No. 637,674. Patented Nov. 21, 1899.

W. SELLERS & J. S. BANCROFT.

MACHINE FOR APPLYING CEMENT TO FABRICS.

(Application filed June 25, 1898.)

(No Model.) 2 Sheets—Sheet 1.

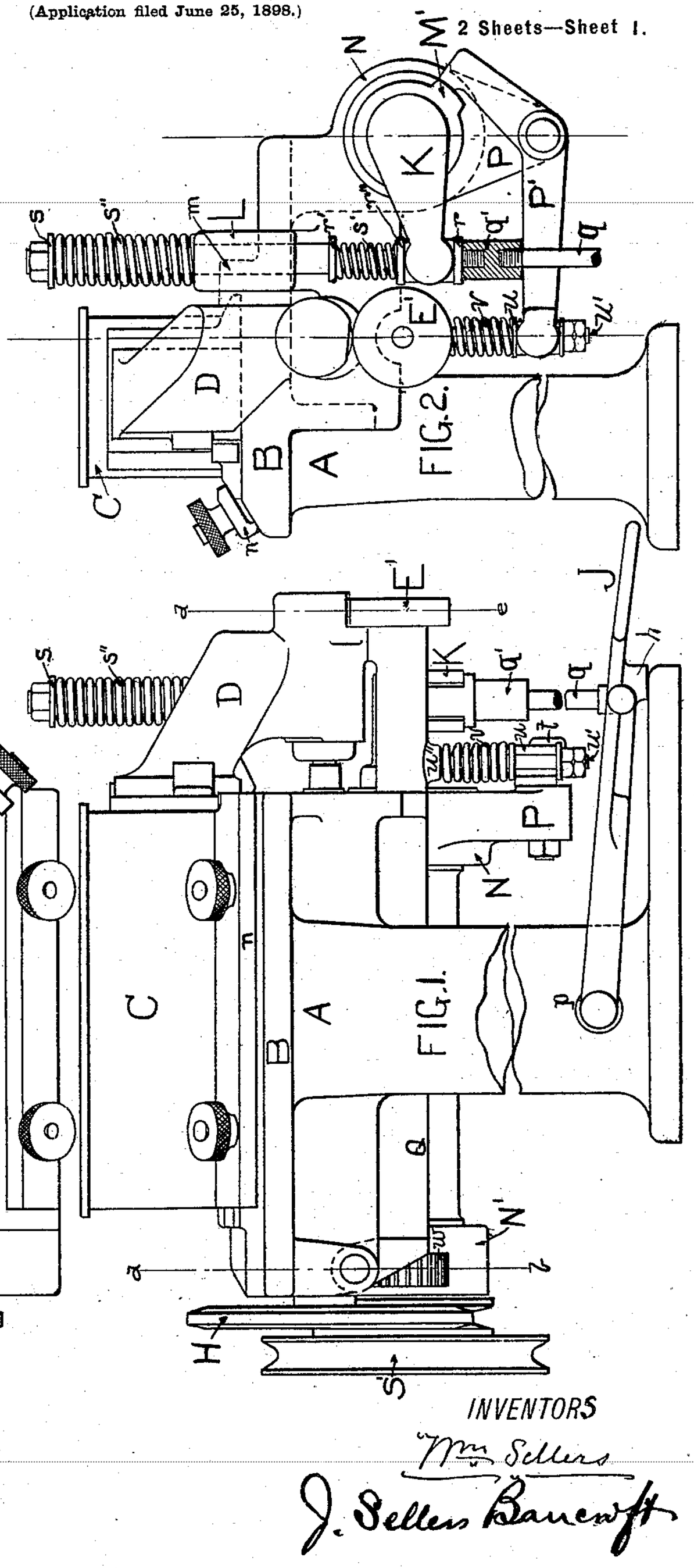

FIG. 2.

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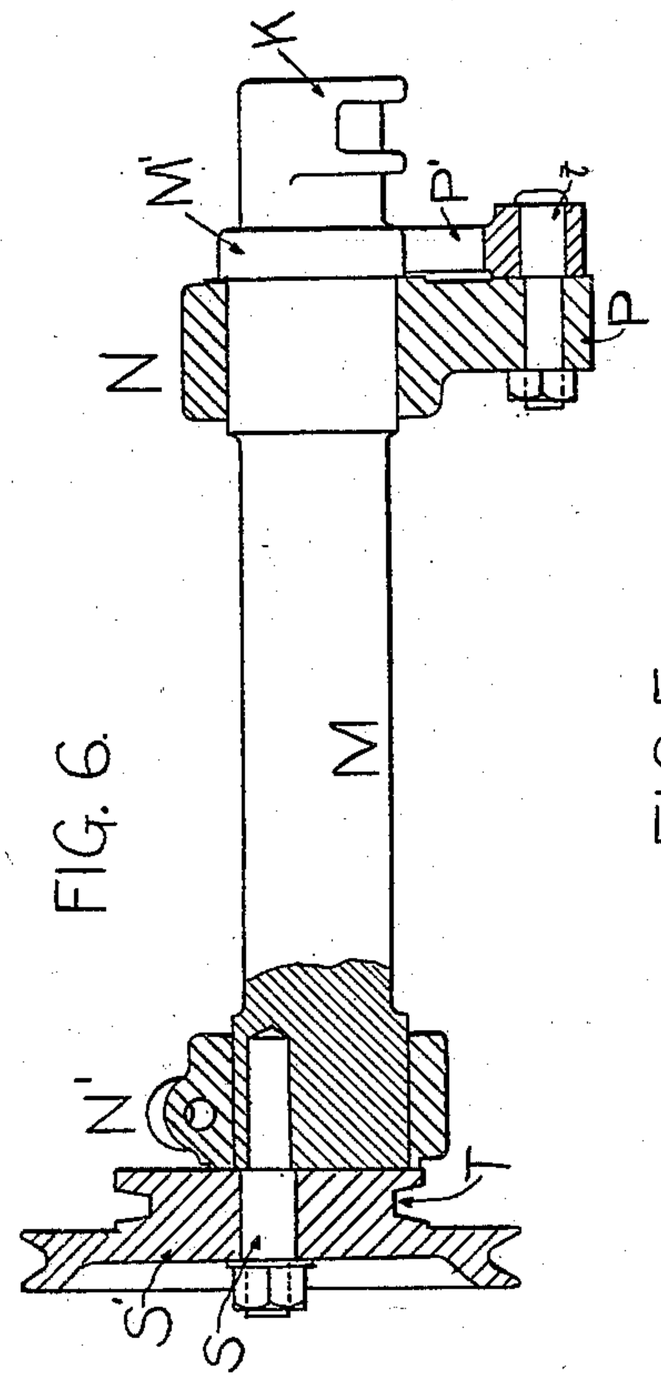

FIG. 6.

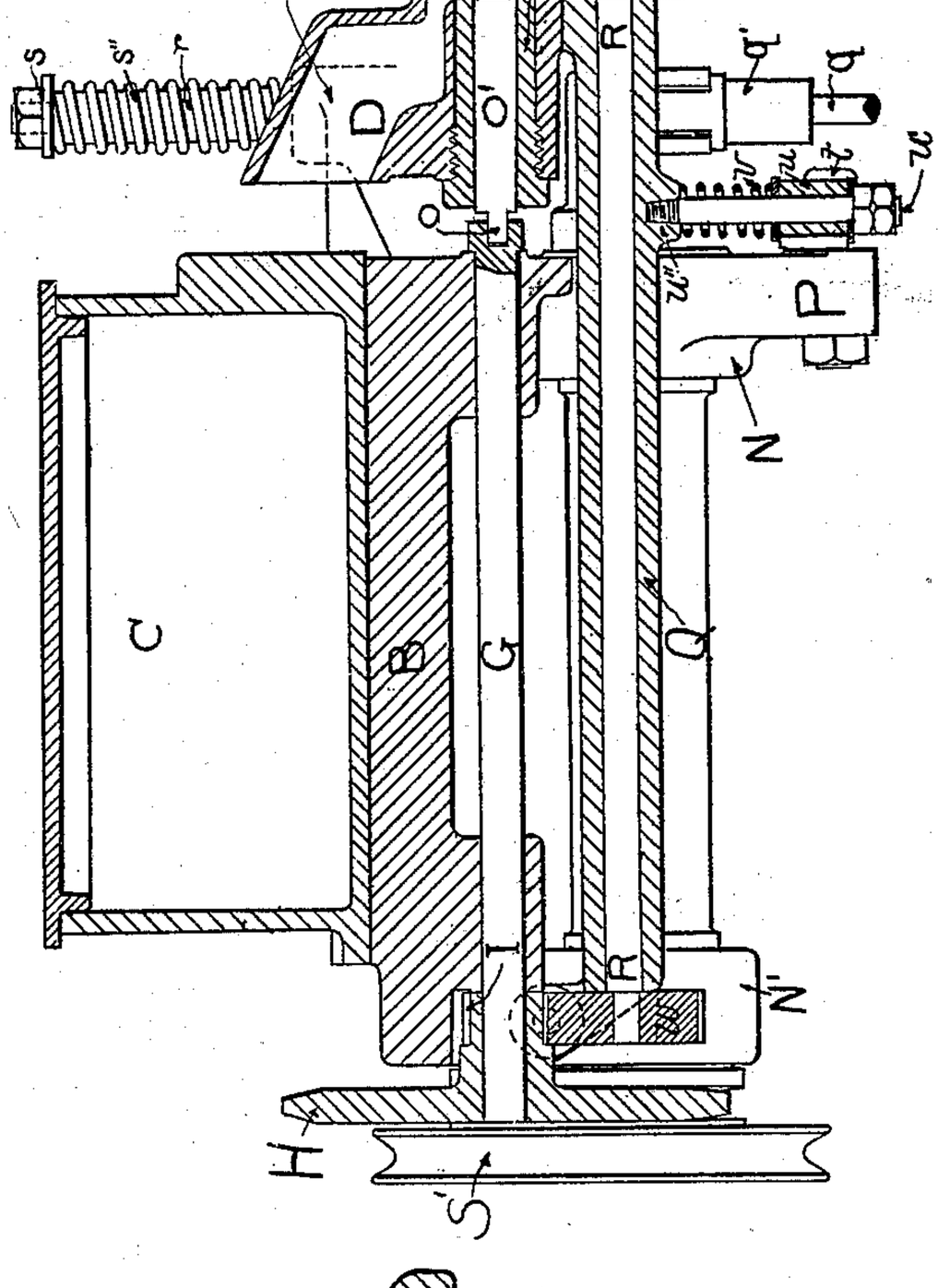

FIG. 5.

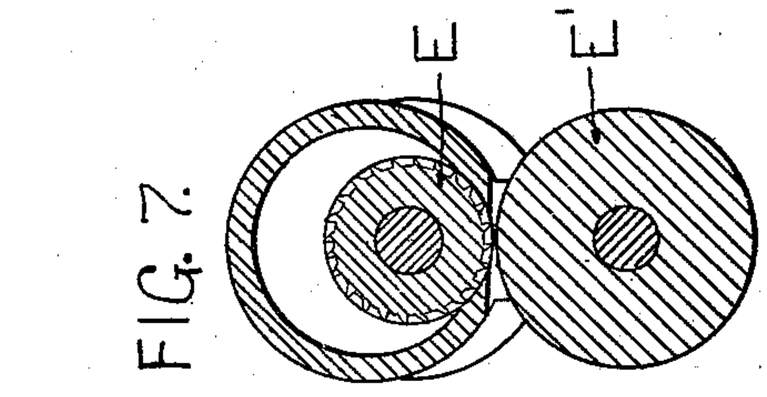

FIG. 7.

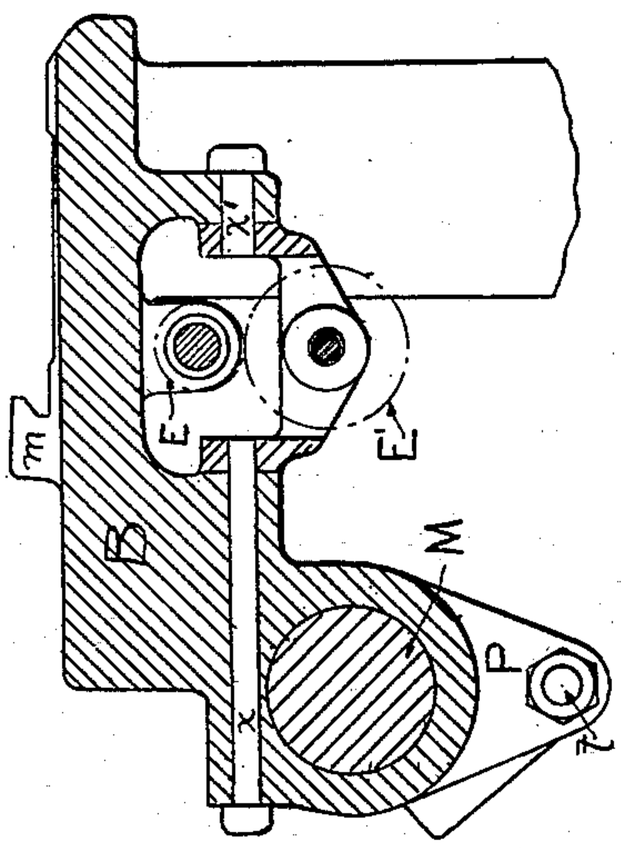

FIG. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM SELLERS AND JOHN SELLERS BANCROFT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO THE WILLIAM SELLERS & COMPANY, INCORPORATED, OF SAME PLACE.

MACHINE FOR APPLYING CEMENT TO FABRICS.

SPECIFICATION forming part of Letters Patent No. 637,674, dated November 21, 1899.

Application filed June 25, 1898. Serial No. 684,515. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM SELLERS and JOHN SELLERS BANCROFT, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Machines for Applying Cement to Fabrics, of which improvements the following is a specification.

The machine to which our improvements are particularly applicable was designed to apply cement upon the edges of the leather uppers for shoes and the linings therefor preparatory to lasting the same, in which operation the upper is attached to the insole of the shoe by means of the cemented edges prepared by the machine we have invented.

It is important for successful lasting that the edges of the parts to be united should be coated with a band of cement of uniform thickness and width; and it is one object of our invention to effect these results.

As the edges of the material to be cemented are curved in a variety of forms, it is a further object of our invention to arrange the cementing devices so that the material to be coated can be propelled thereby, conveniently guided while passing therethrough, and its progress arrested and retarded at will.

It is a further object to arrange the cementing devices so that the delivery of cement will be arrested when the movement of the cementing devices is stopped.

It is a further object to deliver the cementing material upon the upper surface of the fabric to be coated proportionately to the rate of travel; and it is a further object to separate the cementing devices so that all parts of the apparatus may be conveniently and thoroughly cleansed.

These objects are obtained by the mechanism illustrated in the accompanying drawings, which form part of this specification, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is an end elevation of the same. Fig. 3 is a plan. Fig. 4 is a vertical section on the line *a b*, Fig. 1. Fig. 5 is a vertical section on the line *b c*, Fig. 3. Fig. 6 is a vertical section on the line *c d*, Fig. 3. Fig. 7 is a vertical section on the line *d e*, Fig. 1.

The machine is composed of a stand A, Figs. 1 and 2, provided with a platform B at its upper end, upon which the cement-reservoir C is mounted and fastened in place by the beveled guide *m*, Figs. 2, 3, and 4, and by thumb-screw clamp *n*, Fig. 2, along the side of the reservoir. The front end of this reservoir is provided with a beveled guide *m'* and screw-clamp *n'*, by which the conduit D is fastened to the reservoir and preferably to extend below it. These fastenings facilitate the separation and removal of the reservoir and conduit at the end of the day's work, when the cement must be emptied from the reservoir and the conduit to prevent wasteful evaporation.

The cement is applied to the fabric by means of a roller E, mounted on a short shaft *o'*, and preferably so that the roller may be submerged in cement. The shaft *o'* is in the conduit D, supported by the bushing F, in which the shaft is rotatable. The bushing F is of larger diameter than the roller E, so that the roller and its shaft *o'* may be entered into and removed from the conduit D while supported by the bushing F. The shaft *o'* projects beyond the outer end of the bushing F, where it is flattened, as shown, to form the slip-coupling *o*, Fig. 5, with the end of the shaft G, supported in the platform B, whereby the cement-reservoir, conduit, and cementing-roller may be disconnected from the driving-shaft G and removed from the platform B by slackening the thumb-screw clamps *n* and sliding the reservoir longitudinally. On the outer end of this shaft is secured the friction-wheel H, Fig. 5, on the hub of which is a gear-wheel I of a diameter equal to that of the cementing-roller E. This roller is so mounted in the conduit D that a portion of it cuts through an opening in one side of the conduit, which opening fits the circumference and sides of the roller, as in Fig. 7, so as to prevent the escape of fluid cement when the roller is at rest, notwithstanding the circumference of the roller has depressions or serrations that will be filled with cement when the conduit is filled with it. These depressions or serrations may be of any shape or depth, providing they do not form a connection from

one to another through the side of the conduit, which would permit the passage of cement when the roller is at rest. When the roller is rotating, these depressions become buckets, which carry a quantity of cement through the side of the conduit, determined by the capacity of the buckets. The material to be coated with cement is pressed against the cementing-roller by a pressure-roller, preferably below the cementing-roller, as in Figs. 1, 2, 4, and 5, operated by the treadle J, which is pivoted at p to the stand A, its downward movement limited by the stop h, and it operates the crank-arm K through the rod q. The upper end of the rod q is screwed into a double-ended nut q', into the opposite end of which is screwed the rod r, provided with a fixed collar r' and a nut and washer s on its upper end. Between the collar r' and the double-ended nut q' a sleeve r'' is provided, which slides freely on the rod r and has collars at each end, between which the circular end of the crank-arm K plays freely. Between this sleeve r'' and the fixed collar r' is a spiral spring s', which surrounds the shaft r and through which downward pressure from the treadle J upon the sleeve r'' must pass, which pressure will be limited by the stiffness of the spring s'. The rod r is supported laterally by a projection L from the platform B, through which it plays freely vertically. Above this projection L and resting upon it is a spiral spring s'', which surrounds the rod r and is of a length to counterbalance the treadle J throughout its movement, the weight being transmitted from the rod r to the spring s'' by the nut and washer s. The crank-arm K is preferably cast upon the end of the shaft M, which is supported from the platform B by the brackets N and N', Figs. 2, 3, and 6. Between the arm K and the bracket N a cam M' is preferably cast with the shaft M, and depending from the bracket N is a projection P, Figs. 2 and 6, provided with a stud t, upon which is mounted the bell-crank lever P', the short arm of which is operated by the cam M' as the shaft M is vibrated by the movement of the rod q, connected to the treadle J and the crank-arm K. The long arm of the bell-crank lever P' operates a sleeve u, which slides freely upon a stud u', secured in a projection u'' from the under side of the vibrating arm Q, which carries the shaft R R of the pressure-roller E'. Between the sleeve u and the projection u'' a spiral spring v is mounted upon the stud u', which determines the pressure which can be applied by the bell-crank lever P' upon the vibrating arm Q. The lower end of the stud u' is provided with lock-nuts to regulate the distance between the end of the long arm of the bell-crank lever P' and the vibrating arm Q. The pressure-roller E' is carried upon the end of the shaft R R under the cementing-roller E, and upon the other end of this shaft is mounted a gear-wheel w. This gear-wheel is of the same diameter as that of the pressure-roller E', and it is driven by the gear-wheel I on the hub of the friction-wheel H. The end of the vibrating arm Q next the gear-wheels is supported on the pivots x and x', the axes of which are in a plane tangent to the pitch-lines of the two wheels and in a plane at right angles thereto, which cuts the teeth of the wheels midway of their width, whereby the vertical vibration of the arm Q will cause the least disturbance to the action of the gear-wheels.

To apply power for the rotation of the cementing and the pressure rollers, a stud S is inserted in the end of the shaft M, which stud is eccentric to the axis of the shaft M. Upon this stud is mounted a driving-pulley S', Figs. 5 and 6, the hub of which is a friction-wheel T, grooved to fit over the friction-wheel H, so that when the rod q is drawn down to force the pressure-roller against the cementing-roller the crank-arm K will turn the shaft M and force the friction-wheel T against the friction-wheel H, which in turn will impart motion to the cementing and the pressure rollers. The drawings represent the short arm of bell-crank lever P' moved from the shaft M by the cam M', upon which this short arm rests, in which position the pressure-roller is forced against the cementing-roller and the friction-wheel T against the friction-wheel H, so that if the driving-pulley S' is then rotated the rollers E and E' will also revolve. If the treadle J is raised by the spring s'', the arm K will rise and the shaft M will be rotated so as to draw the friction-wheel T away from the friction-wheel H. The wheel H and the cementing-roller will then cease to rotate, and at the same time the cam M' will turn from under the short arm of the bell-crank lever P'. The pressure-roller E' being then unsupported will drop away from the cementing-roller E and release any fabric compressed between them and also permit the conduit to pass over the pressure-roller when the cement-reservoir is removed, as hereinbefore described. The cam M' raises the short arm of the bell-crank lever P' a definite amount and produces a definite pressure between the two rollers. Further rotation of the cam M' will not increase this pressure, but it will increase the pressure between the friction-wheel T and the friction-wheel H, which pressure is limited by the stiffness of the spring s'. The time for the vertical movement of the pressure-roller is determined by the rotative movement of the shaft M and the position thereon of the cam M' relatively to the short arm of the bell-crank lever P'. The total rotative movement of the shaft M is determined by the amount of rotative movement required to move the short arm of bell-crank lever P' from the shaft M by the cam M' plus the amount required to bring the friction-wheels T and H into contact with sufficient pressure to drive H. The two move-

ments may be simultaneous, or either one may precede the other as the character of the work may render desirable.

Having thus described our invention, what we desire to secure by Letters Patent is—

1. A rotatable cementing-roller with a rotatable presser-roller parallel thereto, one roller movable toward and from the other, means for thus moving said movable roller and means whereby when the movable roller is moved toward the other roller, both rollers are connected to the driving-shaft and rotated, and whereby when the movable roller is moved away from the other roller the rotation of the cementing-roller is stopped.

2. A rotatable cementing-roller pivoted within a conduit from a cement-reservoir, the periphery of the roller extending outside the conduit through an opening which the roller fills and in which it can rotate freely, a rotatable pressure-roller below the cementing-roller, and means for pressing and for relieving the pressure upon the material to be coated as it passes between the rollers.

3. A cementing-roller and a pressure-roller geared together, a friction-pulley secured to one of the rollers, a friction-pulley secured to the driving-pulley which rotates freely upon an eccentric on a rotatable shaft, and means for imparting a reciprocating rotative movement to said shaft, which engages and disengages the friction-pulleys with and from each other.

4. A cementing-roller and a pressure-roller geared together, a friction-pulley secured to one of the rollers, a friction-pulley secured to the driving-pulley which rotates freely upon an eccentric on a rotatable shaft, an arm on said shaft, a treadle with limited movement in one direction, an elastic connection between the arm and the treadle, which determines the pressure of one friction-pulley against the other.

5. A shaft having rotative movement, means for producing such movement, a cam on said shaft, a pressure-roller, and an elastic connection between the cam and the roller which determines the pressure upon the roller.

6. A frictional driving-gear, a pressure-roller and a shaft having a rotatative movement, with means for transmitting by such shaft, an elastic and limitable pressure to the frictional driving-gear, and to the pressure-roller independently of each other.

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