A. B. BARNARD.

MANGLE.

No. 169,762. Patented Nov. 9, 1875.

Fig. 1.

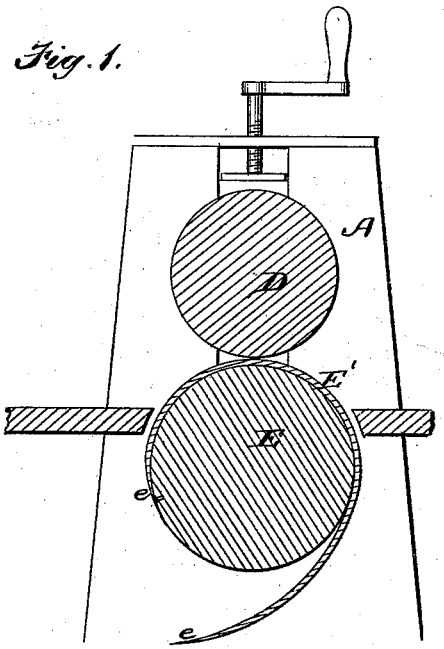


Fig. 2.

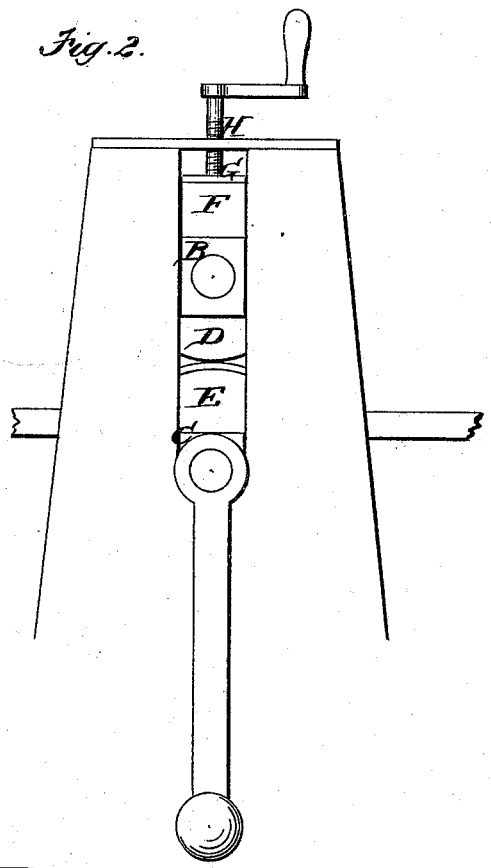
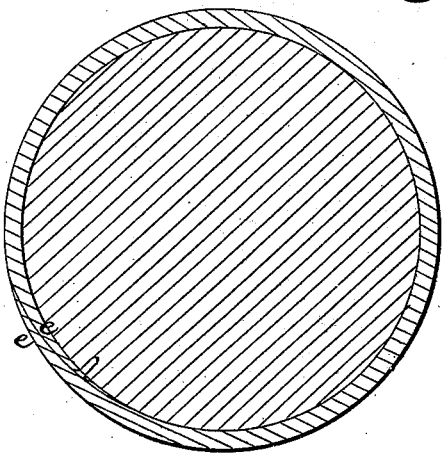


Fig. 3.



Witnesses.
L. B. Wright.
C. M. Long.

Inventor
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UNITED STATES PATENT OFFICE.

ANDREW B. BARNARD, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN MANGLES.

Specification forming part of Letters Patent No. **169,762**, dated November 9, 1875; application filed September 4, 1875.

To all whom it may concern:

Be it known that I, ANDREW B. BARNARD, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain Improvements in Mangles, of which the following is a specification:

Figure 1 is a transverse section of a mangle embodying my invention. Fig. 2 is an end elevation of the same, and Fig. 3 a detached section of one of the rolls.

This invention relates to that class of mangles in which pressure-rolls are employed, between which the cloth to be pressed is carried by the rotation of said rolls. In this class of mangles it is desirable to provide one of the rolls with a hard polished periphery, and the other with a comparatively yielding periphery. This yielding periphery, however, should not yield to too great an extent to prevent a sufficient degree of pressure from being exerted on the articles passed between the rollers, which would be the case if a roller composed wholly of rubber or other elastic material were employed. I have found that a better result is produced if the body of the yielding-surfaced roll is made of hard material and covered with a coating of leather, rubber, or other comparatively yielding material. This material is, however, liable in time to be expanded in its area by the compressive action of the rolls, so that the covering, if attached securely to all parts of the periphery of its roll, eventually becomes too large, and, as the rolls are operated, the covering soon becomes partially separated from the roll and bunched or wrinkled, and ultimately entirely separated and destroyed, thereby manifestly interfering with the smoothness of the yielding periphery, and the useful operation of the mangle.

My invention has for its object, mainly, to provide a roll with a comparatively yielding covering, which shall be free from the objection of becoming bunched or wrinkled, and ultimately destroyed by the action of the rolls.

To this end my invention consists, first, in a roll having a covering composed of a sheet of leather or other comparatively yielding material, attached at one edge only to the periphery of the roll, the other edge being free. The sheet is of sufficient size to inclose the periphery of the roll and overlap thereon, the overlapping edges being scarfed, so as together to present the same thickness as the rest of the covering. My invention also consists in the combination, with a roll covered as above indicated, of a roll having a hard polished periphery, all of which I will now proceed to describe.

In the drawings, A represents a supporting-frame, provided with slots or orifices for the bearing-blocks B C of the mangling-rolls. D E are the mangling or pressing rolls, which are journaled in the bearing-blocks B C. The upper roll, D, is made of metal, and has its periphery highly polished. The bearing-blocks B, in which the roll D is journaled, are provided with rubber or other springs F, which tend to press the roll D against the roll E, the tension of these springs being regulated by pressure-blocks G and screws H, or other equivalent devices. The lower roll, E, is made of wood, or other suitable comparatively hard material, and is provided with a covering, E′, of an elastic or yielding material, such as rubber, leather, &c. I prefer to employ leather as a covering material, and apply it to the roll E as follows: I take a rectangular piece of leather of more than sufficient size to cover the entire periphery of the roll when wrapped around it, overlapping edges *e e* being thus created. These overlapping edges I scarf, so that when overlapped the two together shall be of the same thickness as the rest of the covering, as shown in Fig. 3. One of the scarfed edges I attach in any desired manner to the periphery of the roll E, parallel with the axis thereof, leaving the other edge free, as shown in Fig. 1. The axes of the rolls D E are connected by gears, which are preferably so arranged that the two rolls shall rotate differentially in opposite directions, the polished hard roll rotating faster than its companion.

The operation is as follows: When the rolls are rotated, the article to be pressed is presented to and drawn between them by their rotation, in the usual manner. It will be seen that the action of the two rolls on an article passing between them will be to thoroughly press all parts of said article, regardless, to a certain extent, of its thickness, on account of the yielding covering of the roll E, said covering yielding sufficiently to all parts of the garment which are composed of extra thick-

nesses, and thus preventing the crowding apart of the rolls by the thick portions, which would result if both rolls had rigid surfaces. At the same time the polished metallic surface of the upper roll imparts a polish to the cloth which could not be produced if both rolls were covered with yielding material, and thus the respective advantages of hard and yielding surfaced rollers are secured, and their disadvantages obviated.

When an unusual thickness passes between the rolls, the springs F of the upper roll will permit it to yield, as in other machines of this class. The covering E′ of the roll E, being secured only at one end, is free to yield to the expansive action of the rollers, which in time stretch the covering and increase its area; but as it is free at one end, it is always held smoothly upon the roll E during the mangling operation, its scarfed edges preventing the formation of a ridge at the point where they overlap. The covering can be readily detached and renewed, when so far compacted as to be unyielding.

I am aware that rolls have been covered with an apron of cloth, attached at one end only to the roll, and also with leather in narrow strips wound spirally and glued or pinned to the roll at all parts. The cloth covering is objectionable, for the reason that it does not have so good a pressing effect as leather or rubber, on account of the looseness of its texture. Leather or rubber, however, presents a smooth and comparatively hard surface, and is, at the same time, comparatively elastic. The leather covering, closely secured at all parts to the roll, is extremely objectionable, inasmuch as the continued pressure elongates the covering and separates it from the roll, forming ridges, meanwhile, and ultimately tearing it entirely from the roll.

My invention obviates this, as, by scarfing both the edge which is fastened to the roll and the overlapping edge, I am enabled to form a covering of a uniform thickness. Should this scarfed covering become stretched or elongated by use, so as to increase the thickness where the edges overlap, I have only to rescarf the unattached edge sufficiently to obviate this objection, and thereby substantially renew the covering. This operation may be repeated until the covering is entirely worn out, or so solidified as to render it of no further use.

It is evident that the covering E′ may be applied to rolls other than those of mangles without departing from the spirit of my invention.

The polishing-roll may be heated by steam, if desired, and its differential movement may be dispensed with.

I claim as my invention—

1. A roll for a mangle, having a covering, E′, composed of leather or other comparatively yielding material, scarfed at its edges, and attached to the roll at one of said scarfed edges only, substantially as and for the purpose described.

2. In a mangle, the combination of two rolls, one having a hard polished periphery, and the other having a yielding periphery, when said yielding periphery has its opposite edges scarfed, and is attached to the roll at one of said scarfed edges only, substantially as and for the purposes specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANDREW B. BARNARD.

Witnesses:

C. F. BROWN,

JOS. F. BALDWIN.