

(No Model.)

W. CONNOLLY.
BOBBIN WINDER.

No. 336,296.

Patented Feb. 16, 1886.

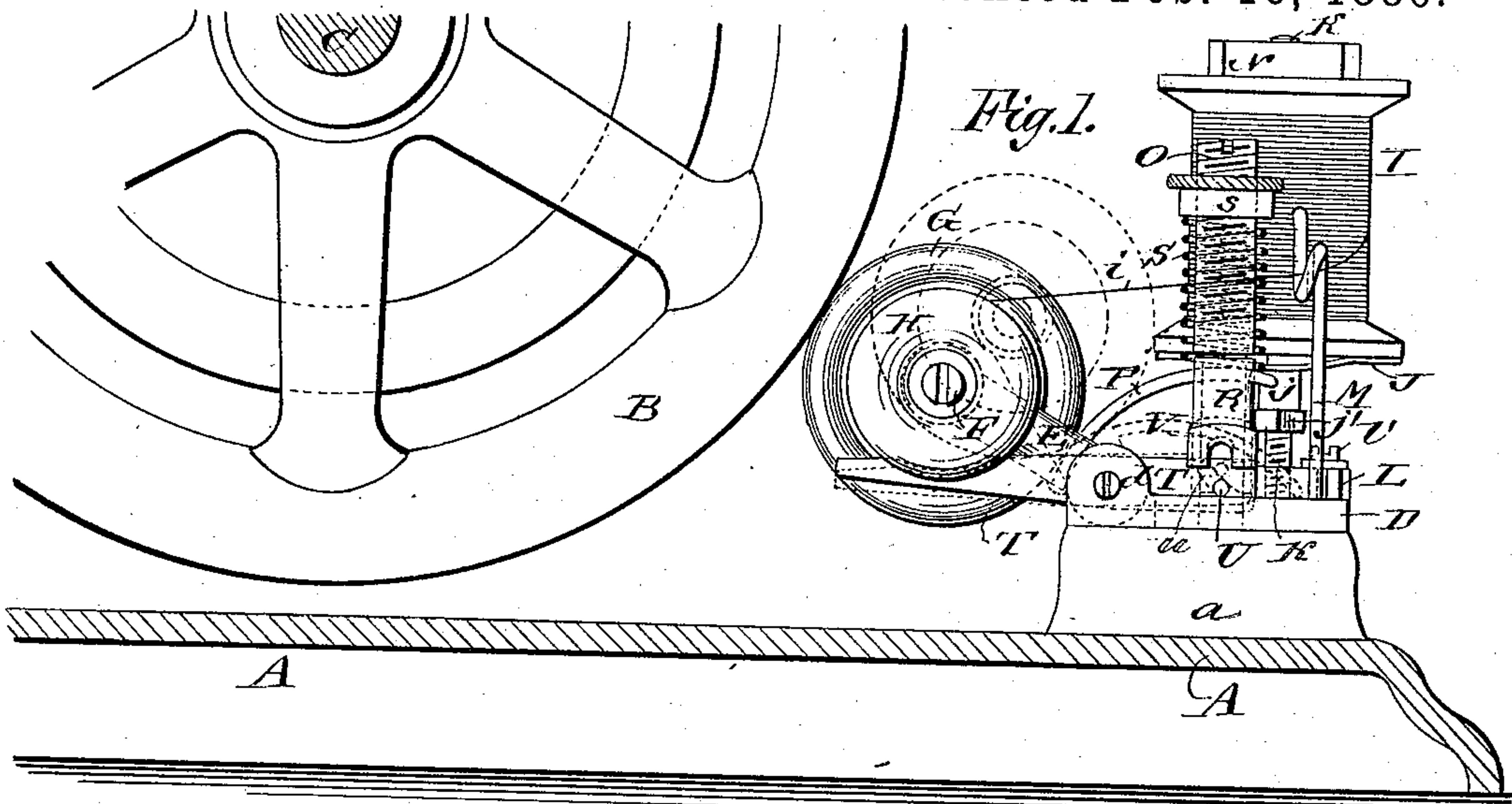


Fig. 2.

Fig. 6.

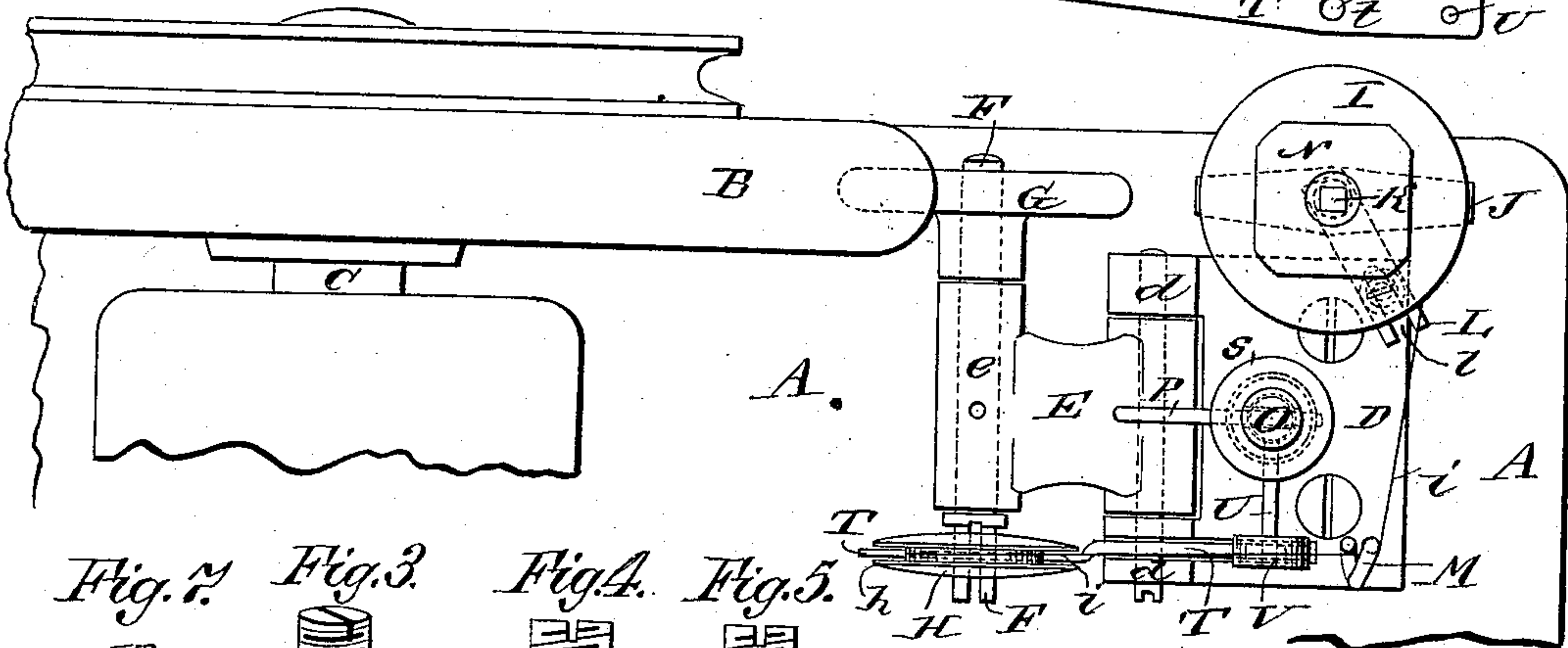


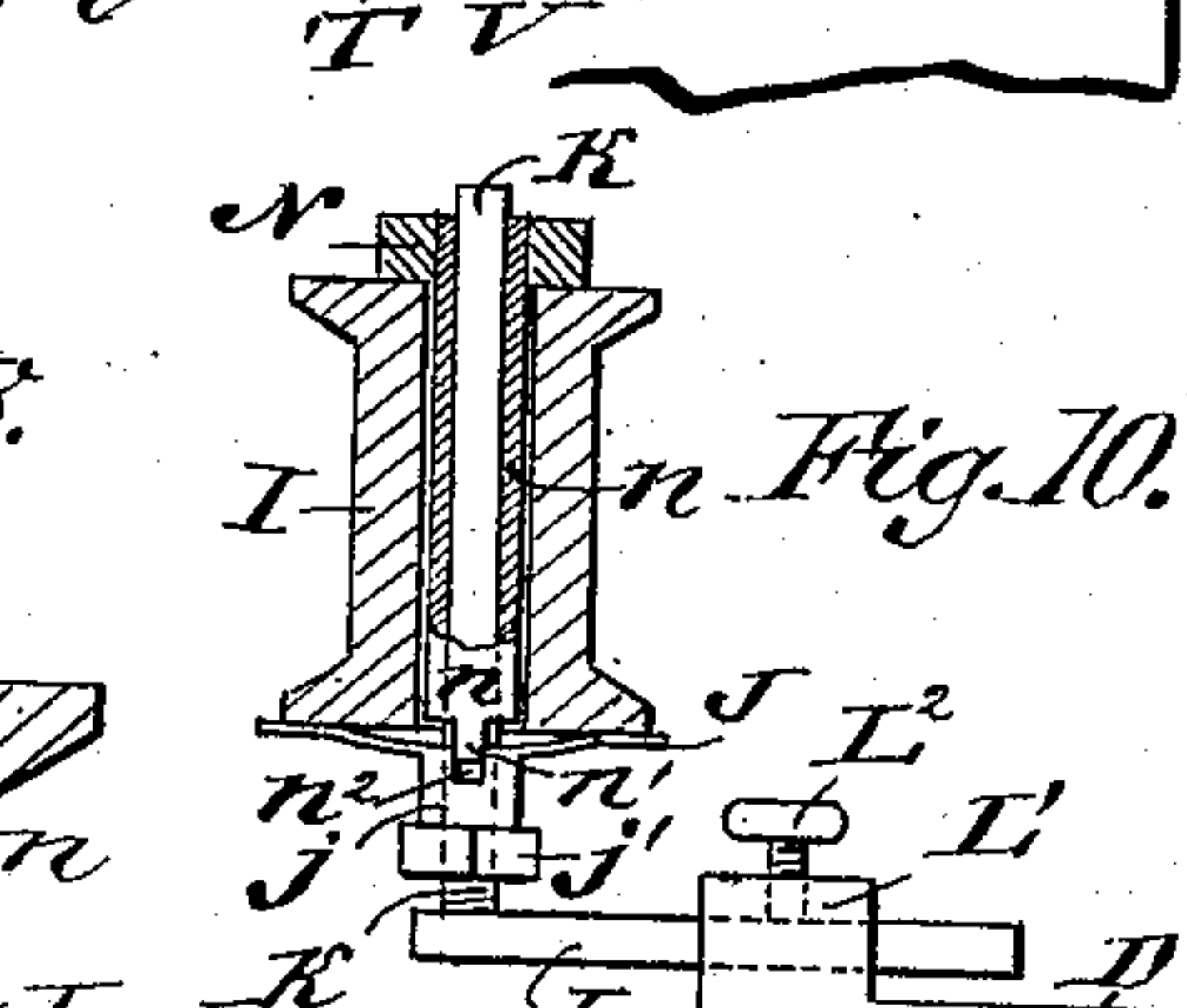
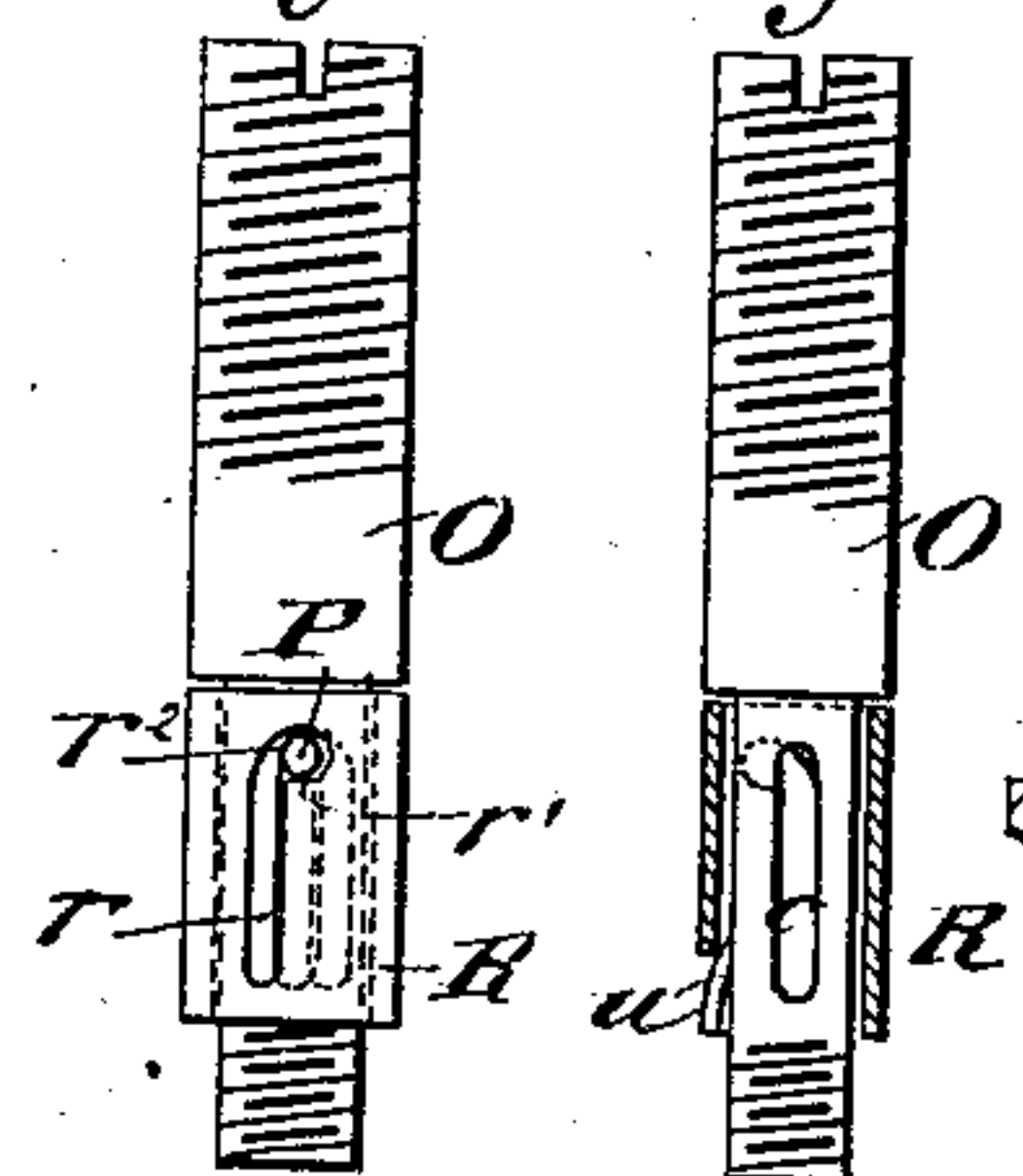
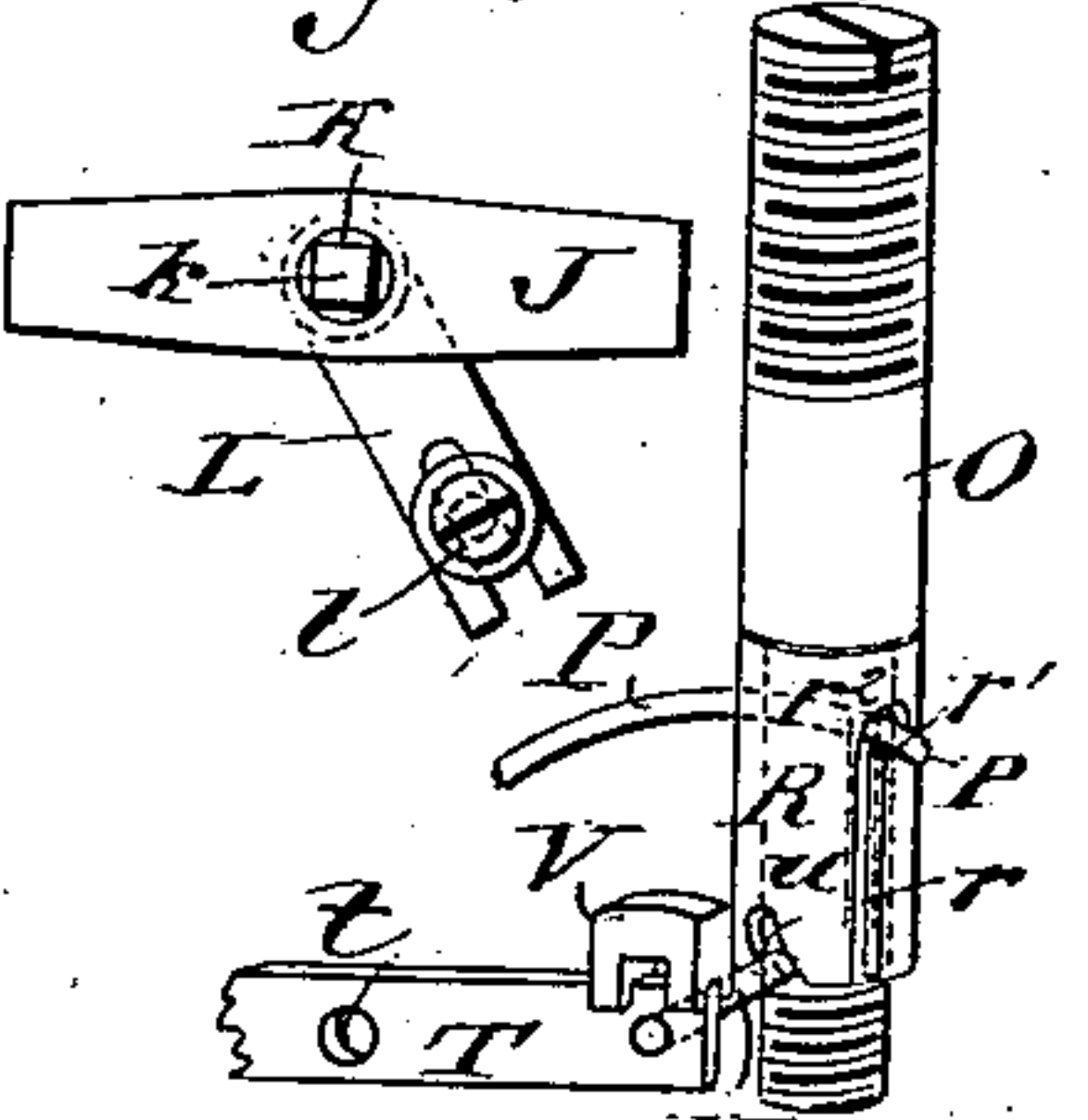
Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.



WITNESSES:

W. Beyer
C. Sedgwick

Fig. 9.

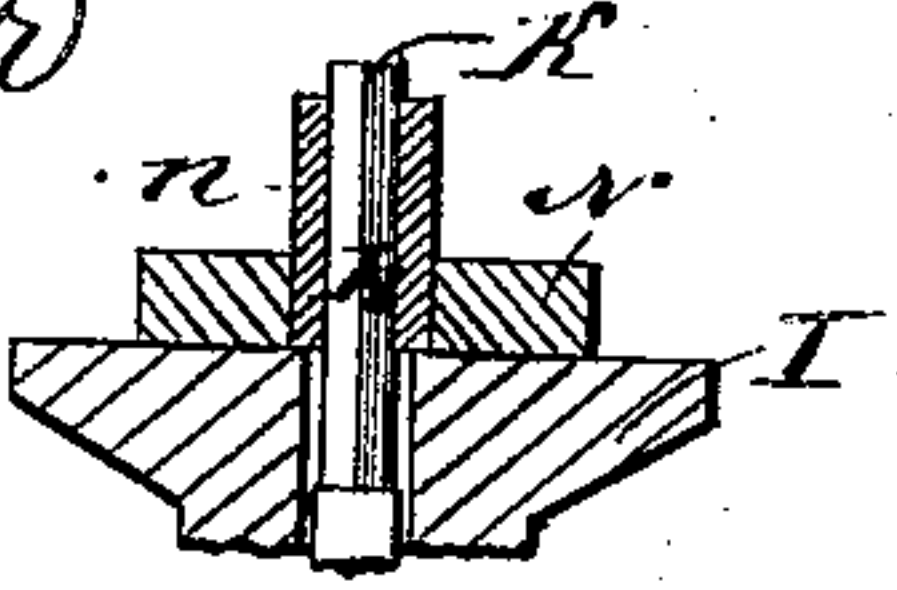
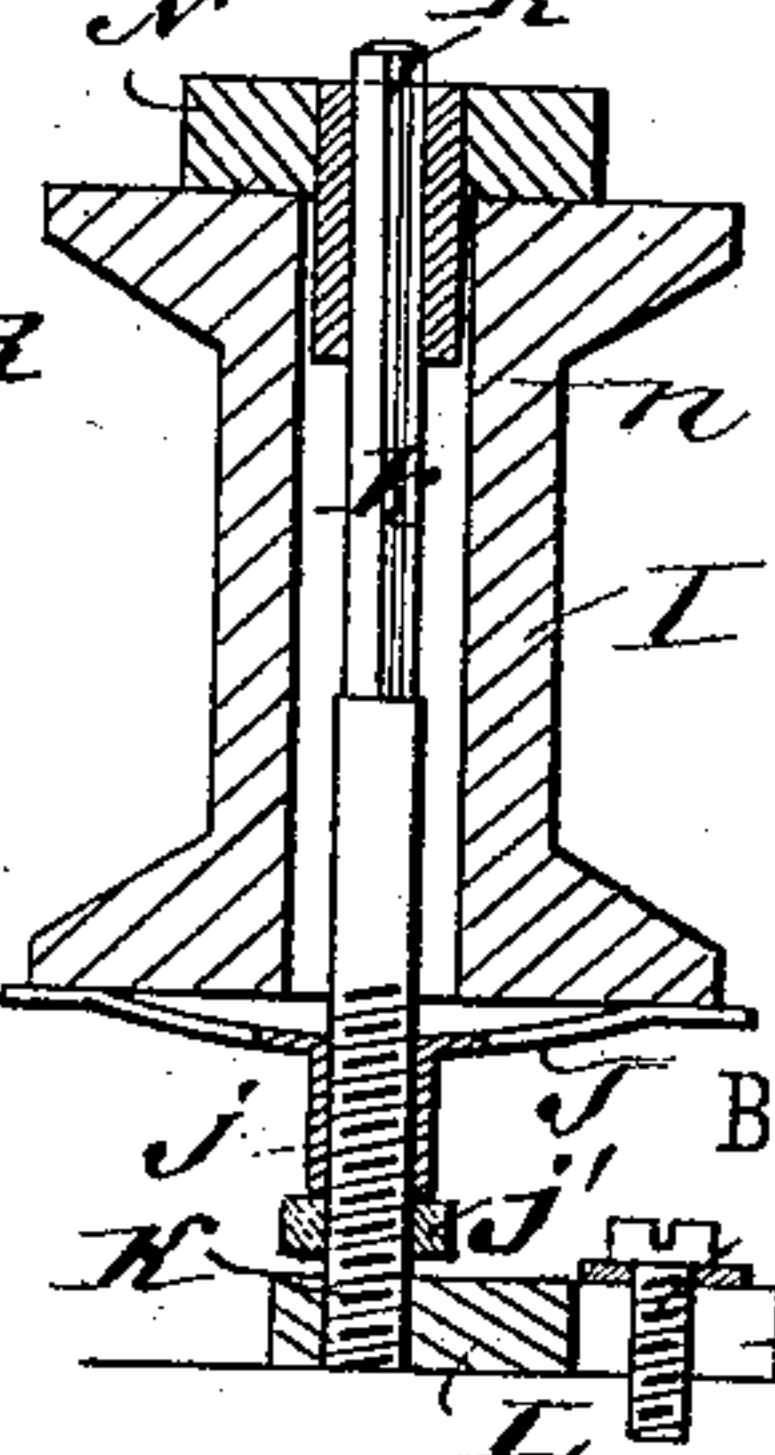


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM CONNOLLY, OF SOUTH NORWALK, CONNECTICUT.

BOBBIN-WINDER.

SPECIFICATION forming part of Letters Patent No. 336,296, dated February 16, 1886.

Application filed January 20, 1885. Serial No. 153,424. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CONNOLLY, of South Norwalk, in the county of Fairfield and State of Connecticut, have invented a new and Improved Bobbin-Winder, of which the following is a full, clear, and exact description.

The object of my invention is to improve the construction of sewing-machine bobbin-winders so as to allow the bobbins to be filled with little attention of the operator and without waste of thread.

The invention consists in particular constructions and combination of parts of the bobbin-winder, whereby, when the bobbins are placed on the shaft of the winder and the thread caught in them, they will be wound and the rotation of the bobbin and thread-spool will be stopped automatically when the bobbin is filled, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved bobbin-winder, also showing parts of the sewing-machine table and drive-wheel. Fig. 2 is a plan view thereof; and Figs. 3 to 10, inclusive, are detail views illustrating the construction and operation of parts of the bobbin-winder.

The letter A indicates a part of the work plate or table of an ordinary sewing-machine, and B is the drive-wheel, fast on the shaft C, which operates the needle-bar of the machine.

The letter D indicates a base-plate, (shown in this instance supported on a block, *a*, fixed to table A,) and E is an arm which is pivoted at *d* to the plate D, and has at its outer end a bearing, *e*, in which is journaled a shaft, F, which has fixed to one end the rubber, leather, or paper rimmed drive-wheel G of the winder, and at its other end is provided with a suitable split or other bearing on which the sewing-machine bobbins H, to be filled or wound with thread, are placed.

At I is shown the spool from which the thread *i* is taken to be wound on the bobbins.

I support the spool I on an elastic plate, J, which preferably is fixed to a threaded nut, *j*, fitted on the lower threaded end of a spindle

or post, K, which in Figs. 1, 2, and 8 is shown screwed fast into one end of an arm, L, which arm has a slot, *l*, at its other end, allowing it to be fastened to the plate D by a screw, *l'*, passed through the slot, so as to hold the spool-post K at the required distance from the drive-wheel G when the wheel springs back to allow said wheel to strike the edge of spools of different sizes or diameters, as hereinafter more fully explained.

In the modification shown in Fig. 10 the arm L, which may be the bent lower end of the post K, passes through a projection, *L'*, formed on the base-plate D, and may be fastened in any required position by the set-screw *L''*. The vertical adjustment allowed the spool-support J *j* on the post K also permits spools of different diameters to be placed on the post K, and so that the spool-rims will be struck by the swinging wheel G. A check-nut, *j'*, may be placed on post K below the support J *j*, if desired. The elastic plate J serves as a cushion or yielding support to the spool, allowing it to rise and fall slightly, and thereby obviating any harsh jerking of the thread as it passes to the bobbin, which might otherwise be caused by a variable speed of the bobbin and spool while being wound.

On the spool I a tension-weight, N, is placed, said weight having a central hole, through which the post K passes, and the weight has also a tubular prolongation, *n*, from one side, so that it may be placed on post K with the tube *n* uppermost for use, with small spools having holes which about fit the post, as shown in Fig. 9; or the weight may be used the other side up, with the tube *n* entered into the larger holes of larger spools, so that the tube serves to steady said spools on the post, as shown in Fig. 8. I make the end of the post K, on which the tube *n* fits, square, angular, or flat sided, as at *k*, Figs. 8 and 9, so that the weight N will not turn with the spool, thus giving greater friction on the spool and increasing the tension on the thread as it unwinds from the spool, to prevent snarling of the thread by overrunning momentum of the spool while the bobbin is being wound.

Instead of squaring or flattening the post K, and correspondingly shaping the hole in tube *n*, to prevent turning of the weight N, I may

at times extend the tube n downward and provide it with a lip or lug, as at n' , to enter a notch or slot, n^2 , in plate J or its hub j , as shown in Fig. 10.

5 The letter O indicates a post, which is screwed or riveted to the plate D, and has a vertically-ranging slot, o , through which an arm or tail-piece, P, fixed to the arm E, passes. The lower end of the post O is reduced in
10 diameter, so as to receive a loose collar, R, which collar has opposite vertical slots r , into the upper ends of which the opposite right and left hand horizontal slots r' open, the upper ends of slots r being inclined or rounded
15 over toward the branch slots r' , so as to form cams at r^2 , against which the tail-piece P strikes when the bobbin drive-wheel G is swung into contact with the drive-wheel B of the machine, and so as to force the collar R
20 around and cause the slots r' to stand so as to inclose the tail-piece P, which then will be set and supported on shoulders which form the lower walls of the slots r' , as will be understood from Figs. 1, 3, and 4. A spring, S,
25 preferably of spiral form and placed around the post O and collar R, rests on the tail-piece, and a nut, s , screwed on the top of post O, may be turned down more or less to regulate the tension of the spring, which acts
30 to force down the tail-piece P, and carry the wheel G away from the wheel B and against the spool I, when the tail-piece is tripped from the slots r' by the partial rotation of the collar R, as presently explained. A pin which
35 may be entered into any one of a series of holes in post O may be used instead of the nut s .

The letter T indicates a trip-lever, which is pivoted at t —say on one end of the pivot-pin
40 d , as shown—and carries a pin, U, which projects from it into an inclined slot, u , formed in one side of the lower end of the collar R. I prefer to weight the inner end of the lever T, as at V, so that the outer end of the lever
45 will tend to rise into the opening h between the side plates of the bobbin, and I prefer also to form a curved recess, v , (see Fig. 6) at the inner side or edge of the lever and conforming somewhat to the contour of the thread on the
50 bobbin when it is quite fully wound, so as to give a larger bearing of the thread on the lever to trip it, as hereinafter described. The collar-slot u is inclined in such manner that as the inner end of the lever T rises the pin U
55 will act on one side wall of the slot—in this instance its upper wall—to turn the collar R and release the tail-piece P from the retaining-slots r' , and the opposite wall of the slot u acts on the pin U, when the bobbin is thrown
60 back by the spring S, to hold or lock the outer end of lever T away from or clear of the bobbins, as in dotted lines Fig. 1, to allow the filled bobbin to be removed and an empty one put in place to be filled.

65 The operation, briefly stated, is as follows: The spool I is adjusted on the post K, and the thread i is passed through the eye M and

caught in the empty bobbin H placed on the shaft F. The arm E now is swung toward the drive-wheel B, which carries the tail-piece P 70 along the slots o r of post O and collar R, respectively, and compresses the spring S, and the piece P strikes the slot-cams r^2 , which turns the collar partly around on the post O, so that the tail-piece may lock into the upper 75 collar-slots, r' , holding the wheel G against the wheel B, and as the collar had been turned on the post the inclined slot u had acted on the pin U to throw the end of lever T into the slot or opening h , or between the side plates of 80 the bobbin, and at the same time the bobbin drive-wheel G comes against the drive-wheel B of the sewing-machine, which gives motion to the bobbin to wind the thread i thereon. As the bobbin fills, the thread presses the 85 lever T outward, which causes the pin U, by action in slot u of collar R, to turn the collar to its first position, which trips the tail-piece from slots r' , and the spring S then acts on the tail-piece to swing the drive-wheel G 90 away from the wheel B and carry said wheel G against the side of the spool I, so that this contact serves as a brake to stop the motion of both the bobbin and spool simultaneously. It will be understood that the spring holds the 95 tripped tail-piece in that end of the slots o r nearest the plate D, and retains the pin U at or near the base of the collar-slot u , to lock the lever T so its outer end stands clear of the bobbin, so as to allow removal of the filled 100 bobbin and application of an empty one, as hereinbefore described, which locking action allows the bobbin-winder to be used the other side up or inclined considerably from the position shown, as when the device is arranged 105 with some sewing-machines, to throw the bobbin drive-wheel G into contact with the machine drive-wheel by an upward swing of wheel G, instead of a downward swing of it, as above described.

110 It is obvious that any suitable brake-stop may be provided on the plate D for the bobbin driving-wheel G to strike against to stop the bobbin when the wheel is automatically thrown back as the bobbin fills, and the plate J may 115 serve this purpose; but by utilizing the spool as the brake-stop to the bobbin the rotation of the spool also is stopped, so that the thread i is not unwound from the spool any faster than it is reeled on the bobbins; hence there is no 120 entanglement or waste of the thread, as results sometimes from the momentum of parts in other bobbin-winding devices, or the catching of loose ends of the thread in the operating parts of the sewing-machine. It will be seen 125 that that the operator has only to start the thread into the bobbin and press the wheel G to the drive-wheel of the sewing-machine and the bobbin will be filled, and will then stop automatically and while the sewing-machine 130 is at work, thereby saving considerable time of the operator, and also avoiding excessive wear and tear on the bobbin-winder spindle, which runs only while the thread is being laid

on the bobbin. It is not essential that the tail-piece P pass entirely through the post O and through slots $r r'$, made in opposite sides of the collar R, as a slot in one side only of the collar will suffice to turn it by the action of the tail-piece, as will readily be understood.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

10 1. A bobbin-winder comprising a bobbin-holding shaft provided with a drive-wheel, a swinging arm in which said shaft is journaled, a tail-piece fixed to said arm, a post slotted for the passage of the tail-piece, and a collar fitted
15 loosely on the post and provided with slots to receive the tail-piece, and said slots being formed with cam-faces to turn the collar and shoulders to support the tail-piece, and thereby hold the bobbin drive-wheel to the sewing-machine drive-wheel, substantially as herein set forth.

2. A bobbin-winder comprising a bobbin-holding shaft provided with a drive-wheel, a swinging arm in which said shaft is journaled, a tail-piece fixed to said arm, a post slotted for the passage of the tail-piece, a collar fitted loosely on the post and provided with slots to receive the tail-piece, and said slots being formed with cam-faces to turn the collar and shoulders to support the tail-piece and hold the bobbin drive-wheel to the sewing-machine drive-wheel, and a spring acting on the tripped tail-piece to separate said drive-wheels, substantially as herein set forth.

35 3. A bobbin-winder comprising a bobbin-holding shaft provided with a drive-wheel, a swinging arm in which said shaft is journaled, means for setting the arm to hold the bobbin and sewing-machine drive-wheels in contact, a spool-holding post, and a spring for swinging the bobbin drive-wheel into contact with the spool, to simultaneously stop the rotation of both bobbin and spool when the bobbin is filled, substantially as herein set forth.

45 4. A bobbin-winder comprising a bobbin-holding shaft provided with a drive-wheel, a swinging arm in which said shaft is journaled, a tail-piece fixed to said arm, a post slotted for the passage of the tail-piece, a collar fitted loosely on the post and provided with slots to receive the tail-piece, said slots being shaped to form cams and shoulders to turn the collar and support the tail-piece, a spool-holding post, and a spring for swinging the bobbin drive-wheel into contact with the spool when the tail-piece is tripped, substantially as herein set forth.

50 5. The combination, in a bobbin-winder, of the swinging arm E, having a tail-piece, P, the shaft F, drive-wheel G, post O, slotted at o , collar R, slotted at $r r'$, and spring S, substantially as herein set forth.

6. The combination, in a bobbin-winder, of the swinging arm E, having tail-piece P, the shaft F, drive-wheel G, post O, slotted at o , collar R, slotted at $r r'$, spring S, the spool-post K, located to allow the wheel G to strike the spool, and the thread eye or guide M, substantially as herein set forth.

7. The combination, in a bobbin-winder, of a swinging arm, E, shaft F, drive-wheel G, a spool-post having an elastic spool-support adjustable on the post and placed in the described relation to the drive-wheel G, and the thread eye or guide M, substantially as herein set forth.

8. A bobbin-winder comprising a bobbin-holding shaft provided with a drive-wheel, a swinging arm in which said shaft is journaled, means for setting the swinging arm for holding the bobbin drive-wheel into contact with the sewing-machine drive-wheel, and a lever positioned to be operated by the thread reeled on the bobbin, and connected with the setting devices of the swinging arm, so as to release said arm automatically when the bobbin is filled, substantially as herein set forth.

9. A bobbin-winder comprising a bobbin-holding shaft provided with a drive-wheel and journaled in a swinging arm, E, carrying a tail-piece, P, a post, O, slotted for the passage of the tail-piece, a collar, R, fitted loosely on the post O and slotted at r, r' , and u , and the lever T, provided with a pin, U, entering inclined slot u at one end, and said lever extending to the bobbin, so as to be operated by the thread reeled thereon, substantially as herein set forth.

10. The combination, in a bobbin-winder, of the swinging arm E, having a tail-piece, P, the shaft F, drive-wheel G, post O, slotted at o , collar R, slotted at $r r'$ and inclinedly at u , a spring bearing on the tail-piece to carry the wheel G from the sewing-machine drive-wheel, and the lever T, having a pin, U, entering the collar-slot u and extending to the thread wound on the bobbin, substantially as herein set forth.

11. The combination, in a bobbin-winder, of the arm E, having a tail-piece, P, the shaft F, drive-wheel G, post O, slotted at o , collar R, slotted at r, r' , and u , spring S, lever T, having a pin, U, entering slot u and extending to the thread wound on the bobbin, and a spool-post located to allow the drive-wheel G to swing into contact with the spool I when the lever T trips arm E as the bobbin fills, substantially as herein set forth.

WILLIAM CONNOLLY.

Witnesses:

WILLIAM M. BARTHOLMES,
GEORGE F. BARTHOLMES.