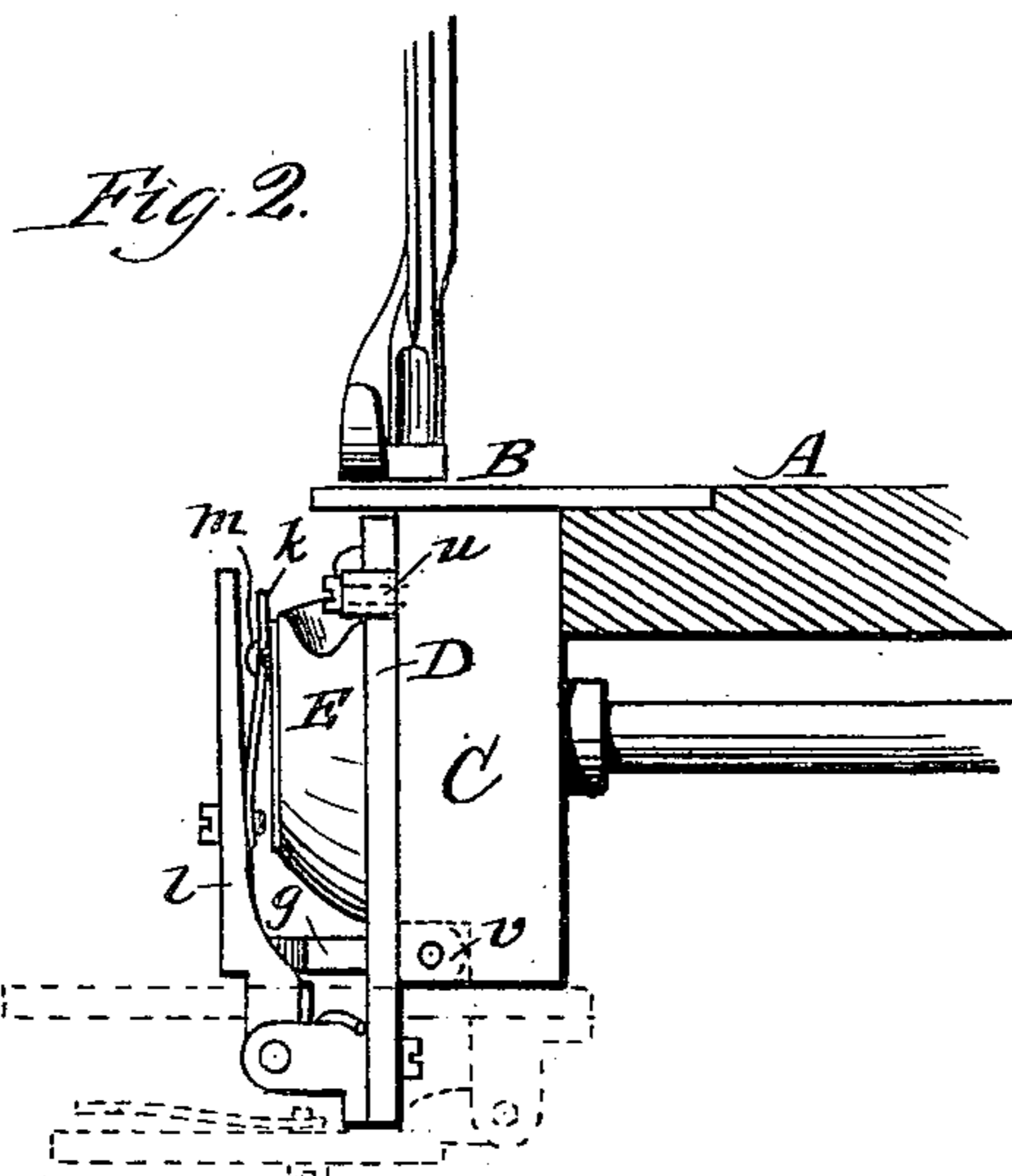


2 Sheets—Sheet 1.

## ROTARY SHUTTLE FOR SEWING MACHINES.

Patented Mar. 13, 1883.



INVENTOR.  
William Lonsdale,  
By R. C. Dyrenforth,  
Attorney.

(No Model.)

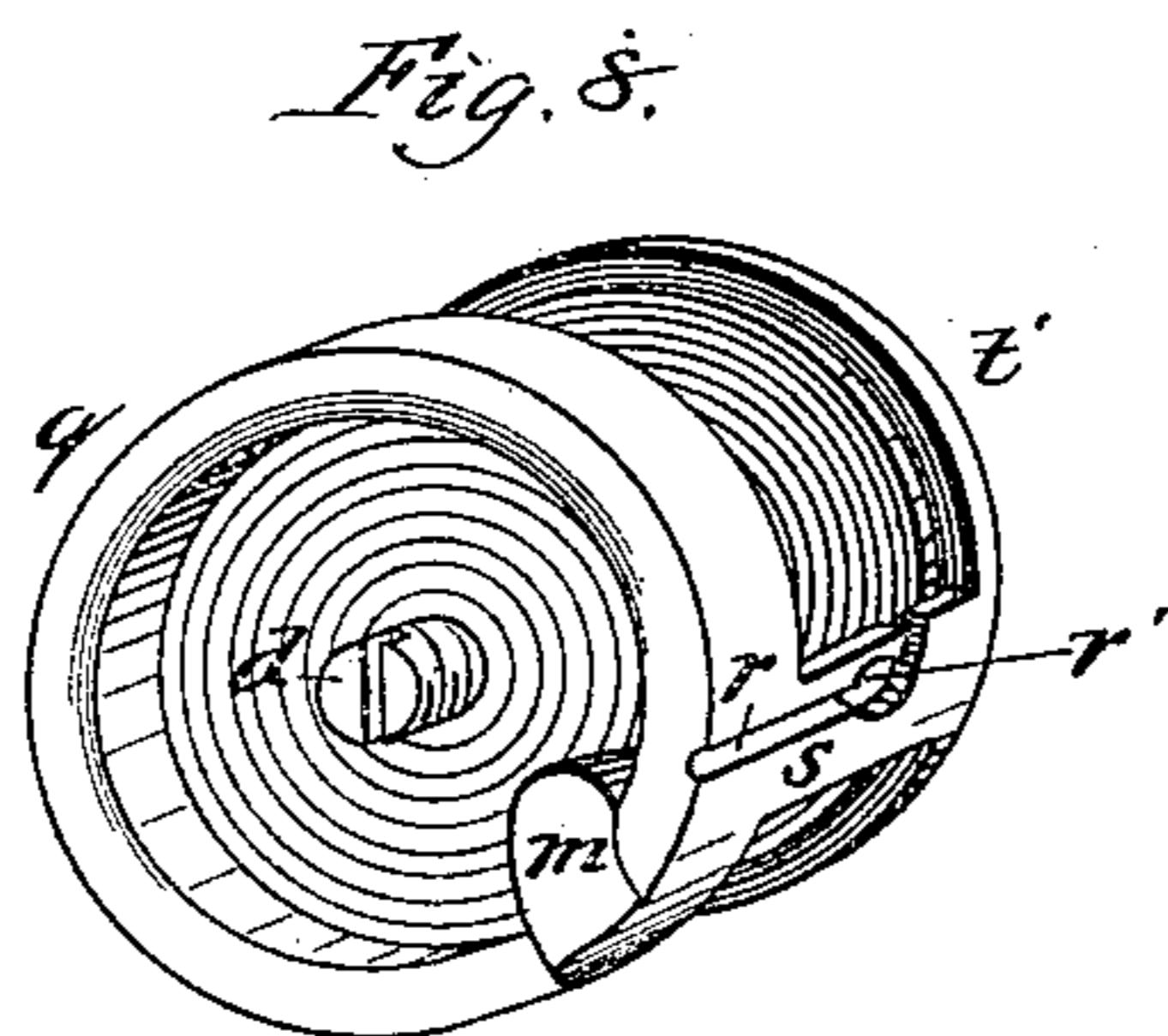
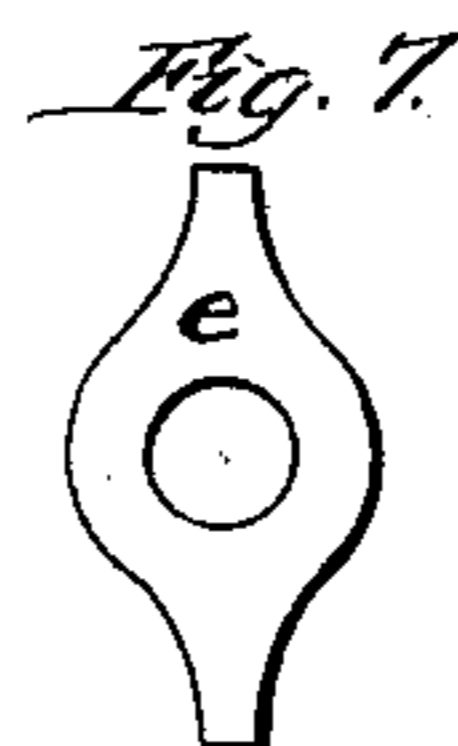
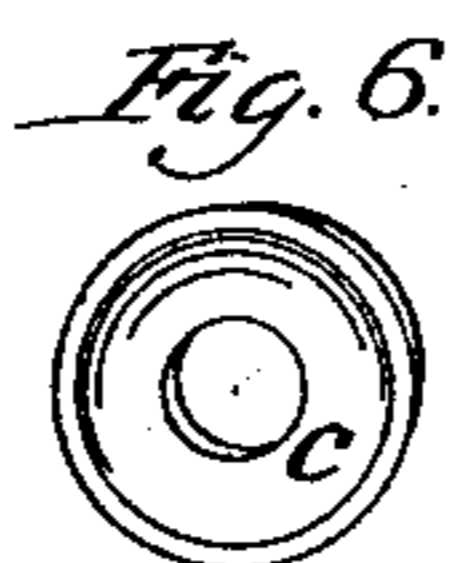
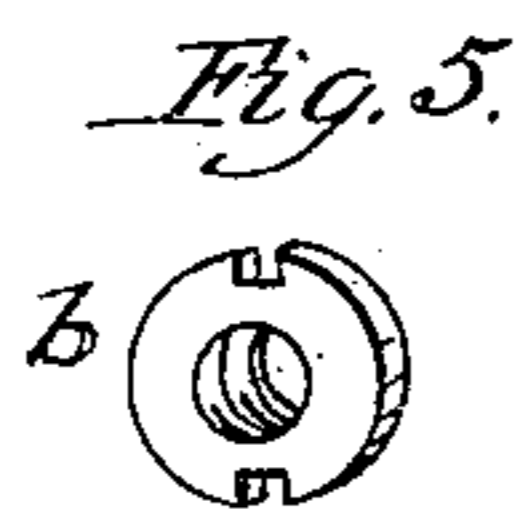
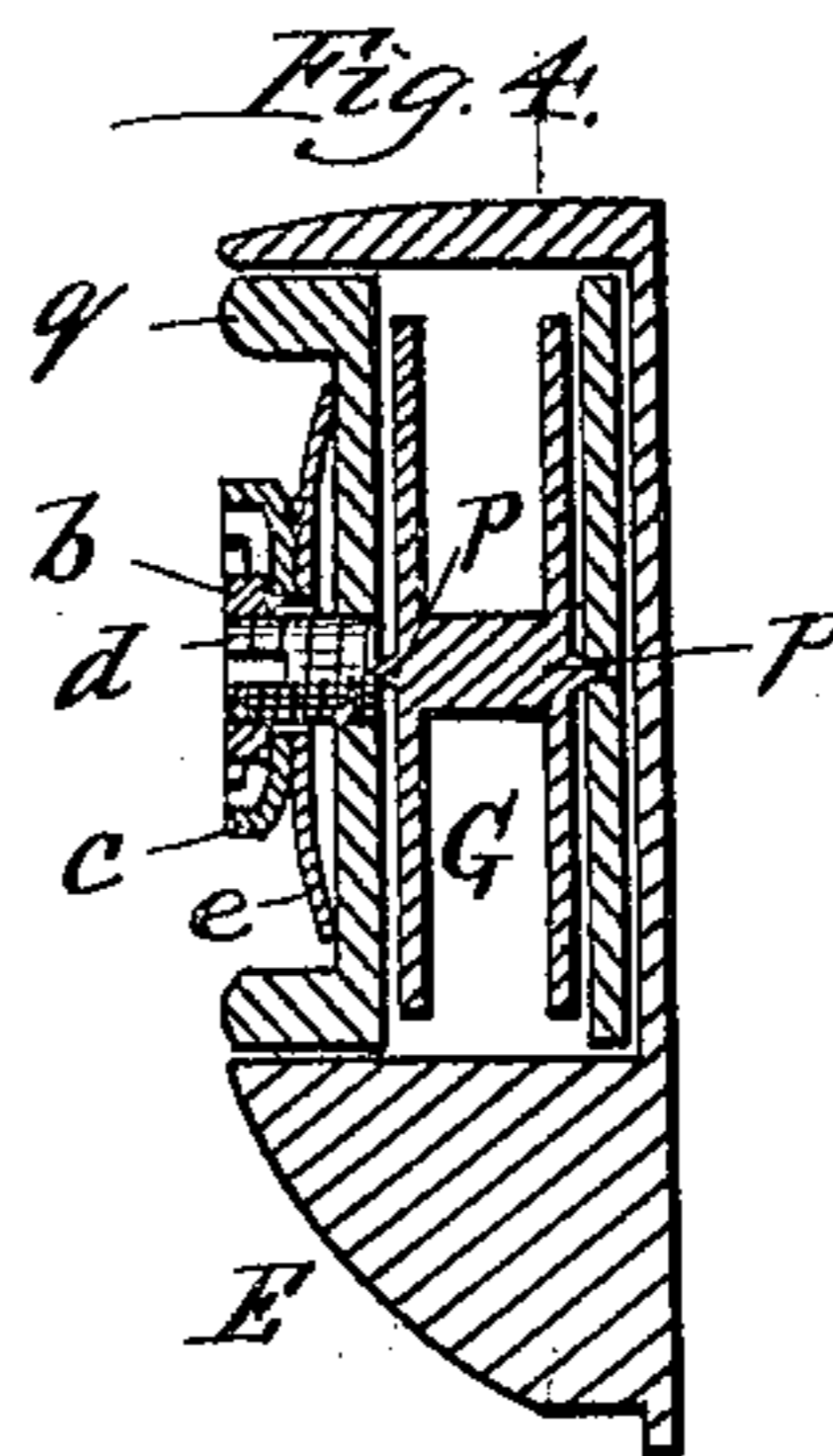
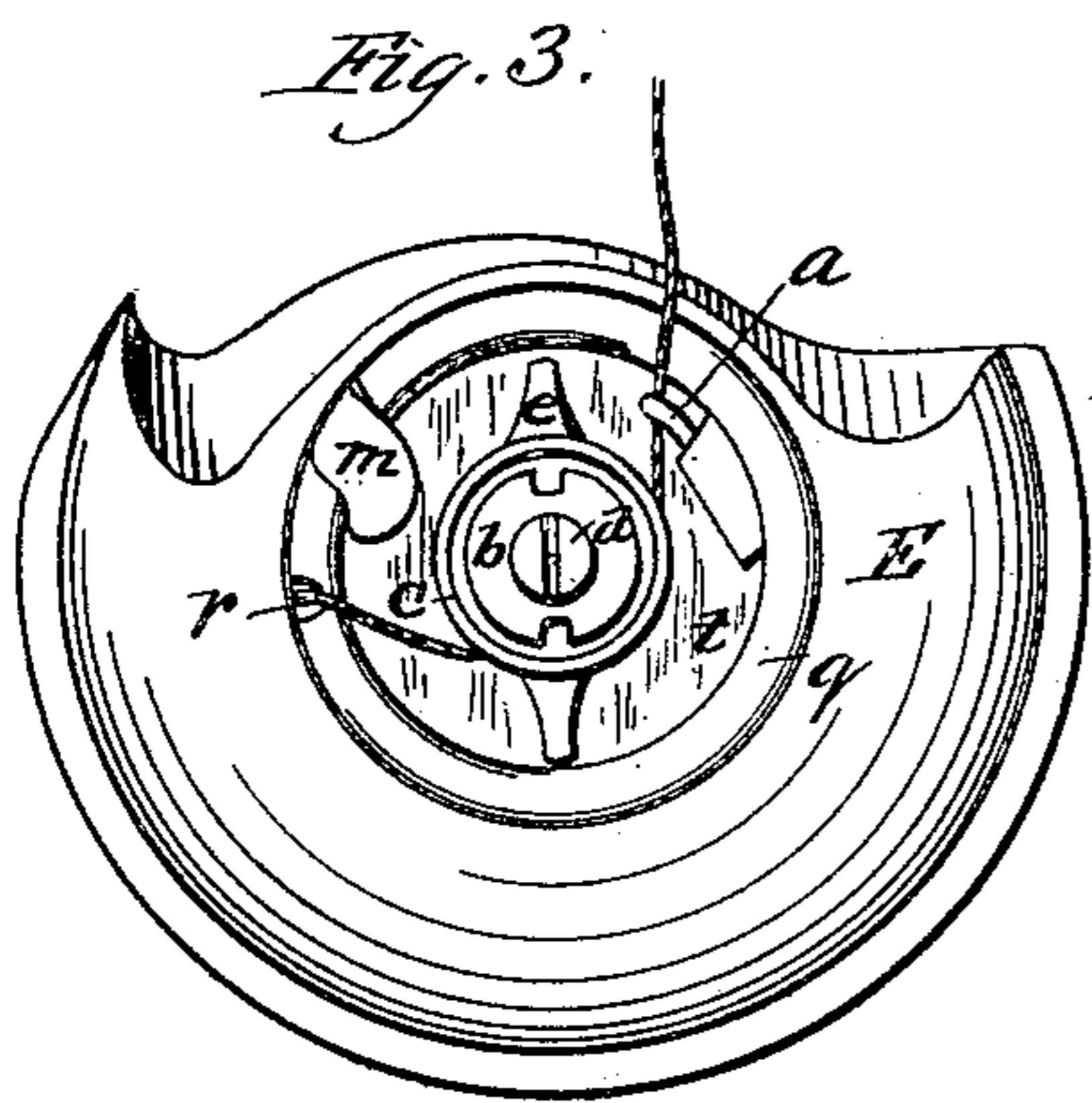
2 Sheets—Sheet 2.

W. LONSDALE.

ROTARY SHUTTLE FOR SEWING MACHINES.

No. 273,747.

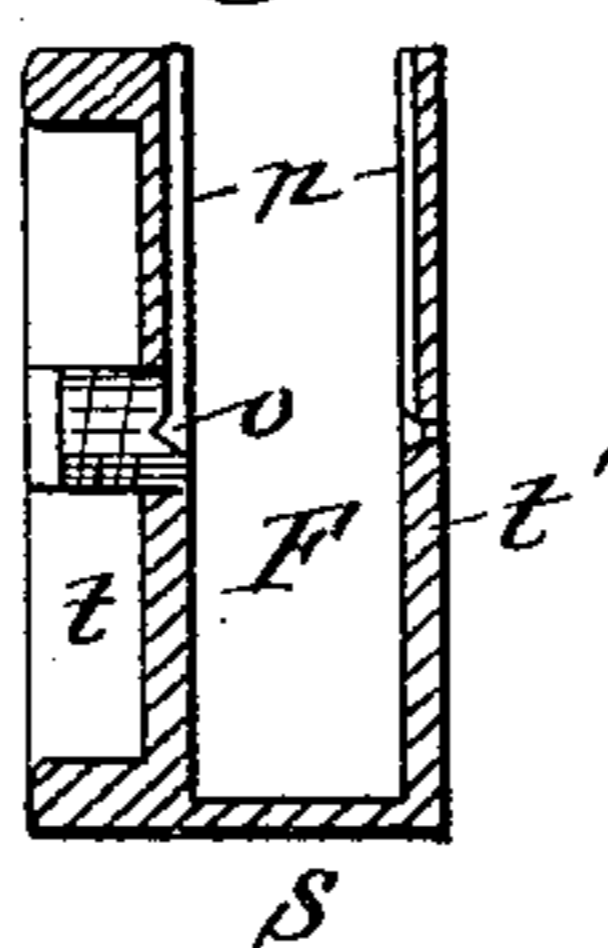
Patented Mar. 13, 1883.



WITNESSES—

*F. B. Townsend*  
*Ephraim Banning,*

*Fig. 9.*



INVENTOR—

*William Lonsdale,*  
*By R. B. Dyrenforth,*  
*Attorney.*

# UNITED STATES PATENT OFFICE.

WILLIAM LONSDALE, OF GRAND CROSSING, ILLINOIS.

## ROTARY SHUTTLE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 273,747, dated March 13, 1883.

Application filed May 1, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM LONSDALE, a citizen of the United States, residing at Grand Crossing, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rotary Shuttles for Sewing-Machines; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, of which—

Figure 1 is a front elevation of my device with the attendant parts of the machine; Fig. 2, a vertical section taken on the line 2 2 of Fig. 1, showing my improvements in side elevation; Fig. 3, an enlarged view of the shuttle; Fig. 4, a central vertical section of the same; Figs. 5, 6, and 7, detail views of the tension mechanism; Fig. 8, an enlarged perspective view of the bobbin-holder and bobbin, and Fig. 9 a central longitudinal section of the bobbin-holder.

My invention relates to rotary-shuttle sewing-machines in which, for the purpose of preventing twisting of the lower thread, the bobbin is placed within a holder in such manner as to have an independent rotary motion therein to permit the paying out of the thread, and in which the bobbin-holder is adapted to revolve independently within the shuttle; and it consists, first, in the combination of the shuttle, holder, and bobbin with mechanism for restraining the holder from revolving with the shuttle beyond a given point, but at the same time permitting the free movement of the thread from the face of the shuttle to the needle-plate; and it consists, further, in various details of construction and combinations of parts, all as hereinafter more fully set forth.

In the drawings, A is the bed-plate, B the throat-plate, and C the shuttle-support, of a sewing-machine. D is a plate hinged near its lower edge to the lower edge of the support C, *v* being the hinges. This plate is suitably cut out and suitably recessed on its inner surface around the edge of the opening to receive the peripheral base-flange of the shuttle E, and thus serve as a race for the same, holding it in place against the support C, and at the same time permitting its free revolution. The plate D is held in place against the shuttle, as shown in Figs. 1 and 2, by means of buttons *u*, piv-

oted to the support C, near the top thereof, at each side of the plate D, and adapted to be turned over the said plate when it is desired to secure it in the position above mentioned. By turning the buttons off the plate D, that plate may be let down to the position represented by the dotted lines in Fig. 2. This construction affords great facility in removing the shuttle, and is a great improvement over the devices heretofore employed for the purpose, in which the retaining-plate has been fastened in place by screws.

The bobbin-holder F, which I employ, is clearly represented in Figs. 4, 8, and 9. It consists of two disks, *t* and *t'*, joined together on one side by a bar, *s*, in which is formed the groove and slot *r r'* for the thread. On the outer disk, *t*, a flange or rim, *q*, is formed, and the height of the whole holder is such that when set into the recess in the shuttle the outer end of the flange *q* is just even with the outer edge of the recess in the shuttle, as shown in Fig. 4—that is to say, the bobbin-holder, including the flange, just fills the recess. The bobbin G is suspended in this holder by means of center-pins *p*, which enter corresponding recesses, *o*, formed in the inner faces of the disks *t* and *t'*, and it is got into position by means of radial grooves *n* in the said faces leading to the recesses *o*. While it is preferred to have the bobbin thus hung on axial pins, it is not absolutely necessary that it shall do so. The effect sought to be produced is to cause the bobbin-holder to assume automatically a certain position in the shuttle, and to be maintained in that position (the shuttle rotating about it and the bobbin within it) by mechanism which shall not, however, obstruct the thread, when, after being caught by and carried around the shuttle, it passes upward and off the conical surface thereof to form the stitch. This I accomplish in the following manner: To the right of the groove *r* a shoulder or lug, *m*, is formed upon the rim *q*, and to the plate D, below the shuttle, a bar, *l*, is hinged, having a flat spring, *k*, running longitudinally with it on the side toward the shuttle, the spring being attached at its lower end to the bar and standing somewhat away from the bar above that point, as represented in Fig. 2. This bar is acted on by a spring, *i*, which tends to throw it downward, except

when held up by means of a catch, *h*, which may consist of a pin, *g*, projecting from the plate *D*, and provided with a shoulder or notch, which a projection, *f*, upon the bar enters when it is raised. By pressing the bar slightly to the right it is released from the notch and descends. When the bar is in its upright position it is out of contact with the shuttle; but the spring *k* projects inward far enough to rest against the rim or flange *q* of the bobbin-holder. Hence when the holder is turned within the recess in the shuttle the lug *m* must inevitably soon bring up against the spring *k*, thus obstructing the holder against further rotation. As the lug is abrupt only on its right-hand face, and rounded off elsewhere, and as the pressure of the spring *k* against the shuttle and bobbin-holder is very light, no obstruction is offered to the thread in passing off the shuttle.

My invention also includes an improvement in the construction of the tension device. Heretofore it has been the practice to employ two curved annular disks surrounding a central pin upon the outer face of the bobbin-holder, the inner disk bearing against a short helical spring surrounding the pin, the parts being held in place by a nut screwing upon the outer end of the pin.

My improvement consists in employing a flat spring, *e*, provided with a hole in its center for the passage of the pin *d*, and arched, with its ends resting upon the outer face of the bobbin-holder, a cup-shaped annular disk, *c*, also fitting around the pin and resting against the flat spring *e*, with its convex surface outward, and a nut, *b*, screwing upon the pin *d*, (which is threaded,) thus serving to retain the parts in position and affording means for increasing or diminishing the tension. The pin *d* may be made in the form of a screw passing through the outer disk of the holder, though this is merely a matter of convenience. If preferred, it may be formed with the holder.

The above construction of the tension device dispenses with the inner cup-shaped disk and helical spring, the flat spring *e* performing the function of both. It produces better results and is also easier and cheaper to make than the old form.

The thread passes from the bobbin by way of

the groove and slot *r r'*, thence between the cup-disk *c* and spring *e*, and, further, through a guide, *a*, formed upon the bobbin-holder to the right of the tension device. Of course the top of the spring *e* should be suitably rounded to prevent it from cutting or wearing the thread.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a sewing-machine, the combination, with the rotary shuttle, of a bobbin-holder revolving independently in the shuttle and provided with a lug or stop on its outer edge, a bobbin revolving independently within the holder, and a spring connected to the machine and bearing against the upper edge of the bobbin-holder, whereby as the said holder revolves with the shuttle the lug or stop is brought into contact with the edge of the spring, substantially as described, and for the purpose set forth.

2. In a sewing-machine, the combination, with the rotary shuttle *E*, of the support *C*, retaining-plate *D*, bobbin *G*, bobbin-holder *F*, provided with a stop, *m*, bar *l*, hinged at its lower end to the plate *D*, and carrying the spring *k*, and a suitable catch for securing the bar *l* in an upright position, substantially as described.

3. The bobbin-holder *F*, formed of two disks, *t* and *t'*, joined together on one edge by means of the bar *s*, provided with the groove *r* and slot *r'*, the disk *t* being provided with a rim or flange, *q*, having a lug or stop, *m*, substantially as and for the purpose described.

4. The bobbin-holder *F*, formed of two metal disks connected together at one edge by a bar, and each provided with a recess, *o*, at the center of its inner face, and with a radial groove, *n*, leading thereto, in combination with the bobbin *G*, provided with the center-pins *p*, substantially as described.

5. The tension device consisting of the combination, with a disk or plate, *t*, of the threaded pin *d*, arched spring *e*, cup-disk *c*, and nut *b*, substantially as described.

WILLIAM LONSDALE.

In presence of—

ADELBERT HAMILTON,  
WM. H. DYRENFORTH.