

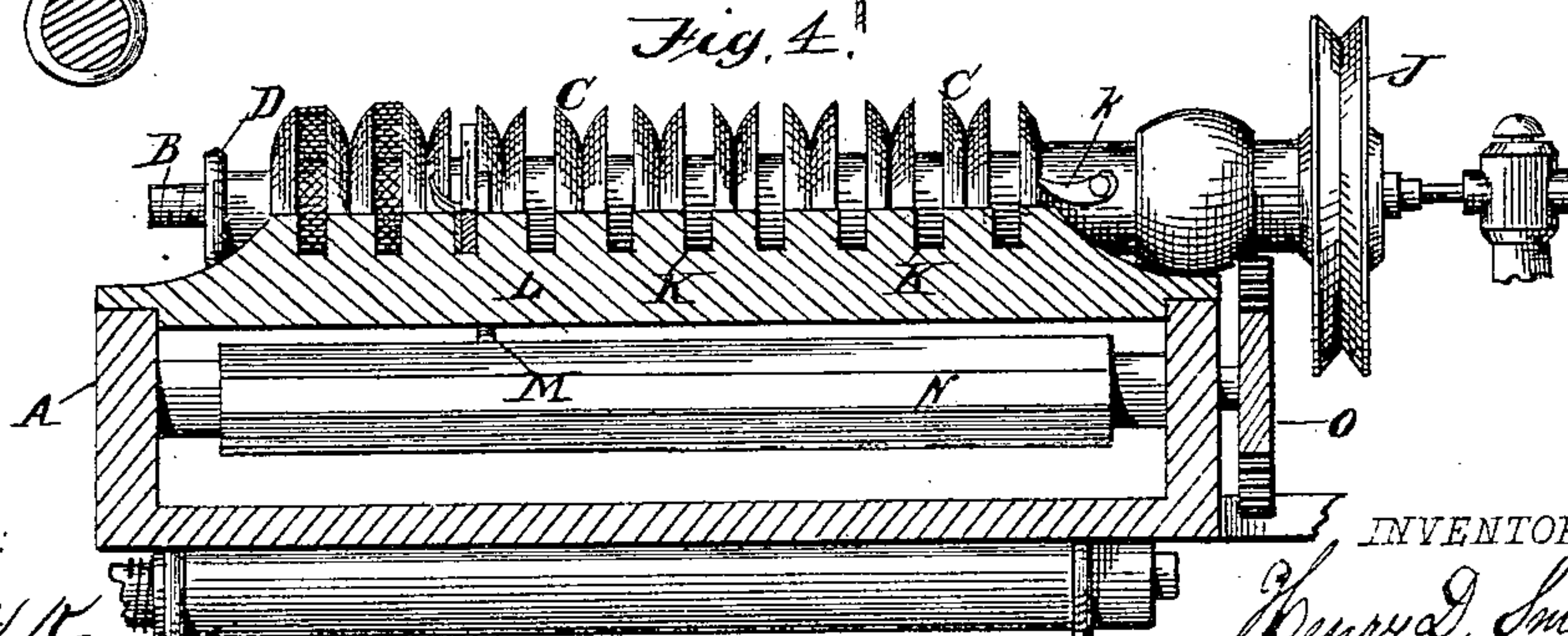
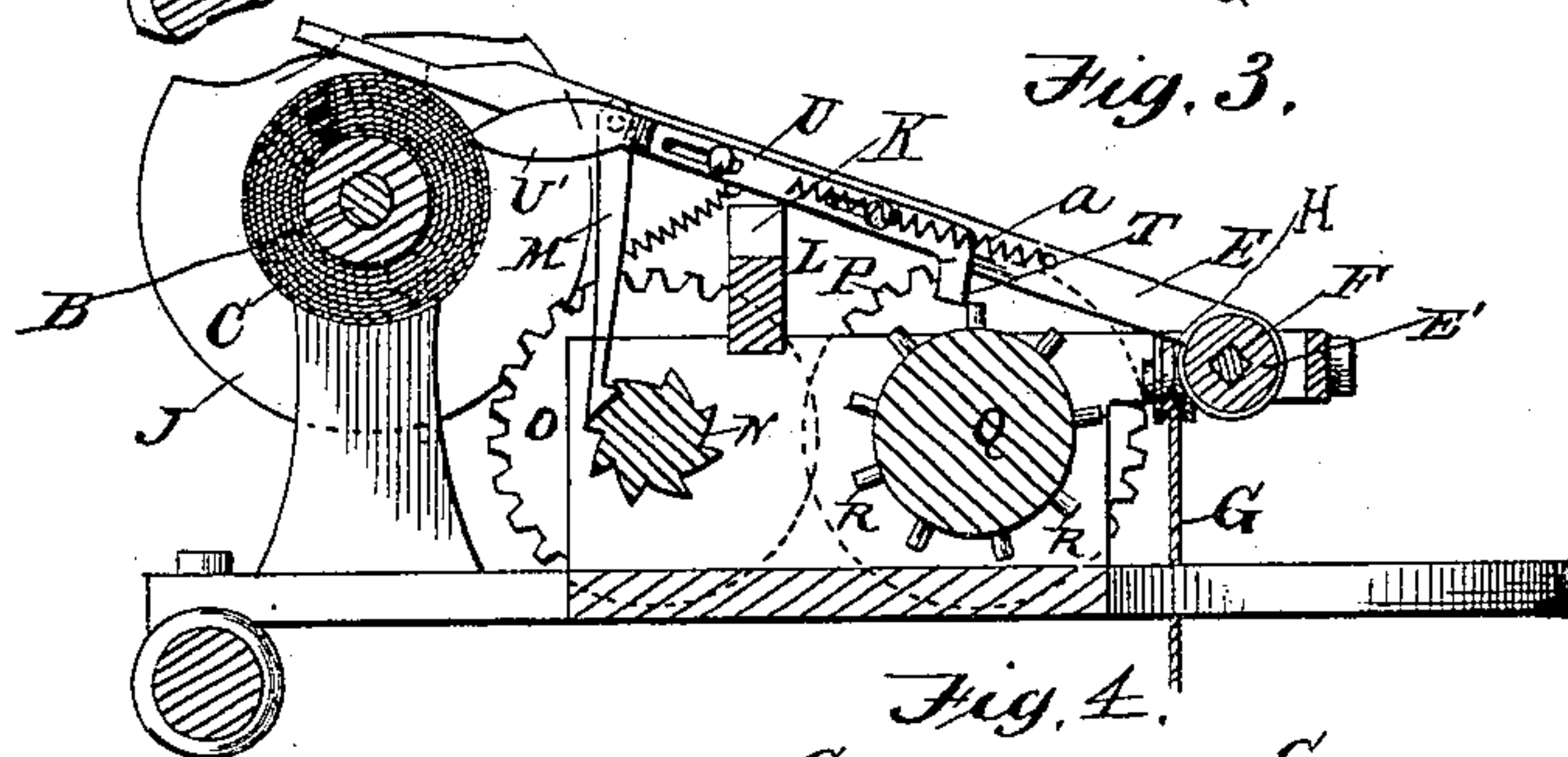
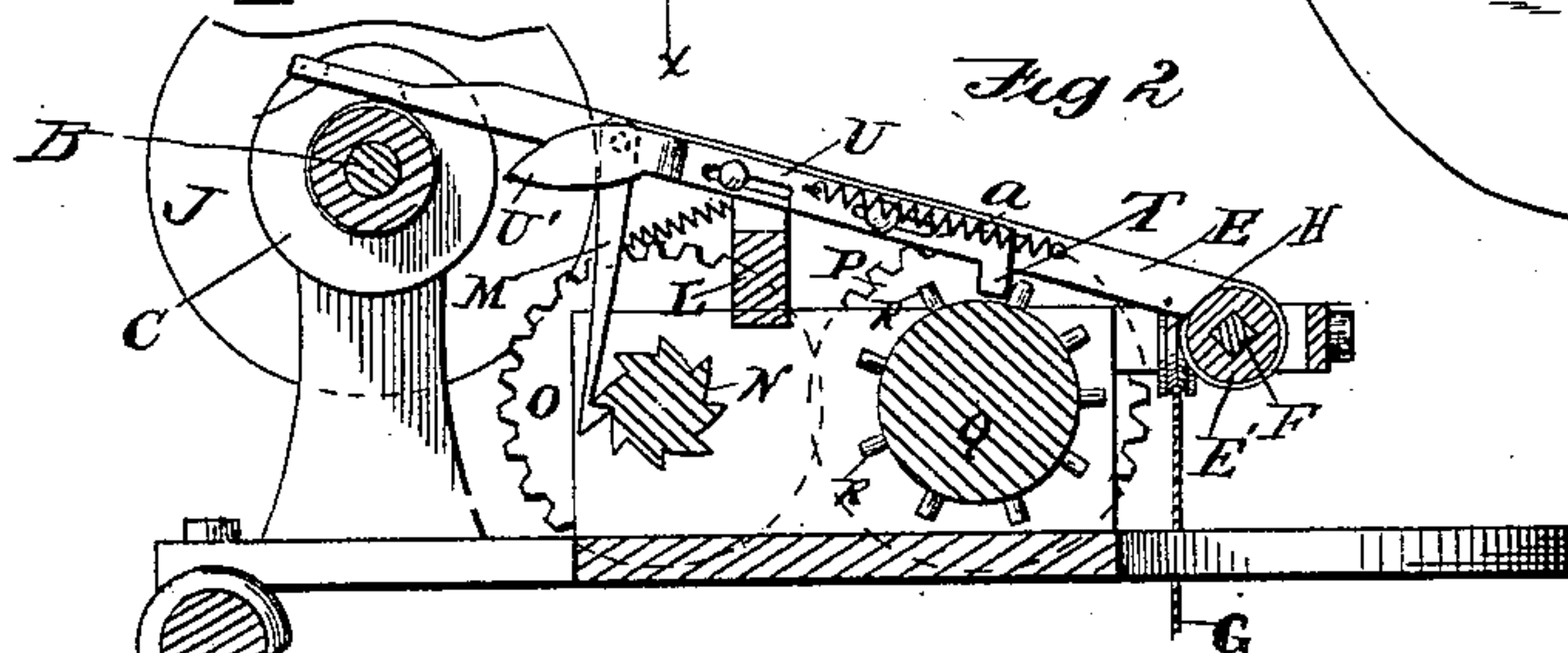
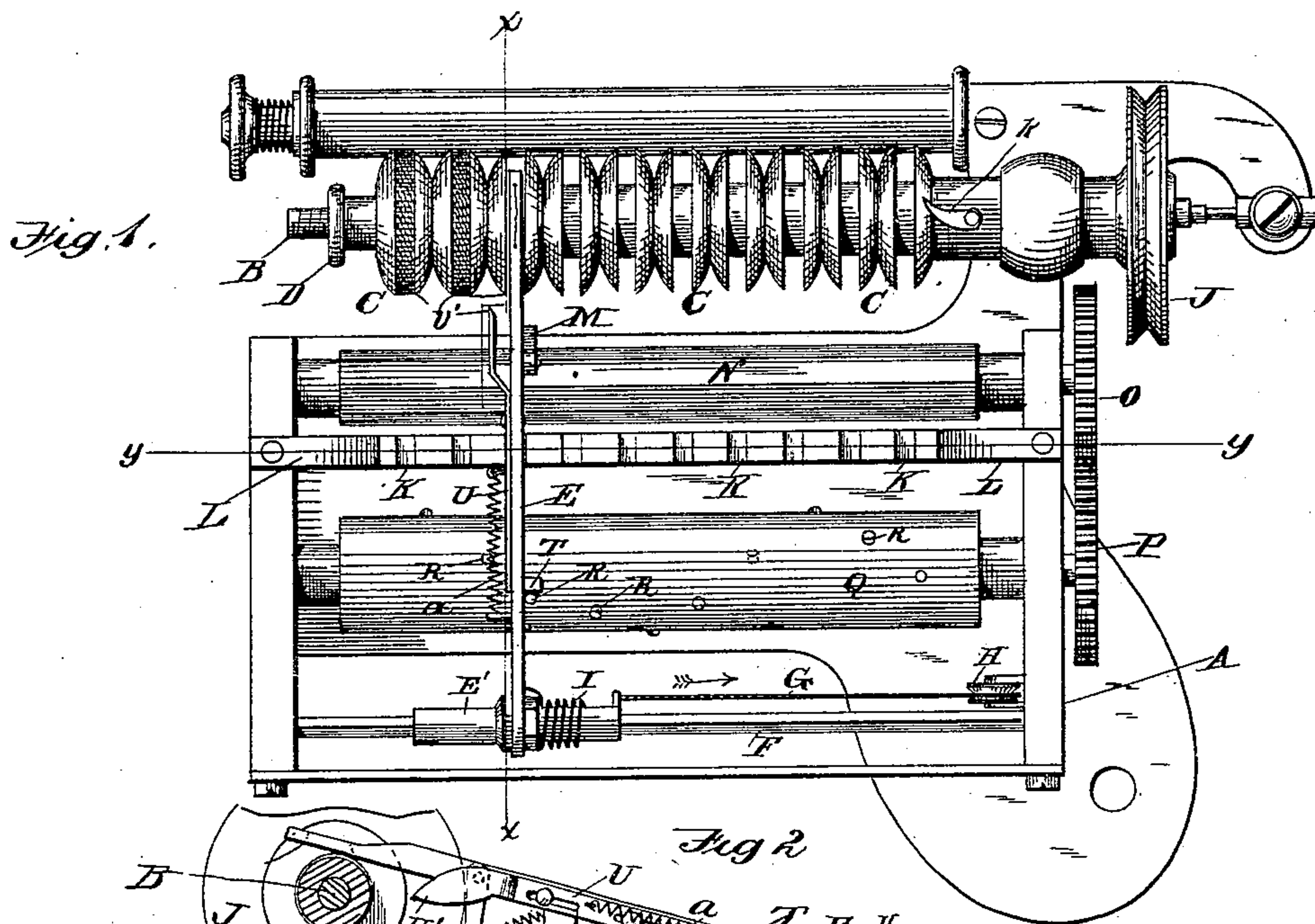
(No Model.)

H. D. SMITH.

MACHINE FOR WINDING SEWING MACHINE SHUTTLE BOBBINS.

No. 282,580.

Patented Aug. 7, 1883.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY D. SMITH, OF ROCKLAND, MASSACHUSETTS.

MACHINE FOR WINDING SEWING-MACHINE SHUTTLE-BOBBINS.

SPECIFICATION forming part of Letters Patent No. 282,580, dated August 7, 1883.

Application filed September 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY D. SMITH, of Rockland, in the county of Plymouth, and State of Massachusetts, have invented certain Improvements in Machines for Winding Sewing-Machine Shuttle-Bobbins, of which the following is a specification.

This invention has for its object to provide an improved automatic machine adapted to successively wind a number of disk-bobbins, such as are used in the Wheeler & Wilson sewing-machine, and to cut the thread after each bobbin is wound, the bobbins being secured side by side on an arbor or spindle, while being wound.

The invention consists in the improved devices which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a top view of my improved bobbin-winder. Figs. 2 and 3 represent sections on line *x x*, Fig. 1, showing the thread-carrying arm in different positions. Fig. 4 represents a section on line *y y*, Fig. 1.

The same letters of reference indicate the same parts in all the figures.

In the drawings, A represents a supporting-frame of suitable construction, in which is journaled a spindle or arbor, B, adapted to hold a number of disk-bobbins, C, said bobbins being placed side by side on the arbor, and secured by a clamping-nut, D.

E represents a thread-carrying arm projecting from a sleeve, E', which is adapted to slide on a guide-rod, F, affixed to the frame A in a position parallel with the arbor B. The arm E is adapted to swing vertically on the collar or sleeve E', and to move laterally by the sliding motion of said sleeve. A weighted cord, G, passing over a pulley, H, journaled in the frame A, draws the sleeve E' and arm E in the direction indicated by the arrow in Fig. 1. The outer end of the arm E is adapted to pass between the disks or flanges of either of the bobbins C, and bear upon the thread as it is being wound upon the central drum of the bobbin, the arm having suitable orifices through which the thread passes from a spool to the bobbins. The arm E is held with a yielding pressure against the thread on the

bobbin over or into which it projects by a spring, I, on the collar or sleeve E'.

The arbor B is rotated by a driving-belt applied to a pulley, J, and rotates the series of bobbins.

In commencing the operation the thread is clamped between the nut D and the side of the first bobbin on the arbor, and the arm E is placed between the flanges of said bobbin so as to guide the thread upon the drum thereof. When the winding first commences the arm E is in one of a series of notches K, formed in a bar, L, which is parallel with the arbor B, said notches corresponding in number and position to the bobbins. As the thread accumulates on the first bobbin it gradually forces the arm E outward, causing the latter, through a dog, M, pivoted to and depending from it, to gradually rotate an elongated ratchet, N, journaled in the frame A. To one end of said ratchet is affixed a gear, O, meshing with a gear, P, which is affixed to the end of a shaft, Q, the latter having a series of pins, R, spirally arranged. When the bobbin is filled with thread it forces the arm E entirely out from between its flanges, leaving the latter free to be moved laterally by the weighted cord G, which moves the arm until it coincides with and drops into the next empty or second bobbin, and with the corresponding notch in the bar L, the upper edge of said bar preventing the arm from dropping until it reaches the second bobbin. The thread now commences to wind upon the second bobbin, the arm E being moved outwardly by the accumulation of thread as before. The movement thus imparted to the arm E causes it, through its dog M, to rotate the ratchet N a distance equal to one tooth of said ratchet, and thus, through the gears O P, rotate the shaft Q sufficiently to cause one of its pins, R, to bear against an arm, T, attached to a sliding shank, U, on the arm E, and move said shank forward toward the arbor B, thus causing a knife, U', on the end of said shank to sever the thread extending across from the first to the second bobbin just before the arm E is released from the second bobbin. The same operation is repeated until the last bobbin of the series is wound, the thread being transferred to each bobbin by the filling of the one preceding, and

wound before the thread from the preceding bobbin is severed, so that there is no danger of the thread failing to wind upon each bobbin.

5 If desired, the frame A may have a fixed knife, *k*, arranged to sever the thread after the last bobbin is wound. It will be seen, therefore, that the operation, after the thread is first secured by the clamping-nut D, is entirely automatic, the bobbins being ready for use at the close of the winding operation. The ratchet N is of such length that it will engage the dog M at any point to which said dog may be moved by the lateral movements of the arm
15 E. The spiral arrangement of the pins R and the step-by-step rotation of the shaft Q enable said pins to act successively on the knife U', the pins corresponding in number to the bobbins. The shank U of the knife U' is adapted to slide on the arm E by means of slots in said shank, and screws passing through the slots into the arm. A spring, *a*, retracts the shank U after it is released by the pin R that last moved it forward.

25 I claim—

1. The combination of a rotary holder for a series of bobbins, with a thread-carrying arm adapted to bear with a yielding pressure against any bobbin in the series, and to be displaced or moved outwardly from each bobbin by the accumulation of thread thereon, means for exerting a constant lateral pressure on said arm whereby, when each bobbin is filled, the arm is automatically moved therefrom later-
35 ally, and means for preventing the arm from dropping during its lateral movement until it coincides with the succeeding bobbin, as set forth.

2. The combination of a holder for a series of bobbins, and a thread-carrying arm adapted to deliver thread to each bobbin in succession, with automatic means for cutting the thread between the bobbins, as set forth. 40

3. The combination of the bobbin-holding arbor with the swinging and sliding thread-carrying arm, held with a yielding pressure toward said arbor, means for giving said arm a progressive lateral movement, and a bar, L, having a series of notches coinciding with the thread-receiving portions of the bobbins, and intermediate raised surfaces to prevent the arm from dropping between the bobbins, as set forth. 45 50

4. The combination of the bobbin-holding arbor with the swinging and sliding thread-carrying arm, having the dog M and sliding spring retracted knife U' and the shaft Q geared to the ratchet and provided with pins R, arranged to act successively on the knife U', as set forth. 55 60

5. The combination of the rotary holder adapted to hold and rotate a series of bobbins with the thread-carrying arm adapted to deliver thread to each bobbin in succession, and the fixed knife *k*, projecting partly over the inner bobbin of the series and adapted to sever the thread between said bobbin and the arm, as set forth. 65

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 70

HENRY D. SMITH.

Witnesses:

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