No. 614,448. Patented Nov. 22, 1898.

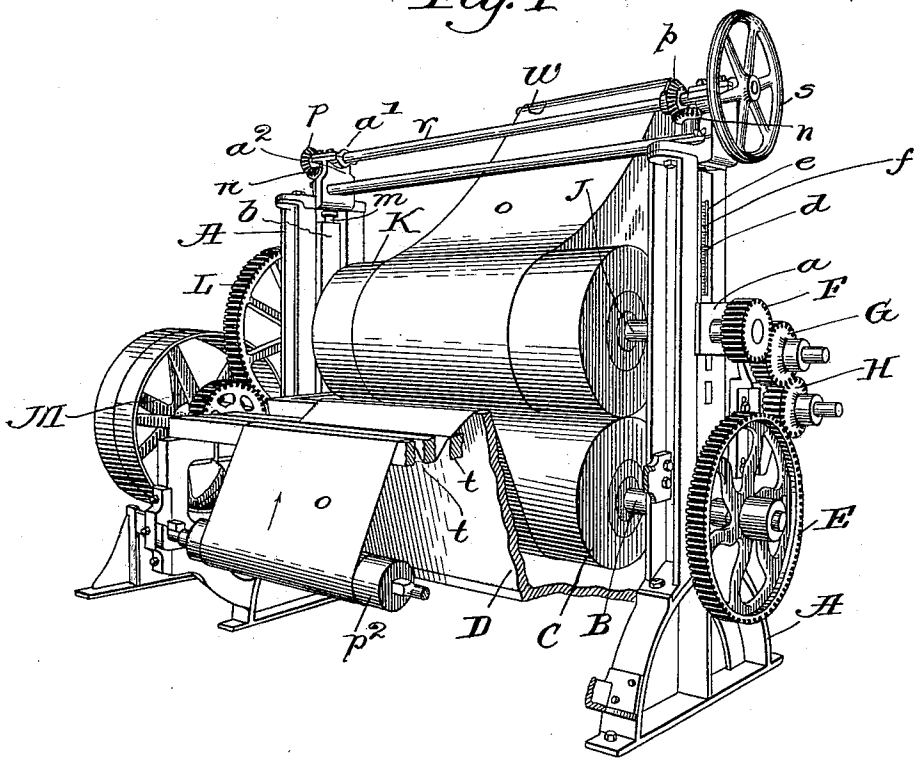
J. EDMUNDS.

MACHINE FOR FINISHING AND PRESSING WEBS.

(Application filed Nov. 1, 1897.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1



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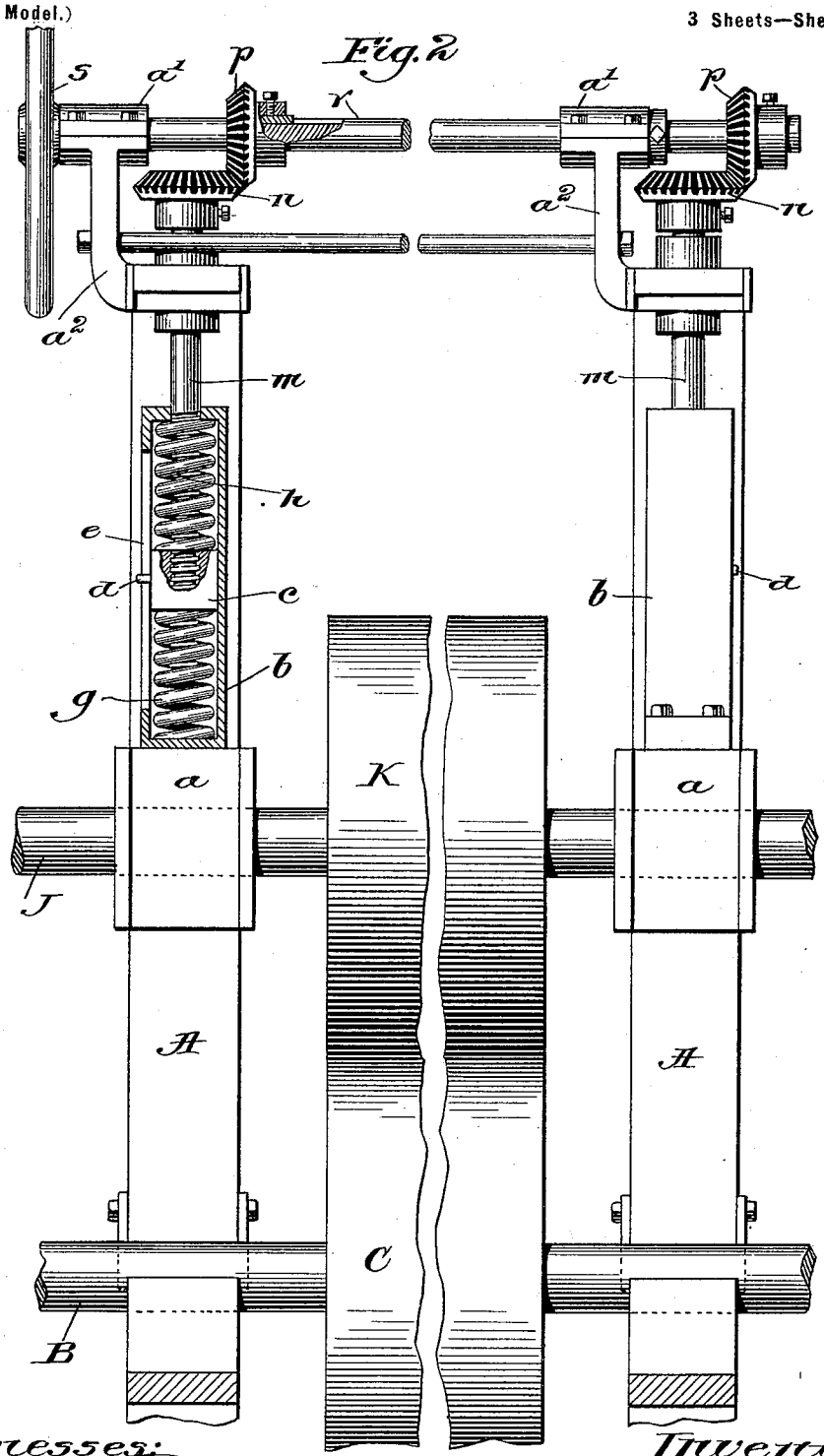
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MACHINE FOR FINISHING AND PRESSING WEBS.

(Application filed Nov. 1, 1897.)

(No Model.) 3 Sheets—Sheet 2.

Fig. 2.



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No. 614,448. Patented Nov. 22, 1898.

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MACHINE FOR FINISHING AND PRESSING WEBS.

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(No Model.) 3 Sheets—Sheet 3.

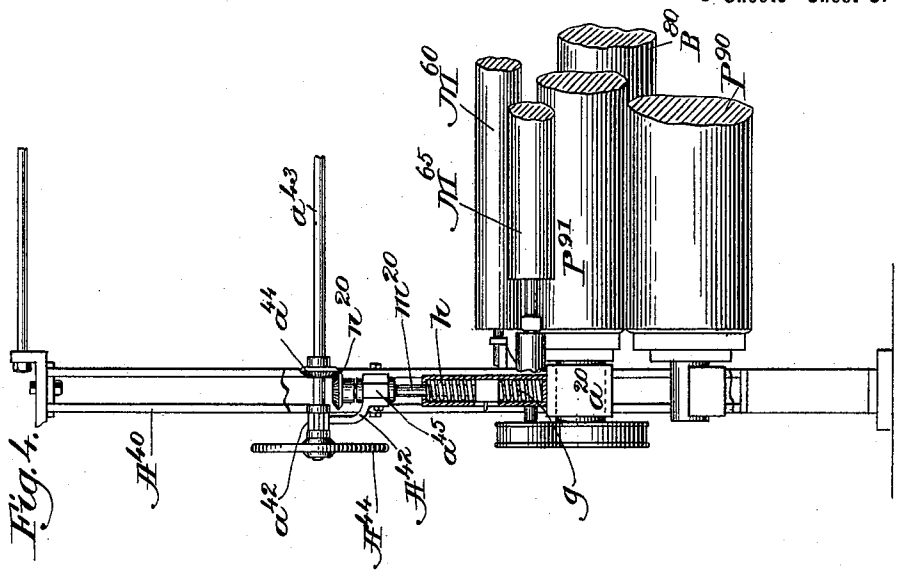


Fig. 4.

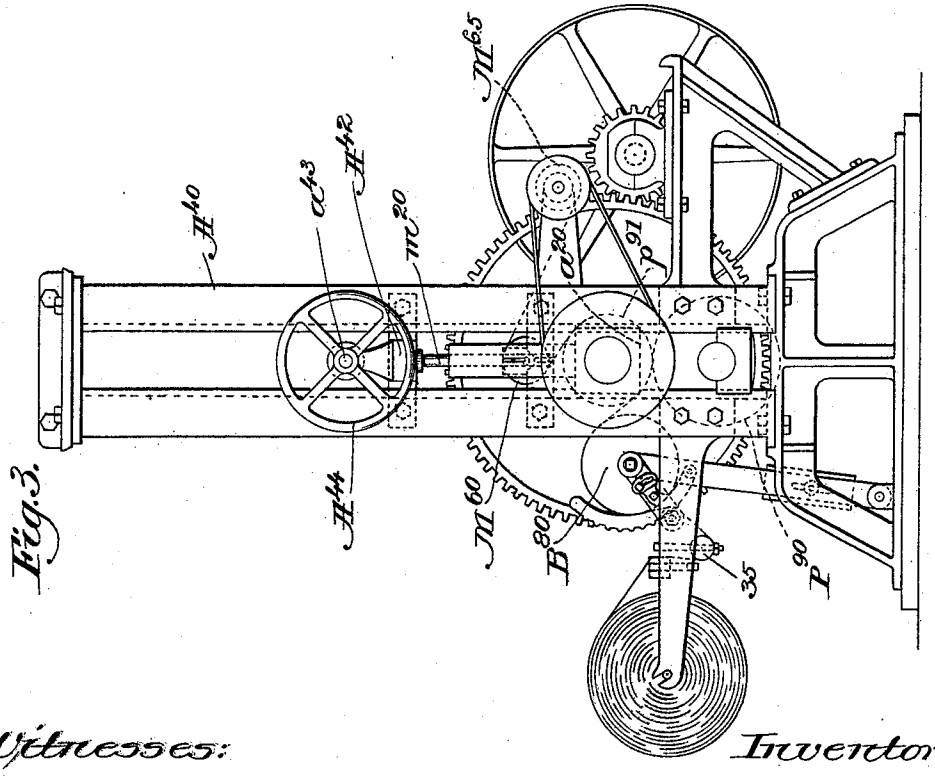


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN EDMUNDS, OF WALTHAM, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO GEORGE E. JORDAN, OF SAME PLACE.

MACHINE FOR FINISHING AND PRESSING WEBS.

SPECIFICATION forming part of Letters Patent No. 614,448, dated November 22, 1898.

Application filed November 1, 1897. Serial No. 656,987. (No model.)

To all whom it may concern:

Be it known that I, JOHN EDMUNDS, of Waltham, county of Middlesex, State of Massachusetts, have invented an Improvement in Machines for Starching, Finishing, and Pressing Webs, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to control the position of the pressure-roll employed in machines for starching, coating, dyeing, printing, finishing, or pressing webs of cloth and other material, wherein it is desirable to be able to regulate the pressure of the roller on the material, said pressure in a sizing or coating machine determining the quantity of starch, &c., left on the goods, and in a finishing or pressing machine the extent of the pressure put onto the goods regulates and determines the finish or appearance of the goods.

Figure 1 in perspective, broken out, represents my invention as applied to a starching-machine, one of the machines in which it is especially useful. Fig. 2 is an enlarged detail of a pressure-roller, partially broken out, and the means to control or regulate the position of said roll with relation to the roll with which it coöperates. Fig. 3 is a side elevation of a finishing-calender, showing my invention applied thereto; and Fig. 4 is a partial front elevation thereof.

The framework A contains suitable bearings for a shaft B, carrying a roll C, said roll running, as herein shown, in a box or receptacle D, located between the uprights of the framework. The shaft B has an attached gear E, which is rotated by a pinion F, acting through intermediate pinions G H. The pinion F is fast on one end of the journal or shaft J, carrying the pressure-roller K, said shaft having at its opposite end a toothed gear L, engaged by a pinion M on a suitable shaft deriving its motion from any usual fast and loose pulleys. The shaft J is extended through boxes *a*, fitted to be slid vertically in suitable guideways in each side frame A. These boxes *a* have attached guides or sleeves *b*, the latter being herein shown as rectangular in cross-section and hollow, each guide or sleeve containing a longitudinally-movable polygonal nut *c*, prevented from rotation by the corresponding interior cross-section of the sleeve or guide. Each nut is provided with a projecting pointer *d*, extended laterally through a longitudinal slot *e* in each guide or sleeve, the pointers coöperating with suitable scales *f* on the sleeves, at the edge of the opening *e* therein, only one scale being shown in Fig. 1, to thereby indicate the amount of pressure greater or less than that due to the weight of the roll which is being applied at the line of contact of the rolls C K. Each sleeve contains below its nut a spring *g* and above said nut a spring *h*, and each nut *c* is entered by a threaded screw shaft or rod *m*, so that by rotating said screw said nut may be raised or lowered by turning the screw in a direction to force the nut *c* down on the spring *g*. The pressure of the roll K on the web lying on the roll C may be made to exceed the pressure due to the weight of the said roll by any desired amount, and by turning the said screw in a direction to raise said nuts the pressure may be taken off of the springs *g* and put on the springs *h* above said nuts, compressing them, so that they, acting through the sleeves *b*, will lift the said sleeves, and with them the roll K, thus reducing the pressure on the roll K, and, if desired, lifting the roll out of contact with the roll C, so that it may be rotated above it. In this way by the use of the sleeves *b*, they being connected positively with and extended above the boxes and the two springs in the sleeves with an intermediate nut, the nut may be adjusted to exactly position the roll C with relation to the roll K, that any desired amount of starch may be left in the material. To enable both these screws to be adjusted in unison, they have been provided with bevel-gears *n*, engaged by bevel-gears *p* on a common shaft *r*, having a suitable hand-wheel *s*.

It will be understood, therefore, in this my invention that with the pressure-roll having its journals supported in boxes or bearings, said boxes or bearings being supported at their upper and at their lower sides by springs, the effective strength of which may be increased or diminished at will, it is possible by the adjustment of said bearings to absolutely regulate the extent of pressure of said

pressure-roll against another roll with which it is to coöperate, and so also, if it be desired, the pressure-roll may be supported out of contact with relation to the roll with which it coöperates and not exert any pressure at all on said roll.

By the use of my invention I do away with the necessity of removing the pressure-roll and its opposed roll to turn off their surfaces, and thereby compensate for wear and leave truly cylindrical acting surfaces.

The pressure-roller may be of any usual or suitable construction and it may be covered in any usual manner and by any usual substance—as india-rubber, cloth, corn-husks, &c.—or it may be a plain uncovered roll.

The web *o* being treated as herein shown is taken from the roller p^2, led under suitable stretching or smoothing bars *t*, thence under the roll C and up between it and the roll K, and thence out over a feed or take-up roll *w*. The shaft *r* turns in bearings *a'* on brackets a^2, having ears entered by bolts which sustain said brackets firmly at the upper end of the framework A.

In Figs. 3 and 4 I have shown my invention applied to a finishing-calender, the cloth passing under a guide-roll 35, around a stretcher-roll B^{80} and between suitable pressure-rolls P^{90} P^{91}, thence over a measuring-roll M^{60} to the shell M^{65}, upon which it is wound. The longitudinally-slotted uprights A^{40} of the frame, only one of the uprights being herein shown, have secured to each a bracket A^{42}, having a bearing a^{42} for a cross-shaft a^{43}, provided near each end with a suitable bevel-gear a^{44} (see Fig. 4) and at one end with a hand-wheel A^{44}. Each bevel-gear is in mesh with a bevel-gear n^{20}, fast on the threaded rod or shaft m^{20}, having a bearing a^{45} in the bracket A^{42}. The boxes a^{20} of the upper pressure-roll P^{91} have attached thereto the guides or sleeves *b*, heretofore described, which contain each the nut *c*, with springs *g* and *h* below and above it, the threaded rod m^{20} entering the nut to raise or lower it as before to thus vary the effective pressure of the roll P^{91} on the web. The shaft a^{43} is located at a convenient height for the operator to reach to effect by its rotation the adjustment of the pressure on the web.

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

1. In a machine of the class described, a roller to sustain the web to be treated, a coöperating pressure-roll, combined with boxes to receive the journals of said roll, said boxes having each a connected guide or sleeve provided with a nut, a screw entering each of said nuts, springs in each of said guides or sleeves, above and below said nut respectively, and means to turn said screws to adjust the nuts to compress one or the other of said springs more or less and so regulate the pressure of said roller upon the web-sustaining roller, substantially as described.

2. In a machine of the class described, a roller to sustain the web to be treated, and a coöperating pressure-roll, combined with boxes to receive the journals of said roll, said boxes having each a connected guide or sleeve provided with a nut, one of said nuts having a pointer coöperating with a scale fixed to the sleeve, a screw entering each of said nuts, springs in each guide or sleeve above and below said nut respectively, and means to turn said screws to adjust said nuts to compress one or the other of said springs more or less and so regulate the pressure of said roller upon the web-sustaining roller, substantially as described.

3. In a machine of the class described, a box or vat, a roller located therein to immerse a web in a liquid in said box, and a coöperating pressure-roller, combined with boxes having each a connected guide or sleeve provided with a nut, a screw entering each of said nuts, a spring in said guide or sleeve above and below said nut, and means to turn said screws to adjust said nuts to compress one or the other of said springs more or less and so regulate the pressure of said roller upon the web-sustaining roller, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN EDMUNDS.

Witnesses:
JOHN C. EDWARDS,
AUGUSTA E. DEAN.