No. 615,983. Patented Dec. 13, 1898.

F. H. HARRIMAN.

APPARATUS FOR DAMPENING COLLARS AND CUFFS.

(Application filed Dec. 22, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

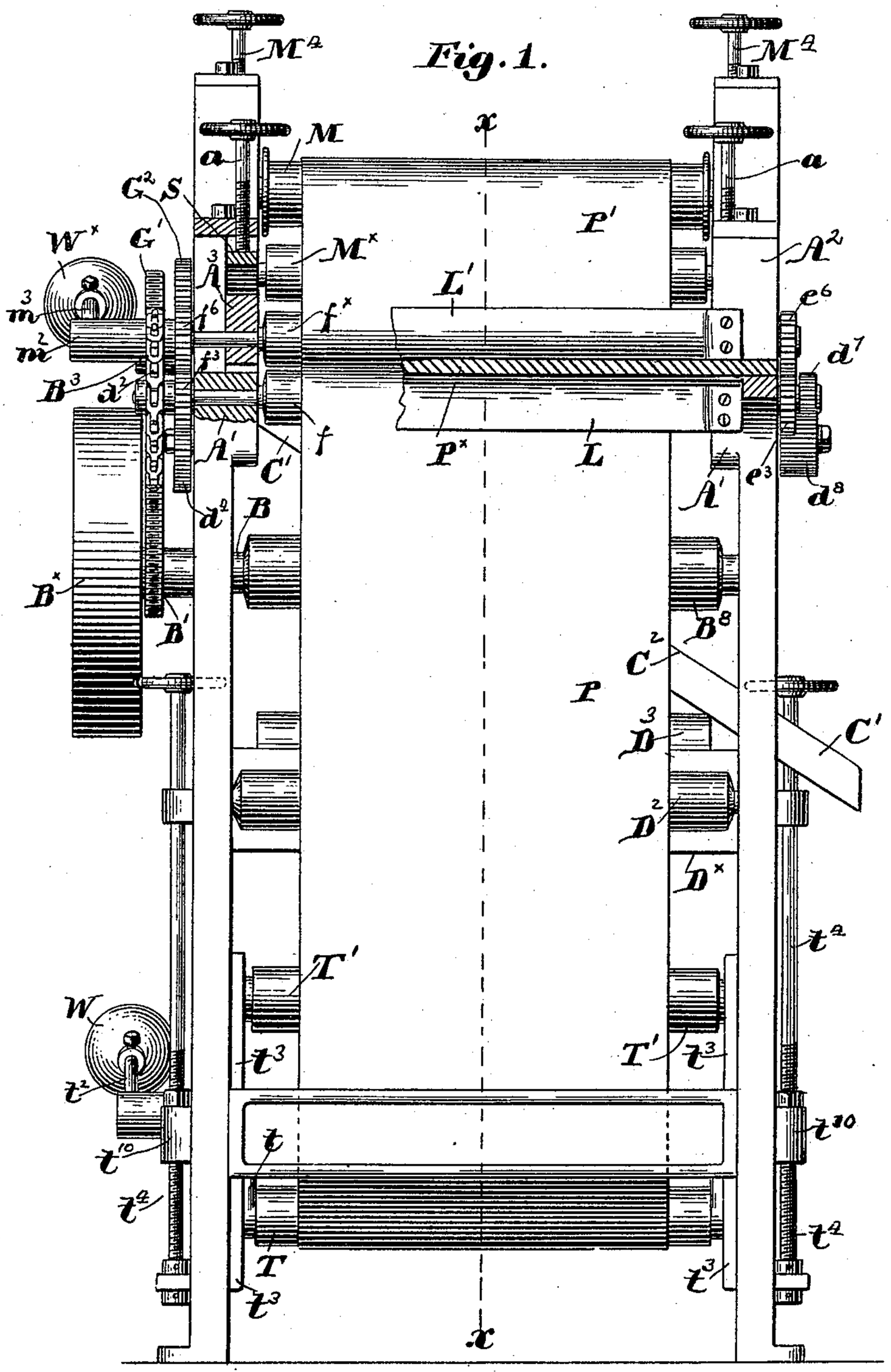

Fig. 3.

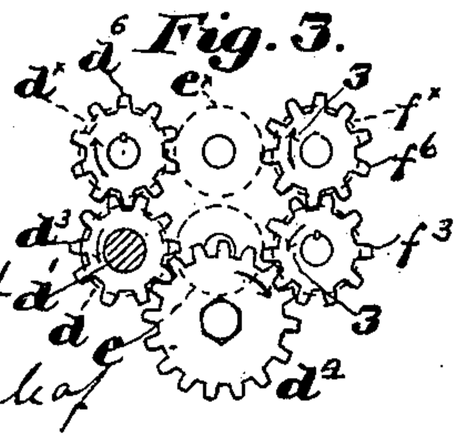

Fig. 4.

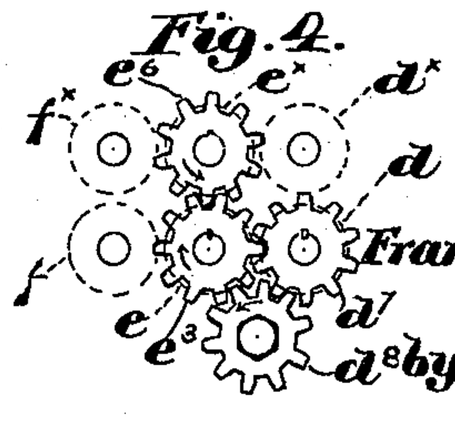

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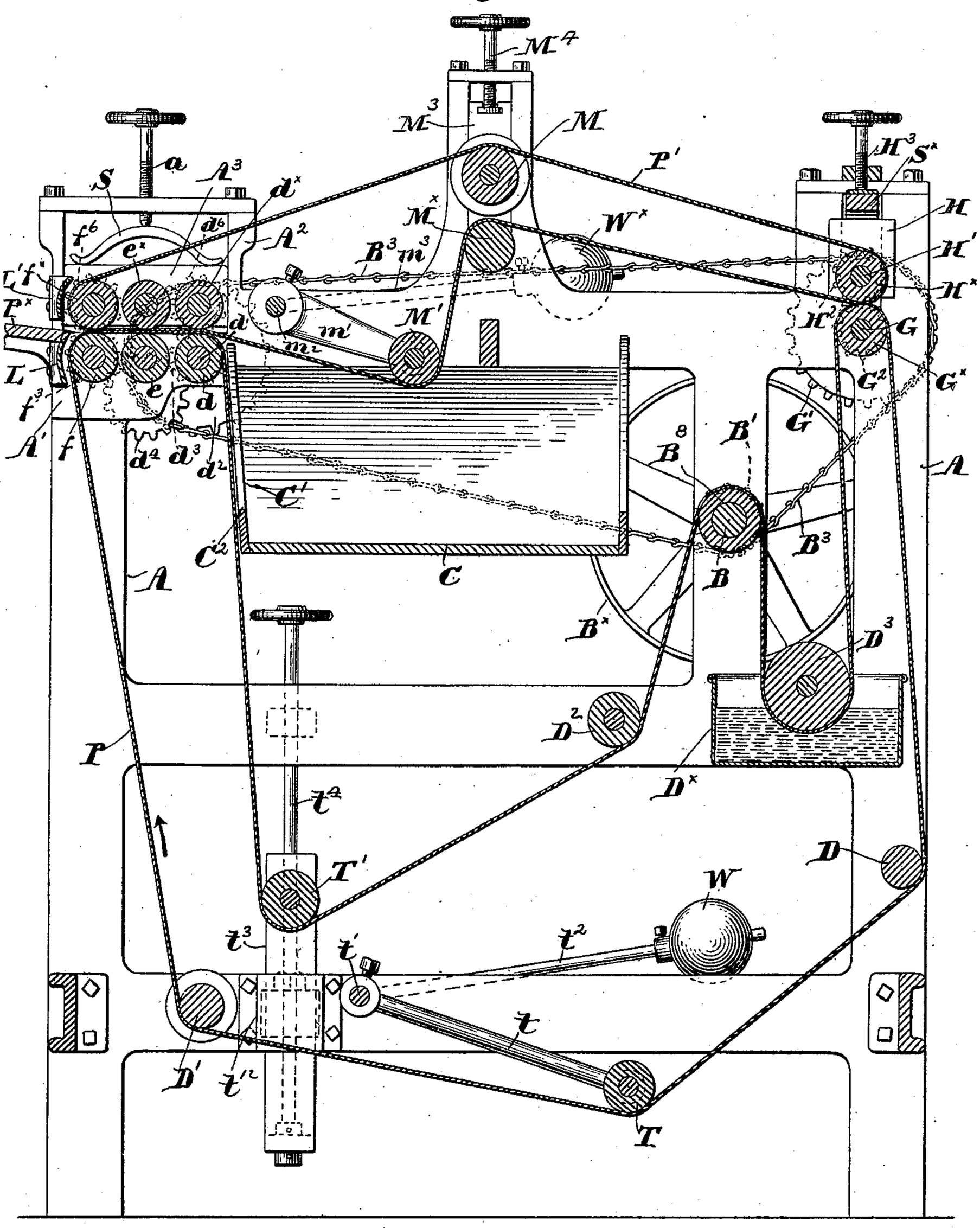
Fig. 2.



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UNITED STATES PATENT OFFICE.

FRANK H. HARRIMAN, OF MAYNARD, MASSACHUSETTS.

APPARATUS FOR DAMPENING COLLARS AND CUFFS.

SPECIFICATION forming part of Letters Patent No. 615,983, dated December 13, 1898.

Application filed December 22, 1897. Serial No. 662,995. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. HARRIMAN, of Maynard, county of Middlesex, State of Massachusetts, have invented an Improvement in Apparatus for Dampening Collars and Cuffs, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a simple and effective apparatus for properly and evenly dampening collars and cuffs, more especially preparatory to ironing them, whereby a great deal of laborious handwork is obviated and the articles more perfectly and uniformly dampened.

It is well known that in dampening starched articles preparatory to ironing the dampening must be uniform or the finished article will present a spotted and uneven surface, and in handwork in addition to the great labor and time involved the greatest care must be taken to prevent spotting.

By my present invention I attain all the desirable features of handwork and eliminate the objectionable features thereof.

Figure 1 is a front elevation of a dampening apparatus embodying my invention. Fig. 2 is a vertical sectional view thereof on the line $x\,x$, Fig. 1; and Figs. 3 and 4 are side elevations of the driving-gears for the pressure-rolls to be described.

The main frame A, of suitable shape to provide bearings for the operative parts of the apparatus, has mounted therein a main shaft B, having fast thereon a suitable belt-pulley $B^{\times}$, driven by a suitable belt (not shown) and a sprocket wheel or gear B′.

At the front of the frame and near its top are mounted in fixed bearings A′ a series of like pressure-rolls, three being herein shown—$d\ e\ f$—one of the journals d' of the innermost roll having fast thereon a sprocket-wheel d^2, outside of the frame, and a pinion d^3, in mesh with an intermediate gear d^4, the latter meshing with a pinion f^3 on the journal of the roll f, whereby both pinions and their rolls will be rotated in the direction of the arrows 3, Fig. 3.

The frame A at each side has open guideways A^2 for bearing-blocks A^3, carrying three pressure-rolls $d^{\times}$, $e^{\times}$, and $f^{\times}$, located above the rolls d, e, and f, each to each. By means of threaded shafts a, mounted in the tops of the guideways, the upper rolls are adjusted to regulate the pressure between the upper and lower series of rolls, a leaf-spring S, Fig. 2, being preferably interposed between the end of each shaft and its bearing-block A^3 to make a yielding pressure. The roll $d^{\times}$ is provided with a pinion d^6, in mesh with pinion d^3, while a pinion f^6 on roll $f^{\times}$ meshes with the pinion f^3, so that the inner and outer pairs of rolls are thus positively rotated.

The rolls are made of rubber or other suitable and preferably yielding material, and I have herein shown two endless aprons P P′, passed around and between said series of rolls, the aprons as they pass between the rolls being brought into close proximity and under normal conditions in contact with each other. These aprons may be made of cotton cloth, such as drilling, or any other suitable material which will carry the proper amount of moisture.

A shaft G, mounted in fixed bearings at the back of the frame, has fast thereon a sprocket-wheel G′ and a pinion G^2, (see dotted lines, Fig. 2,) said pinion meshing with a pinion H^2 on a shaft H′, mounted in bearing-blocks H, vertically movable in guideways in the main frame A, a long transverse leaf-spring $S^{\times}$ resting at its ends on said blocks, said spring being similar to the spring S. An adjusting threaded shaft H^3 is adapted to press against the spring to thereby regulate the pressure between the wringer-rolls $G^{\times}$ $H^{\times}$, carried by the shafts G and H′, respectively, the aprons P P′ passing between said wringer-rolls on their way to the pressure-rolls. A sprocket-chain B^3 is passed around the sprocket-wheels d^2 and G′, of the same diameter, and also around the driving sprocket-wheel B′, so that the wringer and pressure rolls are driven thereby.

The journal of the pressure-roll d at the right-hand side of the apparatus, Fig. 1, has fast thereon a pinion d^7, in mesh with a long intermediate pinion d^8, (see Figs. 1 and 4,) the latter in turn meshing with a pinion e^3, fast on the roll e, while the pinion e^3 in turn meshes with a pinion e^6, fast on roll $e^{\times}$, so that these two pressure-rolls are positively driven.

The apron P passes from between the wringer-rolls down to and around a guide-roll D, beneath a tension-roll T, to be referred to, around a second guide-roll D′, and up to the pressure-rolls at the front of the apparatus, as clearly shown in Fig. 2. On leaving the pressure-rolls said apron is led downward about a roll T′, preferably a tension-roll, thence around a guide-roll D^2, and up and over a roll B^8 on the driving-shaft B, descending therefrom around a roll D^3, partially immersed in a tank $D^\times$ of water, and up to the inner side of the wringer-rolls. In passing through the water the apron is wet, and when it passes through the wringer-rolls $G^\times$ $H^\times$ in contact with the apron P′ the moisture is also transmitted to said apron to an extent determined by the pressure between said wringer-rolls, the latter also serving to squeeze out surplus moisture and to evenly dampen both aprons.

It will be seen that the tension-rolls T T′ are so located as to act upon the apron P at each side of the pressure-rolls, so that the apron is maintained smooth and taut as it passes between the pressure-rolls. The roll T is mounted in arms *t*, fast on a rock-shaft *t′*, journaled in the main frame, an arm t^2, fast on said rock-shaft, carrying an adjustable weight W, whereby the tension on the apron can be regulated. The roll T′ is herein shown as mounted in bearings t^3, shown as slide-bars carrying threaded rods t^4, engaging threaded hubs t^{10} on the sides of the frame, so that by rotation of said rods the roll T′ will be moved up or down to adjust the tension on the apron P as it leaves the pressure-rolls, the slide-bars traveling in bearings t^{12} (see Fig. 2) on the frame.

The apron P is quite long and travels a considerable distance between the wringer and pressure rolls, so that the surface of the apron can dry out to a certain extent before reaching the pressure-rolls, it being remembered that this apron is wet by actual immersion in water, the passage through the air assisting in the work of the wringer-rolls in effecting the proper degree of dampness. The apron P′ is much the shorter and passes from the wringer-rolls over an adjustable tension-roll M to the pressure-rolls, thence beneath a second tension-roll M′, and over a fixed guide-roll $M^\times$ back to the inner side of the wringer-rolls. As shown in Fig. 2, the tension-roll M′ is mounted in arms *m′* on a rock-shaft m^2, having an arm m^3, provided with an adjustable weight $W^\times$, while the roll M is mounted in vertically-movable bearings M^3, adjusted by means of threaded rods M^4.

A discharge-chute C is fastened at its upper end to the inner side of the frame and extends in an inclined direction to the opposite side of the frame, Fig. 1, one side, C′, of the chute being located adjacent the downwardly-moving part of the apron P as it leaves the pressure-rolls, the upper edge C^2 of the side C′ acting as a clearer to clear the face of the apron of any of the dampened articles which may stick thereto.

I prefer to mount curved guards L L′ in front of the outermost rolls *f* $f^\times$ of the pressure-rolls to protect the fingers of the operative, the collars and cuffs being fed in between the aprons P P′ as they pass around and between the said rolls from a suitable table or shelf $P^\times$.

From the foregoing description the operation of the apparatus will be obvious, the articles to be dampened being fed in between the two damp aprons P and P′ as the latter pass in between the upper and lower series of pressure-rolls, the pressure of the latter serving to press sufficient moisture from the aprons onto the surfaces of the articles to thereby quickly and evenly dampen them in a uniform manner without spotting or wetting. As the aprons separate on leaving the rolls the dampened articles are discharged into the chute C, from which they are gathered into baskets or other suitable receptacles to be carried to the ironing apparatus.

My invention is not restricted to the precise construction and arrangement herein shown, for having shown one form of apparatus for carrying out my invention the construction and arrangement thereof may be modified or changed without departing from the spirit and scope of my invention.

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

1. In an apparatus of the class described, two traveling aprons moving in close proximity and in parallelism for a portion of their length and adapted to receive between them the article to be dampened, means to dampen said aprons, including adjustable wringer-rolls distant from the pressure-rolls and between which the aprons pass in contact, and pressure-rolls between which the aprons travel at their proximate parallel portions, the dampening means for the aprons being widely separated from said pressure-rolls and the proximate parallel portions of the aprons.

2. In an apparatus of the class described, two traveling aprons moving in close proximity for a portion of their length and adapted to receive between them the article to be dampened, means to dampen one of said aprons, pressure-rolls between which the aprons travel at their proximate portions, said rolls and proximate portions of the aprons being remote from said dampening means, and independent tension devices for the aprons, to maintain them taut as they pass through the rolls.

3. In an apparatus of the class described, pressure-rolls, two independent traveling aprons adapted to pass between the rolls and to dampen articles inserted therebetween, means to dampen one of said aprons, and wringer-rolls distant from the pressure-rolls

and between which the aprons pass, to thereby effect a substantially equal dampening of both.

4. In an apparatus of the class described, two traveling aprons moving in close proximity for a portion of their length and adapted to receive between them the article to be dampened, means to dampen said aprons, said means being located at a point widely separated from the proximate portions of the aprons, pressure-rolls remote from said dampening means and between which the aprons travel at their proximate portions, and independent tension devices for each of said aprons, to act separately upon them before and after their passage between the pressure-rolls, to maintain said aprons smooth and taut at their proximate portions.

5. In an apparatus of the class described, two endless traveling aprons of unequal length, pressure-rolls between which said aprons move in close proximity, means to wet the longer apron at a point remote from the pressure-rolls, adjustable wringer-rolls between which the aprons are pressed, to effect transfer of moisture from one to the other and to regulate the dampness thereof, and driving means to rotate the pressure and wringer rolls at the same surface speed.

6. In an apparatus of the class described, two traveling aprons moving in close proximity and in parallelism for a portion of their length and adapted to receive between them the article to be dampened, means, located at a point remote from the proximate portions of the aprons, to dampen one of said aprons, two series of pressure-rolls between which the aprons travel at their proximate parallel portions, and means to regulate the pressure of said rolls, whereby articles inserted between the aprons will be dampened by their passage through the rolls, substantially as described.

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

FRANK H. HARRIMAN.

Witnesses:

ARTHUR J. COUGHLAN,

JOHN W. CONNOR.