

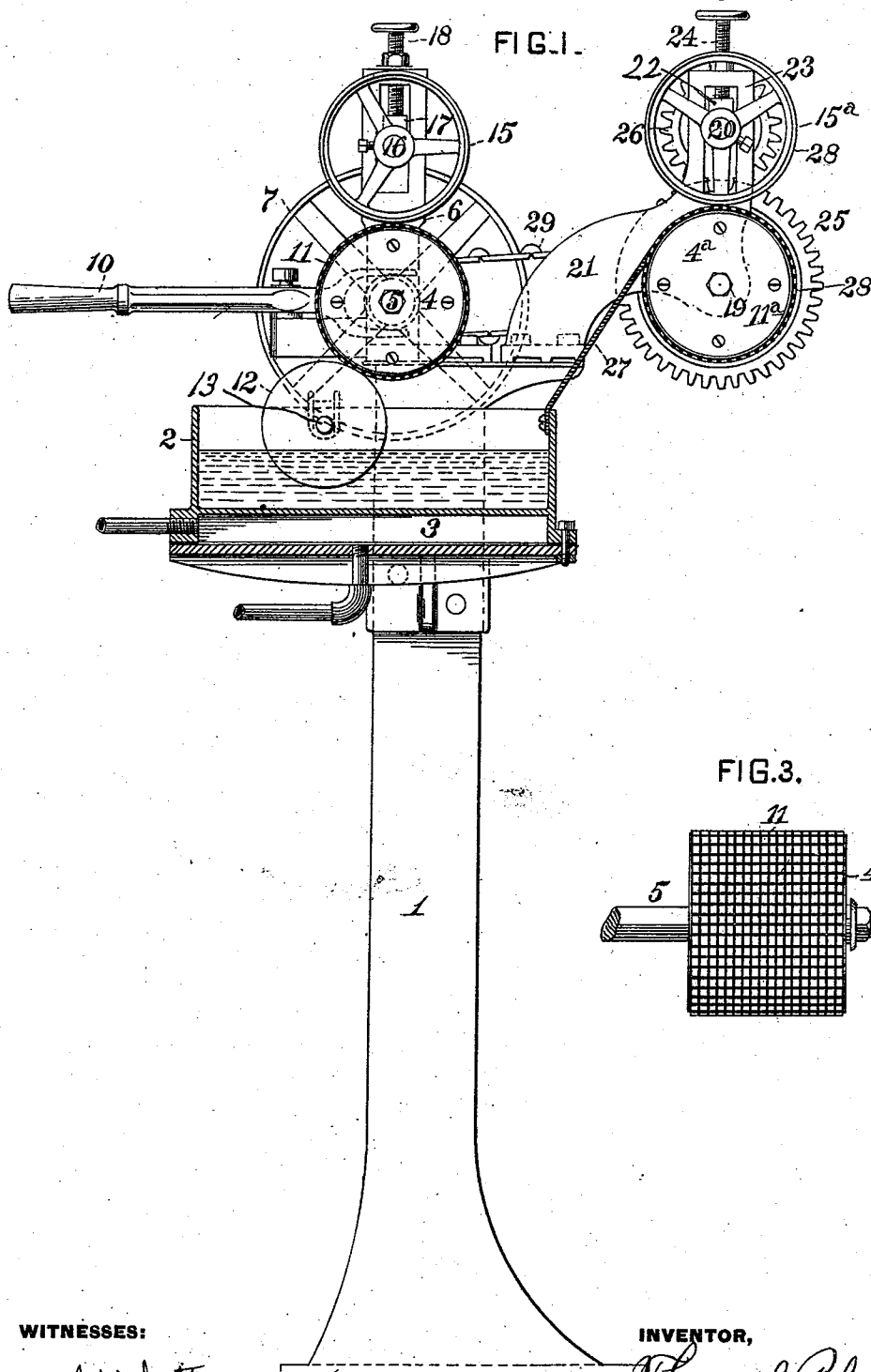
(No Model)

2 Sheets—Sheet 1.

T. J. BLAKE.
STARCHING MACHINE.

No. 501,476.

Patented July 11, 1893.



WITNESSES:

Daniel S. Wolcott
F. O. Gaither

INVENTOR,

Thomas J. Blake
by George H. Christy
Att'y.

(No Model.)

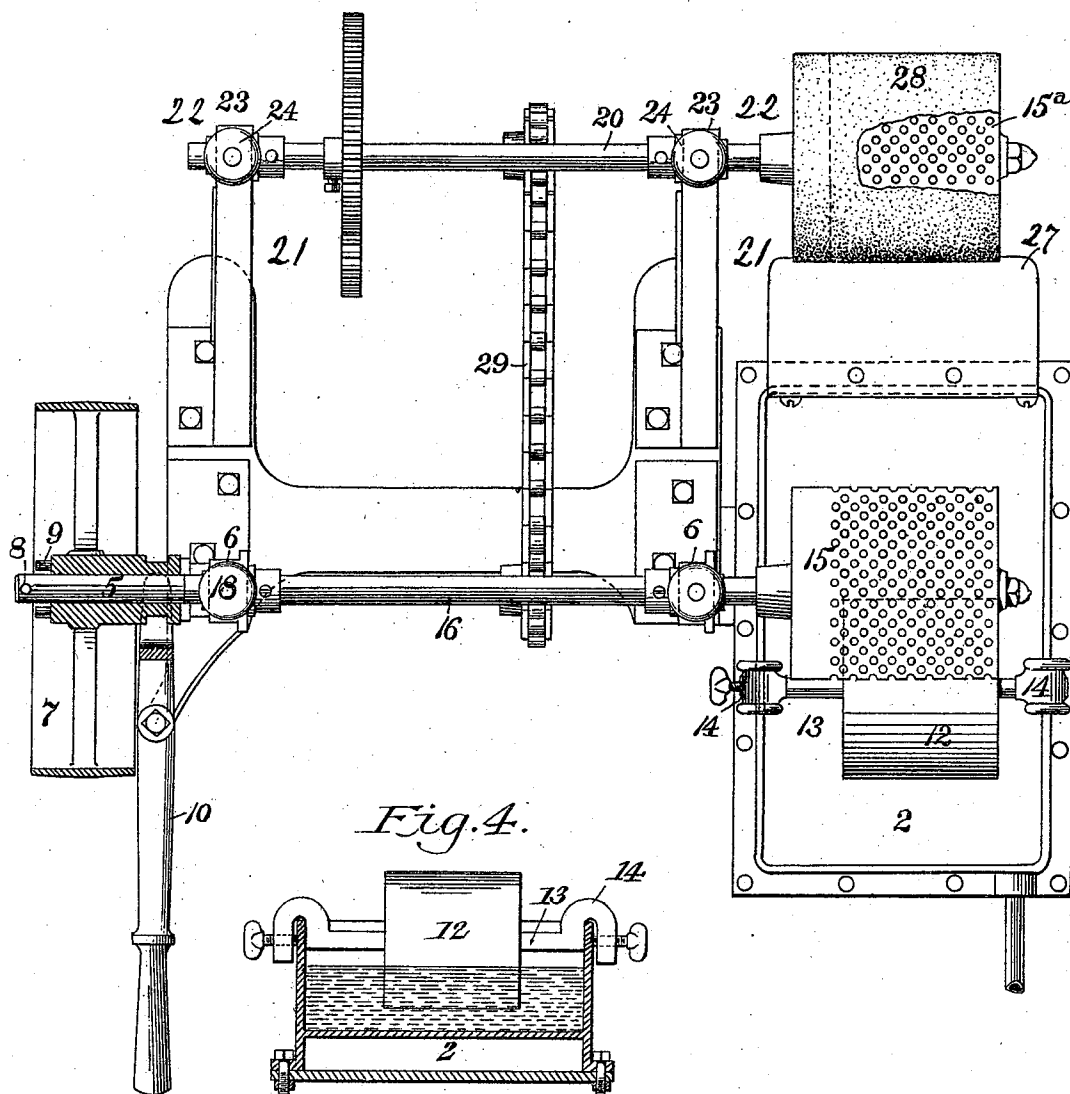
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STARCHING MACHINE.

No. 501,476.

Patented July 11, 1893.

FIG. 2.



WITNESSES:

Darwin S. Wolcott
F. E. Gaither.

INVENTOR,

Thomas J. Blake
by George H. Christy
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UNITED STATES PATENT OFFICE.

THOMAS J. BLAKE, OF PITTSBURG, PENNSYLVANIA.

STARCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 501,476, dated July 11, 1893.

Application filed September 1, 1890. Serial No. 363,586. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. BLAKE, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Starching-Machines, of which improvement the following is a specification.

In Letters Patent No. 400,184, reissued September 2, 1890, I have described and claimed a machine adapted for applying starch to shirt bosoms, the principal characteristics of said machine consisting in the means employed for applying the starch and affording opportunity for the escape of air inclosed in the folds and interstices of the bosom.

The present invention has for its object the application of starch to the neck and wrist bands and other analogous parts of shirts, &c., and in general terms the invention consists in the construction and combination of mechanical parts or elements all as more fully hereinafter described and claimed.

In the accompanying drawings forming a part of this specification, Figure 1 is a view partly in section and partly in elevation of my improved machine. Fig. 2 is a top plan view of the same. Fig. 3 is a detail view of the starch applying drum or roll, and Fig. 4 is a sectional view, transverse of the starching trough, and showing the manner of adjustment of the starch feeding roll.

The frame for the several drums or rolls is supported upon a post or standard 1, and on said standard is secured a trough 2 for the starch which is maintained in a liquid condition by the heat of steam admitted into a chamber 3 formed in the bottom of the trough 2. Immediately above the trough is arranged a starch carrying drum 4 formed of wood, metal or any other suitable material, said drum being secured on a shaft 5 mounted in journal boxes held in slotted standards 6 on the frame of the machine. On the opposite end of the shaft 5 is loosely mounted a pulley 7 adapted to engage and rotate the shaft through the medium of any suitable clutch mechanism, as for example, a pin 8 passing through the shaft and pins 9 on the hub of the pulley, which is shifted along the shaft by a lever 10 to effect the engagement and disengagement of said pins. On the drum is se-

cured a cover 11 formed of rubber or other suitable flexible resilient material and provided with pockets for the reception and retention of the liquid starch, which is fed there-
to by a roller 12 loosely mounted on a shaft 13 provided with adjustable clamps 14 engaging the sides of the trough 2. The clamps 14 are slotted for the reception of the sides of the trough, and are provided with set screws adapted to bear against the outer faces of the walls of the starching trough. By loosening these screws, the roller 12 can be shifted to any desired position in relation to the drum 4, and secured in position by tightening up the screws. This roller is partially immersed in the starch and is adjusted by means of the clamps into frictional contact with the covering 11 of the starch carrying drum 4. As the roller is rotated by the drum, the starch is carried up on its surface and deposited in the pockets of the covering in any suitable quantities, dependent upon the adjustment of the roller against the drum. Above the drum 4 is arranged a presser roller 15, secured upon a shaft 16 mounted in journal boxes 17 arranged in the slotted standards 6. The presser roller 15 which can be adjusted with any desired pressure against the drum 4 by means of the screws 18, is provided with a large number of perforations for the escape of air from the fabric passing between said roller and the drum. While any suitable construction of roller may be employed, it is preferred to construct the same in the form of a hollow brass cylinder having its walls perforated as shown in Fig. 2. It will be readily understood that by so adjusting the perforated presser roller against the drum, as to effect a compression or distortion of the walls of the pockets in the covering 11, the starch contained in said pockets will be forced out of them and into the fabric passing between the drum and perforated presser roller, thereby displacing the air, which escapes through the perforations in the roller. After passing between the starch carrying drum 4 and perforated presser roller 15, the fabric is next passed between the rubbing and wiping drum 4^a and roller 15^a which are preferably similar in construction to the drum 4 and roller 15, *i. e.* the drum 4^a is provided with a recessed or pocketed covering 11^a and the wall of the

roller 15^a perforated. As the drum 4^a and 15^a are designed to rub in the starch and also to remove the surplus thereof, they are covered with cloth 28 as shown in Figs. 1 and 2, 5 and the roller 15^a is run at a higher speed than the drum 4^a. The rubbing and wiping drum 4^a and roller 15^a are secured on the ends of shafts 19 and 20, the former being mounted in suitable bearings formed in arms 21 projecting from the frame of the machine, while the latter is mounted in boxes 22 arranged in slotted standards 23 formed on the arms 21. The roller 15^a is adjusted with any desired pressure against the drum 4^a by means of screws 24 as shown in Figs. 1 and 2. On the shafts 5 and 19 are secured sprocket wheels and the shaft 19 is driven by a chain 29 passing around said sprocket wheels. Any other suitable means for transmitting motion from the shaft 5 to the shaft 19 may be employed. On the shaft 19 is keyed a gear wheel 25 adapted to intermesh with a gear wheel 26 on the shaft 20, said gear wheels being so proportioned as to impart the desired increased speed of the roller 15^a, *i. e.* about two for one. A plate 27 is secured to the rear end of the trough 2 and extends up to the drum 4^a and is designed to conduct the surplus starch from said drum into the trough.

30 It will be observed that the several drums and rollers except the starch feeding roller have free outer ends, so that neck and wrist bands or other parts of articles may be readily passed between said drums and rollers. It 35 will be observed that the feed roll 12 is adjustable toward and from the drum 4, so that by forcing said roll against the drum, the resilient walls of the pockets or recesses will be distorted to a greater or less degree, thereby adjusting the capacity of said pockets for the 40 reception of the starch.

I claim herein as my invention—

1. In a starching machine, the combination of a rotating starch-carrying drum, provided with recesses or pockets having flexible walls 45 for the reception of starch and a perforated presser roller for forcing the article against the drum, the drum and roller having unsupported outer ends, thereby permitting the passage of portions of the article between the 50 drum and roller, substantially as set forth.

2. In a starching machine, the combination of a starch-carrying drum and a presser roller for applying the starch, rubbing and wiping drum and roller driven at different peripheral 55 speeds so as to produce a wiping and rubbing action on the surface of the article for working in the starch and the removal of any surplus thereof, substantially as set forth.

3. In a starching machine, the combination 60 of a starch-carrying drum, a presser roller, a rotating rubbing and wiping drum having a recessed covering, a perforated rubbing and wiping roller having a higher peripheral speed than the drum, said rubbing and wiping drum 65 and roller having a cloth covering, substantially as set forth.

4. In a starching machine, the combination of a rotating drum provided with recesses or pockets having flexible resilient walls, a starch 70 containing trough and a roll dipping into the trough and driven by frictional contact with the drum, the roll being adjustable toward and from the drum, for the purpose of regulating the quantity of starch taken up by the 75 pockets in the drum, substantially as set forth.

In testimony whereof I have hereunto set my hand.

THOMAS J. BLAKE.

Witnesses:

DARWIN S. WOLCOTT,
W. B. CORWIN.