

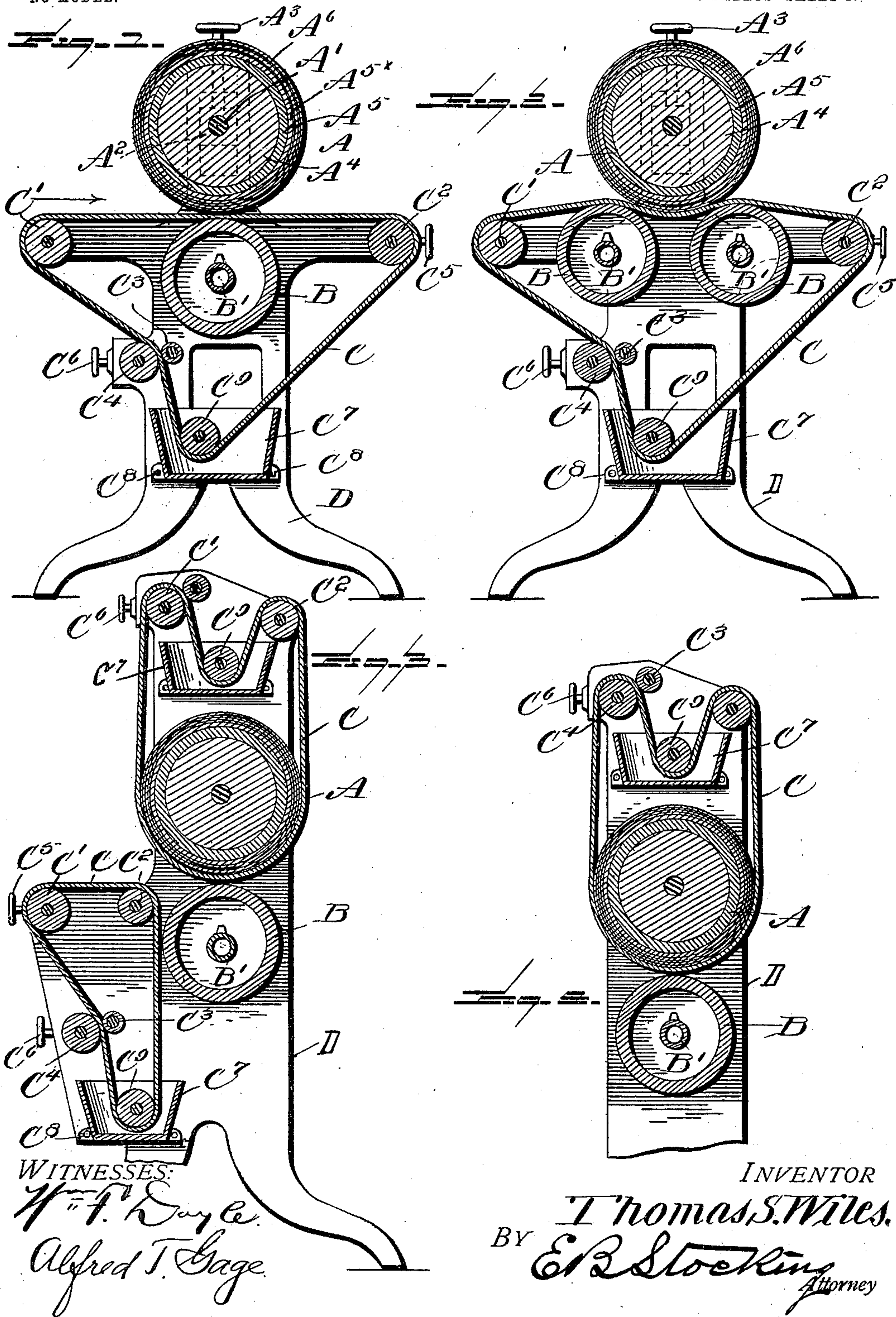
No. 736,660.

PATENTED AUG. 18, 1903.

T. S. WILES.  
DAMPENING MACHINE.  
APPLICATION FILED OCT. 6, 1902.

NO MODEL.

2 SHEETS—SHEET 1.





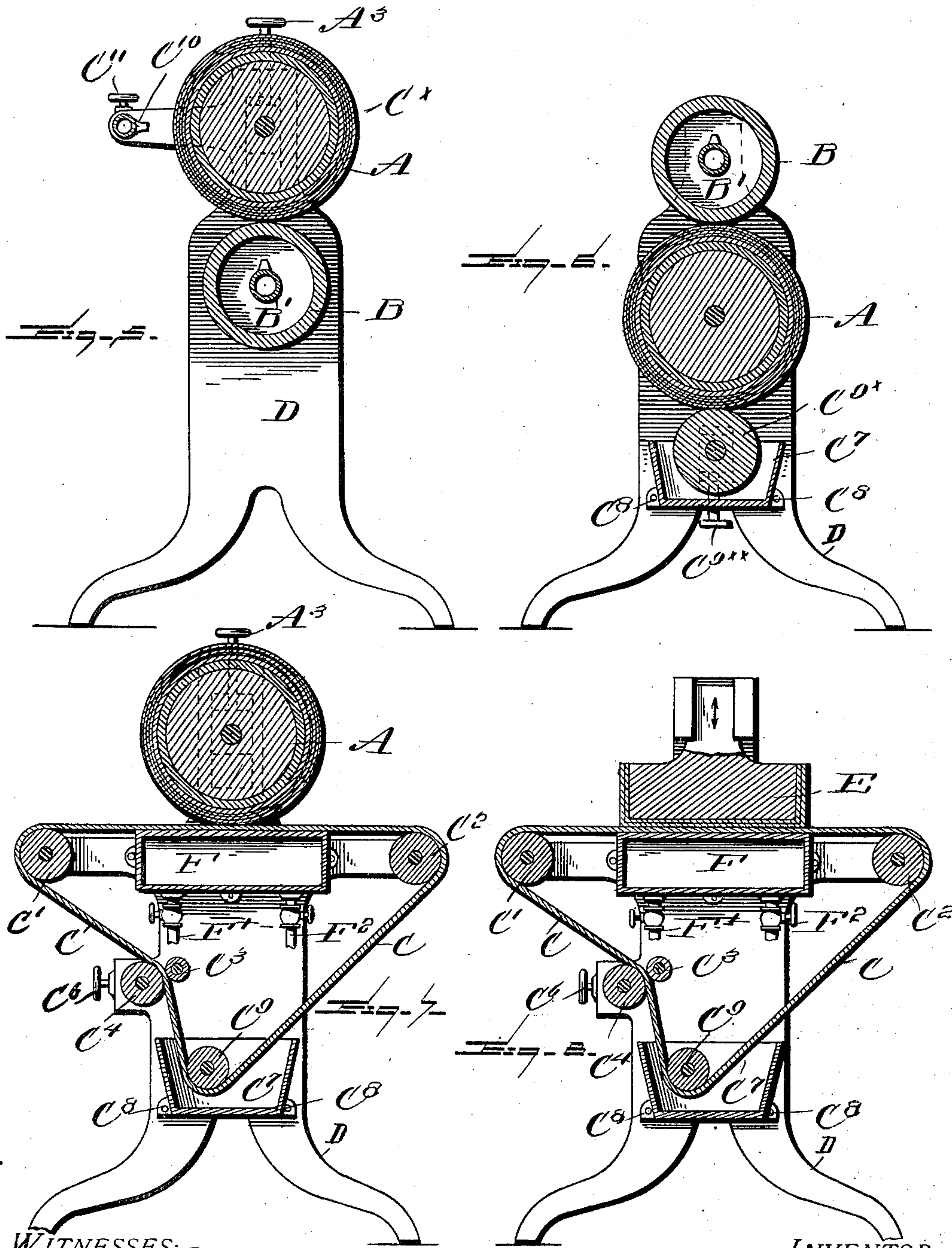
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*WITNESSES:*

WITNESSES.  
M<sup>rs</sup> F. Day &c.  
Alfred T. Gage.

*INVENTOR*

BY *Thomas Stiles.*  
*E. B. Stocking* Attorney



# UNITED STATES PATENT OFFICE.

THOMAS S. WILES, OF ALBANY, NEW YORK.

## DAMPENING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 736,660, dated August 18, 1903.

Application filed October 6, 1902. Serial No. 126,179. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS S. WILES, a citizen of the United States, residing at Albany, in the county of Albany, State of New York, have invented certain new and useful Improvements in Dampening-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to machines for dampening starched goods during the process of laundering the same.

It is well known in the laundering art that starched goods in order to present after being ironed a perfect and uniform finish must be previously dampened to a certain desired degree and to a perfectly uniform extent, the degree being somewhat slight and the extent or distribution of the dampness equal throughout all portions of the article and this notwithstanding great variations in thickness of its different portions. For example, in a collar the thickness varies from two to ten plies of the material of which it is made, the body portion being thinner than the edges and the seam formed at the junction of the body and band. This variation in thickness renders it very difficult to secure uniform dampness in all portions of an article, especially when the work is done by mechanical devices, as more moisture is required by the thicker portions than by the thinner. Heretofore moisture and pressure have been utilized by means of clothed rollers to which water was directly applied, the clothing serving to embed the thicker portions of the article, and thus uniformity of dampness was in a measure secured. If there be imperfect control of the quantity of water used, the operation is rendered uncertain, in that any excess of water is liable to weaken or remove the starch from spots or portions of the article, whereby when ironed an imperfect finish is produced. The thicker portions requiring more moisture than the thinner tends to an excess of moisture in the latter, and this excess of moisture leads to imperfect finish when ironed. To overcome these difficulties, I have devised a dampening-machine wherein moisture, pressure, and heat are employed, the actual dampening being accomplished by converting the moisture su-

perficially, or it may be otherwise applied to the article, into steam, which impregnates or permeates the article with satisfactory uniformity. A clothed roller is employed for the embedment of the thicker portions. Pressure is applied to bring the entire surface of the article into contact with the moistening device and heat is applied to convert said moisture into steam, which permeates the article uniformly. I also provide means for regulating the degree of moisture to be given to the article, so that the wetness of the steam produced by the application of heat may be satisfactorily controlled.

The construction, operation, and advantages of my invention will be hereinafter more specifically described, and the novel features thereof will be particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a central vertical section of a dampening-machine embodying my invention. Fig. 2 is a modification employing two heated rollers. Fig. 3 is a modification employing a plurality of dampening devices for applying moisture to both sides of an article. Fig. 4 is a modification for dampening the upper surface of an article. Fig. 5 is a modification of the form of dampening device employed. Fig. 6 is a modification showing also an inverted arrangement of the elements of the machine. Fig. 7 is a modification employing one fixed member, and Fig. 8 is a modification employing one reciprocating member.

Like letters refer to like parts in all the figures.

As hereinbefore stated, the purpose of my invention is to dampen starched goods by the application of moisture, pressure, and heat, and therefore the principal elements of the machine embodying my invention are a pressure device, a heating device, and a moistening device, these three principal elements being arranged in such a manner as to apply moisture to one or both surfaces of an article and to convert said moisture into steam by the application of heat, pressure being applied to the article in such manner and by such means as to insure a close contact of all parts of the article with the moistening device. It is apparent that these three principal devices



may be of any well-known construction, provided they are so relatively arranged as to cooperate to produce the desired work upon the article submitted thereto.

5 The pressure device may be either rotary or reciprocative and preferably in some cases suitably clothed, whereby its periphery or contacting surface shall be pliable or resilient in order to permit the embedment of hems,  
 10 seams, and other protrusions of an article pressed thereby, so that all portions of the opposite side of such article shall be brought into close contact with the moistening device, thus contributing materially to a uniform ap-  
 15 plication of moisture. Such a pressure device is embodied in the roller A, the shaft A' of which is suitably mounted in adjustable bearings A<sup>2</sup>, each of which is regulated by an adjusting-bolt A<sup>3</sup>, properly mounted in the  
 20 frame D of the machine and at each end of the roller. Upon the shaft A' the body of the roller A<sup>4</sup> is mounted and may consist of any suitable material, covered, if desired, with rubber A<sup>5</sup>, while the clothing of the roller or  
 25 pressure device may be of woolen or any other suitable material A<sup>5x</sup>, wound upon the body of the roller or upon the rubber if used in one or more plies, or a seamless jacket of felt or  
 30 or rubber. Upon this woolen fabric or jacket is wound one or more plies of thin cotton cloth. A more particular description of one form of clothing is found in United States Patent No. 177,908, granted me May 23, 1876;  
 35 but any suitable clothing other than that above described may be employed upon the pressure device, whether it be a roller or a reciprocating head E, as shown in Fig. 8—that is to say, the pressure device may be  
 40 constructed of any material which permits the embedment of seams and protrusions for the purpose above described.

The heating device may be a roller, as B, provided with any suitable device for heating  
 45 the same through the agency of steam, gas, electricity, or otherwise, said roller in this instance being illustrated as being provided with a burner B', adapted to the employment of gas as the heating agent. As shown in  
 50 Figs. 7 and 8, the heating device may be a platen or chest F, which may be heated by any desired means or agency, one form being illustrated as an inlet-pipe F' and an exhaust or drain pipe F<sup>2</sup>, adapting said chest to be  
 55 heated by steam.

Any suitable system of gearing may be employed to rotate the pressure device A and the heating device B and any suitable mechanism may be employed to reciprocate the  
 60 pressure device E in the form illustrated in Fig. 8.

The moistening device preferably consists of an endless apron C, of any suitable absorbent material, although as shown in some of  
 65 the modifications the clothing of the pressure device is used as a moistening device, as will hereinafter be more fully set forth. Suitably

mounted in the frame D of the machine are the rollers C', C<sup>2</sup>, C<sup>3</sup>, and C<sup>4</sup>. The rollers C' and C<sup>2</sup> in Figs. 1, 2, 3, 7, and 8 guide and  
 70 carry the apron C between or toward the pressure device and the heating device. The roller C' or C<sup>2</sup> is adjustable by means of the bolts C<sup>5</sup>, one at each end of the machine, so as to maintain the proper tension on the apron.  
 75 The rollers C<sup>3</sup> and C<sup>4</sup> constitute wringing-rollers, the latter of which is adjustably mounted and regulated by the bolts C<sup>6</sup>. C<sup>7</sup> is a water-pan secured in position in any suitable manner—as, for example, by lugs C<sup>8</sup> thereon  
 80 which are bolted to the frame D, as clearly indicated. Within the water-pan C<sup>7</sup> is a roller C<sup>9</sup>, under which the apron C passes for the purpose of immersing said apron in water contained in the pan.  
 85

Modified forms of moistening devices are shown in Figs. 5 and 6, wherein the clothing of the pressure device A is utilized as the moistening device, said clothing being practically endless, like an apron, so that water  
 90 may be applied to said clothing by means of a spray-pipe C<sup>10</sup>, controlled by a valve C<sup>11</sup>, as shown in Fig. 5, the pipe being so disposed as to throw a spray directly against the clothing of the pressure device. In Fig. 6 instead  
 95 of employing a spray I may employ a water-tank C<sup>7</sup>, having a roller C<sup>9x</sup>, regulated in pressure by the bolts C<sup>9xx</sup>, and projecting upwardly and rotating so as to carry water from the tank upwardly to the clothing of the pres-  
 100 sure device A. When it is desired to moisten both surfaces of an article, then the arrangement shown in Fig. 3 may be employed, wherein an apron C is arranged in front of the heating device and another similar apron C,  
 105 with similar adjuncts, is arranged above and passing around the pressure device A. In this arrangement, if desired, the clothing of the pressure device may be resilient or pliable and at the same time non-absorbent, these  
 110 ends being attained by the selection of suitable material for said clothing. In some cases it may be desirable to moisten the upper surface of an article only, when the moistening device or apron C and its adjuncts may be  
 115 arranged about the pressure device, as shown in Fig. 4. It is also apparent that the heating device may be above the pressure device, as shown in Fig. 6, and that the heating device may be duplicated and arranged so that  
 120 both of said devices may cooperate with one pressure device, as shown in Fig. 2.

The operation of the invention is as follows: Suitable gearing being provided to give motion to the various elements of the machine,  
 125 the pressure and heating devices of rotary form will cause the apron C when passing between them to travel through the path indicated, so as to take up moisture from the water-pan and pass therefrom through and  
 130 between the wringing-rolls, where such pressure is applied as to reduce the amount of water which the apron will carry up, the surplus falling back into the pan, while the por-



tion of the apron, with the regulated amount of moisture therein, passes upwardly and through between the pressure and heating devices. Now an article to be dampened is placed upon the apron and is delivered to (see Fig. 3) or passes with it through and between the pressure and heating devices. The moisture which in the arrangement shown in Fig. 1 is upon the under surface of the article is converted into steam, which passes upwardly through the article and uniformly throughout the article by reason of the embedment of protrusions or seams in the pliable or resilient clothing of the pressure device, whereby uniformity of dampening is secured. Permeation of steam takes place in all the forms of the invention illustrated. In Fig. 2 the conversion into steam and the pressure are repeated by reason of the presence of two heating devices. In Fig. 3 the moisture is applied to both sides of the article. In Figs. 4 and 5 the moisture is applied to the upper surface of the article. In Fig. 8, which illustrates the form of a pressure device that is reciprocated, suitable driving mechanism well known to a mechanic skilled in the art is provided to give an intermittent motion to the apron C at such time as the pressure device E is elevated, the apron being at rest when the pressure device is depressed and operating upon the article.

Various modifications and changes in details may be made without a departure from my invention, and I therefore do not limit myself in this regard to the arrangements herein shown and described. For example, it is not absolutely necessary that the apron or moistening device should pass through between the pressure and heating devices. This modification is illustrated in Fig. 3, where the apron C returns from the roller C<sup>2</sup> in front of the heating device B to the roller C<sup>9</sup> in the water-pan C<sup>7</sup>. It is clear that the moisture will be applied to the article while on the apron and that the article will afterward pass from the apron through and between the pressure device and heating device, where the moisture will be converted into steam, as in the other modifications.

As common in the art, the regulation of the degree of moisture in the moistening device (shown in Fig. 6) is accomplished by regulating the pressure of the water-roller C<sup>9x</sup> against the combined pressure and moistening roller A by means of the adjusting-bolts C<sup>9xx</sup>.

Having described my invention and set

forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. In a dampening-machine, the combination of, a clothed pressure device, a coacting heating device, a moistening device, constructed and arranged to dampen goods for the action thereon of said pressure and heating devices, and means for regulating the degree of moisture of the moistening device; substantially as specified.

2. In a dampening-machine, the combination of, a clothed pressure device, a heating device, and a moistening device operating between said pressure and heating devices; substantially as specified.

3. In a dampening-machine, the combination of, a clothed roller, a heated roller, an endless apron, and means for wetting said apron; substantially as specified.

4. In a dampening-machine, the combination of, a clothed roller, a heated roller, an endless apron, means for wetting said apron, and means for regulating the degree of moisture thereof; substantially as specified.

5. In a dampening-machine, the combination of, a clothed roller, a heated roller, an intermediate absorbent material, and means for moistening said material; substantially as specified.

6. In a dampening-machine, the combination of, a clothed roller, a heated roller, and an absorbent moistening device; substantially as specified.

7. In a dampening-machine, the combination of, a clothed roller, a heated roller, a moistening device, and means for expressing water therefrom; substantially as specified.

8. In a dampening-machine, the combination of, a clothed pressure-roller, a heated roller, an endless apron arranged to pass between the same, means for moistening said apron, and means for regulating the tension of said apron; substantially as specified.

9. In a dampening-machine, the combination of, a clothed pressure-roller, a heated roller, an endless apron, means for moistening the same, means for regulating the degree of moisture thereof, and means for regulating the pressure of the pressure-roller; substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS S. WILES.

Witnesses:

GEORGE B. EHRMANN,  
JAMES A. CLEARY.