G. BASLER.

SOLE FLEXING AND TEMPERING MACHINE.

APPLICATION FILED SEPT. 12, 1913.

1,154,961.

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Fig. 3.

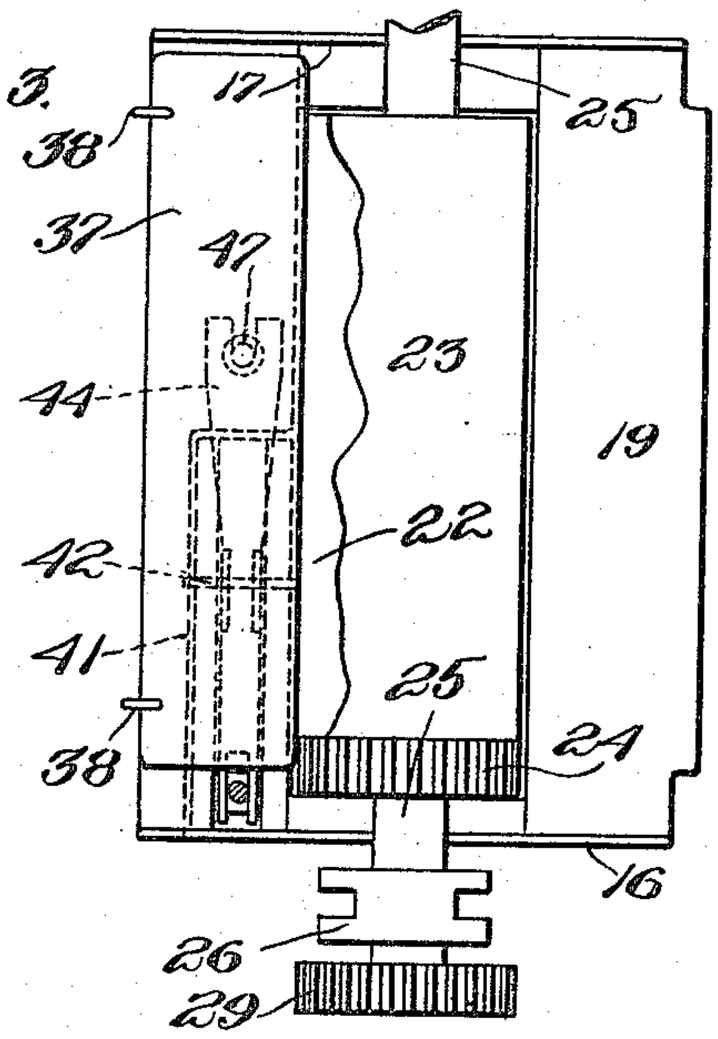


Fig. 4.

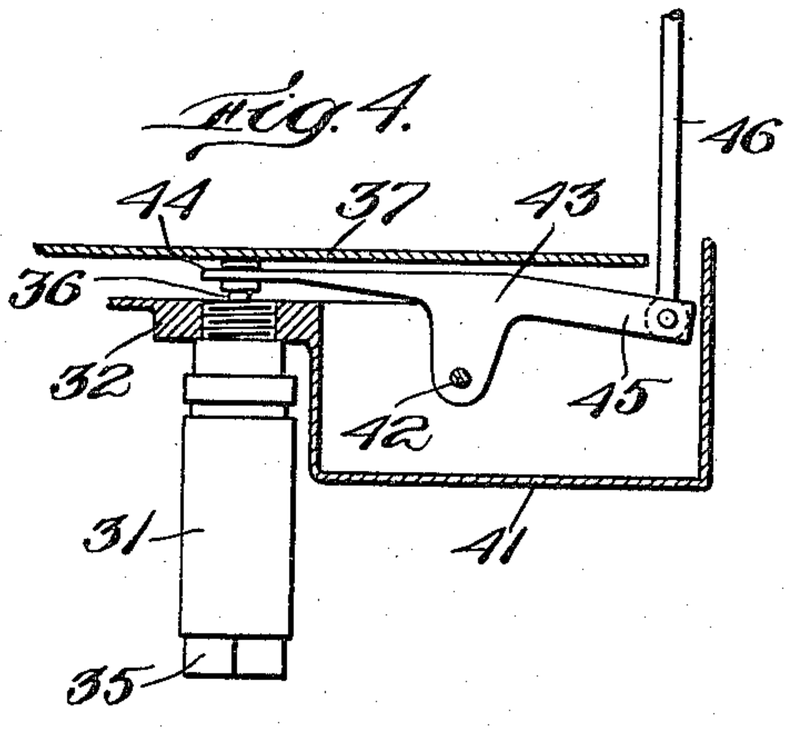


Fig. 1.

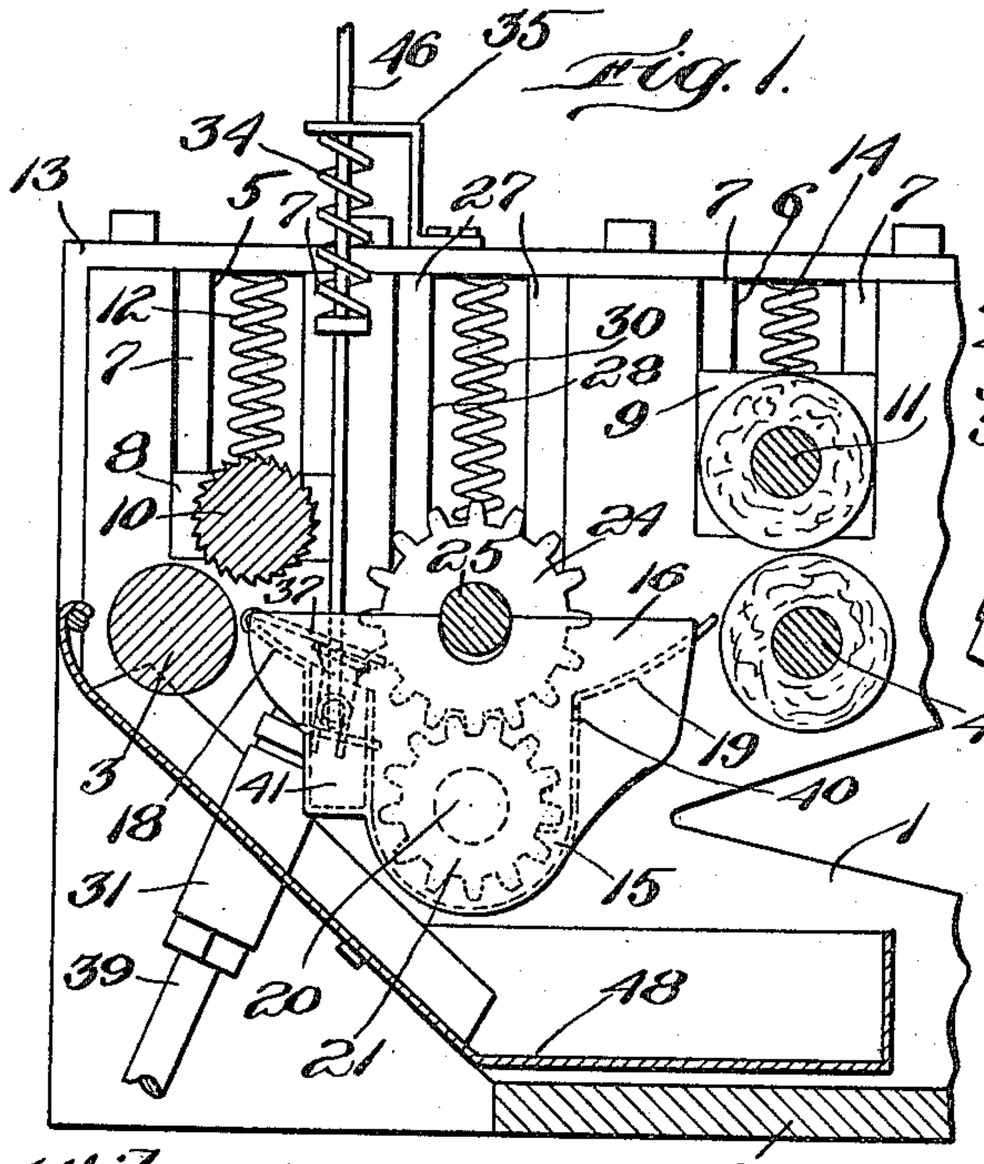
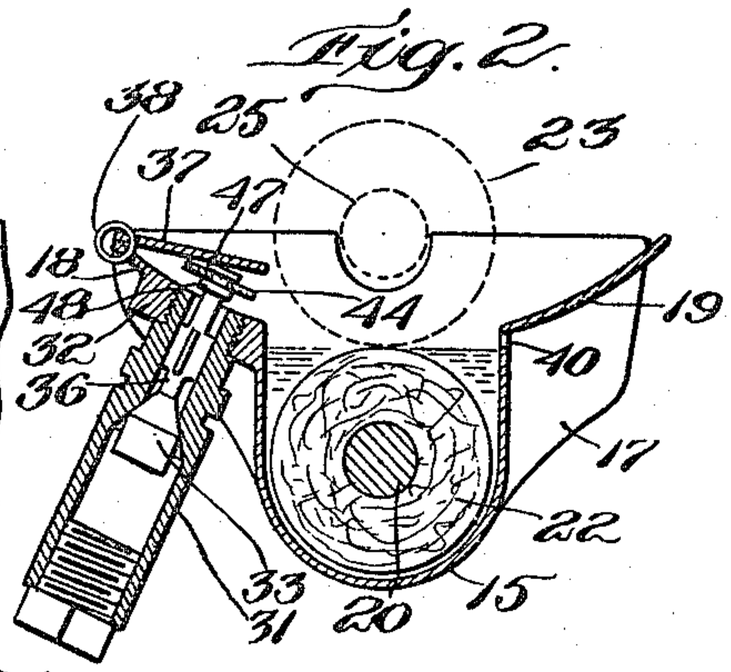


Fig. 2.



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SOLE FLEXING AND TEMPERING MACHINE.

1,154,961. Specification of Letters Patent. Patented Sept. 28, 1915.

Application filed September 12, 1913. Serial No. 789,455.

To all whom it may concern:

Be it known that I, GEORGE BASLER, a citizen of the United States, and resident of Lynn, county of Essex, State of Massachusetts, have invented an Improvement in Sole Flexing and Tempering Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My present invention is a machine to apply tempering liquid to leather soles and to render such soles flexible, being an improvement upon the general type of machines shown in my Patent, No. 1,036,061, dated August 20, 1912, and more particularly as an improvement on the machine of my copending application, Serial No. 714,549 filed August 12, 1912. In machines of this type, it is desirable to render leather soles flexible by applying a suitable moistening solution or liquid thereto, and to bend or flex the sole either immediately thereafter as a part of the same operation, or simultaneously therewith, this process being claimed broadly in my Patent No. 1,062,947, dated May 27, 1913.

In the development of my inventions above mentioned, I have discovered that it is possible to secure greatly increased speed of operation in a machine of the type of my said copending application by applying the moistening liquid or solution to the leather by means of rolls or the like which would feed the liquid to the sole and would forcibly apply or compress the liquid into the pores of the leather, thus positively initiating the permeation of the leather by the moistening solution. Heretofore it has been customary to apply the moistening solution by feeding the leather across a moistening station or through a shallow tank filled with liquid, but this method was not capable of a high speed of operation and therefore the maximum output for which the flexing machine was otherwise capable, was impossible. Furthermore I have discovered that by flexing the sole considerable at the moistening applying station, the pores of the leather are more opened and the permeation of the leather by the moistening solution is greatly facilitated, especially when the application of such fluid is made by rolls of felt or the like feeding and compressing the solution directly to and through the leather. Accordingly my present apparatus contemplates the provision of means to feed the leather soles around a curve of short radius, while the moistening solution is applied to the convexed side of the sole under considerable pressure. The sole may be thus moistened with great rapidity and the sole is then, preferably, fed to a further flexing device to bend the same backwardly and forwardly and complete the operation as described in my patents above mentioned. As the subsequent bending of the sole does not constitute a part of the present improvement, I have not illustrated the same, but it will be readily understood that the present apparatus may be substituted for the tempering station in the machine of my said copending application. I have therefore illustrated in the drawings simply the feeding-in end of the machine with the moistening applying apparatus.

Referring to the drawings, illustrating a preferred embodiment of my invention, Figure 1 is a view partly in cross section of the feeding-in end of the type of sole flexing and moistening machine which I have devised as above mentioned; Fig. 2 is a detail view of the valve controlling the fluid supply to the tank and rolls constituting the applying part of the apparatus; Fig. 3 is a plan view of the machine as shown in Fig. 1; and Fig. 4 is a side view, partly in section of the valve control.

While I prefer to incorporate the apparatus herein illustrated as a part of the flexible machine, of my said co-pending application, yet it will be understood that the apparatus may be employed separately, if desired, as a moistening and flexing apparatus. A suitable framework, comprising two side members, 1, united to a base plate 2, is provided with journal bearings for the feed rolls 3 and 4. Adjacent these feed rolls are slots in each side frame, as indicated at 5 and 6 respectively, Fig. 1, each slot having guide ways 7, on which journal boxes 8 and 9 respectively are mounted to slide, these journal boxes carrying bearings for the movable feed rolls 10 and 11 respectively. The forward feed roll 10 is preferably corrugated or roughened so as to positively grip and feed in a sole as it is fed into the machine from the left, viewing Figs. 1, 2, and 3, and this roll is held yieldingly downward toward its coöperating roll 3 by coiled

springs 12 bearing against the journal box 8 and against a cap 13 fitted over the slots in each side frame 1, one such spring and cap being illustrated in Fig. 1. A spring 14 is similarly arranged to bear on the sliding journal box 9 carrying the roll 11, this construction permitting the machine to handle different sized soles automatically and under spring tension, in a manner similar to that illustrated in the device of my said copending application. Affixed to the sides 1 and extending from one to the other is a tank 15 of considerable depth, having ends 16 and 17 and flaring side walls 18 and 19. A roll 20 is fitted in suitable journal bearings within the ends 16 and 17 of the tank 15, so as to be freely rotated therein, said roll having a gear wheel 21 secured to one end, and the core of said roll being preferably wrapped with felt 22 or some equivalent absorbent material. Directly above the roll 20 is a similar felt roll 23, having thereon a gear wheel 24 adapted to mesh with the gear wheel 21 on the roll 20 within the tank 15, the axle 25 thereof extending beyond the ends 16 and 17 of the tank and through suitable bearings arranged to slide on guides 27 in a slot 28 in a similar manner to that already described as to the boxes 8 and 9, one such box being illustrated in Fig. 3. An outer end of the axle 25 carries a gear wheel 29, from which the rolls 23 and 20 may be rotated. Preferably the rolls 3, 23, and 4 are all actuated by a common source of power, such as a sprocket chain, belt or the like, as illustrated in the machine of my said copending application, or in any other suitable manner. Springs 30 bearing against the journal boxes 26 act to hold the felt roll 23 yieldingly in contact with the felt roll 22, as a sole is fed between the same, the upper roll yielding and affording the desired tension to compress the liquid applied by the rolls to the sole.

I prefer to arrange the liquid applying rolls at a position relatively with the feed rolls 3 and 10, and 4 and 11, so that the sole as it is fed through the series of rolls will be substantially flexed as it passes between the liquid applying rolls 22 and 23, so that the solution applied to the convex side of such sole by the lower roll 22 will effect a substantially forcible application or simultaneously applying and compressing the solution directly into the stretched and concaved side of the sole to thereby initiate a permeation of the sole by the liquid; this construction insures the positive application of a suitable and sufficient amount of the moistening liquid to the sole, irrespective of the speed with which the soles may be fed by the moistening devices, thus permitting a maximum feeding capacity and greatly accelerating the output of the machine.

I provide a suitable automatic control for the supply of liquid to the tank 15, permitting just the right amount of the moistening solution to flow into the tank 15 for each sole fed therethrough and thus maintaining a proper supply at all times, irrespective of the number of soles being operated upon and at the same time conserving the supply of liquid. To this end I arrange a valve 31 which may be conveniently threaded into an aperture provided therefor in a lug or boss 32 on the flaring side 18 of the tank. The valve member 33 is normally held in closed position by a spring 34 bearing between a bracket 35 and a pin on the rod 46, as will be explained, (see Fig. 1). Secured to the valve member 33 is a stem 36 which is normally held, (by the spring 34) projecting beyond the valve 31 and into the tank 15, as illustrated in Figs. 2 and 4. In order to have this valve operated by each sole, as the sole is fed through the apparatus, I have hinged a plate 37 to the end of the side 18 of the tank 15 by hinge rings or members 38, which plate is adapted to rest upon the projecting portion of the valve stem 36, and be normally held in a position so closely adjacent the roll that a sole as it is fed through the machine will necessarily force the plate 37 downwardly, thus moving the valve member 33 against the tension of the spring 34 and opening the valve to admit a flow of tempering solution into the tank 15, sufficient in quantity to replenish the supply in said tank as a sole is fed through. The plate 37 will be held depressed and the valve consequently opened during the feeding through of a sole, to a proper extent to replenish the supply, irrespective of the size of the sole, as a longer sole will hold the valve open during a longer period than a shorter sole, and vice versa. Affixed to the valve 31 is a supply pipe 39, leading to any suitable source of supply. The height of liquid in the tank 15 may be regulated by an outlet 40 arranged at any suitable position, preferably as shown in Fig. 2 at about the height of the felt roll 22, so that said roll is always immersed within the liquid and will be thoroughly saturated therewith to apply the same to the soles fed between the felt rolls 22 and 23.

In order to register the number of soles fed through my machine, I prefer to utilize the motion of the swinging plate 37 as a means to actuate a registering device, and therefore form a bracket 41 on the side of the tank 15 adjacent the lug 32 holding the valve 31, said bracket carrying a pin 42 on which a lever 43 is pivotally mounted, this lever having one end 44 forked and engaging the projecting end of the valve stem 36, which valve stem is provided with lugs 47 and 48 to rock the valve 43 as the plate 37 is depressed and the valve stem 36 reciprocated. To the outer arm 45 of the lever 43

I pivot a rod 46 to actuate an indicator and around this rod 46 I arrange the spring 34, the bracket 35 also acting as a guide for the rod 46.

The operation of the apparatus will be readily understood. Soles being fed into the left hand end of the machine will be gripped by the continuously rotating feed rolls 10 and 3, being thence fed downwardly, owing to the relative position of these rolls, as clearly shown in Fig. 1, and as explained in my copending application, toward the felt rolls 22 and 23, deflecting the plate 37 in its progressive movement and opening the valve 31 to admit a supply of tempering solution into the tank 15. Continuous feeding action of the coöperating rolls 3 and 10 and the solution applying rolls 22 and 23 feed the soles farther against the flaring side 19 of the tank and upwardly to the rolls 4 and 11 which further grip and feed the same, adding to the compressing effect of the moistening liquid and removing any surplus liquid therefrom which will fall back into the pan 48 in the bottom of the machine, which pan also receives any overflow from the outlet 40. During the progressive movement of the sole from the entrance rolls 3 and 10 to the rolls 4 and 11, which are preferably a much less distance apart than the length of the soles fed through the machine, the sole is flexed about the roll 23 and the convex side receives the forcible liquid applying action of the lower roll 22, while the pores of the leather are being opened on said convex surface, the springs 30 affording the desired degree of tension or compression with which the liquid is thus forcibly applied. In feeding through soles, even with great rapidity they will each receive a uniform application of moistening solution and the solution will be equally forced into the pores of the leather while each sole is convexed to the same extent, thus insuring a similarity in the work done by my present machine. After the soles pass through the rolls 4 and 11 they may be further bent and flexed between double belts passing around rolls of short radius, as shown and described in my patents above mentioned. While I have described and illustrated my present machine as intended primarily for operation upon soles, yet it will of course be understood that leather or similar stock which it is desirable to treat may be run through the machine for a similar purpose. My invention therefore is not limited merely to operating upon soles, but in its broader aspects may be utilized for operating on many articles.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a machine of the class described, means to feed a sole through the machine, means to flex the sole during such feeding, and means to apply moistening liquid positively and forcibly to the convexed portion of the sole during such feeding action, in combination with means actuated by the sole fed therethrough to control automatically the supply of tempering fluid.

2. In a machine of the class described, means to feed a sole through the machine, means to flex the sole during such feeding, and means to apply moistening liquid positively to the convexed portion of the sole during such feeding action, said feeding and applying means comprising a felt roll in contact with the convexed portion of the sole during said feeding and flexing, in combination with a swinging plate actuated by the sole to control the supply of tempering fluid proportionately to the length of each sole so fed.

3. In a machine of the class described, a liquid supply, means to feed leather soles therethrough, means to open progressively the pores of said leather while being fed through said liquid supply, means to apply forcibly the liquid by a felt roll to the sole at that point where the pores are stretched open, and a swinging plate to normally keep the liquid supply closed, over which plate soles are fed to the machine temporarily displacing the plate from its normal closing position.

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

GEORGE BASLER.

Witnesses:
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