

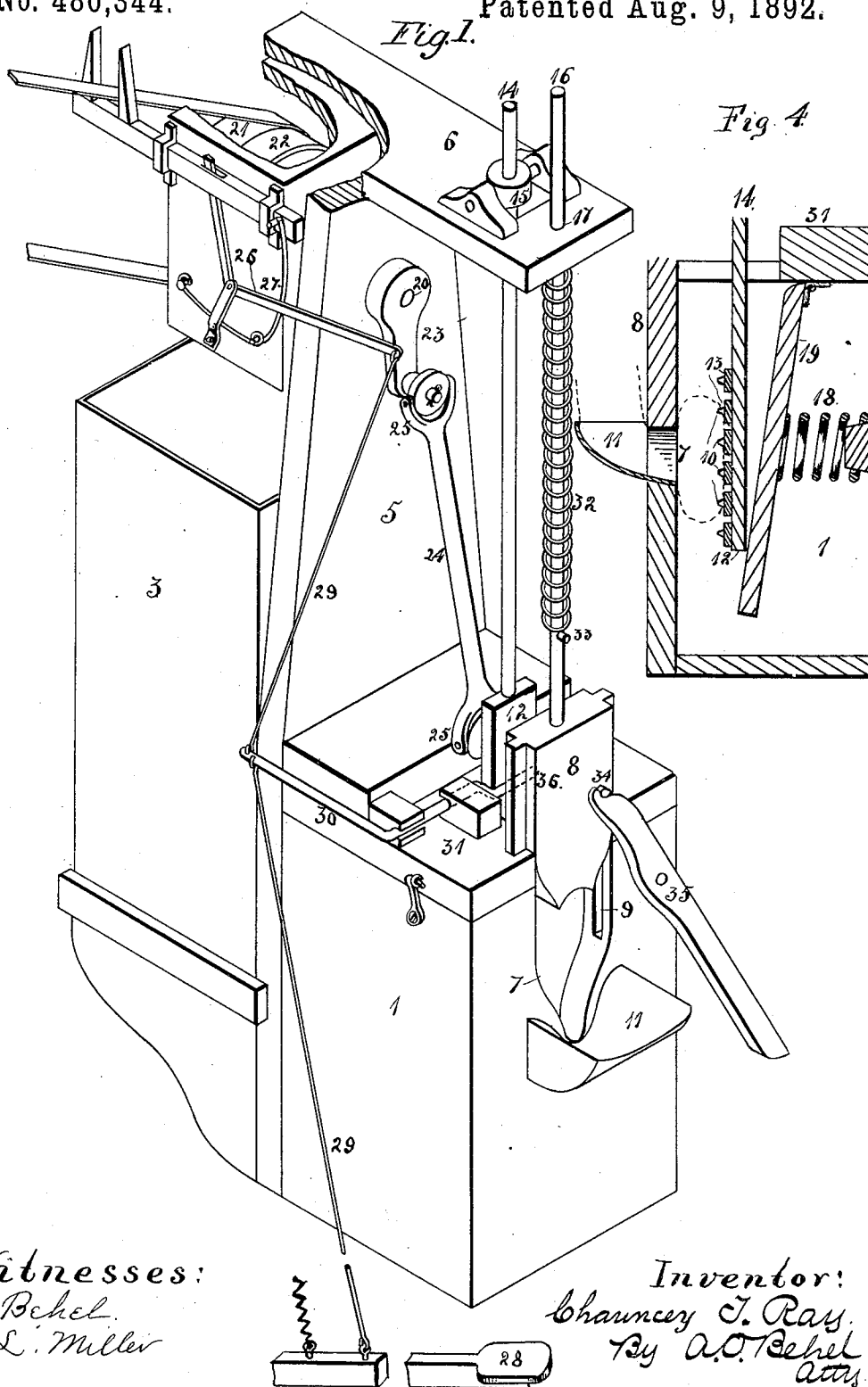
(No Model.)

2 Sheets—Sheet 1.

C. T. RAY.
STARCHING MACHINE.

No. 480,344.

Patented Aug. 9, 1892.



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Fig. 3.

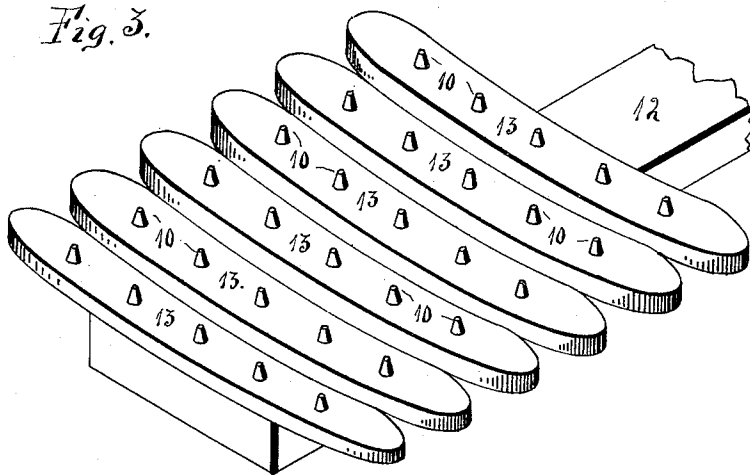
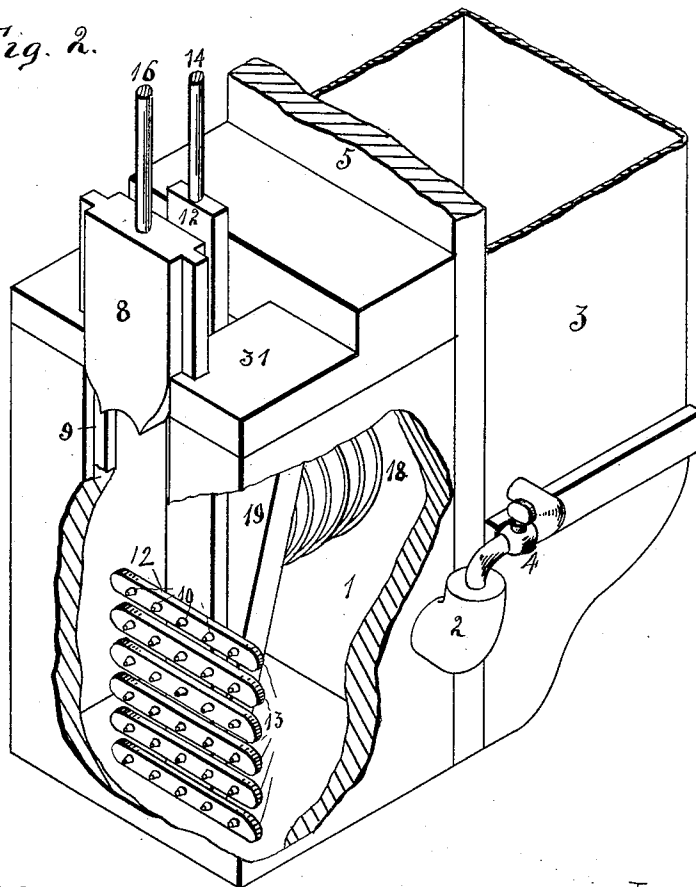


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHAUNCEY T. RAY, OF ROCKFORD, ILLINOIS.

STARCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 480,344, dated August 9, 1892.

Application filed August 7, 1891. Serial No. 402,045. (No model.)

To all whom it may concern:

Be it known that I, CHAUNCEY T. RAY, a citizen of the United States, residing at Rockford, county of Winnebago, and State of Illinois, have invented certain new and useful Improvements in Starching - Machines, of which the following is a specification.

The object of this invention is to apply the starch in shirt-bosoms and wristbands evenly in sufficient but not excessive quantities, to rub it thoroughly into the cloth, and without necessitating the turning the bosom inside out, also greatly expediting the operation as performed by hand.

In the drawings, Figure 1 is an isometrical representation of my starcher. Fig. 2 is also an isometrical representation of the starch-box, with a portion of its sides broken away to show the rubbing-block and the spiral spring which holds it forward. Fig. 3 is an isometrical view of the rubbing-block. Fig. 4 is the vertical central section of the starch-box.

In the construction of my improved starcher I make a starch-tight box 1, through the side of which I bore a hole and insert the pipe 2, by means of which the starch is conducted as it is used from the reservoir 3, supported on brackets in rear of the starch-box, and its flow regulated by the faucet 4. The rear side of the starch-box extends upward in the piece 5 and this piece bears at its upper end the piece 6. In the forward side of this box I cut the opening 7 to about one-half the way down from the top and this aperture is partially closed by the door 8, which slides in the grooves 9. In front of the lower portion of the aperture I secure the guide 11, which catches any starch which may work out around the cloth and drains it back into the box.

Directly in the rear of the slide 8 I place a rubbing-block 12, formed by attaching to an upright piece a number of transverse bars 13, in the face of each of which is set a row of projecting studs 10. This rubbing-block is provided with the upwardly-extending shaft 14, which passes through the rocking bearing 15 on the piece 6, allowing it a reciprocating movement and a movement forward and back. The slide 8 has an upward extension 16, which passes through the hole 17 in the piece 6. The rubbing-block is held forward by the action of the spiral spring 18,

forcing out the hinged block 19, against which the rubbing-block bears as it slides up and down in the box.

Journaled in the rear of the upright piece 5 is the horizontal shaft 20, on which are mounted the tight pulley 21 and the loose pulley 22, which shaft extends through the upright 5 and terminates in the crank 23. A connecting-rod 24 imparts the movement of the crank to the rubbing-block, and this connecting-rod is attached to the crank and to the block by the yokes 25, allowing a movement forward and back of the block, permitting it to accommodate itself to the inequalities of the bunch of cloth over which it rubs. Trunnions extending from opposite sides of a disk are embraced between the diverging ends of the yoke at each end of the connecting-rod, and one disk is loosely mounted upon a pin extending from the rubbing-block 12 at the lower end of the connecting-rod and the other upon the crank-pin at the upper end of the rod

I employ the usual belt-shifting device operated by the bell-crank lever 26, and to the belt-shifting device I attach a spring 27, which holds the belt on the tight pulley, excepting when I depress the foot-lever 28, which has a connection with the bell-crank lever 26 by means of the wires 29, throwing the belt on the loose pulley. These wires also have a connection with the lever 30, pivoted on the cover 31 of the starch-box, and when the foot-lever 28 is depressed it not only stops the machine, but the lever 30 presses back the rubbing-block by its inner end 36, bent in crank form, engaging the front face of the rubbing-block, freeing the shirt, allowing it to be removed, and another put in its place.

On the shank 16 of the slide 8 I place the compression spiral spring 32, and this spring, bearing between the piece 6 and the pin 33, through the shank, forces the slide downward. I set a pin 34 into the slide 8, allowing it to project from the face of the slide, and on the face of the starch-box, at one side of the slide 8, I pivot the lever 35, one edge of which bears against the projecting pin 34 and there acts as a cam, raising the slide-door when the lever is depressed.

In starching shirts with my machine I gather the shirt-bosom together in a bunch,

place the wristbands beside it, and insert the whole into the box through the aperture, leaving all other portions of the garment which need not be starched projecting outward, as shown in dotted lines, Fig. 4. The starch-box is filled nearly half full with hot starch, which is allowed to run from the reservoir as fast as it is used out of the box, retaining in the box about the same quantity at all times.

10 The pulleys are connected by belt with the motive power and the slide 8 is forced down by the action of the spring 32, tightly gripping the shirt just outside of the bunch formed by the bosom and wristbands, holding it from being drawn farther into the box, and preventing the starch from splashing outward. The belt rotating, the shaft 20 and the crank 23, affixed thereto, impart to the rubbing-block, through the connecting-rod 24, a reciprocating motion, and the spiral spring 18 forces the block forward against the bosom. The garment is soon saturated with starch, when, pressing with the foot on the foot-lever 28 and throwing up the slide by depressing the lever 35, the machine is stopped and the rubbing-block thrown back against the action of the spring 18, leaving the garment free to be removed from the aperture and permitting another to be put in its place. Releasing the slide 8 and removing the foot from the foot-lever 28, the machine starts again, and starch is rubbed into that portion of the garment which is shut within the starch-box. This operation I repeat for each shirt to be starched.

35 I claim as my invention—

1. A starching-machine comprising a starch-box having an opening therein, a closure for the opening, a rubber, and means for imparting a vertically-reciprocating motion to said rubber.

40 2. A starching-machine comprising a box having an opening therein, a vertically-sliding closure for the opening, a vertically-moving rubber, a shaft, a crank thereon, and connection between the crank and the rubber.

45 3. A starching-machine comprising a starch-box having an opening therein, a sliding spring-actuated closure for the opening, a lever for moving the closure, a rubbing-block, a crank, and a connecting-rod between the

50 4. A starching-machine comprising a starch-box having an opening therein, a sliding spring-actuated closure for the opening, a crank, a yielding rubbing-block, a connecting-

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rod between the crank and the rubbing-block, and a starch-reservoir holding a supply of starch.

5. A starching-machine comprising a starch-box having an opening therein, a closure for the opening, a lever for moving the closure, a shaft, a tight pulley, a loose pulley, and a crank on the shaft, a belt for the pulleys, a yielding rubbing-block, a connecting-rod between the crank and the rubbing-block, a lever for moving the rubber-block back, and a spring for holding it forward.

6. A starching-machine comprising a starch-box, a frame arising therefrom, a shaft journaled in the frame, a crank, a tight pulley and a loose pulley on the shaft, a belt connecting said pulleys with a prime mover, a belt-shifter, a spring for holding the belt on the tight pulley, a rubber in the box, the rubber capable of a twisting, a rearwardly-yielding, and a vertically-reciprocating movement, a connecting-rod between the crank and the rubber, said connecting-rod being capable of a bodily-reciprocating movement, and also of a greater or less inclination from the perpendicular, a spring for holding the rubber in contact with the garment, an opening in the side of the starch-box, a vertically-sliding closure for said opening, and a spring for forcibly sliding said closure.

7. A starching-machine comprising a starch-box, a reservoir for supplying starch thereto, a frame arising from the box, a shaft journaled in the frame, a crank, a tight pulley and a loose pulley on the shaft, a belt connecting said pulleys with a prime mover, a spring for shifting the belt to the tight pulley, a lever for holding the belt on the loose pulley, a rubber in the box, the rubber having an upwardly-extending shank bearing in a swinging collar in the frame, a spring for pushing the rubber against the garment, a lever for holding the rubber away from the garment, a connecting-rod between the crank and the rubber, an opening in the side of the box, a starch-guide before the opening, a vertically-sliding closure for the opening, ways in which said closure slides, the closure having an upwardly-extending shank bearing in the frame, and a lever for operating said closure.

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