

(No Model.)

T. S. HUNTINGTON.

MECHANICAL MOVEMENT.

No. 316,897.

Patented Apr. 28, 1885.

Fig:1.

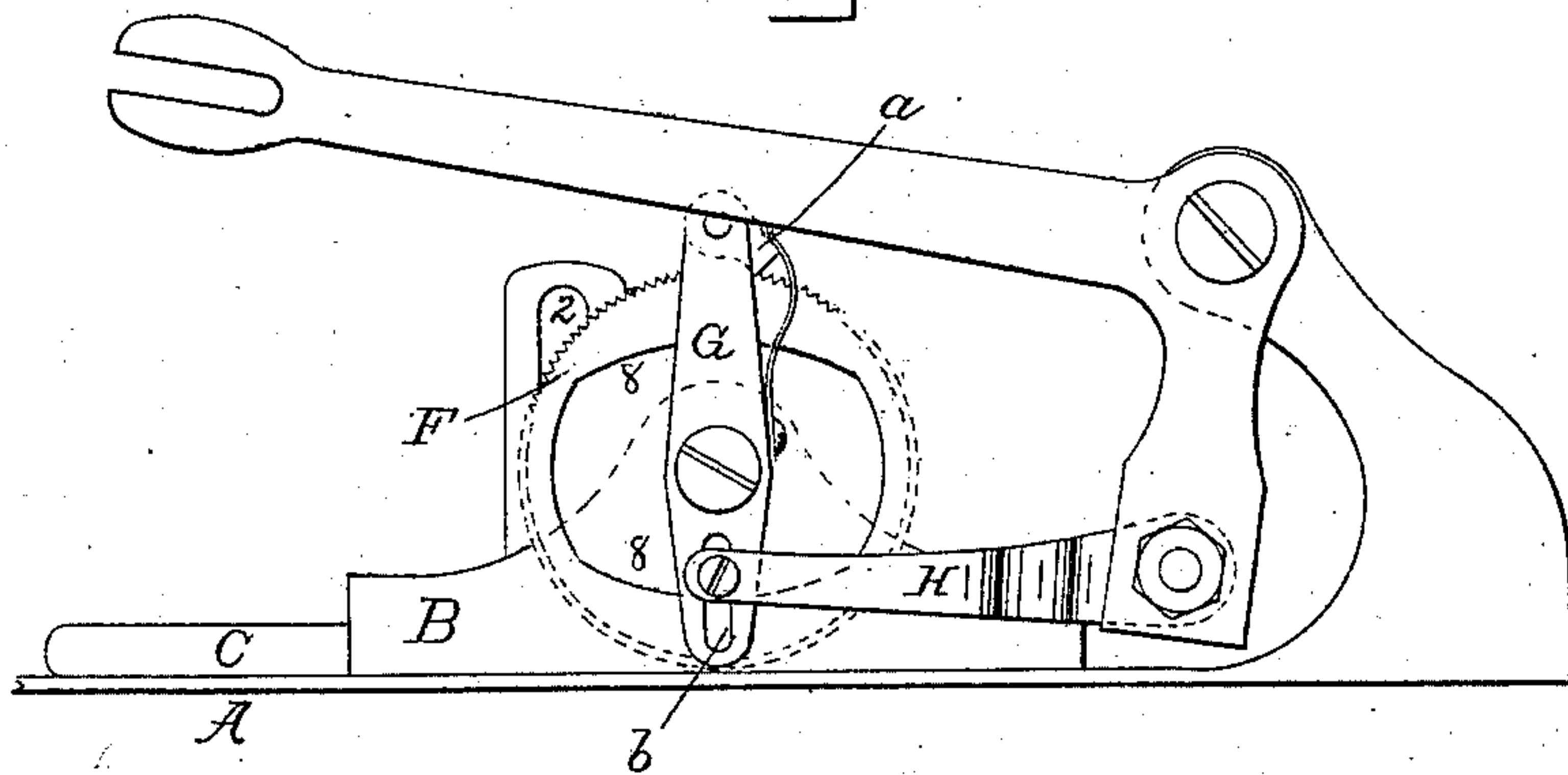


Fig: 2

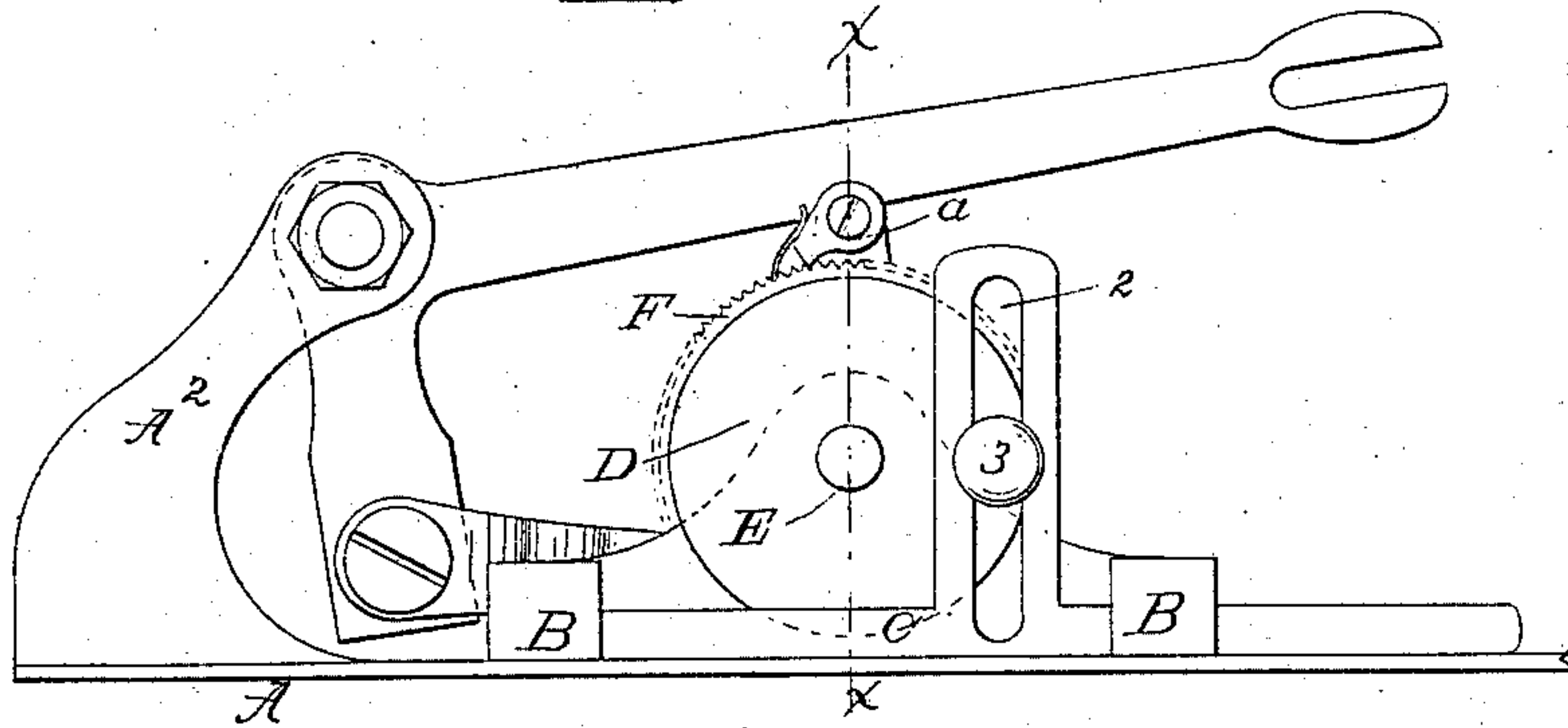


Fig: 3.

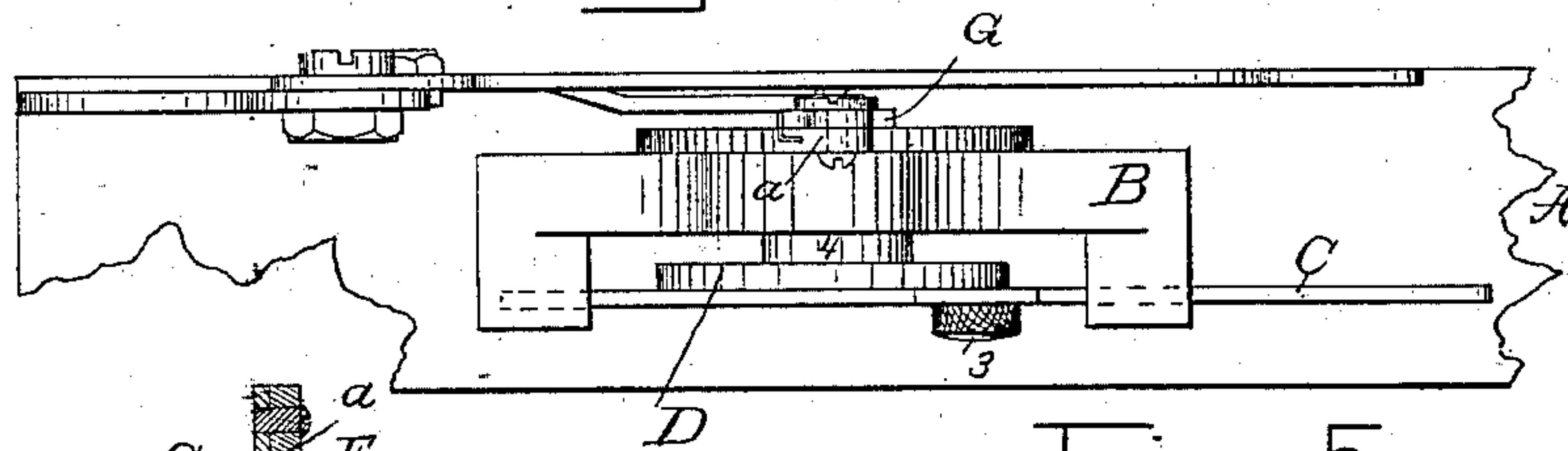
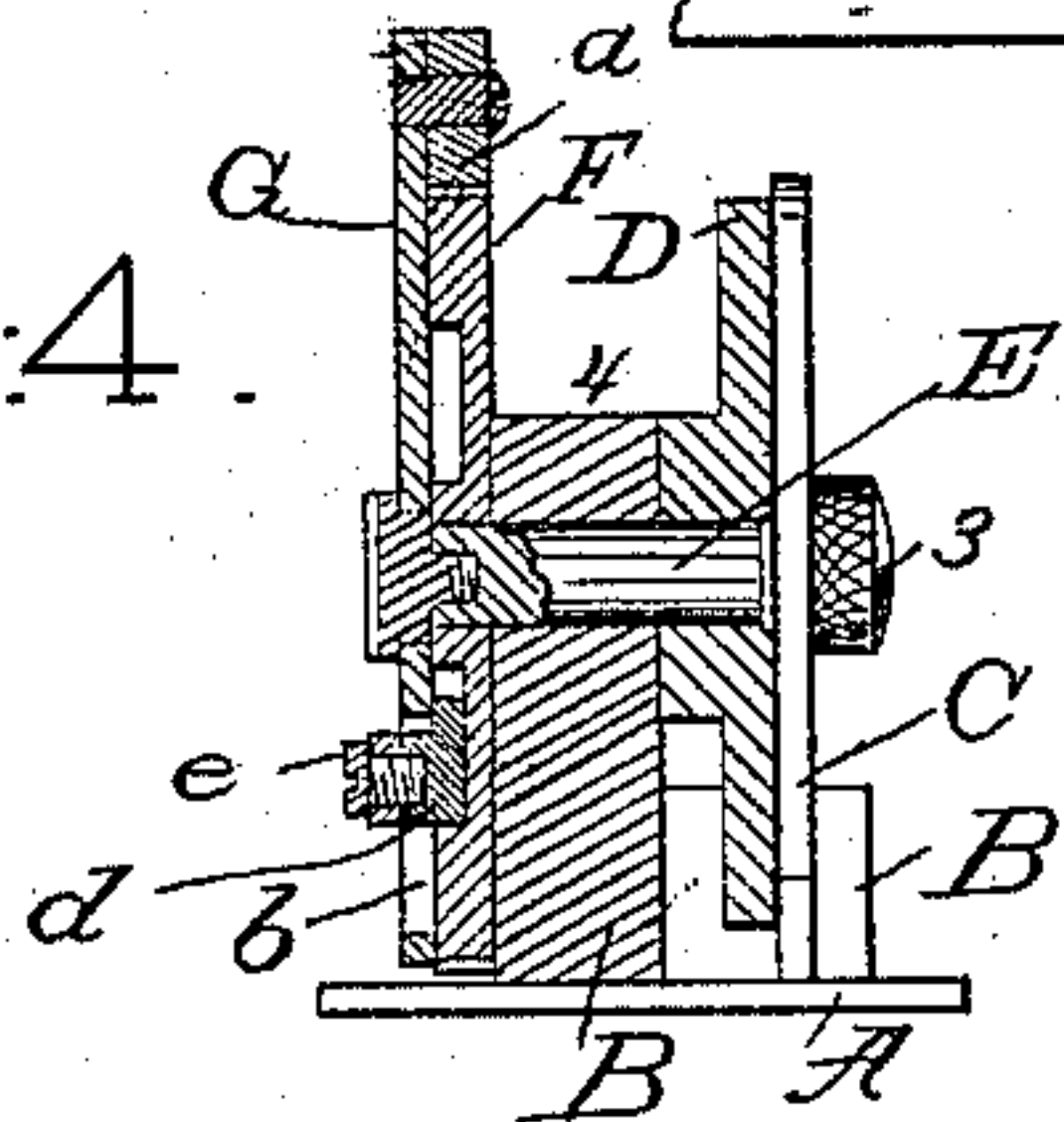


Fig: 5.



Fig:4.



Witnesses:

Frederic L. Emery.

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Inventor.

Thomas S. Huntington.

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UNITED STATES PATENT OFFICE.

THOMAS S. HUNTINGTON, OF NEW YORK, N. Y., ASSIGNOR TO THE NEW HOME SEWING MACHINE COMPANY, OF ORANGE, MASSACHUSETTS.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 316,897, dated April 28, 1885.

Application filed March 2, 1885. (No model.)

To all whom it may concern:

Be it known that I, THOMAS S. HUNTINGTON, of New York, county and State of New York, have invented an Improvement in Mechanical Movements, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In mechanism wherein a bar or device having a reciprocating step-by-step movement in one and then in the opposite direction is made to depend upon a crank-pin connected with an arm or disk fast upon an intermittingly rotating shaft actuated by a pawl and ratchet it is obvious, if the said shaft is rotated a uniform distance at each stroke of the pawl, that the crank-pin in its revolution will when passing its dead-points impart a shorter stroke to the bar or device connected with the said crank-pin. To overcome this shorter movement of the bar or device actuated by the crank-pin and give to it a step-by-step movement of uniform length in all positions of the crank-pin is the object of my present invention. This I have accomplished by combining an equalizing device and cams with the pawl and ratchet, the said cams commencing to act upon the equalizing device a little before the crank-pin approaches its dead-center, and continuing to act thereon until a little after the said crank-pin passes its dead-center, all as will be hereinafter described.

Figure 1 in side elevation represents a sufficient portion of a mechanical movement to embody my invention; Fig. 2, a top view thereof; Fig. 3, a rear side view; Fig. 4, a section of Fig. 2 in the dotted line *xx*, and Fig. 5 a face view of the equalizing device detached.

The base or frame plate A has a block, B, slotted or adapted to guide the bar or device C, which it is desired to move backward and forward by step-by-step movement of uniform length. This bar has a slot, 2, that receives a crank-pin, 3, connected with a disk, D, attached to a shaft, E, supported in an upright, 4, of the block B. The shaft E has a ratchet-wheel, F, attached to it, the teeth of which are engaged by a pawl, *a*, on a pawl-carrier, G, pivoted on the shaft E, the said pawl-carrier having a slot, *b*, which receives a portion of the

equalizing device *d*, to which by screw *e* is connected the pawl-carrier moving arm H.

The arm H may be reciprocated in any usual manner. It is herein shown as reciprocated by an elbow-lever, I, pivoted upon an upright, *A*², rising from the plate A.

The ratchet-wheel F at one side is shown as provided with two cam-surfaces, 8 8, on which rides an equalizing device, *d*, having a pin or projection extended therefrom through the slot *b* in the pawl-carrier, the arm H being connected, as described, to the said equalizing device.

The deepest parts of the cam-surfaces 8 occupy positions in a diametrical line exactly at right angles to that in which the crank-pin is attached to the disk, the deepest part of each cam being ninety degrees distant from the crank-pin, two cam-surfaces being used, one to co-operate with the crank-pin at each dead-point, the crank-pin being shown at one dead-point, the dotted circle 12 showing its other dead-point. As the crank-pin passes its highest and lowest points on its way toward its dead-centers, one or the other of the cams 8 commences to act on the equalizing device, moving the latter toward the center of the shaft E, gradually lifting the arm H to act upon the pawl-carrier nearer and nearer its fulcrum, (the shaft E,) and consequently gradually increasing the stroke of the pawl and the extent of movement of the ratchet-wheel and the disk and crank-pin the increased movement of the latter when the equalizing device *d* is on the deepest part of the cam 8 being enough greater than when the equalizing device is off the said cam-surfaces to compensate for the loss of movement of the bar C, due to the approach of the crank-pin to or when crossing its dead-point in the slot of the said bar. Each cam-surface 8 acting upon the equalizing device causes the arm H to engage the pawl-carrier at different distances from its center, thus giving to the ratchet-wheel a variable intermitting movement or a step-by-step rotation in arcs of greater or less extent.

Instead of providing the wheel with teeth and the pawl-carrier with a pawl to engage the said teeth, it is obvious that the wheel might have at its side an annular flange to be engaged by a friction or biting clutch, such flange and clutch being commonly used in con-

nection with feed-wheels of sewing-machines as substitutes for the ratchet-teeth and pawl. I claim—

1. A slide bar, a crank-pin to engage and rotate it, an intermittingly-rotating arm or disk provided with a crank-pin to effect the step-by-step movements of the said bar, a shaft, a ratchet-wheel, a pawl to engage the ratchet, a pawl-carrier to move the pawl, and the cam-surfaces 8, and equalizing device moved thereby, combined with the arm H, controlled as to its position by the equalizing device, whereby the said arm actuates the pawl-carrier at different distances from its center of oscillation, thus causing its stroke to be varied with relation to and to overcome the lost movement due to the crank-pin when passing or near its dead-centers, thus causing a movement of the bar for equal distances at each stroke and in all positions of the crank-pin, substantially as described.

2. The wheel F, provided with the cam-surface 8 and the arm b^3 , having their centers of movement coincident, and the equalizing device moved by the said cam-surface, combined with the reciprocating arm H, supported by the equalizing device, the latter being moved by the cam and causing the said arm H to actuate the arm b^3 at different distances from its center, thus moving the same for a greater or less distance, according to the position of the said cam-surface, substantially as described.

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

THOS. S. HUNTINGTON.

Witnesses:

W. H. HICKS,
E. T. THOMAS.