

No. 654,330.

Patented July 24, 1900.

M. S. SHARP.

PROCESS OF FIXING THE FINISH ON COTTON PIECE GOODS.

(Application filed Dec. 30, 1899.)

(No Model.)

2 Sheets—Sheet 1.

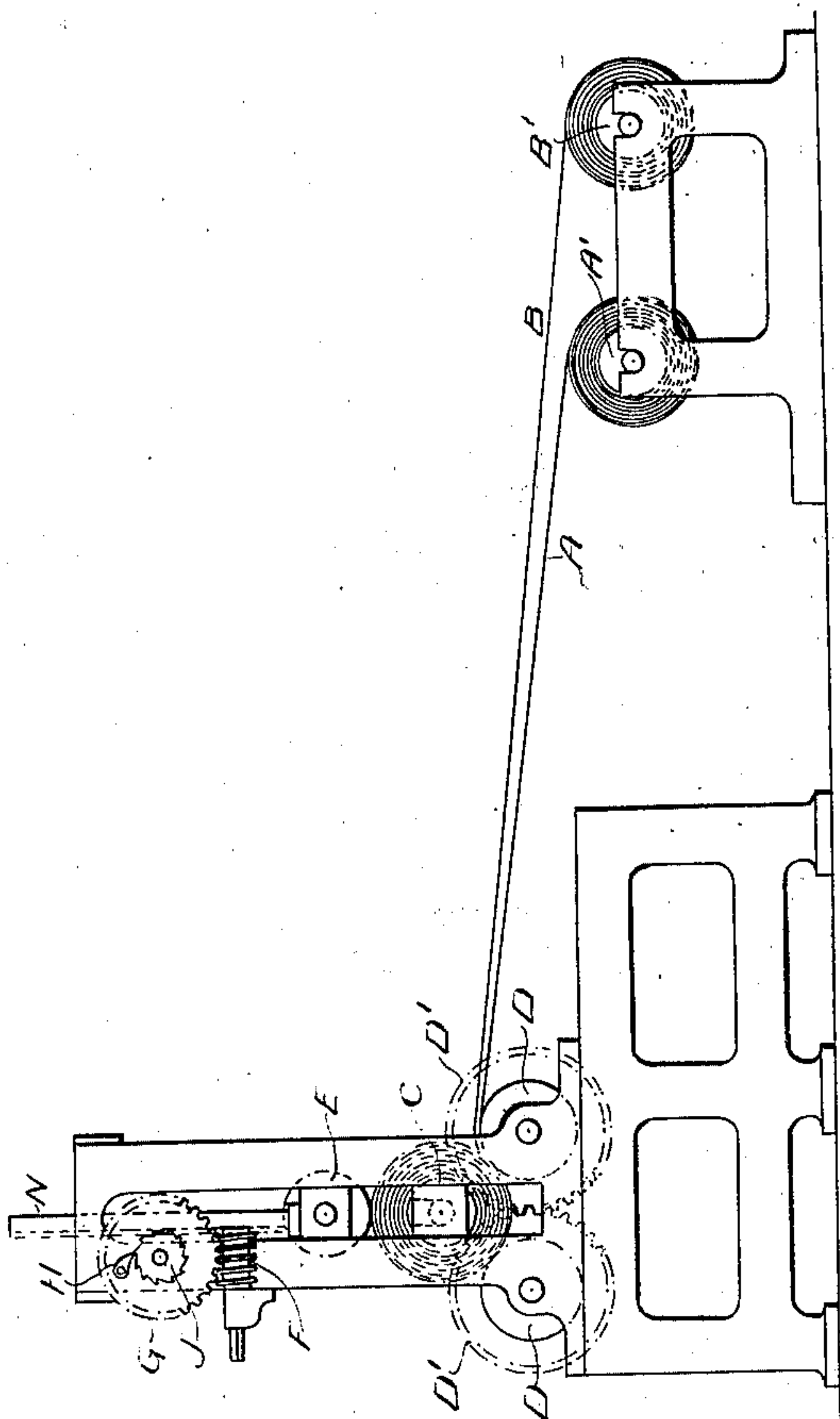


Fig. 2.

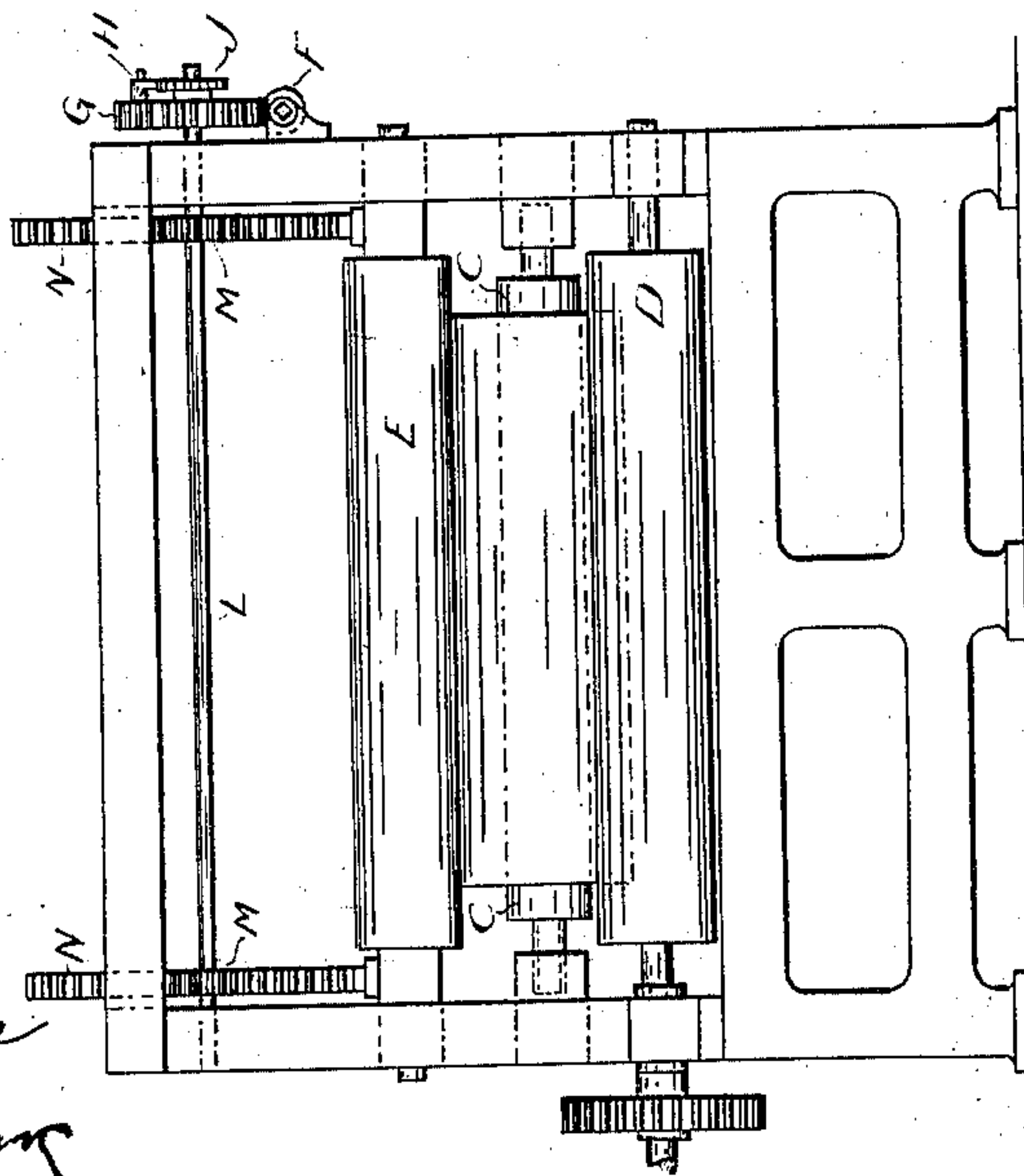


Fig. 1.

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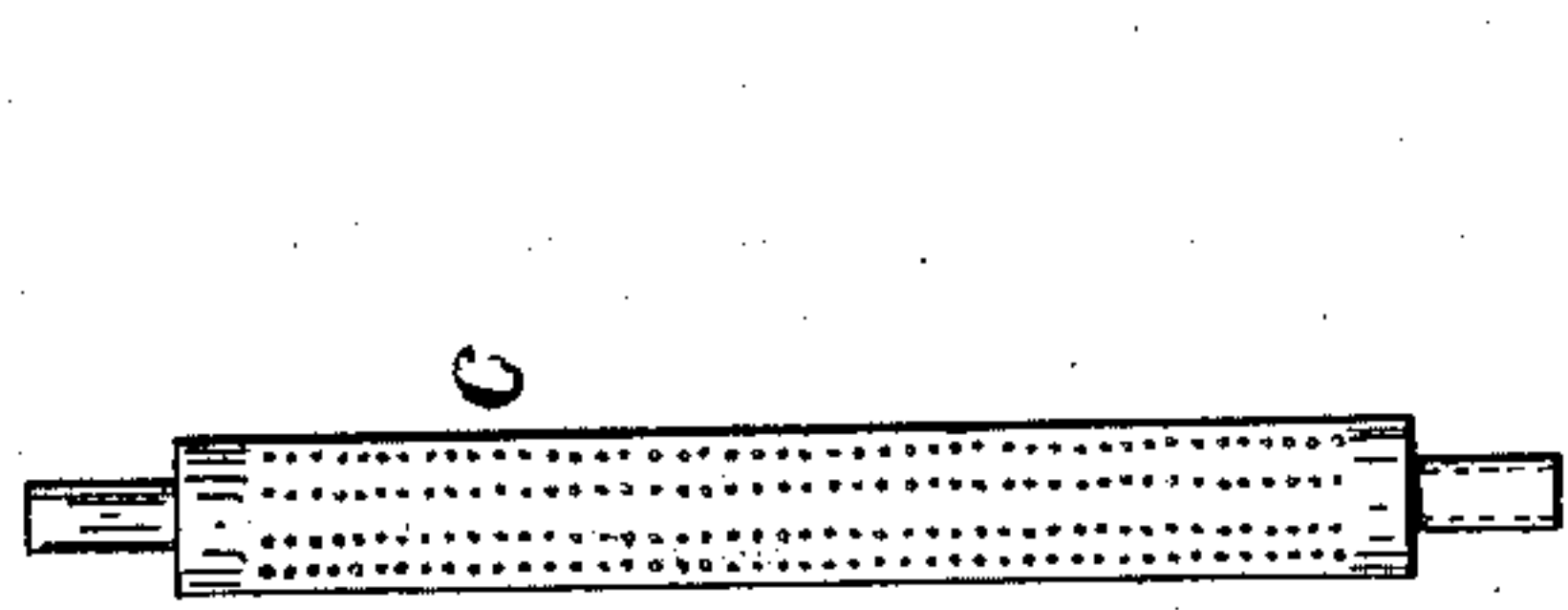


Fig. 5.

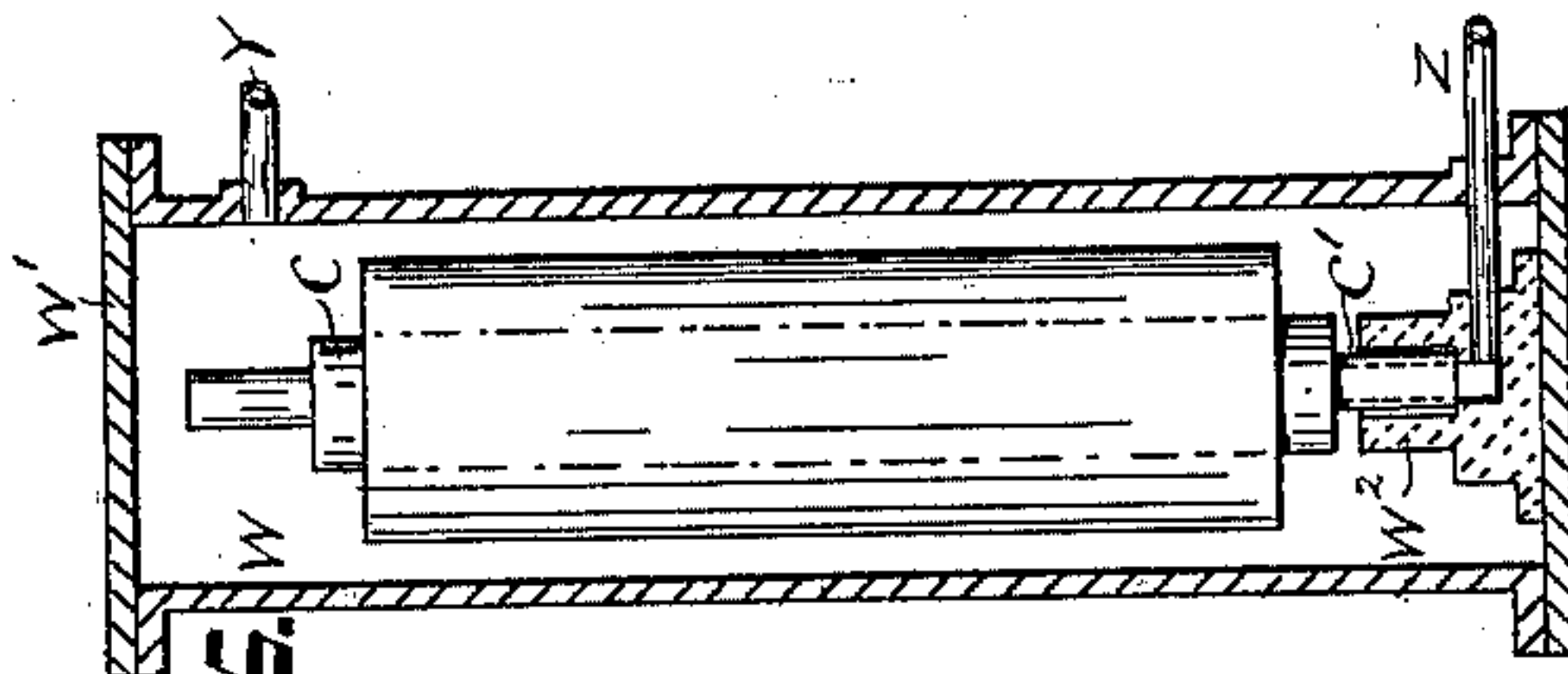


Fig. 6.

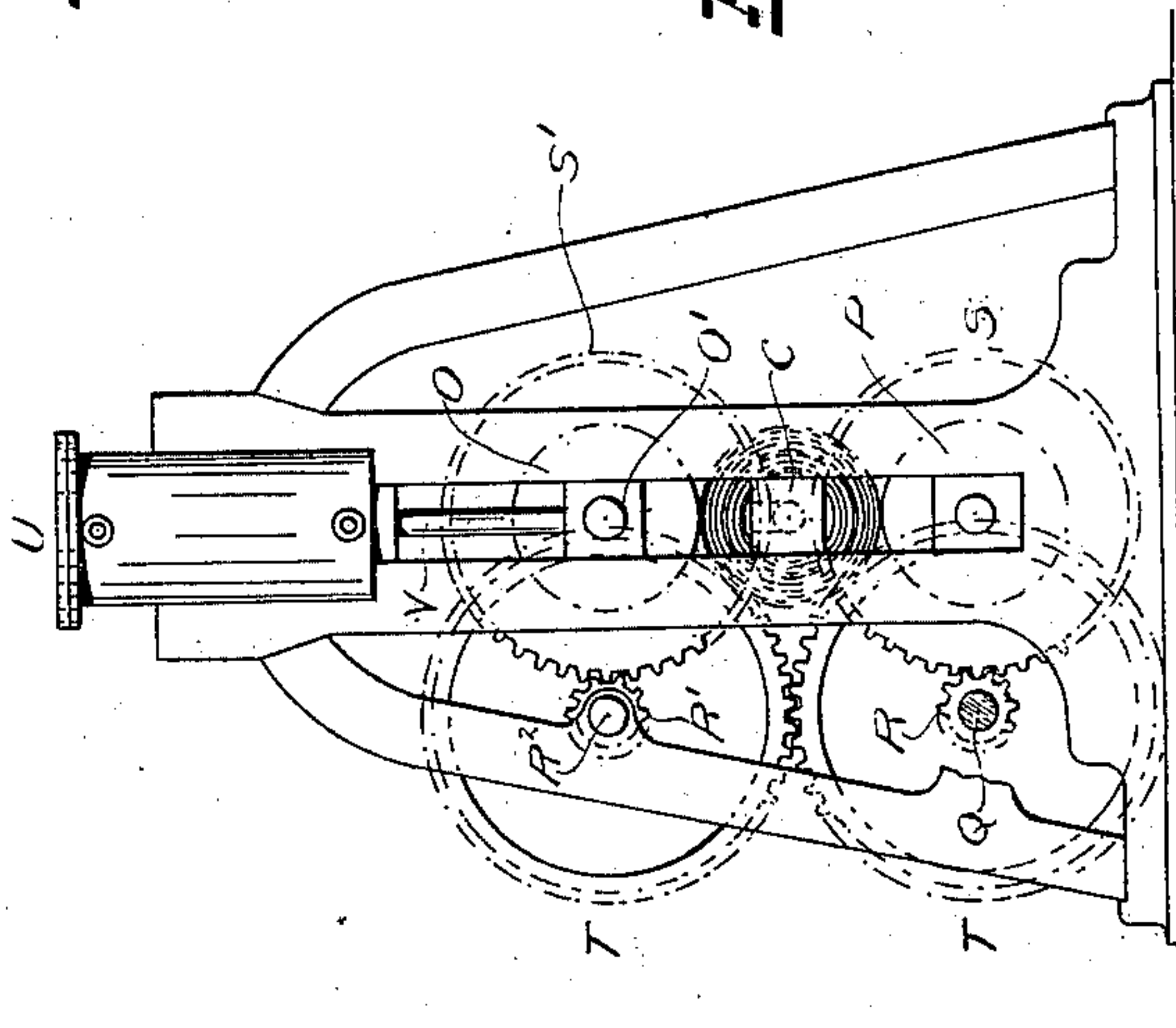


Fig. 7.

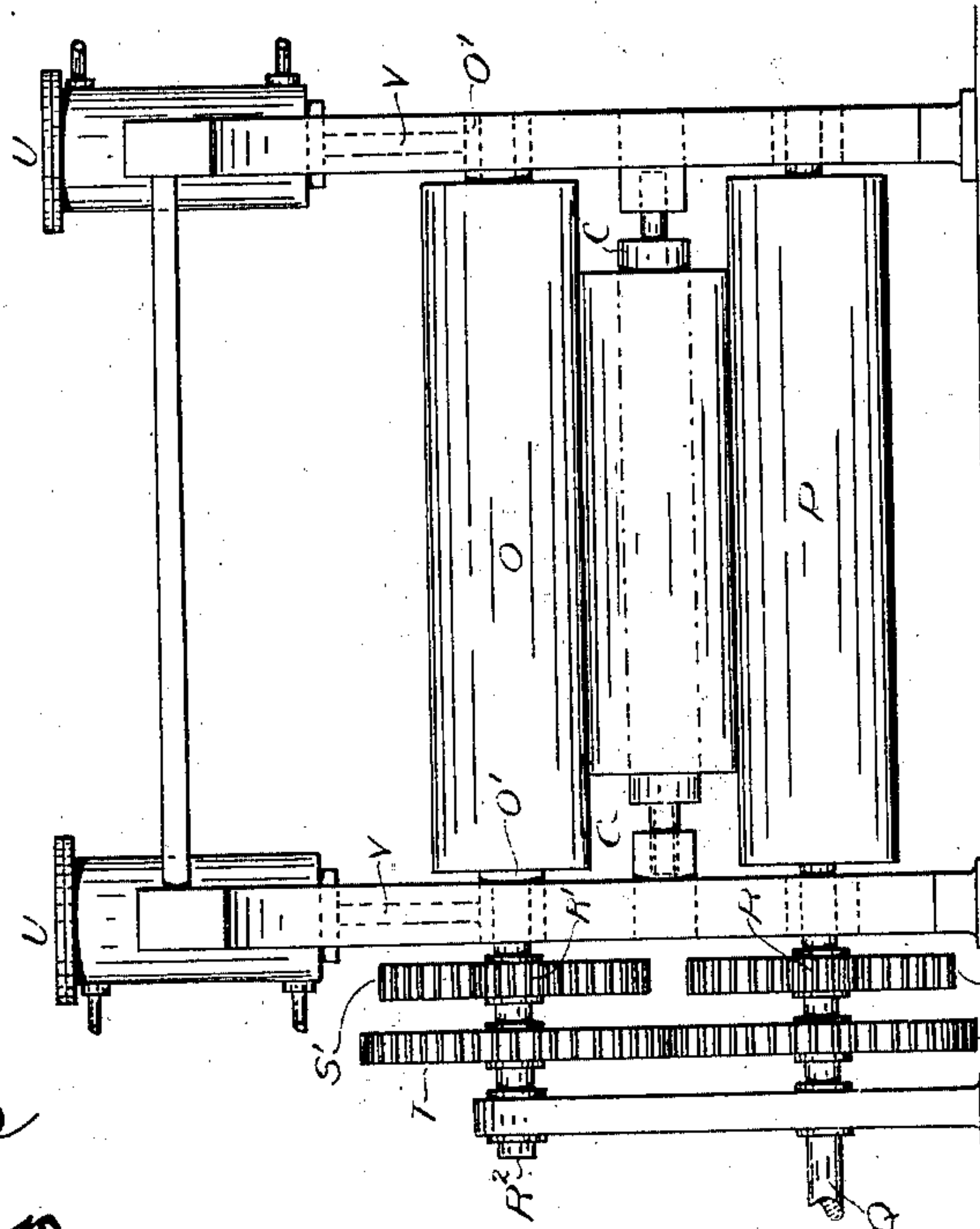


Fig. 8.

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UNITED STATES PATENT OFFICE.

MILTON SHERIDAN SHARP, OF HECKMONDWIKE, ENGLAND.

PROCESS OF FIXING THE FINISH ON COTTON PIECE GOODS.

SPECIFICATION forming part of Letters Patent No. 654,330, dated July 24, 1900.

Application filed December 30, 1899. Serial No. 742,123. (No specimens.)

To all whom it may concern:

Be it known that I, MILTON SHERIDAN SHARP, a subject of the Queen of Great Britain and Ireland, residing at Heckmondwike, in the county of York, England, have invented certain new and useful Improvements in Processes of Fixing the Finish on Cotton Piece Goods; and I do hereby declare the following to be a clear and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in the finishing of cotton-cloth piece goods, especially that class of piece goods known as "Italians," such as are generally used for the lining of coats, whereby by my improvement a permanent finish is produced on the cloth piece goods more expeditiously and superior to that obtained by any other process hitherto practiced or known.

The finish produced by my improved process is not only permanent, but has also the characteristics hitherto only obtained in cotton piece goods which have been finished by the slow, costly, and laborious process known as "hot-pressing." Among the advantages obtained are the great closeness of appearance in the texture of the cloth, smoothness to the touch, and brilliant "water-marks" obtained on the back of the cloth.

According to this invention the cotton piece goods upon which it is desired to produce the above-mentioned results are treated as follows, and in describing my improved process reference is made to the accompanying sheet of drawings, in which—

Figure 1 represents a front elevation of a machine suitable for rolling the cotton piece cloth to be permanently finished along with a damped cloth. Fig. 2 is an end view of the same, showing the two rolls of cloth hereinafter described. Fig. 3 is a front elevation of a machine by which the combined cloths may be calendered under great pressure. Fig. 4 is an end view of the same. Fig. 5 is an elevation of a hollow perforated roller upon which the combined cloths are rolled, and Fig. 6 is a sectional elevation of a vessel suitable for steaming the combined cloths rolled upon a perforated roller.

The cotton piece goods after being finished

by all or any of the ordinary and well-known methods of glazing are each rolled together with a damped cloth upon a perforated roller, so that the surface of the finished cotton piece cloth is completely covered by the damp or wet cloth. This portion of the process may be carried out by an ordinary rolling-machine, such as is shown by Figs. 1 and 2, in which the cotton piece, calendered or otherwise ordinarily finished, cloth A upon roller A' and the damp or wet cloth B upon roller B' are rolled together upon a perforated roller C, placed between the rollers D D and E. The bottom rollers D D are rotated in any convenient manner. The perforated roller C rests upon the bottom rollers D D and the heavy top roller E rests upon the perforated roller C, the rollers C and E being rotated by friction, and the combined cloths wrapped tight around the perforated roller C. When the combined cloths have been wrapped tightly around the perforated roller C, the top roller E is raised by the operation of worm F and worm-wheel G, the latter being provided with a pawl H, which when engaged with the ratchet-wheel J, secured on shaft L, on which are also secured two spur-pinions M, gearing with the respective racks N, the heavy top pressure-roller E is raised on rotating the worm F in one direction or lowered according to the direction in which the worm F is rotated. When the pawl H is disengaged with the pawl-wheel J, the weight of the top roller E is supported by perforated roller C. The perforated roller C, having a calendered or otherwise finished cloth A, along with a damp cloth B, wound tightly thereon, is then placed between the rollers O and P, driven from shaft Q by spur-pinions R and R', gearing with spur-wheels S and S', (see Figs. 3 and 4,) the spur-wheels S and S' being secured on the respective axles of the top and bottom rollers O and P, the shaft R², supporting the top pinion R', being driven by the spur-wheels T T, one of which is secured on shaft Q, to which rotary motion may be given in any suitable manner. The top roller O is raised and lowered on applying pressure in the ordinary manner to the hydraulic cylinders U U, the piston-rods V of which are connected to the journal-blocks O' of top roller O. Pressure is applied to the top roller O by the

hydraulic cylinders U U, and the rollers O and P are rotated, thus calendering the combined cloths A and B for some time under hydraulic pressure, which process by reason of
 5 cloth A to be permanently finished being completely covered by very damp cloth B gives a fineness, closeness of texture, and silkiness to the cloth not before attainable and also produces on the back of the cloth brilliant water-
 10 marks, which have only hitherto been obtained on goods which have been hot-pressed by hydraulic presses. On removal from the hydraulic calendering-machine of the combined cloths A and B, calendered by the said machine, they are then wrapped in a covering
 15 of canvas or like open fabric and put into a vessel W, such as shown by Fig. 6, the top of the vessel being closed and the vessel made steam-tight by a plate W'. Dry steam, preferably superheated, is then injected into the
 20 vessel W by pipe Y for, say, about twenty minutes, but the time of steaming varies according to the character and quality of the cloth treated. The dry steam entering the
 25 vessel W by a pipe Y is regulated by a tap and the steam under pressure in vessel W passes through the combined cloths and perforations of roller C to the interior of same, the steam escaping at one end of hollow and perforated
 30 roller C at C', which is also hollow and rests in socket W² at bottom of vessel W, the escape-pipe Z being connected to the said socket. After steaming the combined cloths for a period varying according to the weight and

quality of the cloth the luster is permanently 35 fixed on cloth A when the cloths are unrolled from the perforated roller C.

The material of the damp cloth B used along with the cotton piece-cloth A to be permanently finished is by preference of fine 40 quality, such as is commonly called a "face-cloth," from which all grease, size, and other foreign matter have been removed. By the adoption of fine quality damp cloth B of this class it has a distinct influence in giving a 45 close appearance to the texture of the cloth to be permanently finished is obtained.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, 50 I declare that what I claim is—

The fixing of the luster on cotton cloths by first obtaining the luster in any of the ordinary methods and afterward rolling the finished cloths together with a damped cloth under 55 pressure, then subjecting them to calendering under heavy pressure and finally wrapping the combined calendered cloths in canvas and subjecting them to the action of dry steam within a closed vessel all substantially 60 in the manner as hereinbefore described.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

MILTON SHERIDAN SHARP.

Witnesses:

JOHN GILL,
 JOSEPH P. KIRBY.