irons 30 by the force exerted upon the fingers 12 due to the rotation of the rolls. If desired, however, said supports 32 may be bolted as by the bolts 55 or otherwise secured to said angle irons 30.

In mounting the stripper fingers 12 in the supports 32, it is only necessary to pass said fingers through the apertures 42 into engagement with the lower surface of the roll 6. After rotation of the roll whereby the fingers will be threaded into the desired positions, the fingers are locked in position by the cotter pins 44 in the manner shown in detail in Figure 15.

In certain instances, the fingers may be formed of material which is not sufficiently resilient to insure stripping of the fabric from the ironing rolls. For example, a heavy fabric might tend to adhere to the rolls and might cause the ends of the fingers to lie against the surface of the rolls. In order to avoid this possibility and to permit the use of lighter fingers, there may be provided a plurality of guide bars 60, which are shown as comprising tubes which extend across the machine longitudinally of the rolls in a position to depress the ends of the stripper fingers 12. The bars 60 are secured to supporting strips 61 by plugs 62 (Figure 14) which are carried by said strips and extend into the tubular ends of the bars 60. The strips 61 extend upwardly past the vertical section of the angle irons 30 and are secured thereto as by the bolts 63. To permit

vertical adjustment of the strips 61, a plurality of holes 64 may be formed in each of said strips, and vertical adjustment may be obtained by selecting the proper hole to receive the bolts 63. The strips 61 have been shown as provided at their upper ends with bent-over portions comprising handles 65, which facilitate the handling and adjustment of the mechanism.

When the stripper fingers are threaded under the roll 6 they automatically extend under the guide bars 60. Obviously, however, the fingers may be manually positioned under said guide bars if necessary. In the operation of the above device, the guide bars prevent the fingers from curling against the exit side of the rolls and insure a proper and uniform stripping action.

A modified type of support is illustrated in Figures 12, 13 and 16. Referring to those figures, a finger 12 is passed through a tubular member 49 and bent over the upper surface thereof to provide a spring extension 50. The finger 12 is secured by a wedge 51, which is driven in the end of the member 49 in a manner similar to the wedge 37 above described. The wedge 51 is formed with an enlarged head 52, preferably having a rounded lower surface 53, which seats upon the upper surface of the support 32. The finger 12 and the member 49 are passed through an aperture 54 in the support 32. In this position, the spring extension 50 of the finger 12 resiliently engage the lower surface of the support 32 and secures the finger in said support. The spring extension 50 is depressed against the outer surface of the tubular member 49 during the threading of the fingers. Thereafter, said extension is released and serves to lock the finger in position as illustrated in Figure 16.

The supports 32 are shown in Figures 12 and 13 as carried resiliently upon the angle irons 30 by means of compression springs 75, which are preferably seated about stationary pins 76 carried by the angle irons 30 and extending freely through slots in the flanges 33 of the support 32. The arrangement is otherwise similar to that described in connection with Figures 1 and 2, and it is obvious that springs 75 may be omitted, if desired, in which case fingers 12 become rigidly supported. It is also obvious that the fingers of one roll may be resiliently supported and the fingers of the other rolls may be rigidly supported. In certain instances it has been found preferable to resiliently support the fingers of the first roll where the material being ironed exerts the greatest pull and to rigidly support the fingers of the other rolls where the material is partly ironed and consequently is smoother and less bulky and exerts less pull on the fingers. In any event, the fingers are stationary with respect to substantial longitudinal movement as distinguished from stripping means which travels with the roll in the direction of feed.

Since it is obvious that various changes and modifications may be made in the above description without departing from the nature or spirit thereof, this invention is not restricted thereto except as set forth in the appended claims.

I claim:

1. In combination, a rotatable roll, stationary pressure means adapted to press material being treated against the face of the roll, and stationary stripper means adapted to extend between the roll and the pressure means and located between the roll and the material being pressed to thereby strip said material from the roll after passage between the roll and the pressure means.

2. In combination, a rotatable roll, stationary pressure means below said roll and adapted to press material being treated against the face of the roll, and stationary stripper means adapted to extend between the roll and the material from the entrance side to the exit side of the roll and having the portion at the exit side adapted to strip the material from the roll after passage between the roll and pressure means.

3. In combination, a rotatable roll, stationary ironing means below said roll and adapted to press fabric against the face of the roll, and stationary stripper means adapted to extend between the roll and the ironing means and having a portion at the exit side adapted to strip the fabric from the roll after passage between the roll and ironing means.

4. In combination, a rotatable roll, stationary ironing means below said roll and adapted to press fabric against the face of the roll, and stationary stripper means adapted to extend between the roll and the ironing means and beyond the area of contact between the roll and ironing means at the exit side and having the means at the exit side adapted to maintain the projecting portions in position to ensure uniform stripping action of said fingers.

5. In combination, a rotatable roll, stationary ironing means below said roll and adapted to press fabric upwardly against the face of the roll, and stationary stripper fingers anchored to extend from the entrance side of the roll under the roll and over the fabric and beyond the area of contact between the roll and ironing means at the exit side and having weights associated with the portions at the exit side to hold said portions away from the face of the roll to thereby strip the fabric from the roll after passage between the roll and ironing means.

6. In an ironing machine, a rotatable roll, ironing means in frictional engagement therewith, a plurality of stripper fingers extending between said roll and said ironing means, means for anchoring said fingers comprising a stationary support extending longitudinally of said roll and having apertures therein, each of said fingers extending through one of said apertures, and a stop member secured to each of said fingers and adapted to seat on said support, said stop member having a curved seating surface adapted to permit angular movement of said member with respect to said support in response to non-uniform tension of said fingers.

7. In an ironing machine, a rotatable roll, ironing means in frictional engagement therewith, a plurality of stripper fingers extending between said roll and said ironing means, means for anchoring said fingers comprising a stationary support extending longitudinally of said roll and having apertures therein, a tubular member extending through each of said apertures, each of said fingers extending through and being bent over the edge of one of said tubular members, and wedge means securing said fingers thereto.

8. In an ironing machine, a rotatable roll, ironing means in frictional engagement therewith, a plurality of stripper fingers extending between said roll and said ironing means, means for anchoring said fingers comprising a stationary support extending longitudinally of said roll and having apertures therein, a tubular member extending through each of said apertures, each of said fingers extending through and being bent

over the edge of one of said tubular members, and wedge means securing said fingers thereto, said wedge means having an enlarged head adapted to seat on said support.

9. In an ironing machine, a rotatable roll, ironing means in frictional engagement therewith, a plurality of stripper fingers extending between said roll and said ironing means, means for anchoring said fingers comprising a stationary support extending parallel to the axis of said roll and having apertures therein, a tubular member extending through each of said apertures, each of said fingers extending through and projecting over the edge of one of said tubular members to form a spring extension, and means securing said fingers to said tubular members, each of said tubular members being adapted to seat on said support, said spring extension frictionally engaging said support to secure said members therein.

10. In an ironing machine, a rotatable roll, ironing means in frictional engagement therewith, a plurality of stripper fingers, a stationary support extending longitudinally of said roll, and resilient means mounting each of said fingers on said support, said fingers extending from said support to the entrance side of said roll and thence between said roll and said ironing means to the exit side of said roll.

11. In an ironing machine, a rotatable roll, ironing means in frictional engagement therewith, a plurality of stripper fingers extending between said roll and said ironing means, means for anchoring said fingers comprising a stationary support extending longitudinally of said roll and having apertures therein, a tubular member slidably mounted in each of said apertures, each of said fingers extending within and being secured to one of said tubular members, a slidable collar carried on each of said members and adapted to seat on said support, a spring carried by said member and seated on said collar and adapted to resiliently support said member, and means carried by said member and engaging said support to prevent removal of said member therefrom due to the resilience of said spring, said spring being adapted to permit a limited movement of said finger in response to irregularities in tension thereof.

12. In an ironing machine, a rotatable roll, ironing means in frictional engagement therewith, a plurality of stripper fingers associated with said roll, a support extending longitudinally of said roll and carrying said fingers, said fingers extending from said support to the entrance side of said roll and thence between said roll and said ironing means to the exit side of said roll and resilient means for mounting said support for limited movement in response to irregularities in the pull of said stripper fingers.

13. In an ironing machine having a rotatable roll, ironing means in frictional engagement therewith, stripper fingers extending between said roll and said ironing means and projecting at the exit side of said roll, and a guide means extending longitudinally of said roll at the exit side thereof and contacting with the projecting portions of said stripper fingers, said guide means being adapted to hold said projecting portions away from the surface of said roll whereby to insure uniform stripping action of said fingers.

14. In an ironing machine having a rotatable roll, ironing means in frictional engagement therewith, stripper fingers extending between said roll and said ironing means and projecting at the exit side of said roll, a guide means extending longitudinally of said roll at the exit side thereof and contacting with the projecting portions of said stripper fingers, said guide means being adapted to hold said projecting portions away from the surface of said roll whereby to insure uniform stripping action of said fingers, and adjustable supporting means for said guide means adapted to permit adjustment of the position thereof with respect to said fingers.

15. In an ironing machine having a rotatable roll, ironing means in frictional engagement therewith, stripper fingers extending between said roll and said ironing means and projecting at the exit side of said roll, means anchoring said fingers against substantial longitudinal movement, and a guide means extending longitudinally of said roll at the exit side thereof and contacting with the projecting portions of said stripper fingers, said guide means being adapted to hold said projecting portions away from the surface of said roll whereby to insure uniform stripping action of said fingers.

16. In an ironing machine having a plurality of transversely extending rolls, ironing means in frictional engagement with said rolls, a longitudinal member mounted on said machine, a transverse supporting member mounted on said longitudinal member adjacent each of said rolls, a plurality of stripper fingers carried by each of said supporting members and extending from the entrance side to the exit side of each of said rolls between said rolls and said ironing means, guide means engaging said fingers at said exit side, and means supporting said guide means from said longitudinal member.

17. In an ironing machine, a rotatable roll, stationary ironing means below said roll and adapted to press fabric against the face of the roll, and a stripper finger adapted to extend between said roll and said ironing means, said finger comprising a thin, flexible, metal strip having a portion at the exit side of the roll adapted to strip fabric from said roll.

18. In an ironing machine, a rotatable roll, stationary ironing means below said roll and adapted to press fabric against the face of the roll, and a stripper finger adapted to extend between said roll and said ironing means, said finger comprising a thin, flexible, resilient, metal strip and being adapted due to the resilience thereof to strip fabric from the exit side of said roll.

19. In an ironing machine, a rotatable roll, stationary ironing means below said roll and adapted to press fabric against the face of the roll, a stripper finger adapted to extend between said roll and said ironing means, said finger comprising a thin, flexible, metal strip and being adapted to strip fabric from the exit side of said roll, and means anchoring said finger against substantial longitudinal movement in response to the pull of said roll.

20. In an ironing machine, a rotatable roll, ironing means adapted to press fabric against the face of the roll, whereby the roll may pull the fabric through the machine, a stripper finger adapted to extend between said roll and said fabric from the entrance to the exit side of said roll, said finger comprising a thin, flexible, metal strip and being adapted to strip fabric from the exit side of said roll, and resilient means anchoring said finger against substantial longitudinal movement in response to the pull of said roll.

21. In an ironing machine having a rotatable roll, stationary ironing means below said roll and

adapted to press fabric against the face of the roll, stripper fingers adapted to extend between said roll and said ironing means and projecting at the exit side of said roll, and means for maintaining a portion of the projecting part of said fingers out of contact with said roll whereby stripping of the fabric from said roll is facilitated.

22. In an ironing machine having a rotatable roll, stationary ironing means below said roll and adapted to press fabric against the face of the roll, stripper fingers adapted to extend between said roll and said ironing means and projecting at the exit side of said roll, means anchoring said fingers against substantial movement in response to the frictional pull of said roll, and means for maintaining the projecting part of said fingers out of contact with said roll whereby stripping of the fabric from said roll is facilitated.

23. In an ironing machine having a rotatable roll, stationary ironing means below said roll and adapted to press fabric against the face of the roll, flexible, metallic stripper fingers adapted to extend between said roll and said ironing means and projecting at the exit side of said roll, and means for maintaining the projecting part of said fingers out of contact with said roll whereby stripping of the fabric from said roll is facilitated.

24. In an ironing machine having a rotatable roll, stationary ironing means below said roll and adapted to press fabric against the face of the roll, stripper fingers adapted to extend between said roll and said ironing means and projecting at the exit side of said roll, and means associated with the projecting portion of said fingers for holding said portion out of engagement with said roll and in stripping relation therewith.

25. In an ironing machine, a rotatable roll having an unbroken cylindrical surface, stationary ironing means adapted to press fabric against the face of the roll, and a stripper finger adapted to extend between said roll and said ironing means, said finger comprising a thin, flexible, metallic strip and being adapted to strip the fabric from the exit side of the roll.

26. In an ironing machine having a rotatable roll, stationary ironing means in frictional engagement therewith, stripper fingers extending between said roll and said ironing means and projecting at the exit side of said roll, and a guide means at the exit side of said roll contacting with the projecting portions of said stripper fingers, said guide means being adapted to hold said projecting portions in position to insure uniform stripping action of said fingers.

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