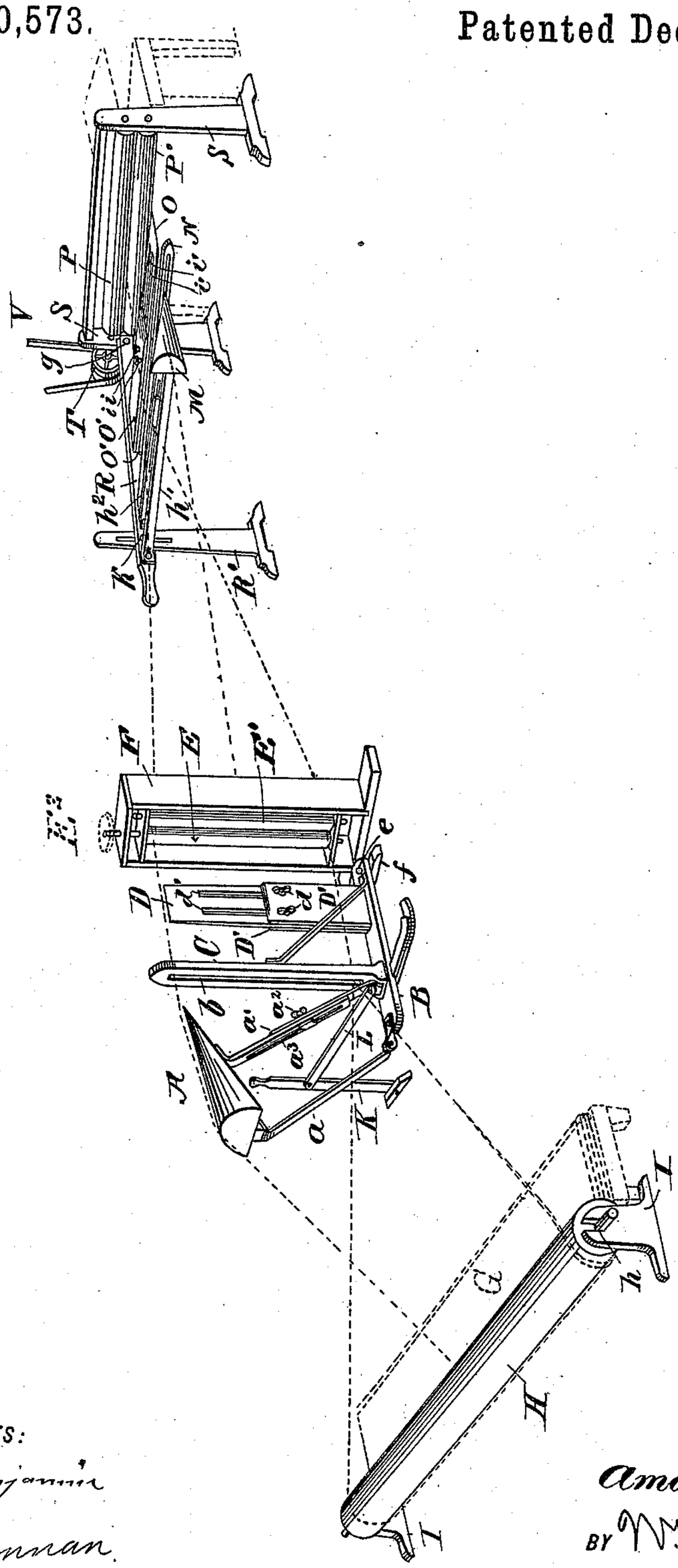
(No Model.)

A. F. ABBOTT.

CLOTH DOUBLING MACHINE.

No. 550,573. Patented Dec. 3, 1895.



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CLOTH-DOUBLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 550,573, dated December 3, 1895.

Application filed June 28, 1895. Serial No. 554,285. (No model.)

To all whom it may concern:

Be it known that I, AMOS F. ABBOTT, a citizen of the United States, and a resident of Waterville, county of Kennebec, and State of Maine, have invented certain new and useful Improvements in Cloth-Doubling Machines, of which the following is a specification.

My invention relates to that class of cloth-doubling machines which are made use of to double wide fabrics one or more times longitudinally, and has for its object to provide a machine of this class which, while simple in construction and rapid in operation, shall at the same time double the fabric with great exactness.

To these ends the invention consists, first, in the combination, with a peculiarly-mounted doubling-tongue, over which the fabric is drawn and the initial step in the doubling effected, of smoothing and creasing devices and means for pressing the plies of the fabric closely together to complete the doubling operation and for drawing the fabric through the machine; second, in the means whereby the various doubling, smoothing, and creasing devices are made adjustable with respect to the line of travel of the fabric through the machine to insure the doubling of the fabric along the required line, and, third, in various other combinations and arrangements of parts, all as will hereinafter more fully appear.

In the accompanying drawing, which forms a part of this specification, my invention is illustrated in isometrical projection.

A indicates what I term herein the "doubling-tongue," over which the fabric to be doubled is drawn and the bending of the same along the required line to form the initial step in the doubling operation thereby effected. In the construction of this doubling-tongue various modifications may be adopted. I prefer, however, to construct it in the form of the longitudinal half of a cone, with its upper convex operative surface gradually tapering from its front to its rear end, and to support it from the base-plate B by means of rods *a* *a'*, the former of which is connected with its front end and the latter of which is connected therewith at a point near its rear end. The connection of these supporting-rods *a* *a'* with the doubling-tongue A and with the base-plate B is such as to permit of the elevation and depression of the rear or smaller end of the former, and in order to provide for such movements thereof the rod *a'* is preferably constructed in two parts, which, overlapping at their inner ends, are held clamped together in their adjusted positions by a clamping-screw a^2, which passes through a suitable slot a^3, formed in each, as shown. By this means, as will be seen, provisions are made not only for the elevation and depression of the rear end of the doubling-tongue, as the exigencies of its use may require, but also for holding it firmly in position when adjusted.

Located in rear of the doubling-tongue A, in the direction of travel of the fabric through the machine, is the smoothing device, by means of which the plies of the fabric are brought together and the wrinkles therein removed. This smoothing device consists of the standard C, which projects upward vertically from the base-plate B, to which it is fixedly secured, and is provided with a long narrow vertical slot *b*, extending from near its upper to near its lower end, through which the doubled fabric is drawn after passing over the doubling-tongue A.

Supported upon the base-plate B, in rear of the standard C, with its operating upper end in line with the slot *b*, is the creasing device, by means of which a crease is formed in the fabric along the line upon which it is doubled. This creasing device may be constructed in various forms and may be fixedly secured to the base-plate B or supported adjustably thereon, as may be desired. In the preferred form of construction, however, it is made in the form of a plate D and is adjustably supported upon the base-plate B, as shown. For effecting this adjustable support I find it convenient to employ the jaws D' D', which are fixedly secured at their lower ends to the base-plate B, and to clamp the creasing device D between them by the clamping-screws *d* *d*. With this form of mounting the jaws may in some instances be made of the proper width to permit of the clamping-screws being employed outside the edges of the creasing device. In the form of construction shown in the drawing, however, these screws pass through both the jaws and the creasing device, and in order to permit of this arrange-

ment being employed and of the vertical adjustment of the creasing device the creasing device is provided with the slots d' d', through which the clamping-screws pass.

E E′ indicate the pressing-rollers, by means of which the pressing of the plies of the fabric together to complete the doubling operation is effected. These rollers are preferably mounted on vertical axes in the frame F and are located in rear of the creasing device D to receive and act upon the fabric after it has passed such device. When the fabric is to receive but a single doubling, these rollers, in addition to serving as pressing-rollers, will also act as a means for drawing the fabric through the machine, in which case one of such rollers—as, for instance, roller E—will be provided with a suitable pulley, as shown by dotted lines at E^2 in the drawing, around which a belt from the source of power will pass.

The fabric to be doubled may be supplied to the machine either in the form of a folded web or in the form of a roll. When supplied in the form of a folded web, the fabric will preferably be supported on a suitable table or on the floor, as shown by dotted lines at G in the drawing, and will pass over a roller H, which is mounted in suitable bearings h in standards I I. From this roller H the fabric will pass to and over the doubling-tongue A, thence through the slot b in the smoothing device, thence over the creasing device D, and thence through between the pressing-rollers E E′, which, if the fabric is to receive but a single doubling, will, as before remarked, act not only to press the plies together, but also as a means for drawing the doubled fabric through the machine. The doubled fabric thus drawn through the machine by the pressing-rollers E E′ will be delivered by them at their rear, and may be deposited upon a suitable table at that point or otherwise, as desired.

When the fabric is delivered to the machine in the form of a roll, the roller H will be removed from the standards I I and the roller containing the fabric substituted in place thereof, the fabric in that case leading to the doubling device from the roller in precisely the same way as it does from the roller H when the fabric is supplied from a folded web.

The fabric being drawn through the machine during the doubling operation by the pressing-rollers E E′ and moving at all times in substantially the same path, it is necessary, in order to properly locate the line along which it is desired to double it, to provide for the movement of the doubling-tongue and the smoothing and creasing devices laterally of such path. To this end the base-plate B, to which these parts are secured, instead of being fixedly secured in place, is pivoted at its rear end by a pivot e to a stationary bracket f and is free, with the parts secured thereto, to swing around such pivot as an axis transversely of the path of travel of the fabric, and is swung back and forth on such pivot, as the exigencies of the operation of the machine may require, by a hand-lever K through the intermediary of a connecting-rod L.

As thus far described the machine is capable of but a single doubling operation at each passage of the fabric therethrough, and a second doubling can only be effected by passing it a second time through the same. When, however, it is desired to effect a second doubling of the fabric, it is preferred, instead of passing the fabric a second time through the machine, to employ a second doubling-tongue M, a second smoothing device N, a second creasing device O, and a second pair of pressing-rollers P P′, which several parts are the duplicates in their construction and modes of operation of the doubling-tongue A, the smoothing device C, the creasing device D, and the pressing-rollers E E′ above described, respectively, and only differ from them in their arrangement with respect to the horizon, the latter doubling-tongue and smoothing and creasing devices, with the axes of the pressing-rollers E E′, being arranged vertically, whereby to operate upon a fabric presented in a horizontal plane, while the former doubling-tongue and the smoothing and creasing devices, with the axes of the rollers P P′, are arranged horizontally, whereby to operate upon a fabric presented in a vertical plane. The doubling-tongue M and smoothing and creasing devices N and O of this second series of devices are also supported from a base-plate R, which is pivoted at its rear end to the framing of the machine by a pivot g, whereby to permit of the lateral movement of the devices carried thereby with respect to the line of travel of the fabric through the machine to properly locate the line along which the fabric is to be doubled, as is the case with the doubling-tongue A, the smoothing and creasing devices C and D, and the base-plate B, the base-plate R being held in adjusted position by the slotted support R′ and clamping-screw k. So, too, with respect to the doubling-tongue M. This tongue is preferably supported from the base-plate R by two rods h' h^2, which are constructed precisely like and are capable of the same operation as the rods a a', respectively, which support the doubling-tongue A from the base-plate B, and the same is likewise true respecting the creasing device O, which is supported from the base-plate R through the intervention of jaws O′ O′ and co-operating clamping-screws i i and slots i' i', which find their several counterparts in the jaws D′ D′, clamping-screws d d, and slots d' d', through which the creasing device D is supported from the base-plate B.

The machine being constructed as thus described, with the second set of doubling devices applied in connection therewith, the fabric in the operation of the machine will be supplied to the first set of doubling devices, and, passing over and through the same, will be delivered by the pressing-rollers E E′

in a vertical plane, or standing up edgewise, with one longitudinal doubling extending throughout its length. From the rollers E E′ the fabric as thus doubled will pass over and through the second set of doubling devices, and, after having been doubled a second time thereby, will be delivered by the pressing-rollers P P′ in that condition upon the floor or upon a table arranged in rear of the frame S, in which the pressing-rollers P P′ are supported, as may be desired.

When the second set of doubling devices are employed, the rollers E E′ will serve merely as pressing-rollers, and the rollers P P′, in addition to their pressing action, will also serve to draw the fabric through the machine and over and through both sets of doubling devices, the under roller P′ in that case being provided with a pulley T, over which a belt V from the source of power passes, and the pulley E^2 on the roller E omitted. As thus constructed a machine is produced in which fabrics may be doubled one or more times longitudinally of the same in a simple, easy, and economical manner, the number of doublings of the fabric at each passage through the machine depending upon the number of sets of doubling devices employed.

In the foregoing I have described the best means contemplated by me for carrying my invention into practice; but I wish it distinctly understood that I do not limit myself strictly thereto, as it is obvious that I may modify the same in various ways without departing from the spirit thereof.

Having now described my invention and specified certain of the ways in which it is or may be carried into effect, I claim—

1. The combination, with a doubling tongue, smoothing and creasing devices, and the supporting rods, *a a′*, for supporting the doubling tongue and permitting of the vertical adjustment of its rear or smaller end, of means for supplying the fabric to the doubling tongue and for passing it on through the machine, substantially as described.

2. The combination, with a doubling tongue, smoothing and creasing devices, and means for supplying the fabric to the doubling tongue and passing it on through the machine, of devices whereby the doubling tongue and smoothing and creasing devices may be adjusted laterally of the path of travel of the fabric through the machine, substantially as described.

3. The combination, with a doubling tongue, smoothing and creasing devices, and the supporting rods, *a a′*, for supporting the doubling tongue and permitting of the vertical adjustment of its rear or smaller end; of pressing rollers, and means for supplying the fabric to the doubling tongue, substantially as described.

4. The combination, with the doubling tongue A, the supporting rods, *a a′*, by which such tongue is supported and the rear or smaller end rendered vertically adjustable; the smoothing device consisting of the standard C having the slot *b*, and the adjustable creasing device D, of the pressing rollers E E′, the base plate B, upon which the doubling tongue, and the smoothing and creasing devices are mounted, and means for supplying the fabric to the doubling devices, substantially as described.

5. The combination, with the base plate B, and the fixed bracket to which it is pivoted at its rear end, of the doubling tongue, and the smoothing and creasing devices mounted upon such base plate, and the lever and connection for adjusting the base plate back and forth around its pivot, substantially as described.

6. The combination, with the doubling tongue, the smoothing and creasing devices, and pressing rollers, constituting the first set of doubling devices, and means for supplying the fabric thereto, of the second set of doubling devices, consisting of the doubling tongue M, the smoothing device N, the vertically adjustable creasing device O, and the rollers P P′ for not only pressing the plies of the doubled fabric together, but also for drawing the fabric over and through both sets of doubling devices, substantially as described.

In testimony whereof I have hereunto set my hand this 26th day of June, 1895.

AMOS F. ABBOTT.

Witnesses:
F. K. SHAW,
G. C. SHELDON.