(No Model.)

E. HAMILTON.

STARCHING MACHINE.

No. 590,681. Patented Sept. 28, 1897.

Fig. 1.

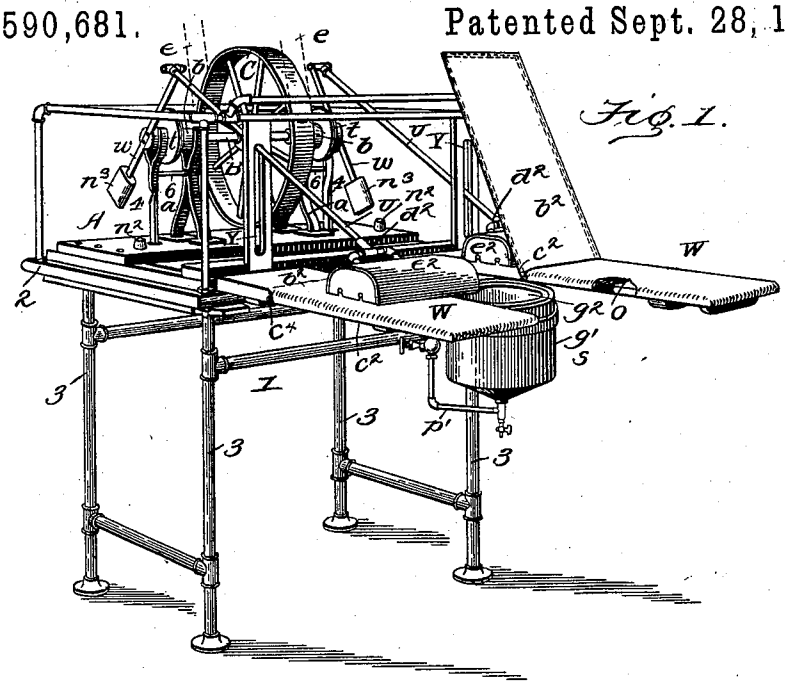


Fig. 2.

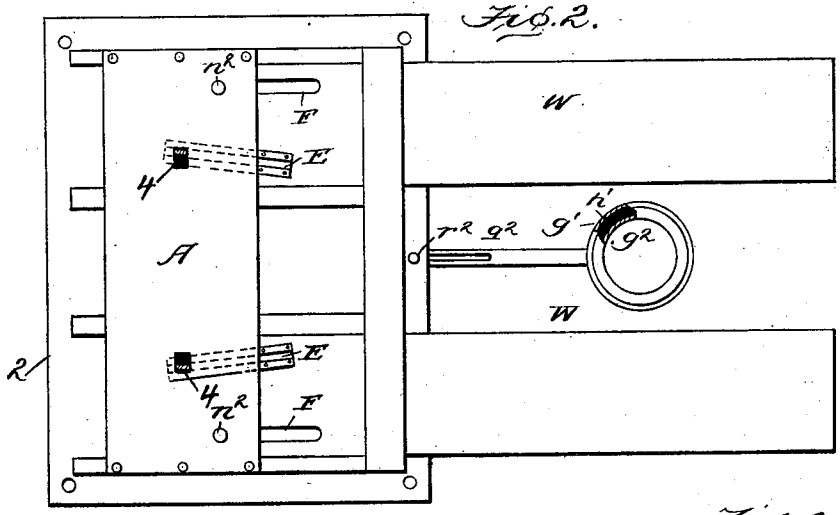


Fig. 4.

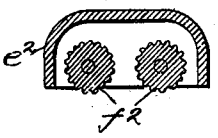
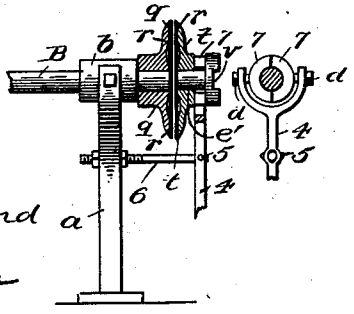


Fig. 5.



Fig. 3.



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EDWIN HAMILTON, OF LA CROSSE, WISCONSIN.

STARCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 590,681, dated September 28, 1897.

Application filed October 19, 1896. Serial No. 609,337. (No model.)

To all whom it may concern:

Be it known that I, EDWIN HAMILTON, of La Crosse, county of La Crosse, State of Wisconsin, have invented an Improved Starching-Machine, of which the following is a specification.

The present invention relates to starching-machines, and has for its object to provide a machine especially adapted to starching shirts.

With this object in view the invention consists of the details of arrangement and construction which will more fully appear hereinafter.

In the accompanying drawings, which form a part of this application, Figure 1 is a perspective view of the machine embodying my invention. Fig. 2 is a top plan view of the platform. Fig. 3 is a front elevation, partly in section, of one pair of friction-disks, and the small figure to the right is a transverse section of the disk-shaft, showing part of the shifting lever. Fig. 4 is a transverse section through the casing and one pair of the starch-rollers, and Fig. 5 is a side view of one of the starch-boards and apron.

Like numerals and letters of reference indicate corresponding parts in the several views.

In carrying out my invention I employ a supporting-frame 1, which consists of a platform 2, mounted upon legs 3, the said legs in the present instance being made of gas-piping. A base-plate A is firmly bolted to the said platform 2 and has the two upright standards *a a* bolted thereto. The upper ends of the said standards are bifurcated and have the journal-boxes *b b* situated therein. A shaft B is journaled in said boxes *b b*, the ends of which project a suitable distance beyond said standards *a a*. A band-wheel C is keyed about midway of said shaft and is operated by power transmitted to the said wheel by means of the band *e* from any suitable source. Friction-disks *q* are keyed at each end of the said shaft. The said disks are substantially concave in construction and have leather gaskets *r* fitted thereon. The said disks engage with the corresponding disks *t*, the purpose of which will be stated hereinafter.

Shifting levers 4 are pivoted at 5 to the ends of the braces 6, which are in turn adjustably connected to the upright standards *a a* by means of the nuts engaging the threaded ends of said braces on each side of said standards through which they pass, as shown in Fig. 3. The upper ends of the said shifting levers are bifurcated and have fitted therein half-rings 7 and are adjustably secured thereto by means of screws *d*. The corresponding disks *t* are keyed to the short shafts *e'*, the half-rings 7 fitting around said shaft. Through the outer ends of the said shafts *e'* are situated slots *v*, in which are securely fitted the crank-bars *w*, the purpose of which will be stated hereinafter.

The starch-boards W are situated on each side of the platform 2 and have situated therein the slots E, through which pass the lower ends of the shifting levers 4, the purpose of which will be stated hereinafter. Slots F are also situated in the inner ends of the said boards and run parallel with the sides thereof. In these slots work wooden plugs or pins n^2, which confine the said boards within the space allowed by the length of the slots—that is, they can only be pulled out so far and can only be pushed in so far. The exposed or outer halves of the said starch-boards are covered with rubber *o* to prevent the starch and moisture from getting into the wood and warping the boards, and over the said rubber is placed a piece of cotton or cheese cloth.

A rectangular frame c^2 is hinged by its ears c^3 to the parallel sides of the boards by screws c^4 to permit them to lie flat on the boards, as shown in the left-hand part of Fig. 1, or raised and thrown back, as shown in the right hand of said figure. An apron b^2, which is preferably made of cheese-cloth open at one end, is slipped over each rectangular frame c^2 and held in place by friction.

The driving-arms U are pivotally connected to the ends of the crank-bars *w*, the forward ends d^2 being pivotally attached to the top of the casing e^2, containing the starch-rollers f^2. The said rollers are corrugated and are journaled in the said casing, as clearly shown. The said driving-arms U work in the guides Y, which limit the upward movement of the said arms U. It will thus be seen that the rollers f^2 bear upon and are reciprocated forward and backward over the starching-boards.

The starch-tank s is situated between the said starching-boards, and consists of two cans g' and g^2, one within the other, with the space h' between. Water is put in the bottom of the can g' and steam forced into it through the pipe p' from any suitable source. The starch being in the can g^2 is thus kept always in a warm and fluid condition. The starch-tank is provided with a rigid horizontal arm q^2, which is secured in a horizontal orifice in the platform by a set-screw r^2.

The rear ends of the starch-boards W W are capable of a horizontal reciprocating movement in suitable guides in the platform A, and their movement is limited by a pin n^2, fixed in the platform and extending vertically through a longitudinal slot F in the rear end of each board, parallel with the movement thereof. The opposite edge of each board is also provided with a horizontal slot E, extending vertically through said board, and this slot E is arranged at an incline to the longitudinal movement of the board. The lower end of the shifting lever 4 projects into said slot E, and when the board is drawn out to its full extent the lower end of the lever is forced outwardly to throw the friction-disk into contact and operate the starch-rollers, as above described, while if the board be pushed back into the platform the inclined slot E forces the lower end of the shifting lever 4 inwardly, thus separating the friction-disks and stopping the motion of the starch-roller-operating mechanism.

It will be seen that one or both of the said starchers may be used at a time, as necessity demands.

To the free ends of the crank-bars w are attached counterweights n^3 of such weight as to form a balance for the purpose of holding the crank-bars at any position when the said friction-disks are disconnected.

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

1. A starching-machine, comprising a stationary platform, a continuously-rotating shaft journaled in standards fixed on said platform, and provided with a fixed friction driving-disk, a shaft carrying a friction-driven disk contiguous to said driving-disk and provided with a crank-bar connected to a driving-arm having a starching-roller at the outer end thereof, a shifting lever connected at one end to said driven disk, in combination with a horizontally-reciprocating table, provided with a slot arranged at an inclination to the path of said table and engaging the free end of said shifting lever, substantially as and for the purpose set forth.

2. A starching-machine, comprising a stationary horizontal platform provided with limit-pins n^2, a continuously-rotating shaft journaled in standards fixed on said platform and provided with fixed friction driving-disks on its outer ends, shafts carrying friction-driven disks contiguous to said fixed driving-disks, crank-bars secured to said friction-driven disks, and driven thereby, driving-arms connected at one end to said crank-bars, a casing secured to the outer ends of said driving-arms having one or more starching-rollers journaled in said casing and a shifting lever connected at one end to said friction-driven disks, in combination with a pair of horizontally-reciprocating starching-tables, having longitudinal limit-slots F F and inclined slots E E engaging the lower ends of said shifting levers and the limit-pins n^2, substantially as shown and described.

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

EDWIN HAMILTON.

Witnesses:
JOHN J. ESCH,
FRANK WINTER.