

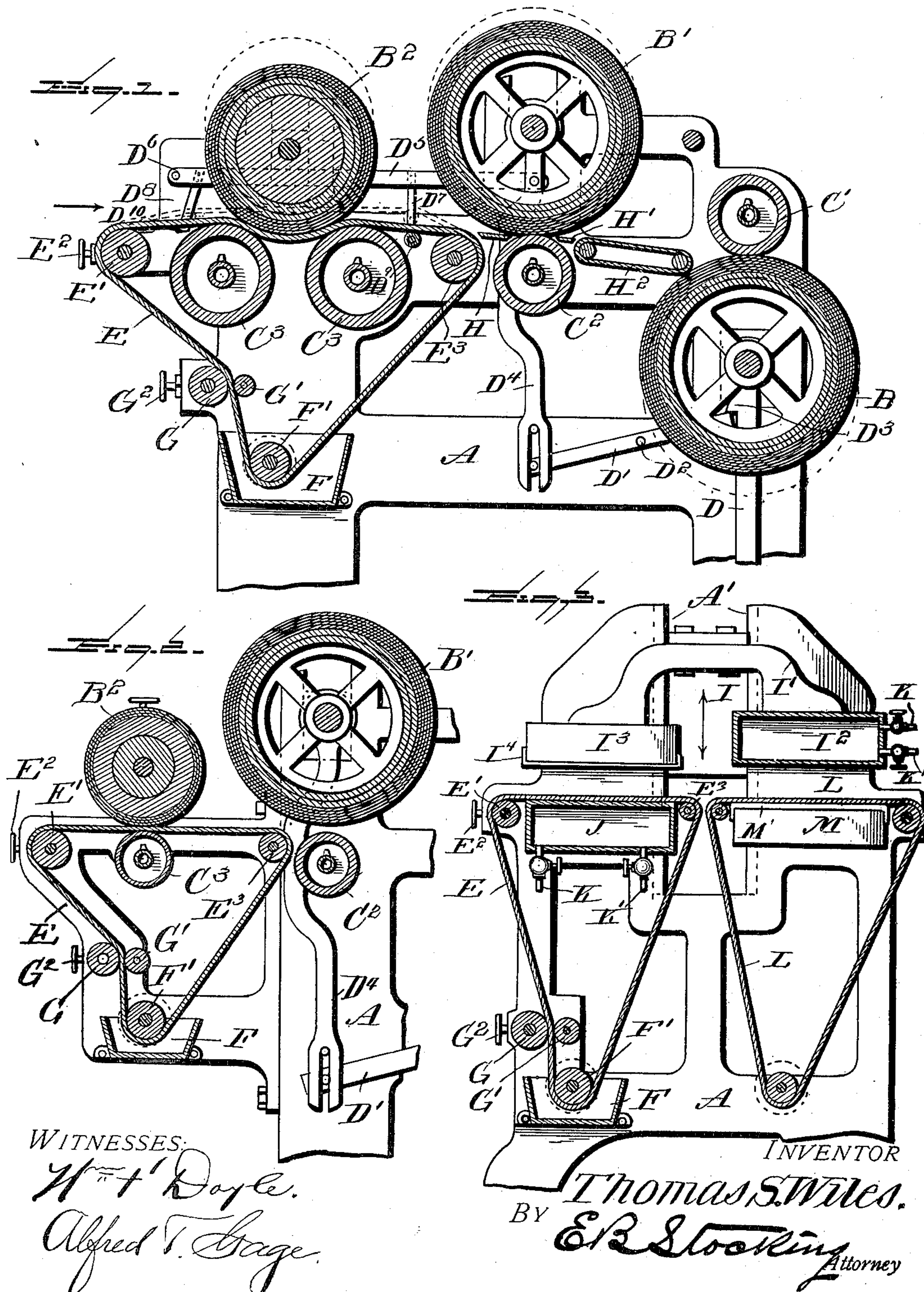
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T. S. WILES.
COMBINED DAMPENING AND IRONING MACHINE.

APPLICATION FILED OCT. 6, 1902.

NO MODEL.



UNITED STATES PATENT OFFICE.

THOMAS S. WILES, OF ALBANY, NEW YORK.

COMBINED DAMPENING AND IRONING MACHINE.

SPECIFICATION forming part of Letters Patent No. 736,661, dated August 18, 1903.

Application filed October 6, 1902. Serial No. 126,180. (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 a Combined Dampening and Ironing Machine, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention refers to a combined dampening and ironing machine; and it has for its object the provision of a machine that will perform the functions of both a dampening and of an ironing machine, embodying elements that shall subject the articles operated upon to the continuously-successive operations of the application of moisture, its conversion into steam, the permeation of the article with or by said steam while under the mechanical pressure of an elastic resisting surface whereby seams and protrusions are embedded, so as to bring the entire surface of the article into contact with the dampening means, and to subsequent pressure between pairs of heated and clothed rollers, which perform solely the ironing function. Certain features of construction herein shown and described are not herein claimed, as they form the subject-matter of another pending application, Serial No. 126,179, filed by me October 6, 1902, relating more particularly to the dampening means disclosed, but not claimed herein *per se*.

It is proper to state at this point that while the dampening of starched goods in the process of laundering the same by the application of moisture, heat, and pressure is one of the principal features of my invention, but not herein broadly claimed, as aforesaid, the application of mechanism for performing these functions to and their incorporation in an ironing-machine also possesses material advantages in the laundering art in that not only is there accomplished an immediate succession of the two operations of dampening and ironing, whereby a greater uniformity in the quality of the work is accomplished, but the entire dampening department of a laundry is practically superseded and material expenses involved in the provision of machinery and the power and employees required to operate the same are saved.

The object of the invention, as heretofore expressed, is to combine with an ironing-machine means for moistening the articles to be ironed and for changing or converting said moisture into steam, which is caused to permeate the article, and thereby dampen the same. This dampening process involves the employment of moisture, heat, and pressure, and these three operations may be performed upon the article by applying moisture to the article immediately preceding or simultaneously with the application thereto of heat and pressure, and it is apparent that such application of heat and pressure may be applied by heating and pressure devices arranged to act immediately preceding the performance of the ironing function of the machine. It will also hereinafter appear that an ironing element or a dampening element, or both, may be either rotary or reciprocative and the heated member of any pair of the ironing elements may be of such construction that it may be heated by steam, gas, electricity, or any other suitable means.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a substantially central vertical section of a combined dampening and ironing machine constructed in accordance with my invention. Figs. 2 and 3 are similar views showing modifications hereinafter described.

Like letters refer to like parts in the several figures of the drawings.

A represents the frame of the machine, and it may be of any suitable configuration for the support of the operative parts. Within the frame and in suitable movable bearings are mounted a desired number of clothed rollers or drums B, B', and B². These drums are suitably clothed with a desired number of plies of woolen cloth and with an outer cover of plies of cotton cloth or with other suitable clothing, all as well known in the laundering art. Arranged to cooperate with each of the clothed rollers, respectively, are heated rollers C', C², and C³. As illustrated in Fig. 1, there are two heated rollers C³, cooperating with the clothed roller B² for a purpose hereinafter described, while it is appar-

ent that a single heated roller C^3 may be employed with the clothed roller B^2 , as shown in Fig. 2. The clothed roller or drum B and the heated roller C' constitute what I have designated as a pair of "ironing" elements of the machine, and the clothed roller or drum B' and the heated roller C^2 constitute another pair of ironing elements, but inversely arranged relatively to the previously-mentioned pair.

10 This inverse arrangement is for the purpose of ironing goods upon opposite sides, so that it is apparent that where goods are to be ironed only upon one side a single pair of ironing elements only is required.

15 D represents a lever suitably connected with the movable bearing of the roller B for the purpose of raising and lowering said roller. It is understood that said lever and others to be described operatively connected therewith are duplicated, there being a set at each side of the machine and operating upon the bearings at each end of the various rollers controlled thereby.

25 D' is a lever pivoted at D^2 in the frame of the machine and connected operatively with the lever D , it may be, in any suitable manner, but in this instance by a projection D^3 on said lever, while at the opposite end of the lever D' connection is made with a vertical rod D^4 , operating directly on the bearing of the roller B' .

30 D^5 is a lever pivotally connected with the lever D^4 , as shown, and with the frame A at D^6 in front of the clothed roller B^2 and so as to pass beneath the bearing of said roller. Depending from the lever D^5 are hangers D^7 D^8 , and at the lower ends of said hangers there are bars D^{10} or rollers D^9 , either or both, which serve to lift the apron E from the heated rollers C^3 into the path indicated by dotted lines when the upper clothed rollers of the machine are elevated, as will now be described. Now it will be observed that when the lever or rod D is drawn downwardly the roller B will be moved, as indicated in dotted lines, away from the heated roller C' , the roller B' will be elevated, as indicated in dotted lines, away from the heated roller C^2 , and the roller B^2 will also be elevated away from the heated rollers C^3 beneath the same. This separation of the clothed from the heated members is utilized whenever the machine is not in use for the purpose of preserving the clothing from injury by the continued application of heat thereto.

55 E represents an endless apron of any desired absorbent material, and it is guided into and through a tank F and beneath a roller F' in said tank for the purpose of moistening said apron. In its travel from the tank the apron passes between wringing-rollers G and G' , one of which is provided with an adjusting-bolt G^2 , there being one at each end of the roller, to determine the pressure of the wringing-roller upon the apron, and thereby to determine the quantity of moisture which the apron will absorb and carry in its further

travel, which is over an adjustable roller E' , the adjustment being of the usual form by means of bolts E^2 at its bearings, and from thence over the heated rollers C^3 and beneath the clothed roller B^2 to and about another guide-roller, E^3 , and from thence to the tank F , as clearly shown. Any suitable system of gearing may be employed and applied in accordance with the skill of a mechanic conversant with this class of machines to give rotation of a particular direction to the various moving elements of the machine and movement to the endless apron therein embodied.

80 As thus far described the operation is as follows: The endless apron while in the tank F absorbs to its fullest capacity water, and as it travels through the wringing or pressure rollers the amount of water or moisture retained by the apron is determined. The surplus water or moisture expressed by the wringing-rollers falls backward into the tank, while the desired degree of moisture is retained by the apron, so that goods placed upon it in front of the roller B^2 pass, with the apron, between said roller and the first-heated roller C^3 , where the moisture in the apron is converted into steam and forced upwardly through the article, the clothing of the roller B^2 permitting of the embedment of seams or other protrusions or thicker portions of the article being operated upon, so that a uniformity of distribution of moisture through the article is secured. In some articles, particularly those of larger bulk and considerable thickness, a repetition of the conversion of the moisture of the apron into steam and of the forcing of the same through the article is to be preferred, and in such cases a duplicate heated roller C^3 is employed, as shown in Fig. 1.

100 After this dampening operation the apron E conveys the article to the first pair of ironing members of the machine, where one surface thereof is ironed, and if it be the purpose to iron both sides of the article it is directed through and between the next pair of ironing members, which, as before stated and as shown, is inversely arranged for that purpose. If desired, bridges H and H' and an endless conveyor H^2 may be interposed between the apron and the first pair of ironing elements and between said pair and the succeeding pair of elements to facilitate the passage of an article or articles through the machine.

110 In Fig. 2 the clothed roller B^2 and heated roller C^3 , the apron E , and its adjuncts, together with the tank F , are mounted in a framework adapted to their operative support and to be attached to the framework of an ironing-machine and as an attachment thereto.

125 In Fig. 3 I have illustrated the application of my invention to an ironing-machine in which is embodied a reciprocative ironing member. In the frame A there are formed guideways A' for a reciprocating cross-head I , carrying a yoke I' , terminating at one end in an ironing member in the form of a heated chest I^2 and at the other end in a pressure

device or platen I³, having any desired clothing I⁴ upon the operating-face thereof. The frame A also supports a heated member J, over which an endless apron E is guided by a suitable roller E', adjusted by bolts E² and rollers E³ and F', arranged in the tank F, and wringing-rollers G and G', one of them being adjusted by bolts G², the same being provided as and for the purpose shown in Fig. 1 and hereinbefore described. The heated member J and the ironing member I² may be heated by any known means. In this instance, however, each is provided with an inlet-pipe K and an outlet-pipe K', whereby steam may be employed as the heating agent. An endless apron L may be employed in connection with the platen M, supported by the frame A and cooperating with the ironing member or chest I², said platen being provided with clothing M' in addition to the apron L, if desired, said apron in the relation shown serving as the clothing for the platen M. By forming this clothing as an apron L successive portions of the same are brought into use and the larger proportion in length of the apron is exposed to the atmosphere, so that the moisture driven thereinto from an article being ironed evaporates and thus a longer service is secured than where one and the same portion is subjected to use. Any suitable driving mechanism may be provided for reciprocating the cross-head, the yoke, the pressure or platen member I³, and the ironing member I². Suitable driving means properly timed with relation to the reciprocation of the cross-head, so as to feed or move the aprons E and L when the cross-head is elevated and to maintain said aprons at rest when said cross-head is depressed, may be provided in accordance with the skill of a mechanic conversant with this class of machinery.

It is apparent that the apron E is moistened in the tank and the degree of moisture which it shall carry is determined by the wringing-rollers and that said moisture will be converted into steam by the heat of the member J and said steam forced through the article when pressed upon the apron by the platen I³. As said platen rises the apron E will convey the article being operated upon to the apron L, which will carry the article to and upon the platen M, where said article will be ironed by the direct pressure of the member I² when the same is depressed by the cross-head and yoke carrying the same.

It is apparent that variously-differing modifications of the details of construction herein shown and described will suggest themselves to persons skilled in the art, and I therefore do not limit my invention in this regard.

Having described my invention and set forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. In an ironing-machine, the combination of a series of pairs of heated and clothed

members, with a moistening and dampening means arranged to coact with the first of said pairs of heated and clothed members; substantially as specified.

2. In an ironing-machine, the combination of a series of pairs of heated and clothed members, with a moistening and dampening means arranged to coact with the first of said pairs the members of a succeeding pair being inversely arranged; substantially as specified.

3. The combination with the heated and clothed members of an ironing-machine, of a moistening device, means for regulating the degree of moisture, means for converting said moisture into steam, and means for conducting an article thus moistened and dampened into and between said ironing members; substantially as specified.

4. The combination with the first pair of heated and clothed members of an ironing-machine, of moistening and dampening devices, means for regulating the degree of moisture, means for converting said moisture into steam, and means for conducting an article thus dampened thereby directly into and between said ironing members; substantially as specified.

5. In an ironing-machine, the combination of heated and clothed members, an endless apron, a water-receptacle, wringing-rollers, guiding and carrying rollers directing said apron into the water-receptacle and thence between said heated and clothed members and to the ironing members of said machine; substantially as specified.

6. The combination of a series of pairs of clothed and heated members, an endless apron, means for moistening the same, and means for separating said clothed and heated members from each other; substantially as specified.

7. The combination with a heated roller, a clothed roller adapted to cooperate therewith, an interposed endless apron, means for moistening said apron, and means for separating the clothed roller and endless apron from the heated roller; substantially as specified.

8. The combination with two pairs of heated and clothed rollers of an ironing-machine, an endless apron, a heated and a clothed roll cooperating therewith, means for moistening said apron, means for regulating the degree of moisture thereof, and means for separating the clothed roller and endless apron from the cooperating heated roller simultaneously with the separation of the heated and clothed members of said ironing-machine; substantially as specified.

9. The combination with inverse pairs of ironing members, of a pair of members one of which is clothed and the other of which is heated, an endless apron interposed between said latter members, means for moistening said endless apron, guide means arranged between the inverse members, and means for

separating said clothed from said heated member; substantially as specified.

10. The combination of a clothed member, heated members coöperatively arranged there-
5 with, an interposed moisture-carrying device, means for regulating the degree of moisture thereof, inversely-arranged pairs of ironing members, and means for transferring articles from the first-mentioned elements to

and through between said inversely-arranged elements; substantially as specified. 10

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

THOMAS S. WILES.

Witnesses:

GEORGE B. EHLMANN,
JAMES A. CLEARY.