L. R. HEIM.

MACHINE FOR DAMPENING THE SEAMS OF FOLD COLLARS.

APPLICATION FILED DEC. 1, 1905.

983,051.

Patented Jan. 31, 1911.

4 SHEETS—SHEET 1.

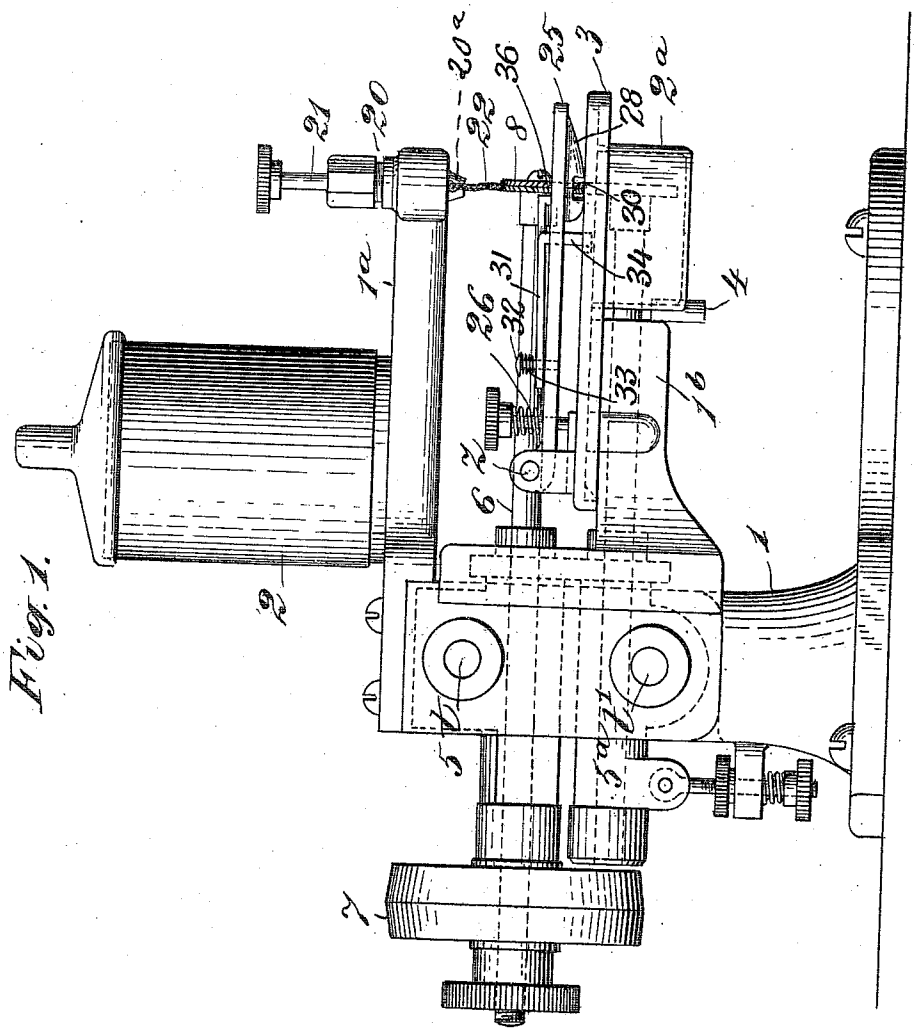

Fig. 1.

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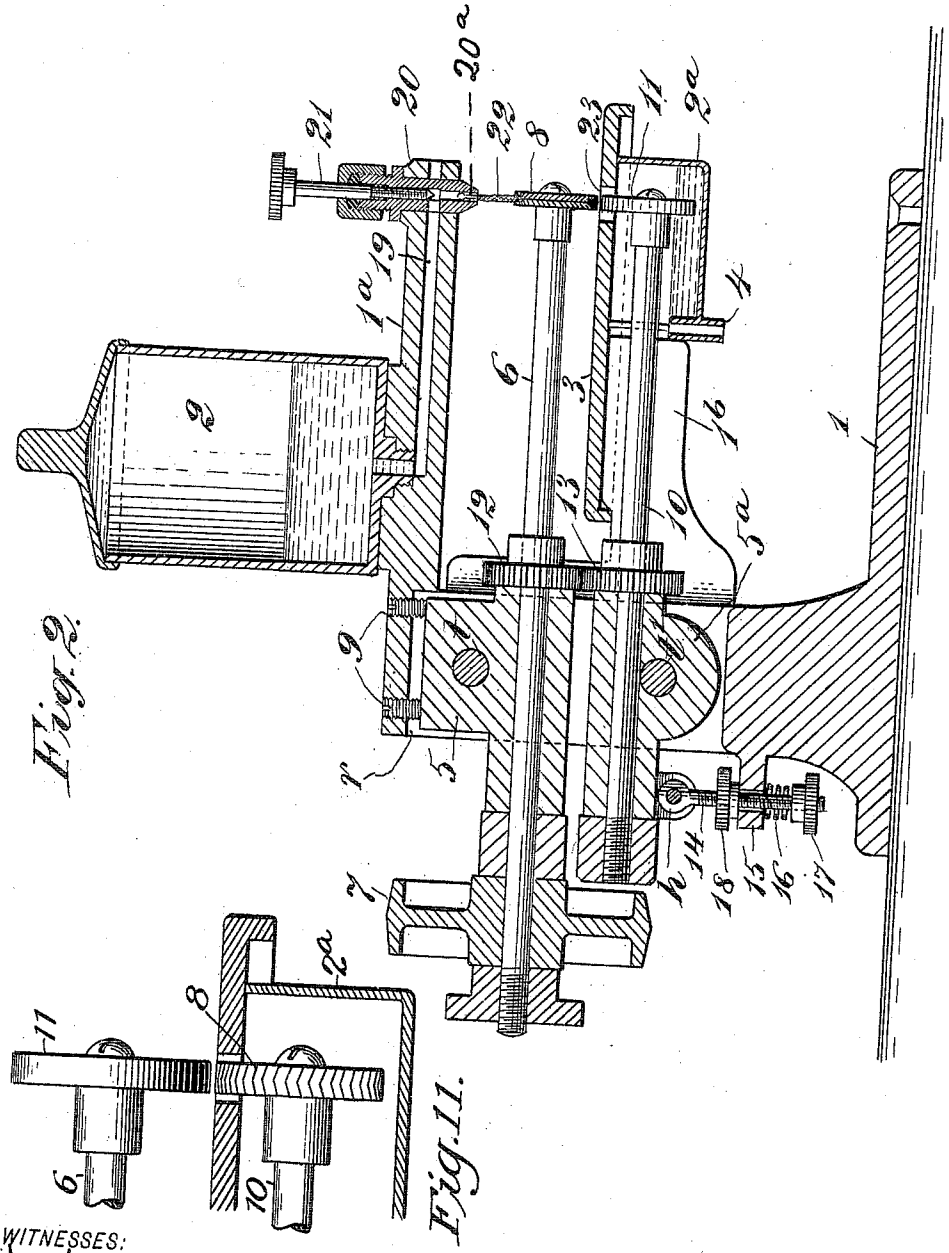

Fig. 2.

Fig. 11.

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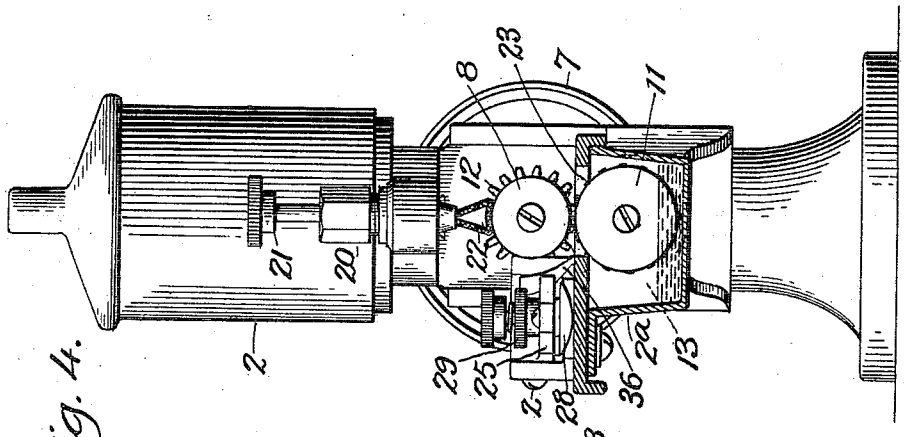

Fig. 4.

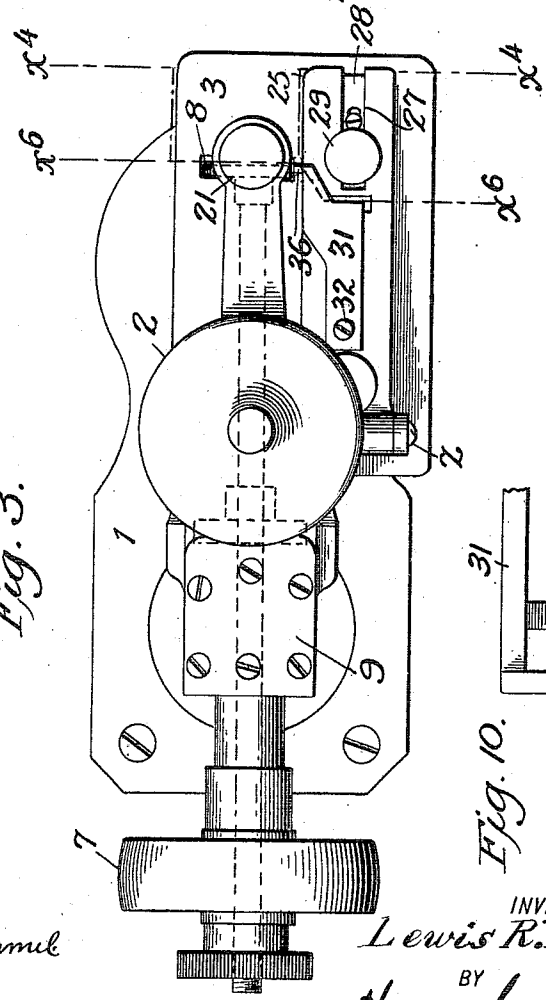

Fig. 3.

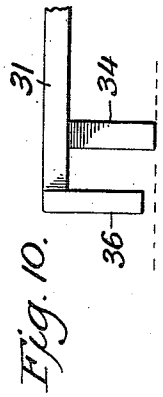

Fig. 10.

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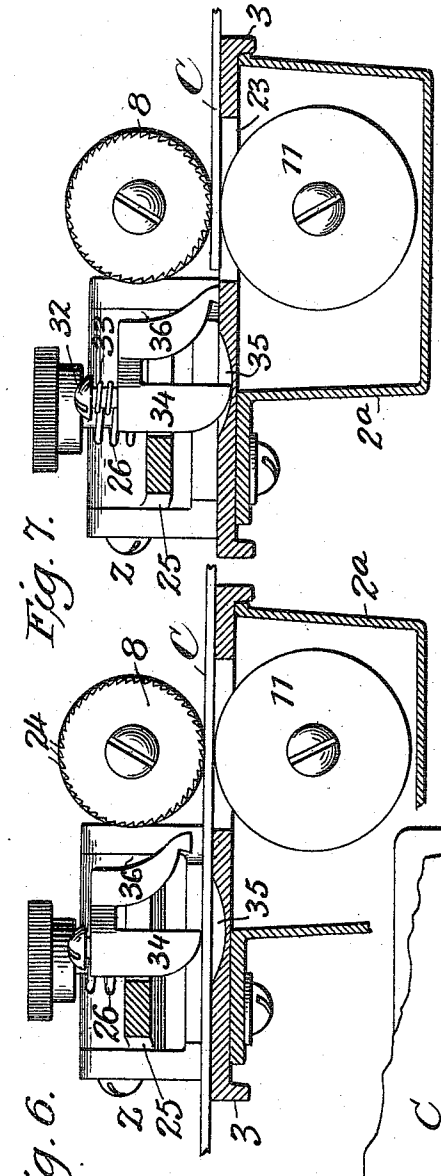

Fig. 7.

Fig. 6.

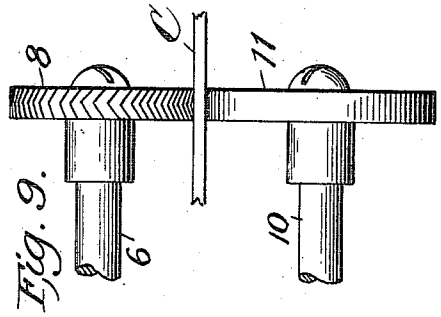

Fig. 9.

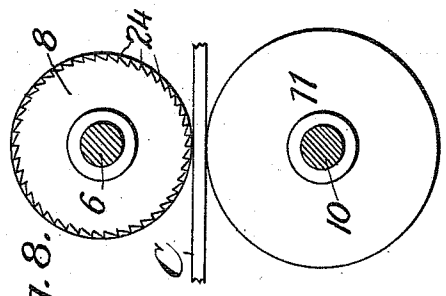

Fig. 8.

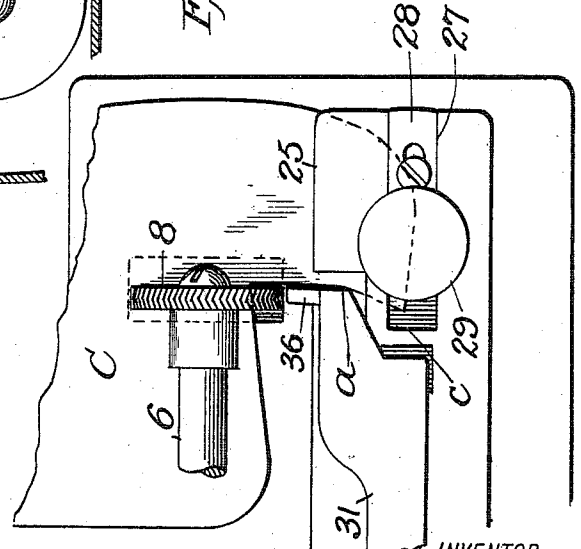

Fig. 5.

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UNITED STATES PATENT OFFICE.

LEWIS R. HEIM, OF DANBURY, CONNECTICUT.

MACHINE FOR DAMPENING THE SEAMS OF FOLD-COLLARS.

983,051. Specification of Letters Patent. Patented Jan. 31, 1911.

Application filed December 1, 1905. Serial No. 289,902.

To all whom it may concern:

Be it known that I, LEWIS R. HEIM, a citizen of the United States, and resident of Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Machines for Dampening the Seams of Fold-Collars, of which the following is a specification.

This invention relates to certain improvements in dampening machines such as are particularly designed and adapted for use in laundries, and the like for dampening or moistening articles preparatory to ironing or otherwise operating thereon, and the object of the invention is, in part, to provide a machine of this general character having a novel and improved construction and arrangement of the moistening means whereby greater convenience and uniformity of operation are attained, together with other advantages, and, in part, to provide a machine of this general character which shall be particularly adapted for dampening the lines of fold in fold collars and the like, and wherein means of a novel and improved nature are provided for preventing the moistening of the collar tabs.

The invention consists, in part, in a dampening machine comprising a moistener mounted for movement in contact with articles to be dampened, means for feeding articles to be dampened in contact with the moistener, and means for operating the moistener and the feeding means at such relative speeds that the moistener is adapted, during the operation of the machine to rub over the surfaces of articles to be dampened.

Another part of the invention consists in a dampening machine comprising a work plate, members above and below the work plate and between which articles passed over said work plate are adapted to be fed, means for supplying water to one of the members and novel means for adjusting the members to accommodate the machine for dampening articles of different kinds and thicknesses.

Another part of the invention consists in a trip device of novel and improved character, adapted for employment in connection with such dampening machines as are particularly adapted for employment for dampening the lines of fold in fold collars; such trip device comprising an actuated part movable in and out of position for engagement with the edge of a collar tab to throw the same laterally out of line with the moistening means, and a part controlled from the movement of a collar and arranged to hold said actuated part out of engagement with the collar during the greater part of the movement thereof.

The invention also contemplates certain novel features of the construction, and combinations and arrangements of the several parts of the improved dampening machine, and of said improved trip device, whereby certain important advantages are attained and the machines and devices embodying my improvements are rendered simpler, less expensive and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings which serve to illustrate my invention, and wherein I have shown my improvements embodied in a machine for dampening the lines of fold in fold collars Figure 1 is a side elevation of the improved machine; Fig. 2 is a central vertical section taken longitudinally through the machine; Fig. 3 is a plan view of the improved machine; Fig. 4 is a vertical section taken transversely through the end of the machine whereat the moistening devices are located, and showing certain features thereof to be hereinafter described, the plane of the section being indicated by the line X^4—X^4 in Fig. 3; Fig. 5 is a fragmentary plan view, drawn to an enlarged scale and showing certain features of the moistening means and trip device to be hereinafter described. Fig. 6 is an enlarged fragmentary section taken vertically and transversely through the machine in the plane indicated by line X^6—X^6 in Fig. 3, and showing the trip device moved out of position for engagement with the collar tab; Fig. 7 is a view similar to Fig. 6, but showing the trip device adjusted in position for operation to prevent contact of the collar tab with the moistening means; Fig. 8 is an enlarged fragmentary detail view showing the dampening or moistening rollers in side elevation; Fig. 9 is a view similar to Fig. 8, but showing the moistening rollers in edge elevation; Fig. 10 is a fragmentary detail

view showing the extremity of the trip device, and Fig. 11 is a view somewhat similar to Fig. 9, but illustrating a modified arrangement of the moistening or dampening rollers.

As shown in these views the improved machine is provided with a frame 1, which has a work plate or table 3 over which the articles to be dampened are to be fed, and is provided with an arm 1^a at its upper part, said arm being arranged to overhang the work plate or table 3, and serving to support a water reservoir 2 of any appropriate kind, from which water is supplied to the moistening means as will be hereinafter explained. The frame as herein shown, has a recess or opening r produced in it opposite to one end of the work plate or table 3, and t and t^1 represent trunnions or studs extended across said recess or opening r, said studs or trunnions being adapted for turning movement and carrying bearing blocks 5, and 5^a arranged respectively, in planes above and below the work plate or table 3.

6 represents a driving shaft which is herein shown as collared and arranged to turn in the upper bearing block 5, and has one end projecting therefrom above the work plate or table 3 and provided with an upper moistening member or roll 8, while its opposite end is extended beyond the opposite side of the said upper bearing block 5 and carries a pulley 7 at the end of the frame opposite the work plate or table 3 and adapted for the passage of a belt or band (not shown) by means of which the improved machine may be driven from any desired source of power.

By the employment of the pivotal mounting of the upper bearing block 5 upon its stud t as herein shown, it is evident that a certain extent of rocking movement of shaft 6 is afforded, permitting the moistening wheel or roll 8 to be approached more or less closely to the work plate or table 3 for accommodating the machine to different classes of work, and in order to permit effective and convenient adjustment of the parts for accomplishing this result, set screws 9, 9 are provided on the frame with their tips engaged on the top of the bearing block 5 at opposite sides of the stud t. By turning said set screws 9, 9 the adjustment of shaft 6 may be varied and maintained, and where this construction is employed there is little or no yielding movement of the wheel or roll 8 during the passage of the work beneath the same.

10 represents a lower shaft which, as herein shown, is parallel with and below shaft 6, being collared to turn in the lower bearing block 5^a, and having one end portion extended beneath the work plate or table 3, and provided with a lower reservoir 2^a arranged beneath said work plate or table 3 and adapted to contain a supply of water into which the lower part of the periphery of said wheel or roll 11 is adapted to run as clearly shown in Fig. 2, so as to afford a continuous and uniform supply of water thereto. The upper part of the periphery of said lower moistening wheel or roll 11 is extended as herein shown, through an opening 23 in the work plate or table 3 and is adapted to stand normally slightly above, but is capable of being so depressed as to be flush with the top surface of said plate or table opposite to the upper wheel or roll 8 so as to be adapted for contact upon the under surface of the collar or other article fed over the table.

As herein shown, intermeshing spur gears 13 and 12, of equal diameter are employed for driving the lower shaft 6, and at the side of the lower trunnion or stud t^1 opposite to the extended end of shaft 10, the lower bearing block 5^a has connection, as seen at h, with the upper end of a link 14, the lower end of which is screw-threaded and is passed down through a lug 15 on the frame, there being nuts 17 and 18 adjustably held on said link below and above the lug 15. The upper nut 18 on link 14 is adapted for contact upon the top of lug 15 and acts as a stop to prevent such pivotal movement of bearing block 5^a as would tend to elevate the lower moistening roll too high above the top surface of the work plate or table 3, while below lug 15, a spring 16 is coiled upon link 14 with its upper end engaged upon said lug and its lower end engaged upon the lower nut 17 in such a way that the tension of said spring is normally exerted to hold the upper part of the perimeter of the lower moistening wheel 11 thrust up above plate of table 3 with an elastic or yielding upward pressure. Where this construction is employed it will be seen that by varying the adjustment of nuts 18 and 17, the elevation of the lower moistening wheel or member above the work table and the force with which said wheel or member is thrust yieldingly upward may be varied to accommodate different kinds of work, and by this construction it will be seen also that as the shafts 6 and 10 are driven in unison, to turn the upper and lower moistening wheels or rollers 8 and 11, and cause them to travel in contact with movement will be imparted to the said collar or other article to be moistened, feeding movement will be imparted to the said collar or other article passed between said wheels or rolls by reason of the yielding or elastic pressure exerted by the lower wheel or roll 11, while at the same time said wheel or roll is capable of movement to accommodate inequalities or differences in thickness of the collars or other articles being dampened.

As herein shown, the overhanging arm

1ª of the frame has a duct or passage 19 produced in it and adapted to convey the water from reservoir 2 to a point at the end of said arm immediately above the upper moistening wheel or member 8, at which point said arm 1ª carries a valve casing, the passage of which is in communication with said duct 19 so as to receive water therefrom. The lower end of the casing 20 has a discharge outlet alined above the said upper member or wheel 8 and in said casing is a valve 21 controlling the discharge of the water at said outlet of the casing. As shown at 20ª in Figs. 1 and 2, the discharge outlet of casing 20 is slotted to receive and hold the upper part of a wick 22, to which the water discharged at said outlet is communicated and the lower end of said wick 22 is pendent in contact with or just above the upper peripheral surface of the upper moistening wheel or roller 8 so that the water discharged at the outlet of the valve casing 20 is conveyed downward along wick 22 by reason of the capillary nature thereof, and is discharged upon the top surface of the upper moistening wheel or roller 8. The employment of this valve 21 permits of accurately regulating the supply of water to the requirements of the work in hand, and the employment of the wick 22 insures effective supply of water without liability of splashing or soiling the work, and it will be seen that since the supply of water to the upper wheel or member 8 is constant, a certain proportion of the water thus supplied will run down over the lower wheel or roller 11 at such times as no collars or other articles are being moistened and will serve to maintain a suitable supply of water in the lower reservoir 2ª. Said lower reservoir 2ª has an overflow outlet 4 to prevent excessive collection of water therein.

As shown in Figs. 1, 2, 8 and 9, the upper moistening wheel or member 8 is made from hard material and has its peripheral surface roughened or serrated so as to operate by its bite upon the collar or other article being dampened to positively move or feed said article through between the two wheels or rollers 8 and 11 so that when the improved machine is employed for dampening fold collars, a moistened stripe is produced along the line of fold of each collar in a well known way such as is desirable to permit of folding or shaping such collar, and the serrations thus produced in the peripheral surface of said upper wheel or roller 8 are adapted to retain a supply of water greater than is the case where a smooth surfaced moistening wheel or roller, such as the lower wheel 11 shown in said figures, is employed for moistening the articles. As herein shown this increased capacity of the upper moistening or feed wheel or member 8 is augmented by the employment of a peculiar and novel formation of the hard serrated perimetral surface thereof, which consists in forming the serrations in substantially V-shape so that similarly shaped channels are produced between said serrations, the divergent parts of the channels and serrations meeting at the central part of the perimeter of said roll or member 8, and extending therefrom in the direction of movement of the wheel so that the velocity of the moistening wheel is employed to assist in retaining the water at the central angular parts of the V-shaped channels and said water is prevented from flowing laterally over the sides of the wheel. Where this arrangement is employed the water being collected and retained in the angular parts of the channels, is carried down in the rotation of roll 8 and is intimately pressed and applied in proper position upon the collar by reason of the sinking of the serrated surface of said wheel into the collar so as to effectively and uniformly dampen or moisten the same along the line of fold.

As shown in Figs. 2, 4, 8 and 9, the lower moistening roll or member 11, which has a smooth peripheral surface, is made of a greater diameter than said upper serrated roll 8, and since shafts 6 and 10 are driven at equal speeds, it follows that the perimeter of said lower roll or member 11 will travel at a greater velocity than the upper roll or member 8, so that, since the speed at which the collar or other article to be moistened (shown at C on the drawings) is fed through the machine, is regulated by the speed of the serrated feeding roll or member 8, the said smooth surfaced lower roll or member 11 will consequently travel faster than the collar, or other article and will rub over and upon the surface of the same in such a way as to apply a greater and more uniform and effective supply of water for moistening the collar or other article than would be possible did said lower roll travel at a speed in unison with the article to be dampened or moistened. I do not desire to be understood as limiting myself to the peculiar formation of the parts herein shown for accomplishing this difference in the peripheral speed or velocity at which the rolls or members are driven, nor do I desire to be understood as limiting myself to the driving of the smooth surfaced roll or member at a greater peripheral velocity than the roughened or serrated roll or member, as this is not essential to my invention. Nor is it essential that the upper roll or member be serrated or roughened and the lower roll or member smooth, since the construction shown in Fig. 11, wherein the rolls or members are reversed in position, may also be employed with good results.

When machines of the general character

of that herein set forth are employed as seam dampeners for dampening the lines of fold in fold collars and the like, I prefer to employ a novel and improved arrangement of guiding and trip devices for guiding the collars or other articles past the moistening means in order that moistened stripes may be uniformly applied upon the collars along the lines of fold thereof, and for preventing contact of the moistening devices upon the collar tabs, which would be thereby needlessly disfigured, and these devices I will now describe.

25 represents a bar or part having one end pivotally held upon a horizontally extended pivot pin or screw *z*, carried upon the work plate or table 3, the opposite free end of said part or bar 25 being extended across the top surface of the work plate or table transversely of the path of the collars or other articles fed between the moistening wheels or rolls 8 and 11, and being capable of movement toward and from the said work plate or table to permit such collars to be fed beneath such free end of the bar or part, as clearly shown at C in Fig. 6. 26 represents a spring, the tension of which is normally exerted to press the free end of said bar or part yieldingly toward the work plate or table 3, and said free end of the bar or part 25, has a longitudinally extended guide way or slot 27 wherein a presser-foot 28 is adjustably held by means of a screw 29. This presser-foot 28 has at its lower part a rounded projection, which is pendent beneath the underside of the free end of the bar or part 25, and is provided in its lower rounded surface with a channel or groove 30 adapted for engagement with the seams ordinarily present along the lines of fold in fold collars, in such a manner as to guide the collars while they are being fed between the dampening or moistening rolls and thereby insure the application of the moistened stripes along the lines of fold of such collars. The adjustability of said presser-foot 28 permits of accommodating the device to collars of different sizes and styles, and the convex or rounded lower surface contour thereof as seen in Fig. 4, permits the ready insertion of the collar to be dampened beneath the presser-foot and prevents damage or marring of the surface of the collar.

As shown herein, the improved trip device is arranged adjacent to the collar guide and between the same and the moistening means, said trip device having a part movable in and out of engagement with the edge of the collar tab *c*, and adapted, when moved into engagement therewith, to force the collar laterally so as to throw the said tab out of line with the moistening means and prevent it from being dampened or marred by contact therewith. The trip device is controlled from the movement of the collars while the same are being fed through the machine, in such a manner that when the body portion of the collar shall have passed between the moistening or dampening devices, the said trip device is operated and said part thereof is moved into engagement with the collar tab *c* and thereupon operates to push the collar tab laterally out of position for contact with the moistening devices. I have herein shown the trip device connected with the collar guide, but although this is desirable in some cases, I do not desire to be understood as limiting myself in this respect. I will now describe the detailed construction of the trip device as herein shown.

32 represents a pin extended up from the bar or part 25 and serving as a pivot whereon is held a trip member 31, which is thereby capable of pivotal movement toward and from the work plate or table 3, independently of the movement of said bar or part 25. A spring 33 coiled on pin 32 above said trip member 31 exerts its tension to hold the said member normally depressed with a yielding pressure toward the work plate or table, and the free end of said member 31 has a depending part 34 which is extended down through an opening in bar or part 25 and has its lower end provided with a rounded surface, as clearly shown in Figs. 6 and 7, adapted to be presented in the path of the collar C as the same is fed beneath the presser-foot 28, whereby the said collar is adapted to automatically pass beneath said rounded lower end of the part 34, and thereby rock the trip member upwardly against the tension of spring 33. As shown herein, the work plate 3 has a recess 35 produced in it and adapted to receive the lower end of part 34 when the trip member is depressed, as clearly shown in Fig. 6. The free end of the trip member 31 also carries a trip finger 36 which is downwardly directed and has its lower end arranged in line with and closely adjacent to the upper moistening wheel or member 8. The length of the trip finger 36 is slightly less than that of the downwardly directed part 34 of the trip member 31, and the part 34 of the trip member 31 is in line with the body portion of the collar and is so set with relation to the moistening wheels as to be adapted, when the body of the collar shall have passed beneath it, as shown in Figs. 5 and 7, to drop off the end edge of the said body portion and to stand at one side of and free from the tab *c* so that its lower end may enter the recess 35, and the difference in length between said part 34 and trip finger 36 is such as to permit the said trip finger 36 to be supported out of contact with the surface of the collar, as seen in Fig. 6, when said part 34 is supported upon the body portion of the collar, so that marring of the surface by contact with said trip fin-

ger is prevented. The proportion and arrangement of the parts are also such that as soon as the body portion of the collar shall have passed beneath the part 34 and the same is allowed to descend, the trip finger 36 will be lowered into contact with the body portion of the collar at the end of the line of fold and will rest and be supported thereon until by the further movement of the collar, said body portion shall have passed beneath the trip finger 36 also, whereupon the said trip finger is in turn permitted to fall to the position shown in Figs. 5 and 7, wherein it stands alongside of the upper part of the tab *c* of the collar, and since said tab has an upwardly curved edge portion at its said upper part, as clearly shown in Fig. 5, it is evident that in further movement of the collar between the wheels or members 8 and 11, such upwardly curved edge portion of the tab *c* will contact upon the side of finger 36 and will serve to press the collar sidewise from the position shown in Fig. 5, so that in such further movement of the collar through the machine, the said tab is caused to pass in a path at one side of and out of contact with the moistening wheels or members and is not moistened thereby.

From the above description of my invention it will be seen that the machine provided with my improvements is of an extremely simple and comparatively inexpensive nature and is particularly well adapted for use by reason of the efficiency and the convenience with which it may be operated, and of the uniform nature of the work accomplished by its use, and it will also be obvious from the above description that the machine is capable of considerable modification without material departure from the principles and spirit of the invention and for this reason I do not desire to be understood as limiting myself to the precise form and arrangement of the several parts of the device herein set forth in carrying out my invention in practice.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A machine of the character described comprising rolls between which the articles to be dampened are adapted to be fed, means for turning said rolls at relatively different peripheral speeds to cause one of the rolls to rub over the surface of the articles to be dampened, and means for supplying water, for application to the articles to be dampened, at the periphery of the roll which is adapted for rubbing contact upon such articles.

2. A machine of the character described comprising moistening rolls between which the articles to be dampened are adapted to be fed, one of said rolls having a serrated and the other a non-serrated perimeter, means for driving one of said rolls at a greater peripheral velocity than the other, and water supplying means.

3. A machine of the character described comprising moistening rolls between which the articles to be dampened are adapted to be fed, one of said rolls having a serrated and the other a non-serrated perimeter, means for driving said rolls at relatively different peripheral velocities, the non-serrated roll being driven at a greater peripheral velocity than the serrated roll, and water supplying means.

4. A machine of the character described comprising moistening rolls between which the articles to be dampened are adapted to be fed, one of said rolls having a serrated and the other a non-serrated perimeter and one of the rolls having a greater diameter than the other, means for driving said rolls with the same axial velocity, and water supplying means.

5. A machine of the character described comprising a driven moistening roll having a roughened perimetral surface adapted for contact upon an article to be dampened, a reservoir adapted to contain liquid and provided with a discharge passage, and a wick of absorbent material adapted to receive the liquid from the discharge passage of the reservoir and extended therefrom to the moistening roll and adapted to convey the liquid from the discharge passage of the reservoir to said moistening roll.

6. A machine of the character described provided with a moistening roll having its perimetral surface provided with V-shaped channels and adapted for contact upon the articles to be moistened, and water supplying means.

7. A machine of the character described having a frame, a work plate, two moistening rolls, and means for rotating the same, the moistening roll which feeds the collar having on its periphery teeth of a V-shape when seen in plan, the branches of the said V-shaped teeth being presented in the direction of movement of the roll.

8. A machine of the character described having means for feeding, guiding and dampening a collar, and an automatic trip device to prevent the tab of said collar from being moistened, said trip device having a spring-pressed plate provided with a deflecting finger, and provided also with means for holding said finger up above the level of the body of the collar during the greater part of the feeding operation.

9. A machine of the character described comprising two members between which articles to be dampened are adapted to be passed, one of said members being a movable feed member having a roughened surface engageable with such articles to feed the same, and the other member being a mois-

tener to dampen such articles, means for supplying water to the moistener for application to such articles to dampen the same, and means connected with the feed member and arranged to move the same relatively to the moistener to move the articles to be dampened in rubbing contact with the moistener.

10. A machine of the character described comprising a rotatable moistener having a perimetral surface capable of movement in contact with articles to be dampened, means for supplying water to the moistener to dampen such articles, and means for feeding articles to be dampened in contact with the moistener at a velocity different from the velocity of the moistener to compel rubbing contact of the moistener upon such articles.

11. A machine of the character described comprising a moistener capable of movement in contact with articles to be dampened, means for supplying water to the moistener to dampen such articles, and means for feeding articles to be dampened in contact with the moistener at a velocity different from the velocity of the moistener to compel rubbing contact of the moistener upon such articles.

12. A machine of the character described comprising two rotatable members between the perimetral surfaces of which articles to be dampened are adapted to be passed, one of said members being a feed roll the perimetral surface of which is adapted for feeding engagement with such articles, and the other member being a moistener roll, means for supplying water to the moistener roll, and means for driving the feed roll at a peripheral velocity different from the peripheral velocity of the moistener roll to compel rubbing contact of the moistener roll upon articles passed between the members.

13. A device of the character described comprising a collar guide adapted for location adjacent to moistening means in position to engage and guide a collar, and a spring actuated trip device carried upon the collar guide and capable of movement independent thereof, said trip device comprising a part movable in and out of engagement with a collar tab and adapted, when engaged therewith to press said tab laterally out of position for contact with the moistening means, and means for controlling the movement of the trip device from such collar.

14. A machine of the character described having a work plate over which articles to be dampened are adapted to be passed, a rotatable feed member adapted for engagement with articles passed over the work plate for moving such articles, a rotatable moistener also adapted for contact with articles passed over the work plate to dampen such articles, water supplying means, and means for driving the feed member at a velocity different from the velocity of the moistener to compel rubbing contact of the moistener upon the articles to be dampened.

In witness whereof I have hereunto signed my name this 27th day of November 1905, in the presence of two subscribing witnesses.

LEWIS R. HEIM.

Witnesses:
J. F. SMITH,
SOL. MAYER.