H. BECHTOLD & R. E. YOUNG.

APPARATUS FOR PRODUCING PLIANT CREASES IN LAUNDRYING.

APPLICATION FILED NOV. 13, 1907.

907,442. **Patented Dec. 22, 1908.**

Fig. 1.

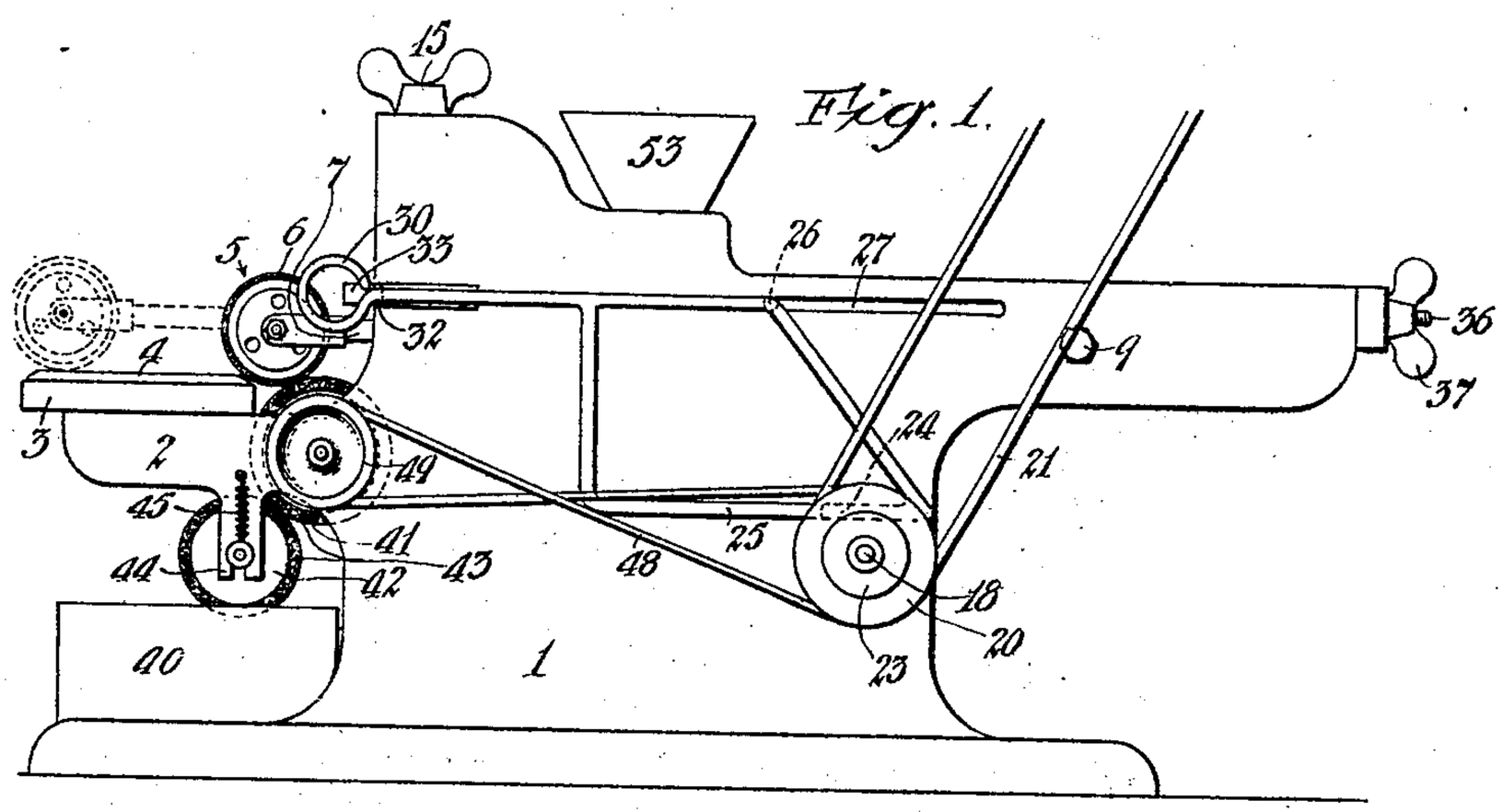


Fig. 2.

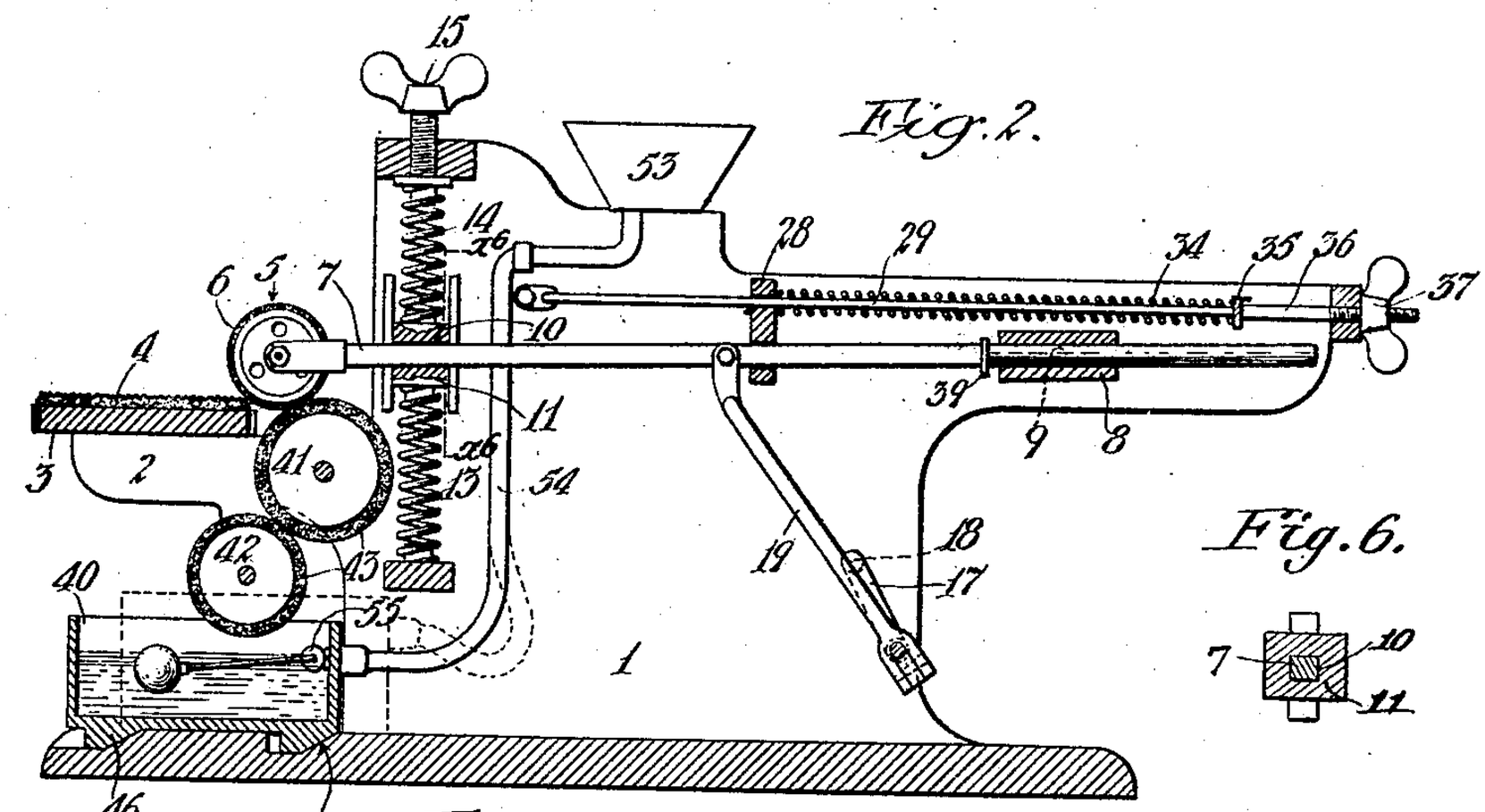


Fig. 6.

Fig. 3.

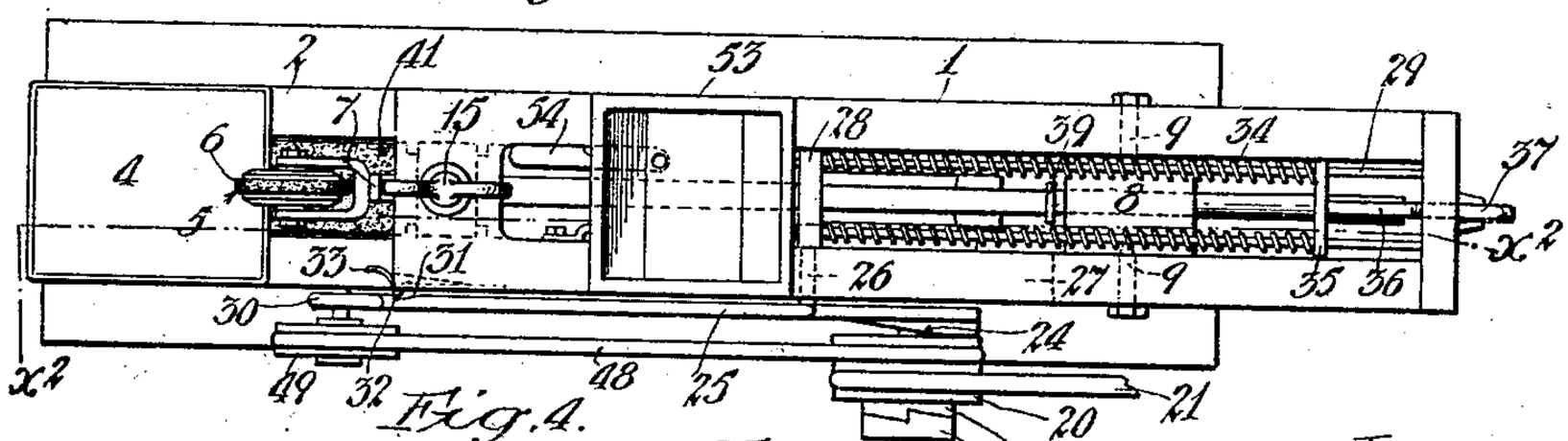


Fig. 4.

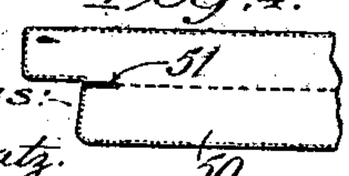
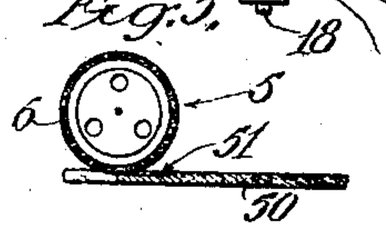


Fig. 5.



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UNITED STATES PATENT OFFICE.

HARRY BECHTOLD AND ROSCOE E. YOUNG, OF PASADENA, CALIFORNIA.

APPARATUS FOR PRODUCING PLIANT CREASES IN LAUNDRYING.

No. 907,442. Specification of Letters Patent. Patented Dec. 22, 1908.

Application filed November 13, 1907. Serial No. 402,030.

To all whom it may concern:

Be it known that we, HARRY BECHTOLD and ROSCOE E. YOUNG, citizens of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented a new and useful Apparatus for Producing Pliant Creases in Laundrying, of which the following is a specification.

This invention relates to the production of pliant creases in laundrying, for example, in starched goods, such as collars. In such articles there is a tendency to rupture or splitting at the folds, particularly at the ends of the fold.

The main object of this invention is to produce sufficient flexibility at these parts to avoid premature breakage thereat without defacing the finish of the article, and without unduly interfering with the stiffness thereof.

The invention is also applicable generally to starched articles which tend to crack at any place, as by reason of wear, for example, on cuffs, and also wherever extra flexibility is desired, as at button holes, the invention providing for production of local flexibility at such parts.

In the accompanying drawings:—Figure 1 is a side elevation of the machine embodying the invention. Fig. 2 is a longitudinal section on line x^2—x^2 in Fig. 3. Fig. 3 is a plan of the machine. Fig. 4 is a plan and Fig. 5 a section of a part of an article showing the effect of the apparatus thereon. Fig 6 is a detail section on line x^6—x^6 in Fig 2.

The frame 1, of the machine, is provided with brackets 2 for supporting the table 3 on which the article is placed and supported. Said table has a cover or pad 4 of fabric or other suitable material. A pressing and wetting roll 5 having a peripheral pad or rim 6 of absorbent fabric or material, is mounted to travel over this table, being carried by and journaled on a fork at the end of a carrier bar 7 whose rear portion is mounted to slide in a block 8, mounted by trunnions 9 on frame 1 to allow of up and down motion of the roll 5. The absorbent pressure applying portion 6 is narrow, so that the starch can be pressed out laterally from the destarching line. Near its forward end the bar 7 passes through a hole 10 in a block 11 slidable vertically in guide ways 12 on frame 1. The forward portion of bar 7 which slides in block 11 is square to prevent the bar from turning and to maintain roll 5 in a vertical plane. Block 11 is held or suspended in position by springs 13, 14, below and above the same, the upper spring 14 being adjustable, as to pressure, by screw 15.

Bar 7 is reciprocated by a crank 17 on a shaft 18 journaled in the frame 1, said crank being connected to said bar by a connecting rod 19. A loose pulley 20 on shaft 18 is operated by a belt 21 and carries a clutch member 22 which can be engaged with a clutch member 23 on the shaft, by means of an incline 24 on a controlling frame or member 25. Said controlling member has a projection or stud 26 extending through a slot 27 in frame 1 and connected or attached to a flock 28 which slides on rods 29 which are attached in fixed position on frame 1, member 25 being thereby guided on frame 1. Controlling member 25 has a handle 30 at its forward end and is notched at 31 to be engaged by a spring catch 32, see Fig. 3, which has a thumb piece or extension 33 to enable it to be released from the notch. Springs 34 are attached to block 28, and to a cross head 35, on a rod 36 which passes through the back of frame 1 and is screw threaded to receive a nut 37 whereby the tension of the springs may be adjusted. Bar 7 has a shoulder or projection 39 which is engaged by the block 28 when the latter is retracted by the springs 34, to draw the bar to retracted position.

Means are provided for moistening or wetting the presser roll 5, said means comprising a water tank 40, and rolls 41, 42 for delivering water therefrom to roll 5, said rolls 41, 42 being faced or covered with absorbent padding 43 to carry the water. Roll 41 is journaled in frame 1, and the supporting springs 13, 14 for the roll 5 are so adjusted that when the roll 5 is in retracted position said roll will rest on the roll 41. Roll 42 is journaled in bearings and is slidable vertically in guideways 44, and pulled upward by springs 45 so that roll 42 always bears on roll 41. Water tank 40 has inclines 46 engaging with inclines 47 on the base of frame 1, so that by pushing the tank rearwardly, to position shown in dotted lines in Fig. 2, it is raised to bring the water therein in contact with roll 42. Roll 41 is continuously rotated from driving pulley 20 through belt 48 running over said pulley and over a pulley 49 on the shaft of roll 41. The resulting continuous rotation of rolls 41, 42 causes water to be drawn from tank 40 when the latter is raised, and to be distributed over roll 41, and when

the roll 5 is in retracted position, shown in Fig. 1, the roll 5 takes up moisture from roll 41. Tank 40 is supplied with water from a reservoir 53, through a flexible tube 54, a float operated valve 55 being provided to maintain a definite level of water in the tank.

In the method of operation as carried out according to this invention, the article to be operated on is starched and while the starch is still wet and plastic, said article for example, a collar indicated at 50 in Figs. 4 and 5, is subjected to pressure at the place 51 or places where extra flexibility is desired. By such pressure, the starch is squeezed out and partially removed from such places, so that when the article is dried and ironed these places will be deficient in starch and will be less stiff than the body of the article. Simultaneously with the pressure, we may apply water to the compressed place so that the starch which remains thereat is diluted, thereby further decreasing the stiffness at such places when the article is dried and ironed. This method is carried out in the above described machine as follows:—The article 50, for example a collar, is, after starching and while still wet, placed on the pad 4 of table 3, with the portion of the collar that is to be rendered pliable, in the path of roll 5. By then pulling handle 30, controlling member 25 is drawn forward, causing incline 24 thereon to press pulley 20 into position to cause engagement of the clutch members and enabling the pulley 20 to rotate the shaft 18. Such rotation of shaft 18 causes reciprocation of bar 7 with the roll 5 carried thereby between the portions shown in full and dotted lines in Fig. 1, and causes said roll to traverse a portion of the article 50, and to press out the starch therefrom and serve as a destarching means—the starch being removed partly by lateral extrusion, and partly by adhering to the absorbent rim of the presser roll. The roll 5 being kept wet by the water supply means described, it applies water to the place pressed by roll 5 and dilutes the starch thereat. The application of water to the roll and the contact of the water supply roll with the presser roll also serve to keep the destarching presser roll clean or prevent it from clogging with starch, the water supply roll wetting the starch and picking it off the presser roll. Similarly the roll 41 is kept clean by roll 42 which is cleaned by its contact with the water at each wetting operation. On the subsequent drying and ironing of the collar this portion thereof remains relatively flexible. When the operator has finished work, the member 33 is pressed to release bar 25, which is retracted by springs 34 releasing the driving clutch for shaft 18, and in such movement of bar 25 the block 28 strikes the projection 39 on bar 7 to return said bar to fully retracted position, if it has not already been moved to such position by the driving shaft. The pressure of the presser roll 5 on the article can be adjusted by means of screw 15.

The destarching operation, in case of a wing tip collar, is applied to the fold of the wing tips. In the case of a turn down collar it is applied to the ends only of the seam or fold line, as shown in Fig. 4, those being the parts most subject to rupture, the entire seam line being moistened in usual manner by the usual seam moistener, in a subsequent operation, or if desired the above process may be applied to the entire fold. The operation is also applicable in any part of a starched article, such as a cuff, which is weak or liable to crack.

What we claim is:—

1. A machine for producing pliant creases in starched laundry articles, comprising two members adapted to squeeze the article between them while the starch in the article is in a wet plastic condition, one of said members having an absorbent pressure applying portion, means for producing relative reciprocating movement of said members, to cause the article to be squeezed between them and remove starch from the article along the line of pressure, and means for removing starch from said absorbent pressure applying portion.

2. A machine for producing pliant creases in starched laundry articles, comprising two members adapted to squeeze the starched article between them while the article is in a wet condition, and means for producing a relative reciprocation of said members, one of said members being sufficiently narrow to permit displacement of the starch laterally from the destarching line.

3. A machine for producing pliant creases in starched laundry articles, comprising a supporting member, a destarching presser member, said members being mounted for relative reciprocating movement, and said destarching presser member having a narrow absorbent pressure applying portion, means for producing relative reciprocation of said members and means for applying water to the presser member and removing starch therefrom.

4. A machine for producing pliant creases in laundry articles, comprising a support for the article, a water supply and starch removing means at the rear of said support, means for supplying water and removing starch from said water supply means, and a presser roller having a peripheral portion formed of absorbent material and mounted to move in a reciprocating path from a position where it is in contact with the water supply means to a position over the article support.

5. The combination with an article support, of a water supply roller located at the rear thereof and provided with an absorbent peripheral portion, means for rotating said

water supply roller, a moistening and pressure roller and a carrier therefor mounted to move in a reciprocating path to carry the said roller from a position where it is in contact with the water supply roller to a position over the article support, means for reciprocating said carrier, a vertically movable means supporting the carrier to permit of vertical motion thereof, and an elastic supporting means for said vertically movable means.

6. A frame, an article support thereon, a water supply roller mounted to rotate on said frame, a water supply tank, means for conveying water from said water supply tank to said water supply roller, means for rotating said water supply roller, a block pivotally mounted on said frame, another block mounted to slide vertically on said frame, a bar slidable through the pivotally mounted block and through the vertically slidable block, springs engaging the vertically slidable block to elastically support the same, a moistening and pressure roller carried by the said bar and having a peripheral portion of absorbent material, crank means for reciprocating said rod to move said moistening and pressure roller from a position where it is in contact with the water supply roller to a position over the article support, driving means for the said crank means, a clutch for the said driving means, a controller for said clutch, spring operated means for normally drawing said controller to position to release the clutch, and means connected to the controller for engaging said carrier rod to move the moistening and pressure wheel to normal position in contact with the water supply roller.

7. A machine for producing pliant creases in laundry articles comprising a support for the article, a water supply means, means for supplying water thereto, a pressure means having an absorbent peripheral portion, a carrier bar for said pressure means mounted to reciprocate to move the pressure means into and out of contact with the water supply means and into and out of operative position over the article support, means for reciprocating said pressure means, said means including a clutch, a controller for said clutch, spring means normally drawing the controller to position to release the clutch, and means connected to the controller to move the carrier bar to normal position when the clutch is released.

8. A machine for producing pliant creases in laundry articles, comprising an article support, a reciprocating presser roll having an absorbent peripheral portion, a roll having an absorbent peripheral portion on which the presser roll rests when at one end of its stroke, means for rotating the last named roll, an absorbent faced roll below and in contact with the last named roll, and a water tank movable into and out of position to bring the water therein in contact with the said lower roll.

9. A machine for producing pliant creases in laundry articles, comprising a frame, a table carried thereby, a presser roll, a rod carrying said roll and mounted to reciprocate to cause the roll to move in a definite path over the table, a shaft having a crank connection to the rod to reciprocate the same, a driving pulley, a clutch connection between said pulley and shaft, a sliding controller for said clutch connection, a spring connected to said controller to draw the same to unclutching position, and means for holding the controller in clutching position, the presser roll rod having a projection to engage means connected to the controller whereby movement of the controller to inoperative position moves the presser roll to retracted position.

10. An apparatus for rendering a portion of a starched article relatively flexible, comprising a support for the article, means for applying pressure locally to the article while resting on said support, rotating water supply rolls, one of which is in contact with the presser roll at one end of its stroke, a water tank movable up or down to bring the water therein into contact with another of said water supply rolls, and means for maintaining the water at a definite level in the tank.

In testimony whereof we have hereunto set our hands at Los Angeles, California, this 6th day of November, 1907.

HARRY BECHTOLD.
ROSCOE E. YOUNG.

In presence of—
GEORGE T. HACKLEY,
FRANK L. A. GRAHAM.