(No Model.) 2 Sheets—Sheet 1.

C. F. STONE.

STARCHING MACHINE.

No. 492,311. Patented Feb. 21, 1893.

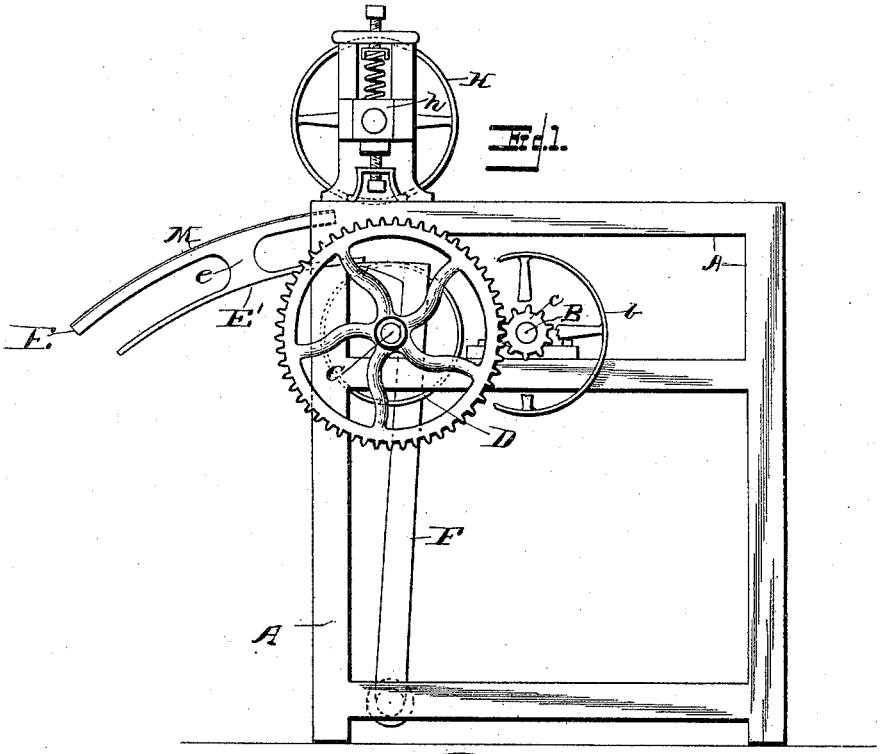

Fig. 1.

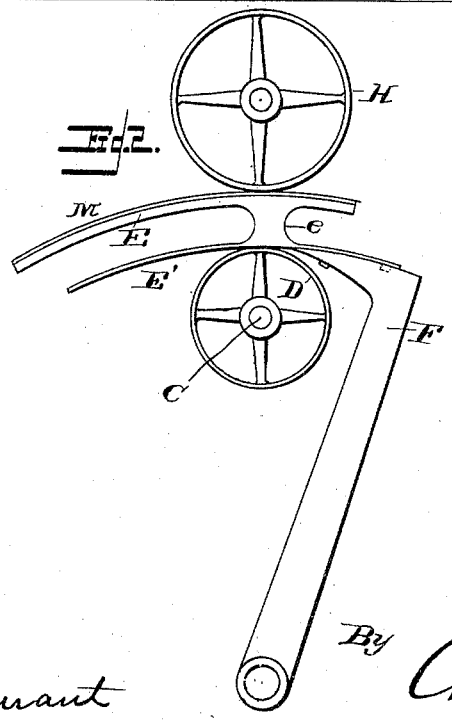

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

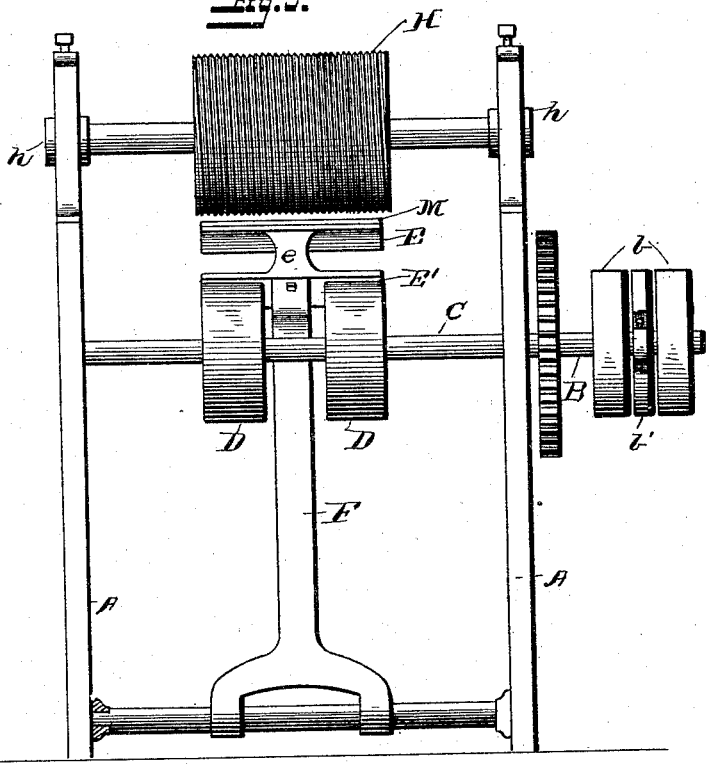


Fig. 4.

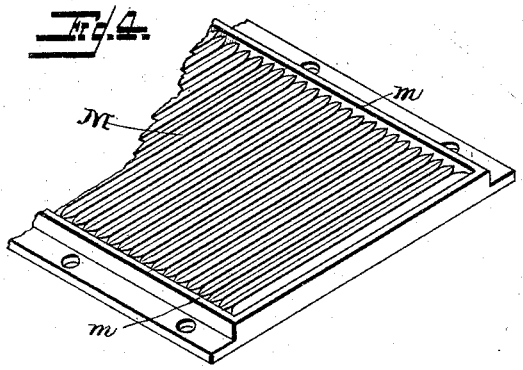
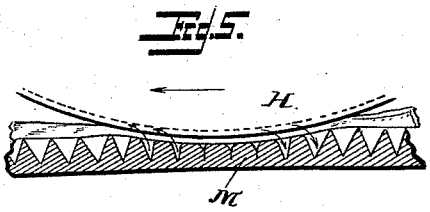


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES F. STONE, OF CHICAGO, ILLINOIS.

STARCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 492,311, dated February 21, 1893.

Application filed February 15, 1892. Serial No. 421,598. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. STONE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Starching-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to that class of laundry machinery adapted to perform the operation of starching as a preliminary to the ironing and polishing processes, and has for its object to provide a machine of this character which shall be effective and at the same time extremely simple, requiring little skill and power to run it.

The invention consists in certain novel details of construction and combinations and arrangements of parts all as will be now described and pointed out particularly in the appended claims.

Referring to the accompanying drawings: Figure 1 is a side elevation of a machine embodying my present invention. Fig. 2 is an elevation of the rollers and bed. Fig. 3 is a front elevation. Fig. 4 is a detail perspective of the elastic starch pad. Fig. 5 is an enlarged detail showing the action of the rubber pad and roll.

Like letters of reference in the several figures indicate the same parts.

A indicates the main frame, the construction of which is immaterial, but for the purposes of the present illustration it is shown rectangular and provided with bearings for the power shaft B and counter shaft C The power shaft may be driven in any suitable manner preferably, however, by means of belts running in opposite directions on the loose pulleys *b* and adapted to be shifted to the central fast pulley *b'* whereby the power shaft may be reversed at will. The two shafts are connected by gearing of approved character, such as *c* to move the counter shaft relatively slow and with greater power, and on the counter shaft within the frame is mounted a driving roller or pair of driving rollers D adapted to contact with the under side of the starching bed to move the same. A pair of driving rollers is preferably employed to balance the pressure, although it is obvious that one will operate the bed without the other.

The starching bed is formed by an arc shaped bed or plate E mounted on a central standard *e* carried by a second plate E' lying parallel to the plate E. This starching bed is supported on the upper end of a standard F pivoted near the bottom of the frame, its pivotal point constituting the center upon which the arcs of the starching bed are struck.

In operation the lower face of the bed is adapted to rest upon the drive roller, hence as said roller is rotated first in one direction and then in the other the bed is reciprocated, but in order to permit it to be thrown out of operation without stopping the drive mechanism, the bed is given a range of movement which carries it just beyond the roller at its forward extreme of movement (Fig. 1), hence as long as it is in this position it is stationary and the operator seated in front of the machine may remove or adjust the article to be starched and by a very slight backward movement of the bed throw it into operation. Should it be desired to keep the bed in motion the operator simply presses slightly upon it as it approaches the end of its forward movement and prevents it from passing out of operative engagement with the roller.

Above the starching bed, is journaled the starching roller H, preferably held in adjustable spring-pressed bearings *h* whereby it is caused to bear on the starching bed with a yielding pressure and at the same time the pressure may be changed as desired. The starching roller, has its surface finely corrugated, the corrugations running at an angle to the axis of the roll and preferably taking the form of a fine spiral or screw thread, thus, as the roll is loose in its bearings its momentum causes it to move a short distance after the bed has moved away from beneath it, and the position of the corrugations is thus varied with relation to the bed and the whole surface of the bed or article thereon is evenly acted upon, a result not attainable should the roll and bed remain in contact all the while.

In order to cause a perfect penetration and thorough working of the starch through the goods the starching bed is provided with an elastic or rubber surface or pad M having a

series of corrugations or recesses, preferably corresponding approximately in cross sectional shape to those on the roll but arranged to intersect the same when brought beneath the roll. In the preferred construction the corrugations or recesses on the pad run parallel with the axis of the roller and at each side the pad is provided with raised margins *m* preferably somewhat higher than the ribs, to close the ends of the depressions, thus when the roll travels over the pad, it will be seen that the ribs on the pad are pressed down as in Fig. 5, and the starch lying in the recesses between said ribs finds its only escape, up through the goods into the transverse groove in the roll. Each rib on the pad is successively compressed throughout its entire length, the ends of the roll passing over onto the raised margins and completely closing each depression against the lateral escape of the starch.

It is obvious that the shirt or other article to be starched may be held in place in any desired manner and that the starch may be fed to the machine by hand or by any of the automatic devices now employed.

The operation of the machine is simple. Assuming that the power connections have been made as before described, the operator seated or standing in front of the machine spreads the shirt or other article out on the bed, which has been previously charged with starch, then gives the bed a slight backward movement. At this moment the power mechanism acts and carries the bed beneath the starching roller returning it again to the front of the machine where it is preferable to allow it to pass beyond the starching roller to permit the latter to rotate a short distance independently and thereby change the track followed by the corrugations whereby two passages beneath the roll will cover practically the whole surface. When the starch is thoroughly worked in, the shirt or article is removed, more starch is fed to the bed and the operations are repeated.

Having thus described my invention, what I claim as new is—

1. In a starching machine, the combination with the drive roller, and the starching roller corrugated at an angle to its plane of rotation journaled loosely in its bearings and arranged above the same, of the starching bed working between said rollers and having a range of movement beyond both of the same, whereby the relative position of the corrugations of the rod on the bed is changed and the bed is thrown out of operative position; substantially as described.

2. In a starching machine, the combination with the starching roller having a spirally corrugated surface, of the reciprocating starching bed having a range of movement beyond the roller, whereby the relative position of the corrugations and bed is changed; substantially as described.

3. In a starching machine, the combination with the corrugated starching roller, of a corrugated starching bed having the corrugations running at an angle to the corrugations in the roller; said roller and bed having a bodily reciprocation with relation to each other substantially as described.

4. In a starching machine, the combination with the corrugated starching roller, of an elastic corrugated starching bed having the corrugations running at an angle to the corrugations in the roller said roller and bed having a bodily reciprocation with relation to each other; substantially as described.

5. In a starching machine, the combination with the starching roll having surface corrugations running at an angle to its axis, of an elastic starching bed having surface corrugations parallel with the axis of the roller; substantially as described.

6. In a starching machine, the combination with the corrugated starching roller and bed, of the elastic pad on the bed corrugated transversely and having the raised margins closing the ends of the corrugations; substantially as described.

CHARLES F. STONE.

Witnesses:
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