June 24, 1952 S. A. T. NEWSOM 2,601,448

IRONER ROLL COVER

Filed Aug. 27, 1949 2 SHEETS—SHEET 1

Fig. 1,

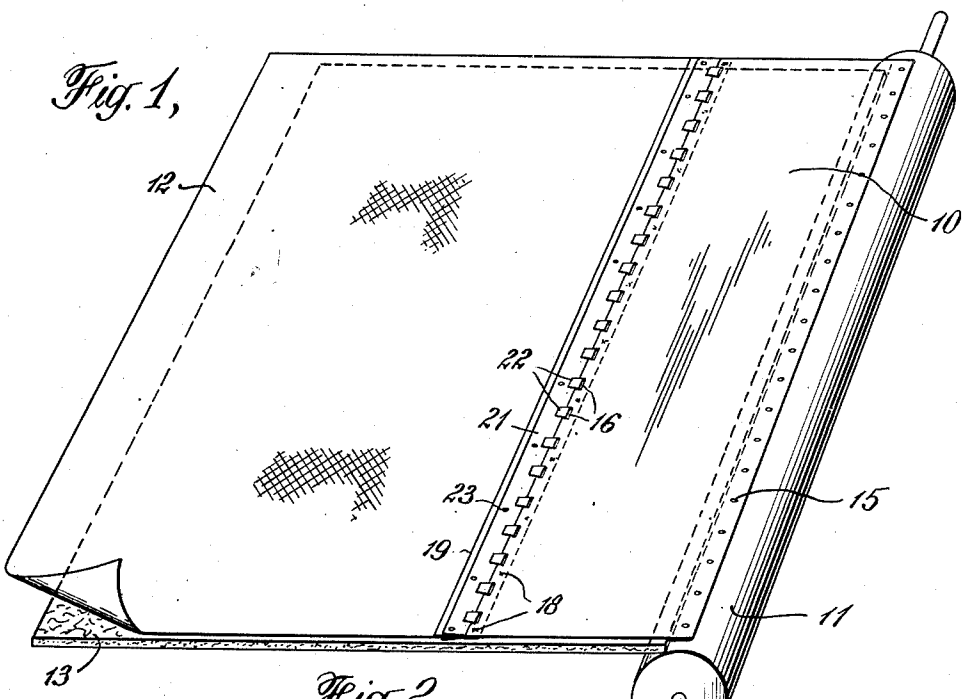


Fig. 2,

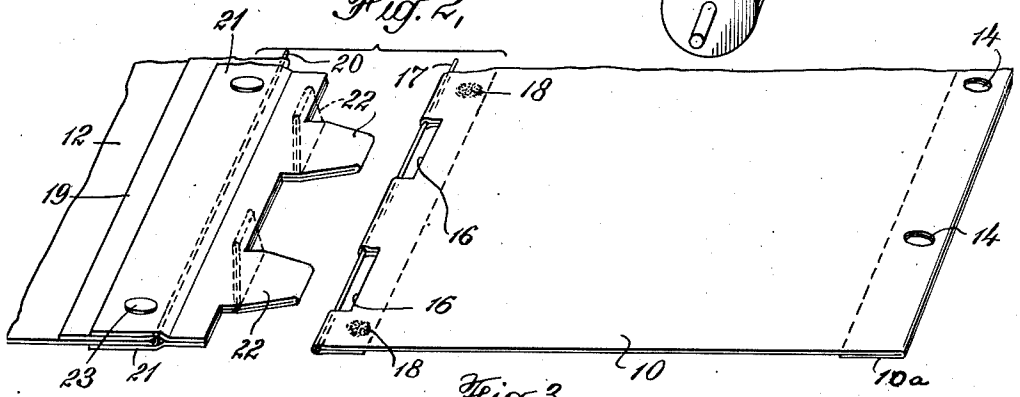


Fig. 3,



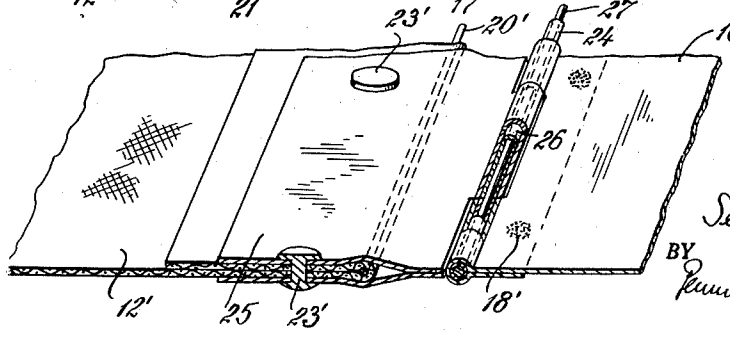


Fig. 4,

INVENTOR.
Seth A. T. Newsom
BY Pennie Edmonds Morton Barrow
ATTORNEYS

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Fig. 5,

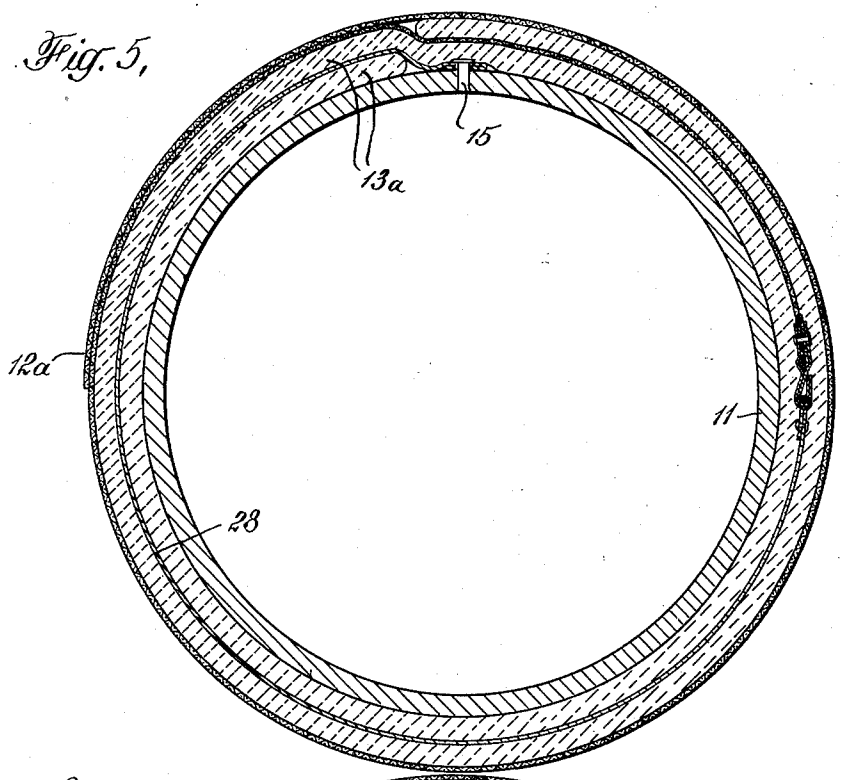
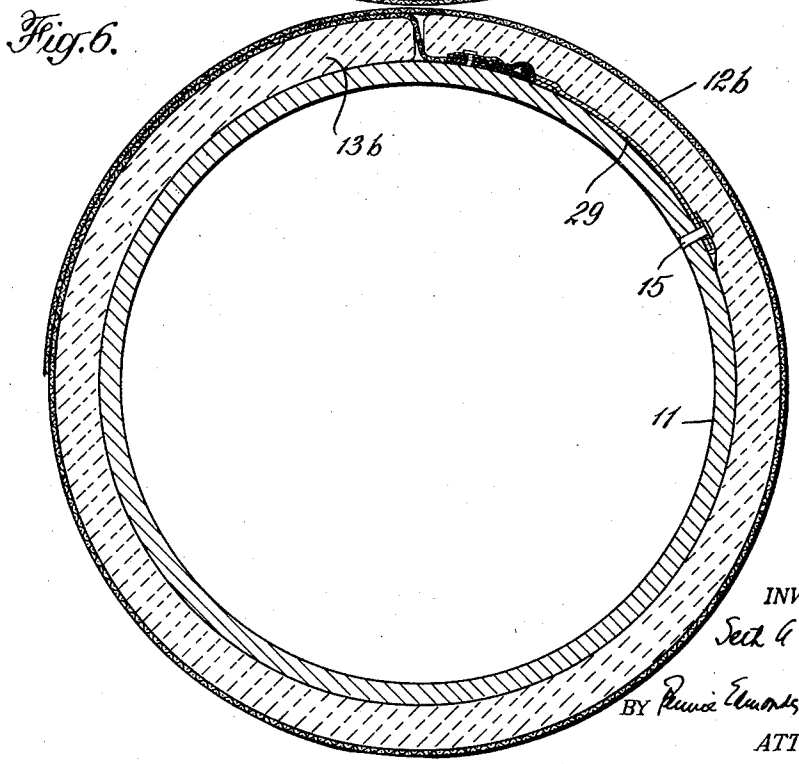


Fig. 6.



INVENTOR.
Seth A. T. Newsom.
BY Pennie Edmonds Morton Barrows
ATTORNEYS

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IRONER ROLL COVER

Seth A. T. Newsom, La Grange, Ga., assignor to Callaway Mills Company, La Grange, Ga., a corporation of Georgia

Application August 27, 1949, Serial No. 112,720

5 Claims. (Cl. 29—118)

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This invention relates to covers for the pressure rolls of flat work ironing machines and is concerned more particularly with an improved ironer roll cover, which can be readily attached to a roll, has a long life, and can be easily and inexpensively maintained in proper working order.

One form of ironer roll cover assembly now in use includes a binder strip, which is made of asbestos fabric and has one end secured to the surface of the roll by adhesive. The free end of the binder strip is connected by stitching or a suitable detachable connection, such as the hinge type of lacing used in power belts, to one end of a cover strip, which is commonly made of an asbestos fabric impregnated with a phenolic or similar resin. The assembly also includes a pad of fibrous material wrapped about the roll with the binder and cover strips and held in place and protected by the cover strip, which overlies the pad and extends beyond the outer end thereof.

The cover assemblies of the construction described are objectionable in a number of respects as follows. The attaching of the binder strip to the roll by glue or similar adhesive is a difficult operation and must be done with great accuracy in order to insure that the assembly will wrap properly around the roll. Also, if the adhesive subsequently fails, even partially, the assembly will not remain in proper position, as the roll rotates. In use, a considerable drag is applied to the cover strip and through the connection to the binder strip and, heretofore, the strips have been liable to separate at the connection as a result of the tearing of one or both strips. When this occurs, the torn strip or strips must be replaced, and, if replacement of the binder strip is required, it must be wholly removed from the roll. The parting of the strips at their connection or the failure of the adhesive thus requires a considerable expenditure of labor and materials to restore the assembly to working condition.

The ironer roll cover of the invention overcomes the difficulties encountered with the prior assemblies described and can be easily installed and maintained. The new cover includes a binder strip, which is made of corrosion-resistant sheet metal and is permanently secured at one end to the roll, and a cover strip of flexible fibrous material, which is connected to the free end of the binder strip by a detachable hinge connection of such construction that the cover strip is reinforced and protected against injury. The cover also comprises a pad of suitable fibrous material so assembled with the binder and cover

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strips as to overlie the connection between the strips and thus prevent the material being ironed from being indented by the connection.

For a better understanding of the invention, reference may be made to the accompanying drawings, in which

Fig. 1 is a view in perspective showing the new cover assembly attached at one end to an ironer roll;

Fig. 2 is a perspective view showing one form of connection that can be used between the binder strip and the cover strip;

Fig. 3 is a longitudinal sectional view through the connection made by the parts shown in Fig. 2;

Fig. 4 is a view similar to Fig. 2 showing an alternative construction; and

Figs. 5 and 6 are sectional views through two forms of the assembly mounted on ironer rolls.

The assembly illustrated in Fig. 1 comprises a binder strip 10 having one edge permanently secured to the ironer roll 11, a cover strip 12 connected to the free end of the binder strip by a hinge connection, and a padding 13 wrapped about the roll with the binder and cover strips. The binder strip is made of a thin corrosion-resistant sheet metal, such as Monel metal, and the cover strip is preferably made of asbestos fabric impregnated with a phenolic or similar resin. The padding 13 may be of cotton or partly of asbestos and partly of cotton.

The end of the binder strip 10, which is to be secured to the roll, is preliminarily folded back upon itself, as indicated at 10a (Fig. 2) and a plurality of openings 14 are then formed through the double thickness of the strip in a row and at relatively close spacings. In order to secure the folded end of the strip to the roll, the roll is drilled along a lengthwise line and on spacings corresponding to those of openings 14. The reversely folded end of the strip is then applied to the roll with the openings 14 in the strip in registry with the drill holes and rivets 15 of a size to have a tight fit in the drill holes are then driven through the openings and into the holes to secure the folded end of the strip permanently to the roll.

At the free end of the binder strip 10, which is to form a part of the hinge connection, a plurality of square openings 16 are made in the strip in a transverse row and the strip is then folded back upon itself on a line lengthwise of the openings through their centers. A reinforcement, which may take the form of a wire 17 of stainless steel, is inserted in the fold and the two plies of metal inwardly from the line of folding are then secured together in any suitable manner, as by spot welding as indicated at 18.

The cover strip 12 is of relatively weak construction and, in order to strengthen it at the hinge connection, the strip is doubled back upon itself, as indicated at 19, and a reinforcing wire 20 is inserted in the fold. A sheet of corrosion-resistant metal 21, which is equal in width to the cover strip and is preferably Monel metal, is provided with plurality of openings in a transverse row and separated by narrow tongues 22, and the sheets then folded on a transverse line through the middle of the tongues. The free edges of sheet are then applied to opposite faces of the reversely folded edge of the cover strip and secured in position by rivets 23, which pass through the two plies of the metal and through the two plies of the cover strip inwardly from the reinforcement. If preferred, two sheets of metal formed with tonges projecting from one edge may be secured, as described, against opposite faces of the reversely folded edge of the cover strip, the tongues lying face to face. The double thickness tongues 22 formed as described are of a size and spacing corresponding to that of the openings 16 in the binder strip and are relatively flexible. In order to make the connection between the strips, the tongues are bent and passed through the openings 16 and then further bent backwardly upon themselves, as shown in Fig. 3. If it is desired to detach the cover strip from the binder strip, the tongues can be readily bent sufficiently to permit their removal from openings 16.

In the alternative hinge connection shown in Fig. 4, the free end of the binder strip 10' is reversely folded, and spaced sections of the fold are cut away. A short length of tube 24 is then inserted in each remaining portion of the fold and the inturned edge of the strip is secured in place in any suitable way, such as by means of spot welds 18', to hold the lengths of tube in position. One edge of the cover strip 12' is reversely folded and a reinforcing wire 20' is inserted in the fold. A sheet metal member 25 is folded upon itself and its ends are applied to opposite faces of the folded portion of the cover strip and secured in place by rivets 23' passing through the plies of member 25 of the strip inwardly from the wire 20'. The member 25 is of such size and so disposed that its folded edge lies outwardly beyond the end of the cover strip and the folded edge of the member is cut away to form spaced recesses, in which may be inserted the spaced sections of the folded edge of the binder strip containing the lengths of tubing 24. Between the recesses, lengths of tube 26 are inserted in the fold of member 25 and the plies of the member are secured face to face in any suitable way to hold the tubing in place. In order to make the connection between the binder and cover strips provided with the hinge illustrated in Fig. 4, the edges of the two strips are assembled with the inserted tubes in alignment, and a long pin 27 is then passed through the aligned tubes.

After the binder strip has been permanently attached to the roll and the cover strip connected to the free end of the binder strip by the hinge connection, as described, the strips and padding 13 are wound about the roll to complete the assembly. The padding employed may be relatively thin and of such length as to extend twice about the roll or the padding may be heavier and extend only once about the roll. With either arrangement, the padding is applied in such manner that a portion of the padding overlies the hinge connection and thus prevents the connection from indenting the material being ironed.

In Fig. 5, there is illustrated a long thin padding applied to the roll and, when such a padding is employed, the binder strip 28 is preferably of such length as to extend through about ¾ of the circumference of the roll. The padding 13a is applied with its inner end beneath the binder strip and lying close to the connection of the strip to the roll. The padding extends around the roll beneath the hinge connection and thence passes over the connection of the binder strip to the roll. The second convolution of the padding overlies the binder strip and a portion of the cover strip 12a and the outer end of the padding terminates close to the inner end thereof and without overlap. The cover strip used with the assembly shown in Fig. 5 is of sufficient length to extend twice around the roll plus a substantial distance beyond the outer end of the padding, as for example, through about ¼ the circumference of the roll.

In the construction shown in Fig. 6, the padding 13b is about twice the thickness of that used in the Fig. 5 construction and the binder strip 29 is relatively short and lies in direct contact with the roll. One end of the padding then lies beneath the cover strip just beyond the hinge connection and the padding extends through one circumference of the roll and overlies the hinge. The cover strip 12b is of sufficient length to be wrapped once about the roll plus an additional distance equal to about ¼ of the circumference of the roll.

In the new assembly, the binder strip of corrosion-resistant metal permanently affixed to the roll remains in place indefinitely. The cover strip, which is of weaker material, is reinforced at the hinge connection by being folded back upon itself and about the reinforcing wire. The folded portion is then further strengthened by the riveting of the one portion of the hinge connection against opposite faces of the reversely folded edge of the cover strip. Because of the reinforcing of the cover strip at the connection, the strip is of long life and it is not likely to be torn free from the cover strip in use. Should the binder strip or padding need replacement, it is a simple operation to unwind the assembly from the roll, replace the cover strip, and rewind the parts of the assembly.

I claim:

1. The combination with an ironer roll, of a flexible sheet metal binder strip of a width equal to substantially the length of the roll, means permanently securing one end of the strip to the roll lengthwise thereof, the strip extending around the roll for at least a substantial part of the circumference of the roll, a portion of the strip at the free end thereof being folded back upon itself, a cover strip of flexible fibrous material of a width equal to substantially the length of the roll and a length greater than the circumference of the roll, the cover strip having a portion of one end folded back upon itself, a sheet metal member lying against opposite faces of the folded portion of the cover strip, the member projecting beyond the fold of the cover strip, means passing through the member and the folded portion of the cover strip for securing the member in place, detachable interengaging means, including the projecting portion of the member and the reversely folded portion of the binder strip, for detachably connecting the

binder and cover strips, the cover strip being wrapped about the roll, and a pad wrapped about the roll with the cover strip and extending at least once around the roll, one end of the pad lying in contact with the roll and beneath one of the strips and the pad overlying the detachable means connecting the strips.

2. The combination with an ironer roll, of a flexible sheet metal binder strip of a width equal to substantially the length of the roll, means permanently securing one end of the strip to the roll lengthwise thereof, the strip extending around the roll for at least a substantial part of the circumference of the roll, a portion of the strip at the free end thereof being folded back upon itself and secured to one face of the strip, the reversely folded portion of the binder strip having a plurality of spaced openings at the line of folding, a reinforcing element within the fold of the binder strip and exposed through the openings in the strip, a cover strip of flexible fibrous material of a width equal to substantially the length of the roll and having a portion at one end folded back upon itself, a sheet metal member lying against opposite faces of the folded portion of the cover strip, the member having hook portions projecting beyond the fold of the cover strip and entering the openings in the reversely folded portion of the binder strip to engage the element and form a detachable hinge connection between the strips, means passing through the member and the folded portion of the cover strip for securing the member in place, the cover strip being wrapped about the roll, and a pad wrapped about the roll with the cover strip and extending at least once around the roll, one end of the pad lying in contact with the roll and beneath one of the strips and the pad overlying the hinge connection between the strips.

3. The combination with an ironer roll, of a flexible sheet metal binder strip of a width equal to substantially the length of the roll, means permanently securing one end of the strip to the roll lengthwise thereof, the strip extending around the roll for at least a substantial part of the circumference of the roll, a portion of the strip at the free end thereof being folded back upon itself and secured to one face of the strip, reinforcing means disposed within the folded end of the strip and said end of the strip having a plurality of spaced openings exposing the reinforcing means, a cover strip of flexible fibrous material of a width equal to substantially the length of the roll and having a portion at one end folded back upon itself, a reinforcing element within the fold of the cover strip, a sheet metal member lying against opposite faces of the folded portion of the cover strip, the member having hook portions projecting beyond the fold of the cover strip and entering the openings in the reversely folded portion of the binder strip to engage the reinforcing means and form a detachable hinge connection between the strips, means passing through the metal member and the folded portion of the cover strip inwardly from said reinforcing element for securing the member in place, the cover strip being wrapped about the roll, and a pad wrapped about the roll with the cover strip and extending at least once around the roll, one end of the pad lying in contact with the roll and beneath one of the strips and the pad overlying the hinge connection between the strips.

4. The combination with an ironer roll, of a flexible sheet metal binder strip of a width equal

to substantially the length of the roll, means permanently securing one end of the strip to the roll lengthwise thereof, the strip extending around the roll for at least a substantial part of the circumference of the roll, a portion of the strip at the free end thereof being folded back upon itself and secured to one face of the strip, a cover strip of flexible fibrous material of a width equal to substantially the length of the roll and a length greater than the circumference of the roll, the cover strip having a portion at one end folded back upon itself, a sheet metal member lying against opposite faces of the folded portion of the cover strip, the member projecting beyond the fold of the cover strip, means passing through the member and the folded portion of the cover strip for securing the member in place, interengaging parts on the projecting portion of the member and the reversely folded portion of the binder strip for detachably connecting the binder and cover strips, the cover strip being wrapped about the roll, and a pad wrapped about the roll with the cover strip and extending twice around the roll, one end of the pad lying beneath the binder strip close to its connection with the roll.

5. The combination with an ironer roll, of a flexible sheet metal binder strip of a width equal to substantially the length of the roll, means permanently securing one end of the strip to the roll lengthwise thereof, the strip extending around the roll for at least a substantial part of the circumference of the roll, a portion of the strip at the free end thereof being folded back upon itself and secured to one face of the strip, a cover strip of flexible fibrous material of a width equal to substantially the length of the roll and a length greater than the circumference of the roll, the cover strip having a portion at one end folded back upon itself, a sheet metal member lying against opposite faces of the folded portion of the cover strip, the member projecting beyond the fold of the cover strip, means passing through the member and the folded portion of the cover strip for securing the member in place, interengaging parts on the projecting portion of the member and the reversely folded portion of the binder strip for detachably connecting the binder and cover strips, the cover strip being wrapped about the roll, and a pad wrapped about the roll with the cover strip and extending once about the roll, one end of the pad lying beneath the cover strip adjacent its connection to the binder strip.

SETH A. T. NEWSOM.

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