

G. G. Bishop. Forming Bats.

No. 1607
32611

Patented June, 25, 1861

Fig. 3.

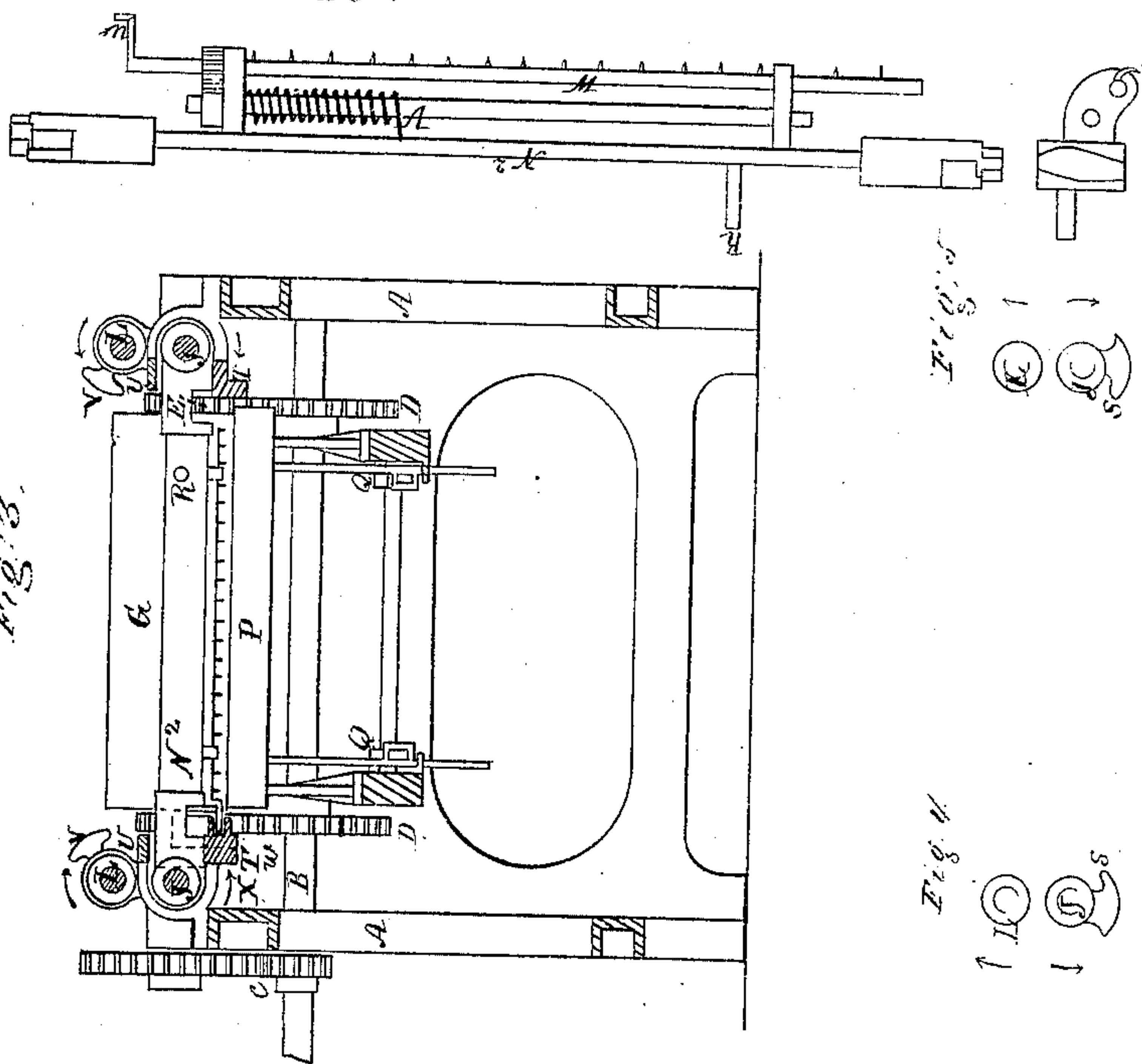


Fig. 5.

Fig. 4.

N² N³ Fig. 2.

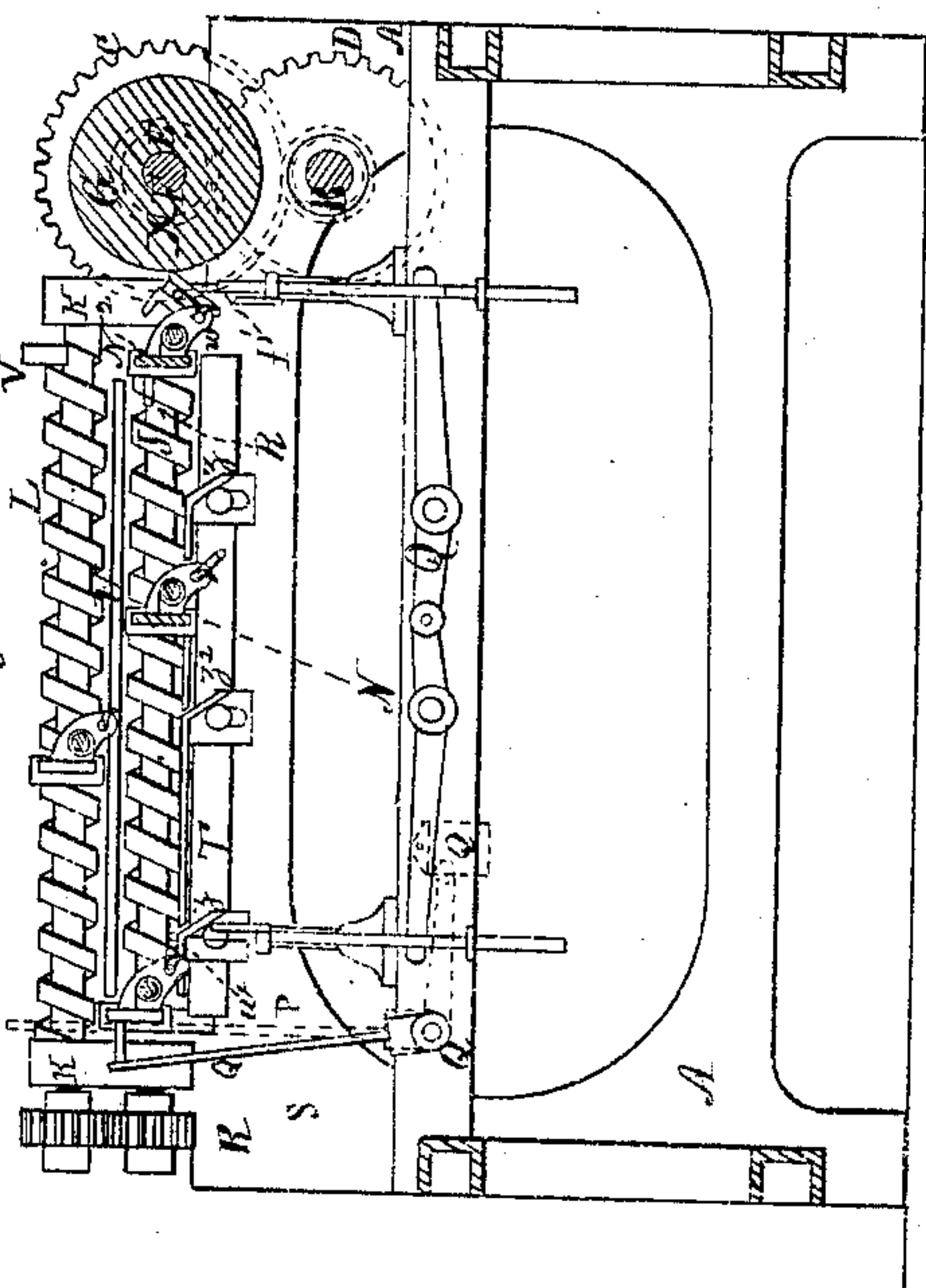
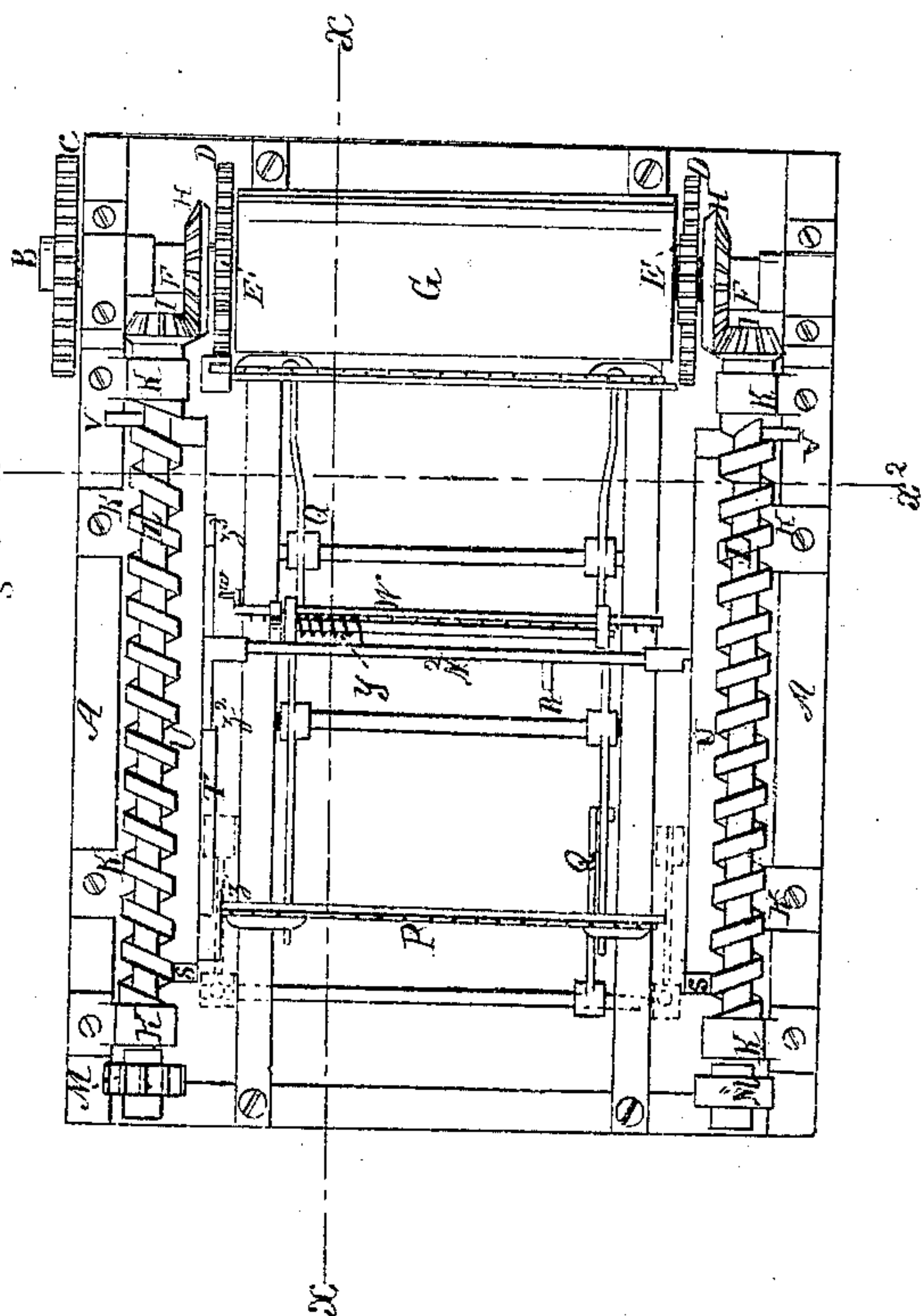


Fig. 1.



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Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE G. BISHOP, OF NORWALK, CONNECTICUT.

MACHINE FOR MAKING FELT CLOTH.

Specification of Letters Patent No. 32,611, dated June 25, 1861.

To all whom it may concern:

Be it known that I, GEORGE G. BISHOP, of the town of Norwalk, in the county of Fairfield and State of Connecticut, have invented a new and useful improvement on the machine invented by John Arnold for forming the web of cloth, of wool, hair, or other suitable substance, without spinning or weaving, patented July 15, 1829, and on the improvement on said machine, invented by the said John Arnold and me, the said George G. Bishop, patented October 20, 1836; and I hereby declare that the following is a description of the construction and operation of the same.

My invention relates particularly to the forming of the bat, of wool, hair or other suitable substance for felt cloth; and consists in a new device for receiving and conveying the separate sheets of weft across and placing them upon the continuous sheet of warp.

The perfection of felt cloth depends upon the forming of the bat of a succession of sheets or slivers of weft and warp, crossed at right angles, in an unbroken state. The difficulty is not with the warp, as that is received from the doffer of the carding machine upon an endless apron, of any desired length; but it is with the weft, as that is taken from the weft doffer in separate sheets, in length corresponding with the width of the continuous sheet of warp, and placed, edge to edge, upon the warp.

The carrier chains, adopted by the said John Arnold in his device, for carrying the combs, which take and sustain the separate sheets of weft across the warp, unavoidably vibrate, and are unsteady in their movement, thereby causing the web of weft to sag and frequently break in its passage, causing imperfections in the bat.

The carrier combs, in my improvement, are to consist of as many as may be found necessary to take and support the web of weft in a horizontal position in its passage across the warp, and until it is delivered upon and received by the two faller combs, one of which is arranged at either end of the machine, to receive and deliver the sheets of weft upon the warp, edge to edge, as described in the said patent granted to the said John Arnold and George G. Bishop. The carrier combs are placed upon ways or guides and propelled thereon in their circuit by four alternating screws, two placed at

each side of the machine. The screws being uniform and steady in their motion, propelling the carrier combs upon the permanent ways or guides, the sheets of weft are conveyed and deposited upon the warp in an unbroken condition.

To describe my invention more fully, I will refer to the accompanying drawings forming a part of this specification, the same letters of reference, wherever they occur referring to like parts.

Figure 1, is a plan view of the machine. Fig. 2, is a longitudinal cut section of the same, through the line X, X, Fig. 1. Fig. 3, is a transverse cut section of the machine, through the line X² X², Fig. 1. Figs. 4 and 5, are a detached end view of the elevator cams on the screw shaft.

Letter A, is the frame of the machine having, across one end of it, a shaft B, operated by suitable gearing C, connected with a novel carding machine. On this shaft are secured two cog-wheels D, D, which gear into two small cog wheels E, E, on the axis F, of the doffer G. Also on the axis F, at each end of the doffer are secured two bevel cog wheels H, H. These cog wheels gear into two other cog wheels I, I, secured on the ends of two horizontal screw shafts J, J, arranged in suitable supporters K, K. On the upper rails of the opposite sides of the machine, directly above these screw shafts are arranged, in supporters K, K, a second pair of screw shafts L, L, which, by means of cog-wheels M, M, on their ends are geared together so as to give them a simultaneous rotary motion in opposite directions. The object of this, is to carry a succession of carrier-combs N, and N², arranged transversely across the machine, up and down the length of the machine, by a gradual, certain and steady motion, to lay the weft sliver upon the warp; and after doing so, return again to the front end of the machine. To do this, the ends of the backs of these combs, engage first in the groove of the lower set of screws to take the weft-sheet or sliver as it comes from the doffer G, across the width of a continuous sheet of warp, passing underneath, and depositing it upon the teeth of the two faller combs P, P. These faller-combs are arranged at the opposite ends of the machine, by means of an arrangement of weighted levers Q, Q, operated by a pin R, in the back of one of the carrier combs N², which are elevated just at the outer

edges of the warp at the moment that the sliver discharges from the doffer. At this moment the carrier comb N^2 , having the opposite end of it, is raised by a cam S, on the back end of the screw shaft J, J, from off its rest or the lower traverse rail T, to the upper rest or traverse rail U, when its ends engage in the grooves of the upper set of screws K, K, to be carried back upon the rail to the front end of the machine, where they are dropped off the rail U, upon the lower rail T, for the lower line of motion by means of cams V, V, on the ends of screw shafts L, L. In the act of doing this, the lever w , formed on the end of the carrier comb rod W, falls into a triangular shaped grooved cam X, secured to the frame just above the faller comb P' , and elevates or holds up the points of the teeth of the comb. The object of this is to elevate the points of the teeth of the comb to a horizontal line, or nearly so, that when the lever w , leaves the groove of the cam the points will spring downward (and in consequence of the reaction of the spring and reacting rod Y, attached to the comb rod and back of the carrier) to catch into the sheet or sliver as it comes from the doffer. Having thus secured a hold of the sliver, it carries it across the warp to a point just in front of the back faller comb, where the end of the lever w , engages into an inclined plane Z' , in the edge of the lower traverse rail T, and reacting the springs Y, trips or withdraws the points of the comb teeth from the sliver, where it is received by the rising of the faller combs to be taken or carried down upon the warp by the simultaneous lowering of the opposite faller combs, in consequence of the pin R, in the back of the carrier comb N^2 , releasing the weighted levers Q, as it is carried by the upper screw thread from the back to the front of the machine to repeat the operation of taking every alternate sheet or sliver as it comes from the doffer in succession, with the other alternating carrier comb N^2 .

It will be observed that in the edge of the lower traverse rail T, there are two other inclined planes Z^2 , Z^3 . The object of these is to trip or withdraw the points of the teeth of the intermediate combs from the sliver at the same time that the points of the teeth of the carrier comb N^2 , are withdrawn. These intermediate combs, it will be observed have no pins R, in them for the purpose of operating the faller combs, their office being simply to sustain the sliver at intermediate points between the ends, and thus, until the time of delivery upon the faller combs, to prevent any sag in the sliver, to damage the texture of the cloth, as would be the case, if not thus supported.

Having now described my invention I will proceed to set forth what I claim and desire to secure by Letters Patent:

1. The carrier combs N, and N^2 , and parts attached thereto, or equivalents, in combination therewith, to constitute the said carrier combs, as a complete device for the purposes substantially as hereinbefore set forth.

2. The use of the carrying screws J and L, having attached thereto cams S and V for the purposes herein before specified, and traverse rails T, and U, in combination with the carrier combs N and N^2 , and parts attached thereto, or equivalents, substantially as set forth, for the purposes hereinbefore described.

3. The use of the triangular grooved cam X in combination with the carrier combs N and N^2 , and parts attached thereto, substantially as described, and for the purpose herein before set forth.

4. The use of the pin R, in the back of the carrier comb N^2 , in combination with the weighted lever Q' , and faller-combs P, and P, for the purpose substantially as described, and for the purpose of operating the faller combs as hereinbefore set forth.

GEO. G. BISHOP.

Witnesses:

CHARLES L. BARRETT,
R. F. CROCKER.