

(No Model.)

3 Sheets—Sheet 1.

R. THORSSIN.  
MACHINE FOR SEWING ON SHANK BUTTONS.

No. 559,004.

Patented Apr. 28, 1896.

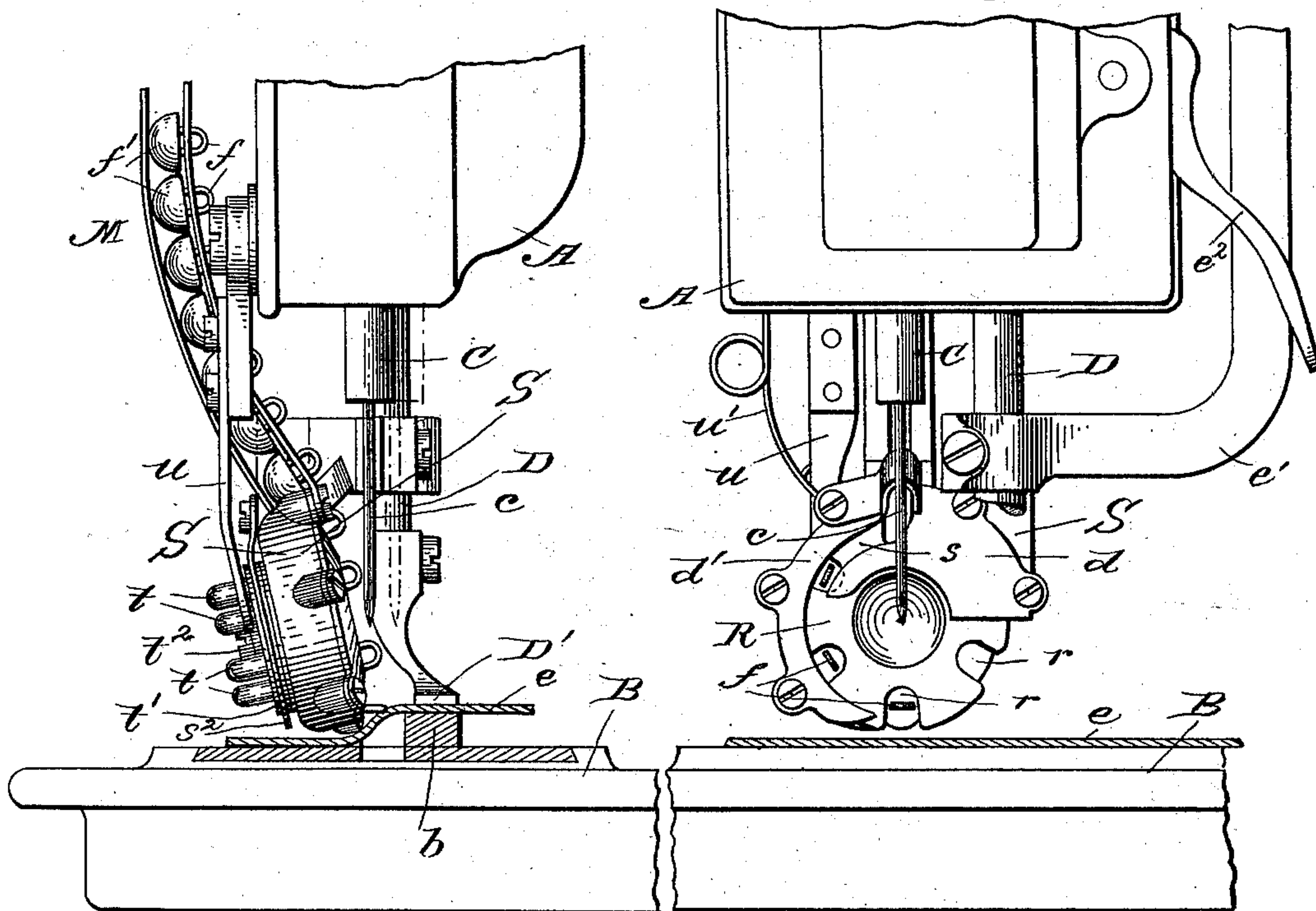


Fig. 1.

Fig. 2.

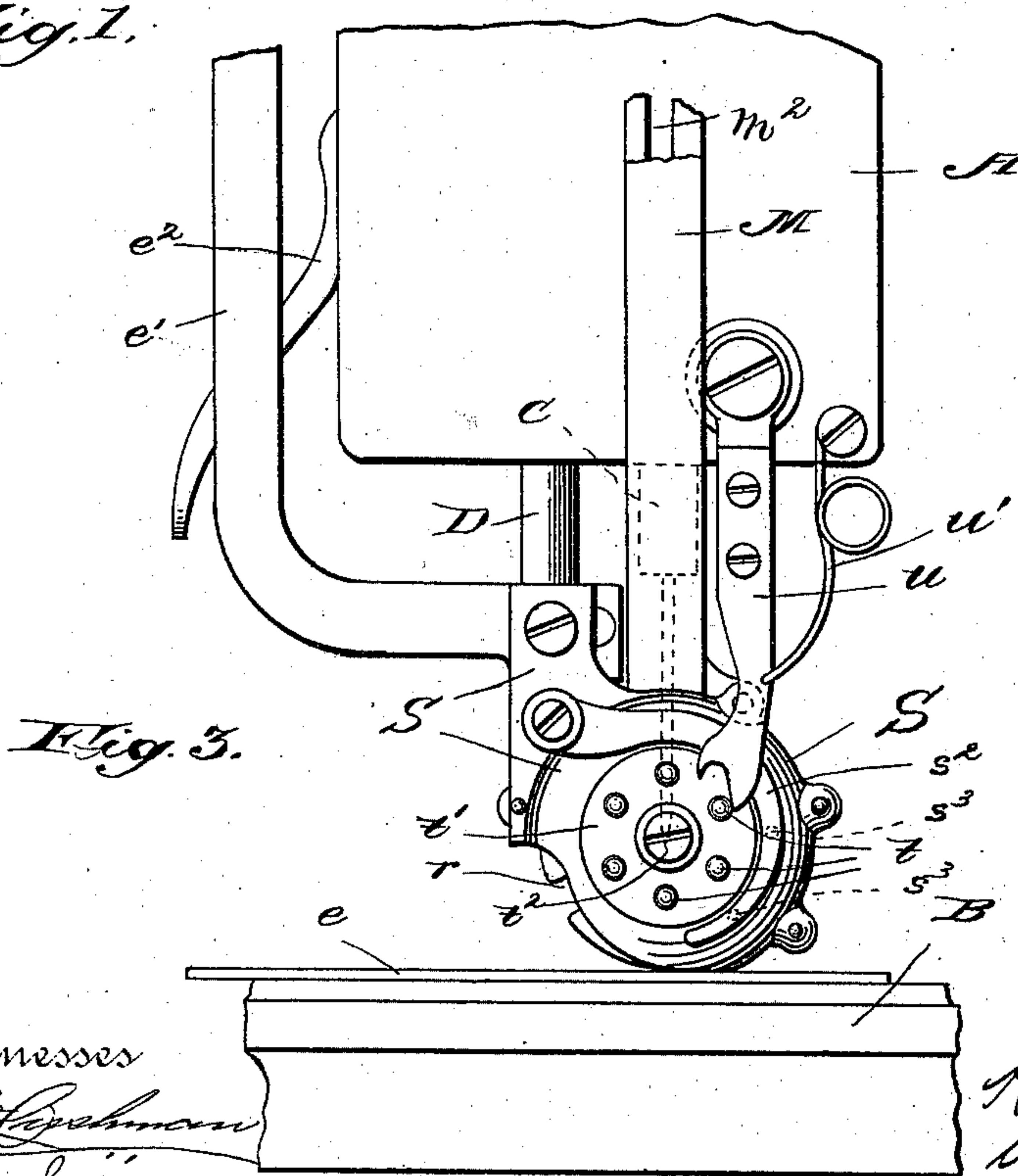


Fig. 3.

Witnesses  
W. L. Graham  
C. M. Sweeney.

Inventor:  
Reinhold Thorssin,  
by Henry Kalber,  
his Attorney.

(No Model.)

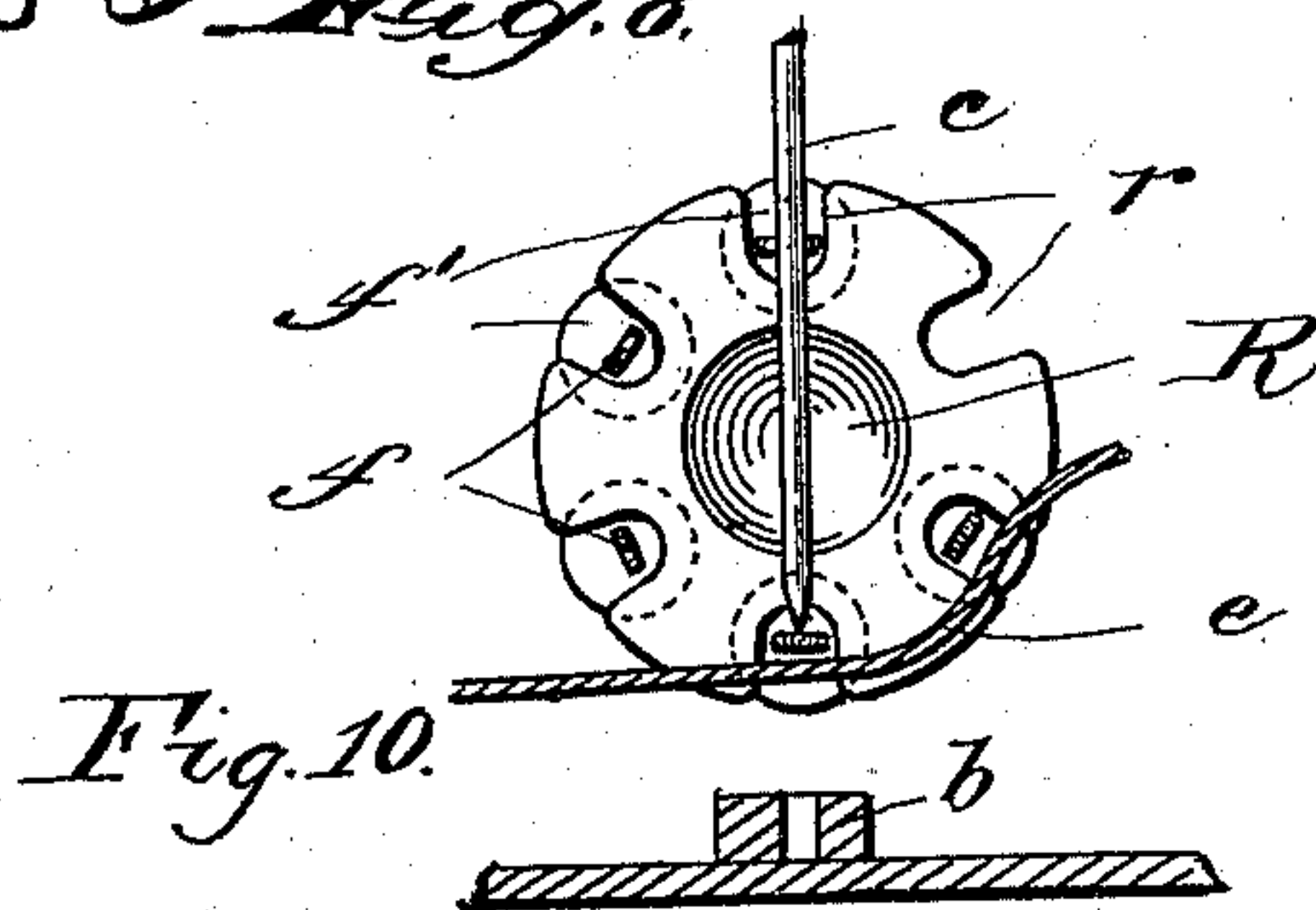
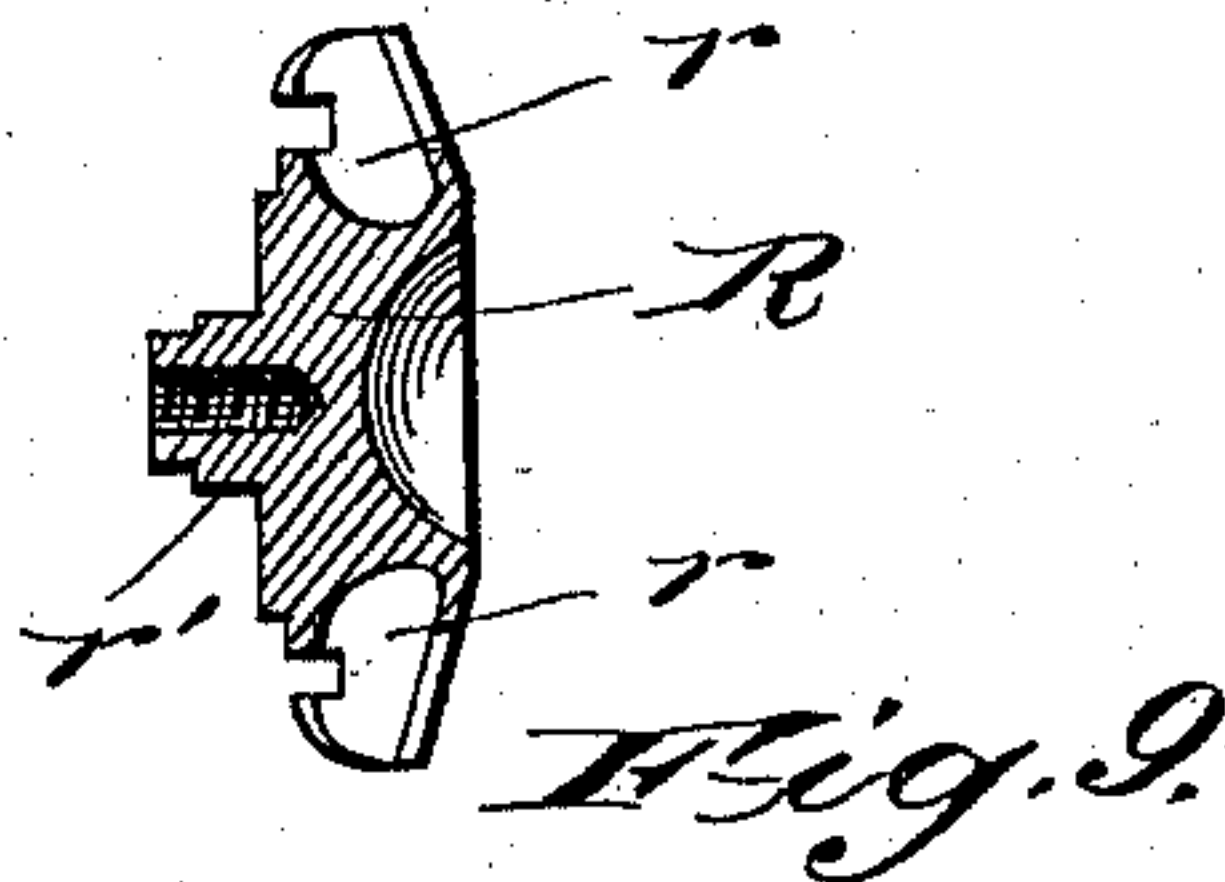
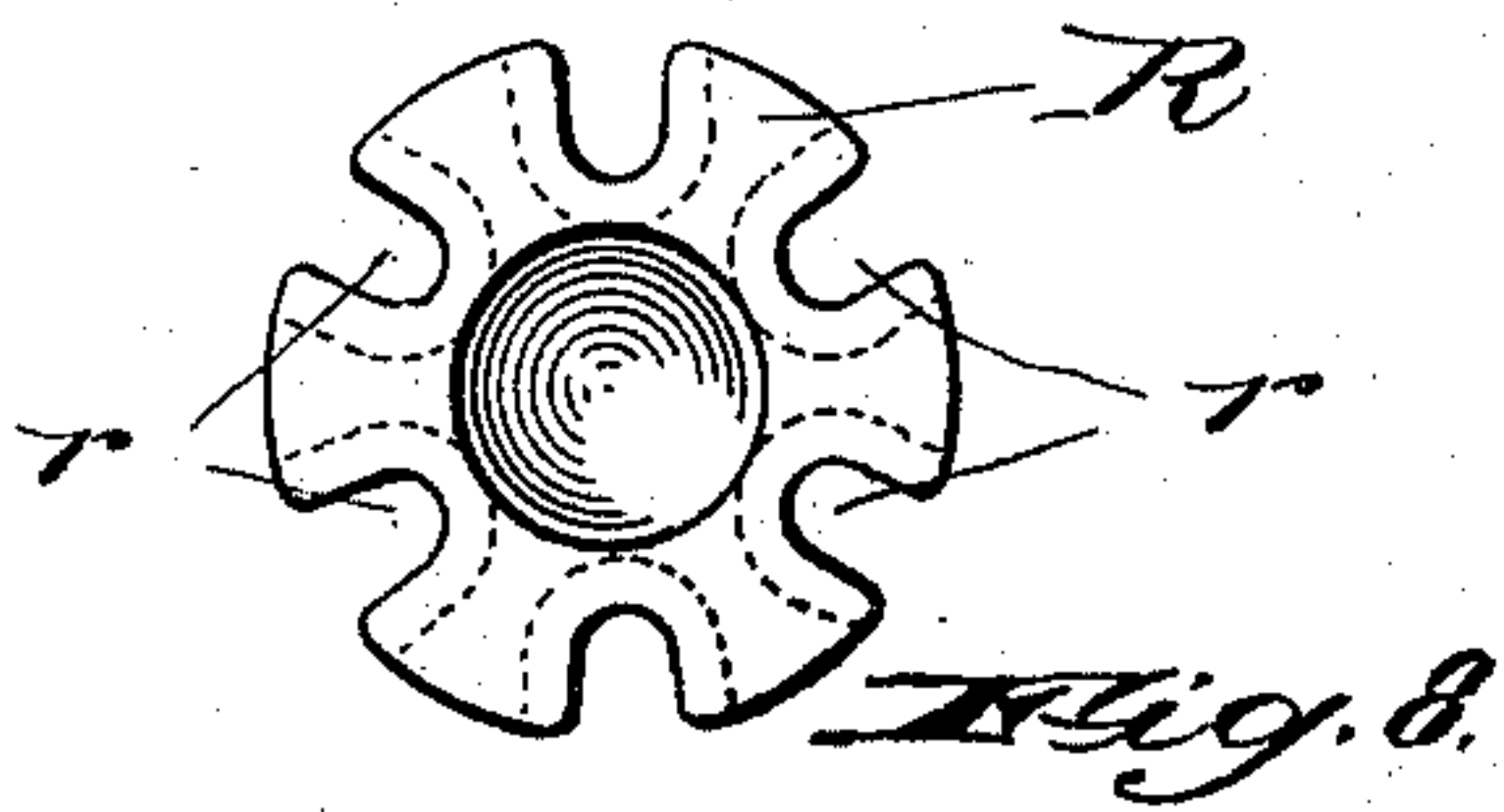
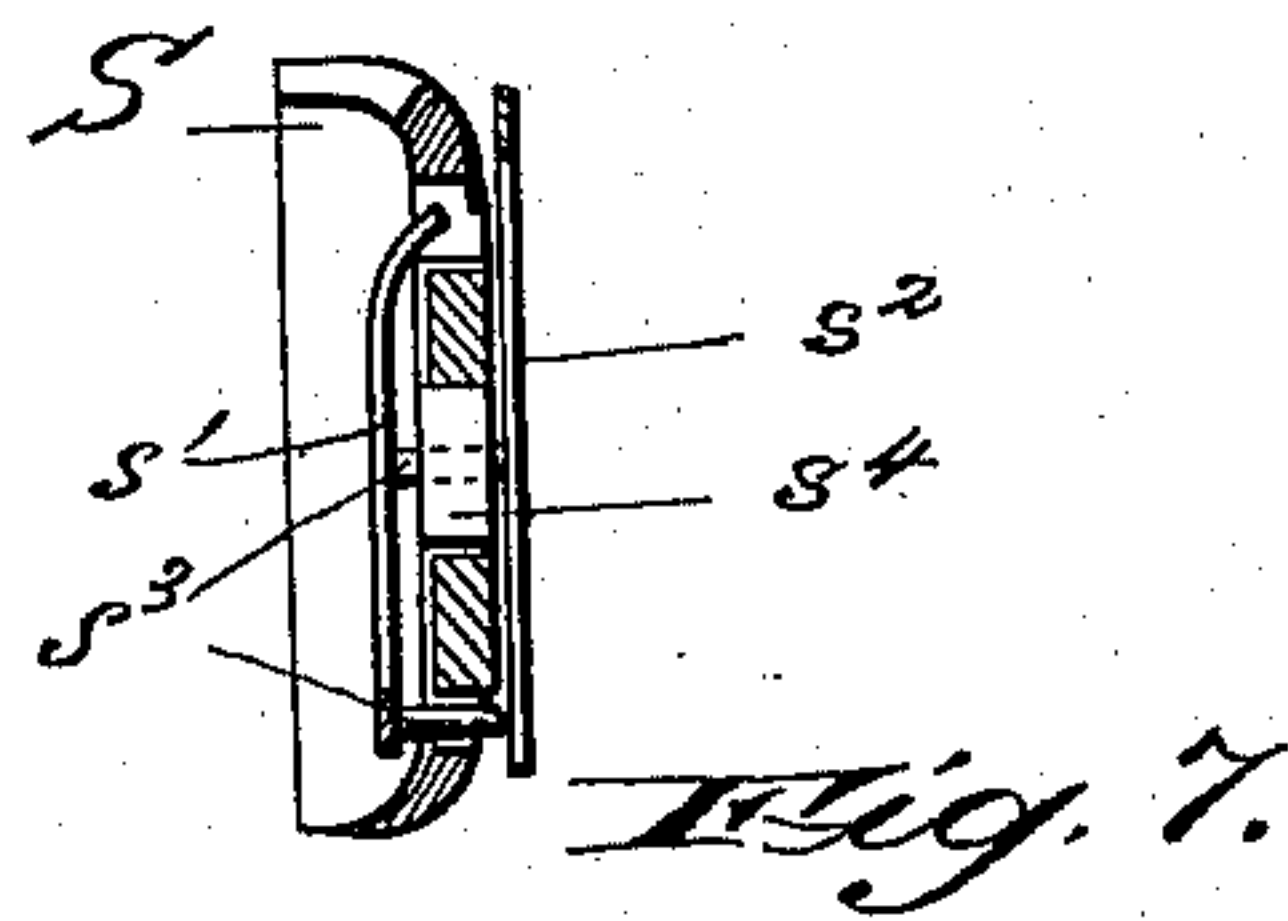
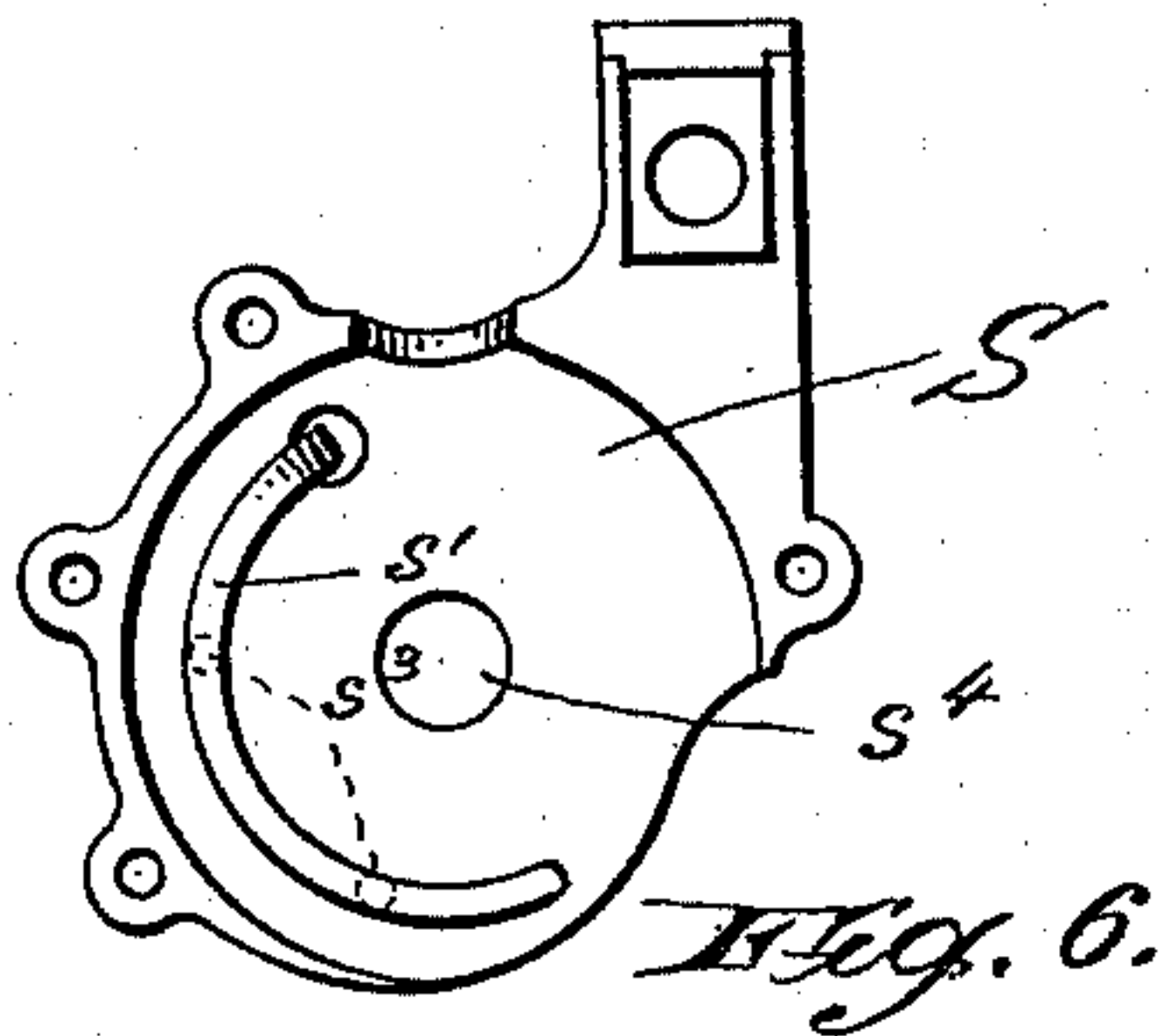
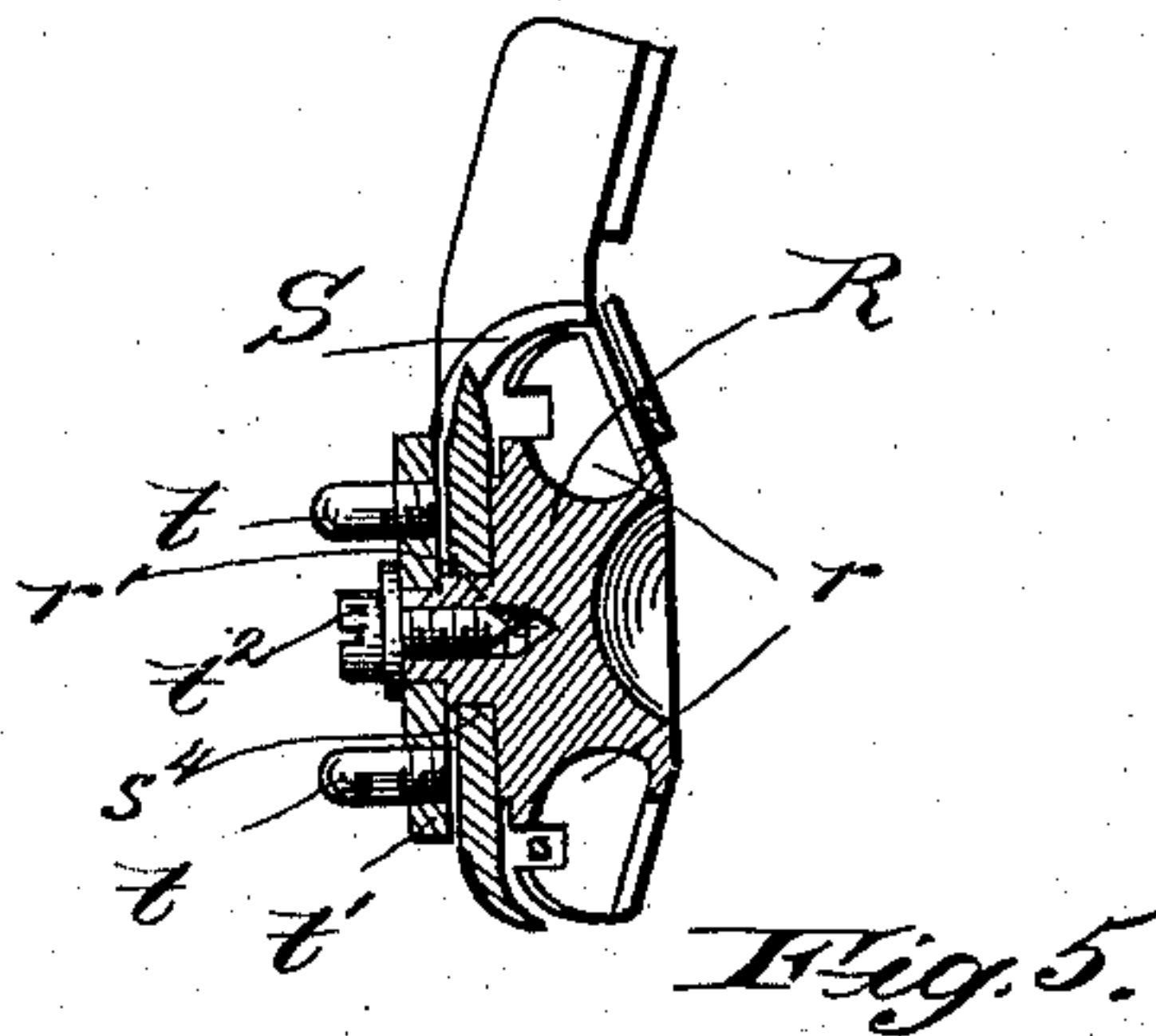
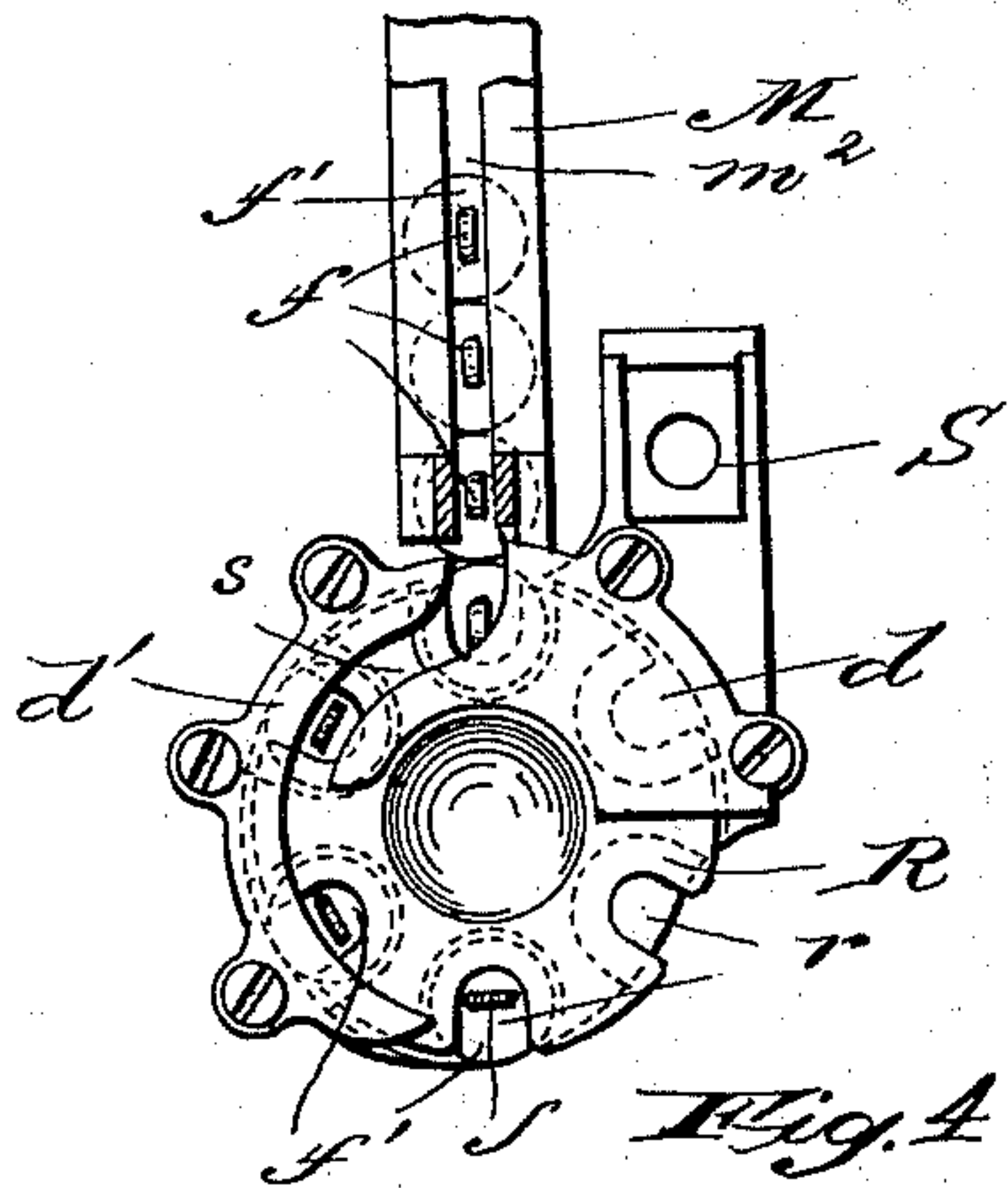
3 Sheets—Sheet 2.

R. THORSSIN.

MACHINE FOR SEWING ON SHANK BUTTONS.

No. 559,004.

Patented Apr. 28, 1896.



Witnesses  
*H. C. Chapman*  
*C. M. Sweeney*

Inventor:  
*Reinhold Thorssin*  
by *Henry Calvert*  
Attorney



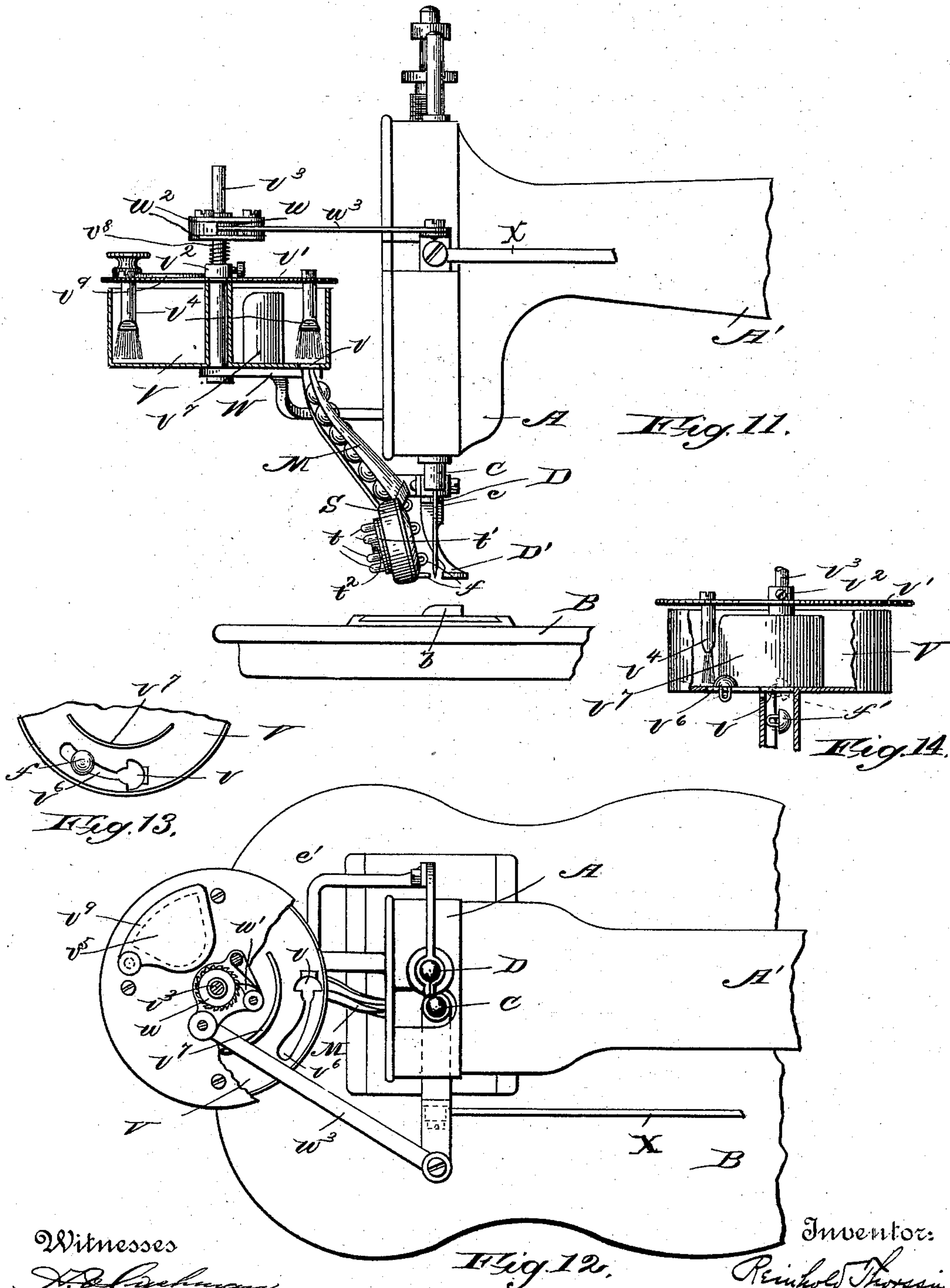
(No Model.)

3 Sheets—Sheet 3.

R. THORSSIN.  
MACHINE FOR SEWING ON SHANK BUTTONS.

No. 559,004.

Patented Apr. 28, 1896.



Witnesses  
*H. B. Cushman*  
*C. H. Sweeney*

Inventor:  
*Reinhold Thorssin*  
by *Henry Salter*  
Attorney.



# UNITED STATES PATENT OFFICE.

REINHOLD THORSSIN, OF GOTHENBURG, SWEDEN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE SINGER MANUFACTURING COMPANY, OF ELIZABETH, NEW JERSEY.

## MACHINE FOR SEWING ON SHANK-BUTTONS.

SPECIFICATION forming part of Letters Patent No. 559,004, dated April 28, 1896.

Application filed May 29, 1893. Serial No. 475,926. (No model.) Patented in Norway May 12, 1893, No. 3,043; in Germany August 28, 1893, No. 71,929; in Austria-Hungary September 11, 1893, No. 11,306 and No. 34,380, and in Sweden February 1, 1894, No. 4,908.

*To all whom it may concern:*

Be it known that I, REINHOLD THORSSIN, a subject of the King of Sweden and Norway, residing at Gothenburg, in the Kingdom of Sweden, have invented certain new and useful Improvements in Machines for Sewing on Shank-Buttons, (for which Letters Patent were granted in Germany August 28, 1893, No. 71,929; in Austria-Hungary September 11, 1893, No. 11,306 and No. 34,380; in Norway May 12, 1893, No. 3,043, and in Sweden February 1, 1894, No. 4,908,) of which the following is a specification.

My invention relates to a button-sewing attachment adapted to be applied to an ordinary overseaming sewing-machine, in which the needle-bar is moved laterally after each descent of the needle, so that the needle alternately descends in different vertical planes.

In carrying my invention into effect I attach to the presser-bar of the machine a suitable support or bracket, in which is journaled a button-carrying wheel provided with a series of cells or recesses for receiving the buttons, said button-carrying wheel having attached thereto an operating ratchet or pin wheel, which is to be engaged by a stationary pawl attached to the head of the machine, and so arranged that when the presser-bar is lifted the said operating-wheel will be turned to the extent of one of the button-holding cells or recesses in the button-wheel. The buttons are supplied to the button-wheel from a button-receptacle, from which extends a chute down which the buttons can pass to the button-wheel. The button-wheel is arranged in a slightly-inclined position, so that while it is out of the way of the needle the shank of the lowermost button carried thereby will be presented in proper position relative to the needle, so that the latter will pass down through the eye of the button-shank and then outside thereof in its alternate descents. The feeding of the work is effected by the rotation of the button-wheel, a button which has been attached to the work being retained in its cell as the next succeeding button is brought down in position to be sewed to the work, and thus,

owing to the equal spacing of the button-cells in the button-wheel, the work will be so fed forward as to space the buttons evenly upon the same.

In the accompanying drawings, Figure 1 is a partial side view of a Singer overseaming sewing-machine with my invention applied thereto. Figs. 2 and 3 are opposite views of the head of a sewing-machine, showing the button-sewing attachment in operative position. Figs. 4 to 10 are detail views of the button-wheel and its support and adjacent parts. Fig. 11 is a partial side view of a Singer machine, showing the entire attachment, including the button-receptacle, in operative position; and Fig. 12 is a plan view of the same. Figs. 13 and 14 are detail views of the button-receptacle.

A denotes the depending head at the forward end of the bracket-arm A' of a Singer overseaming sewing-machine, and B denotes a portion of the bed-plate of the machine.

C is the needle-bar, reciprocated vertically in a pivoted frame, as is common in this class of machines, the said frame being vibrated horizontally from a connecting-rod X in the usual manner, so as to impart lateral movements to the needle c, carried by the said needle-bar, thereby causing the said needle to descend alternately in different vertical planes.

D is the presser-bar, provided with a presser-foot D', which is to bear upon the work in the usual manner. To the said presser-bar, above the presser-foot, is attached a support or bracket S.

R denotes a button-carrying wheel provided with a series of recesses or cells r, which are to receive the buttons, the said wheel R being provided with a journal r', which has its bearing in the hole s<sup>4</sup>, formed in the bracket or support S. To the journal r' of the wheel R is attached, by a screw t<sup>2</sup>, an operating-wheel t', provided with a series of pins t.

Depending from the head A is a pawl u, yieldingly held in position by a spring u' and so arranged relative to the pins t of the wheel



$t'$  that when the presser-bar is lifted said pawl will engage one of said pins and cause the wheel  $t'$  and the button-carrying wheel R to be rotated to the extent of one pin on the wheel  $t'$  or one pocket or cell of the wheel R. In order to thus effect the rotation of the button-wheel, the presser-bar may be lifted by the ordinary cam-lever  $e^2$ , or through the medium of a lifting-bar  $e'$ , which may be operatively connected in a well-known manner with a foot or knee lifter.

V denotes a button-receptacle from which, through the chute M, the buttons can pass to the button-wheel, the said chute M being provided with a slot  $m^2$ , as more clearly shown in Fig. 4, through which the shanks  $f'$  of the buttons  $f'$  can project in such a manner that they will properly enter a slot  $s$ , formed between the plates  $d$  and  $d'$ , attached to the bracket S.

It will be observed that the button-receiving cells or pockets  $r$  in the button-wheel R are of such construction as to receive the buttons from the chute M with their shanks protruding laterally or from the side of the said wheel, and the support or bracket S is of such construction as to give an inclined position to the button-wheel R, so that the buttons will be held away from the path of the needle except when brought down to the bottom of the button-wheel, when they will be in such position as to be properly presented to the needle to enable the latter to pass through the eye of the shank and then outside of the same alternately to secure the buttons to the work  $e$ .

To assist in holding the buttons properly when presented to the needle, the work-plate of the machine is preferably provided with a raised projection  $b$ , between which and the presser-foot  $D'$  the work is held when the button is being attached, this raised projection assisting in so holding the work that the shank of the button, when being sewed to the work, will be held in a horizontal position, as more clearly shown in Fig. 1.

The bracket or support S serves as a casing for one side of the button-wheel, and in order that the shanks of the buttons may be properly projected outward from the button-wheel on the side opposite the said casing I provide on the inner side of the said casing a curved guide-piece  $s'$ , which is provided with pins  $s^3$ , pressed upon by a spring  $s^2$ , arranged on the outside of the bracket or casing S, thus causing the curved guide-piece  $s'$  to exert a yielding pressure on the heads of the buttons, so as to maintain them in proper position with their shanks pressed outward, as more clearly shown in Fig. 1.

To provide for an automatic feeding of the buttons to the chute M, I provide the button-receptacle V with an intermittingly rotating cover or plate  $v'$ , carrying a series of brushes  $v^4$ , the bottom of the said receptacle being provided with an opening  $v$  of proper size and shape to admit of the passage of the buttons

one at a time, and connected with the said opening  $v$  is a slot  $v^6$ , which gradually decreases in width toward the said opening  $v$ . Thus, as the shanks of the buttons are caused to enter the said slot  $v^6$ , they will be brought into such position as they approach the opening  $v$  that they will pass downward through said opening into the chute M, with their shanks so arranged that they will enter the slot  $m^2$  of the chute M.

The cover  $v'$  of the button-receptacle V is provided with a sleeve  $v^2$  fast on a spindle  $v^3$ , the latter being mounted on the bracket W, which sustains the button-receptacle. Attached to the said spindle  $v^3$  is a ratchet-wheel  $w$ , which is mounted between the disks or plates  $w^2$ , loose on said spindle. The lowermost plate  $w^2$  rests on a coil-spring  $v^8$ , surrounding said spindle, and the said plate carries a spring-pressed pawl  $w'$ , engaging with the teeth of the ratchet-wheel. To the said plates  $w^2$  is attached one end of a pitman  $w^3$ , connected at its opposite end to the vibrating needle-bar frame or to the rod X, by which said frame is operated. Thus, as the needle-bar frame is vibrated in the usual manner, the cover-plate  $v'$ , carrying the brushes  $v^4$ , will be intermittingly rotated, and said brushes will cause the buttons to be fed into the slot  $v^6$  and to pass through the opening  $v$  in the bottom of the button-receptacle, and thereby to enter and pass down the chute M.

The cover  $v'$  of the button-receptacle is provided in its top with an opening  $v^5$ , closed by a swinging gate  $v^9$ , which may be swung aside when the receptacle is to be filled with buttons, and the said receptacle is provided with a curved plate  $v^7$ , placed opposite the slot  $v^6$  and serving to prevent the buttons from clogging in said slot.

The operation of my invention is as follows: Buttons being supplied to the button-receptacle V, they are caused to be fed into the button-chute M, from which they are passed downward to the button-wheel R. The button-wheel thus being supplied with buttons, and being lowered upon the work with the presser-foot in the position shown in Fig. 1, and the sewing-machine being started, a few stitches through and outside of the eye of the button are made to properly secure the button to the work. The sewing-machine is then stopped and the presser-bar raised by the ordinary lifting-lever or by a knee or foot lifter, and this operation causes the button-wheel to be rotated to the extent of one recess or pocket therein, owing to the engagement of one of the pins  $t$  of the wheel  $t'$  with the stationary pawl  $u$ , thereby causing the attached buttons and the work to be moved forward, as indicated in Fig. 1, and bringing a new button in position for the next sewing operation. Thus the work continues and the buttons may be attached and evenly spaced, owing to the feeding of the work by the button-wheel, the button-carrying pockets of said wheel being arranged at equal distance from each other.



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

1. The combination with a sewing-machine provided with a laterally-movable needle-bar and needle, of a vertically-movable presser-bar and means for lifting the latter, a vertically-rotating button-carrier attached to said presser-bar and provided with means by which it may be intermittently rotated, and a stationary pawl depending from the head of the machine and serving to impart a partial rotation to said button-carrier when the said presser-bar is lifted.

2. The combination with a sewing-machine provided with a laterally-movable needle-bar and needle, of a vertically-placed button-carrying wheel arranged adjacent to said needle and provided with a series of button-holding pockets or recesses, a button-receptacle, a button-chute extending from said receptacle to said button-wheel and means, operated from the mechanism which imparts lateral movements to the needle-bar, for feeding the buttons from said receptacle into said chute.

3. In a sewing-machine, the combination with a laterally-movable needle-bar and needle and a vertically-movable presser-bar, of the bracket or support S attached to said presser-bar, the vertically-rotating button-wheel R journaled in said bracket or support and provided with the attached operating-wheel  $t'$  having a series of pins  $t$ , the stationary pawl  $u$  depending from the head of the machine and arranged to engage said pins when the said presser-bar is lifted, to rotate said button-wheel, a chute M arranged to supply buttons to the said button-wheel, and means for lifting said presser-bar.

4. In a sewing-machine, the combination with a laterally-movable needle-bar and needle, of a vertically-movable presser-bar and means for lifting the same, the bracket or support S attached to said presser-bar, the vertically-rotating button-wheel R journaled in said bracket or support and provided with a series of button-receiving pockets or cells opening outward to one side of said wheel, said bracket or support S serving as a casing for one side of said wheel, and the curved spring-pressed guide  $s'$  placed on the inside of said bracket or casing S and serving to cause the shanks of the buttons to be projected outward from the face of the said button-wheel, and means for intermittently rotating said button-wheel.

5. In a sewing-machine, the combination

with the laterally-movable needle-bar and needle, of a vertically-movable presser-bar and means for lifting the same, the bracket or support S attached to said presser-bar, the vertically-rotating button-wheel R, journaled in said bracket or support, the latter serving as a casing for one side of said wheel, the plates  $d, d'$  attached to said bracket or support and arranged with a slot or opening  $s$  between them to guide the shanks of the buttons in proper position to be presented to the said needle, and means for intermittently rotating said button-wheel when said presser-bar is lifted.

6. In a sewing-machine, the combination with a laterally-movable needle-bar and needle, of a vertically-movable presser-bar and means for lifting the same, the bracket or support attached to said presser-bar, the button-wheel R journaled in said bracket or support, and arranged so as to be slightly inclined relative to a vertical plane in which the needle of the machine reciprocates, means for intermittently rotating said wheel and for supplying buttons thereto, and a work-plate provided with a raised projection which serves to support the work and assist in holding the shanks of the buttons in a horizontal position when they are presented to the needle.

7. The combination with the button-receptacle V provided with the opening  $v$  in its bottom and with a tapering slot  $v^6$  communicating with said opening, of the intermittently-rotating brushes within said receptacle, the chute M into which the buttons pass from said receptacle, the button-wheel R having a series of pockets or cells into which the buttons are received from said chute, a vertically-movable presser-bar with which the said button-wheel is connected, means for intermittently rotating said wheel when the said presser-bar is lifted, a laterally-movable needle-bar and needle, the latter being adapted to pass into and outside of the eye of the buttons presented thereto by said button-wheel, and means, connected with the mechanism which moves the needle-bar laterally, for intermittently rotating said brushes.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 28th day of February, 1893.

REINHOLD THORSSIN.

Witnesses:

C. G. AGELIN,  
HUGO ERICSON.