

(No Model.)

H. W. HARLEY & J. BRENNER.

TAKE-UP FOR KNITTING MACHINES.

No. 356,764.

Patented Feb. 1, 1887.

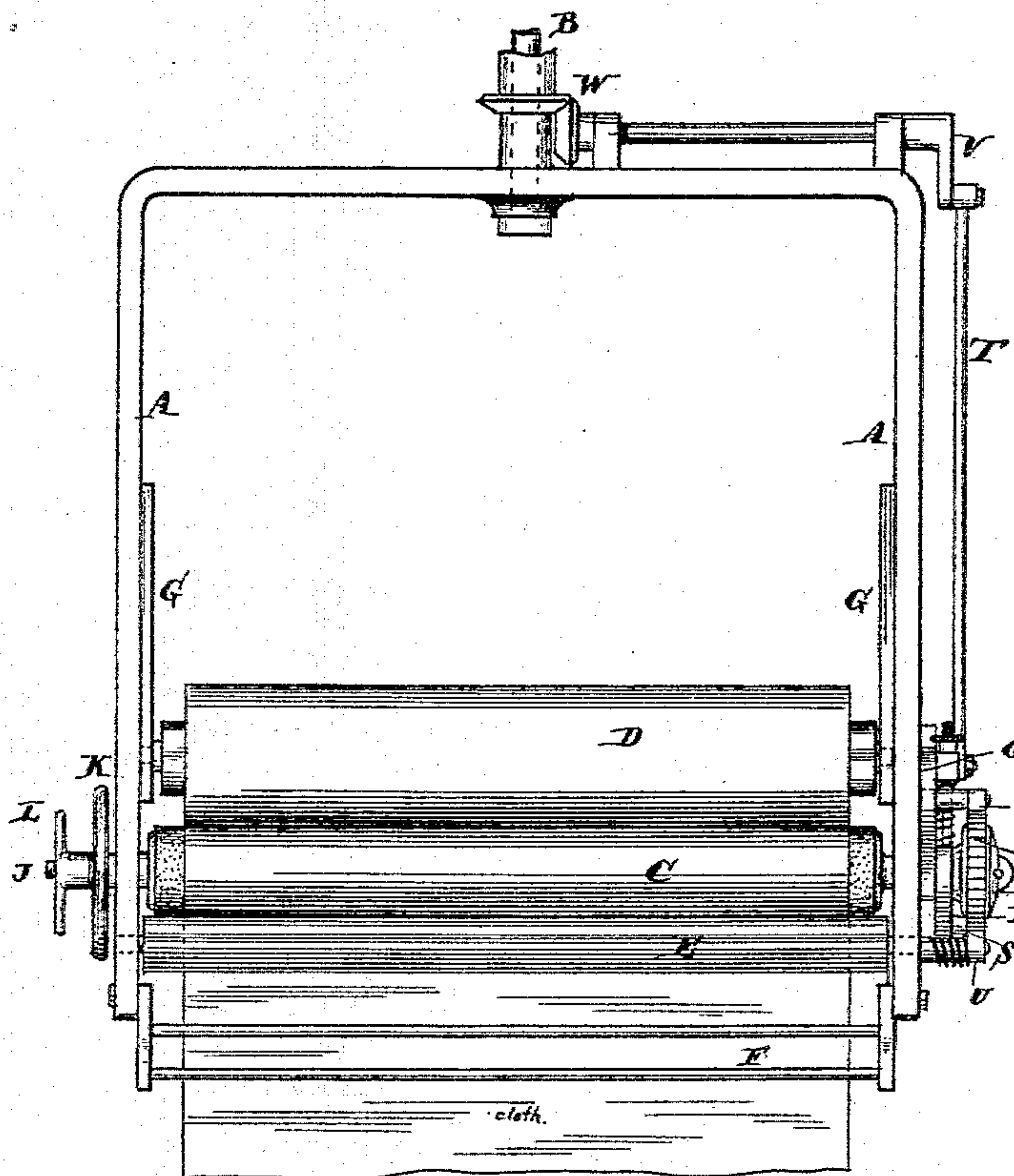


Fig. 1

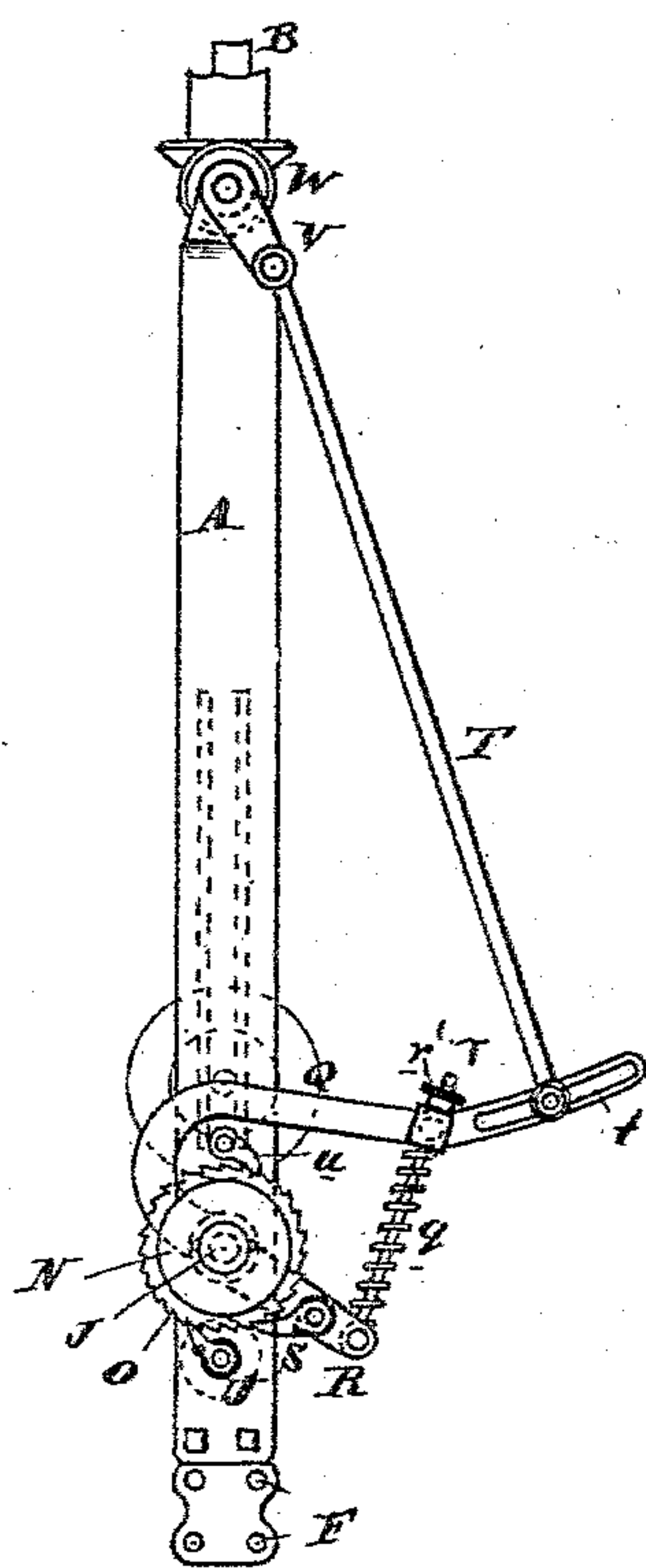


Fig. 2

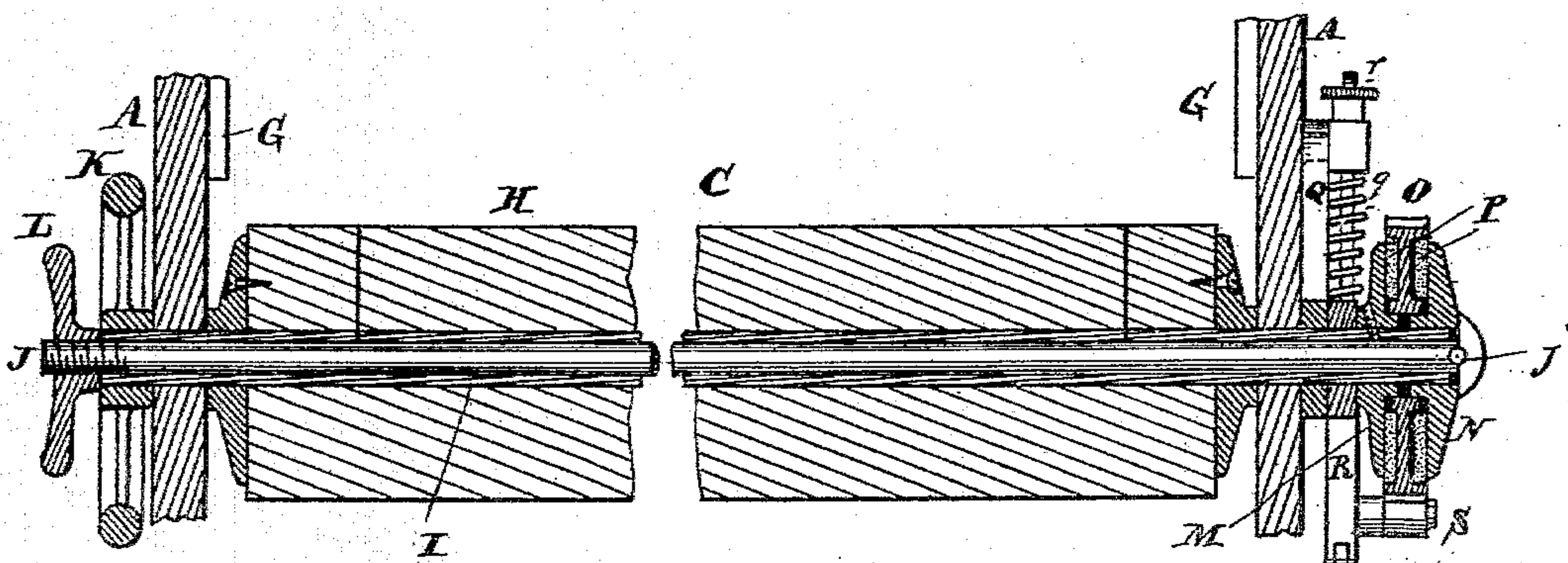


Fig. 3

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By their atty.  
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# UNITED STATES PATENT OFFICE.

HOWARD W. HARLEY AND JOSEPH BRENNER, OF PHILADELPHIA, PA.

## TAKE-UP FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 356,764, dated February 1, 1887.

Application filed August 21, 1885. Serial No. 174,931. (No model.)

*To all whom it may concern:*

Be it known that we, HOWARD W. HARLEY and JOSEPH BRENNER, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Take-Ups for Knitting-Machines, of which the following is a specification.

Our invention has reference to take-up devices for circular knitting-frames; and it consists in certain improvements whereby the cloth is taken up from the knitting-frame and wound in the form of a flat web upon the receiving-roller in the take-up frame, the take-up devices of which work automatically, and whereby a uniform tension may be maintained upon the fabric and the amount of said tension adjustably varied when desired, all of which is fully set forth in the following specification and shown in the accompanying drawings, which form part thereof.

The object of our invention is to provide a suitable construction of take-up for knitting-frames which shall embody great adjustability as to the tension with which the cloth should be wound upon the receiving-roller, and whereby the amount of said tension, when once ascertained, may be kept uniform or constant.

We are aware that take-up frames have been made with automatic take-up devices for the circular webs of knitting-machines, and therefore we do not claim the construction thereof, broadly; but our specific mechanism for accomplishing the results, it is believed, will work more uniformly and accomplish the desired result in a more satisfactory manner, and it is upon the specific improvements that this application is made.

Take-up devices such as have heretofore been employed are illustrated in Patent No. 195,917, to Crane, and No. 195,929, to Jackson. In the former the ratchet-feed for the take-up roller is incapable of adjustment, and hence no provision is made for fabrics of different thicknesses, and the friction-creating device is located between the bearings of the take-up frame, and cannot be easily gotten at without totally dismantling the machine; and, furthermore, the tension cannot be varied without considerable trouble and the use of additional tools. The same general defects are found in the latter patent, though in this case no fric-

tion device is used, and the take-up roller is made to rotate continuously.

In our construction the friction-creating device is located wholly outside of the frame, and can be dismantled without removing the take-up roller from its bearings; also, the amount of tension can be instantly adjusted by turning the hand-wheel, also external to the frame. The feed is also adjustable to suit fabrics of different thicknesses or yarns of different thicknesses.

In the drawings, Figure 1 is a front elevation of a take-up device for a circular knitting-frame embodying our invention. Fig. 2 is a side elevation of same; and Fig. 3 is a view, partly in vertical section and partly in elevation, of a portion of the take-up frame, the take-up roller, and the devices connected with the latter.

A is the take-up frame, and is made to rotate about shaft B as a center, being supported over the knitting-machine proper. The cloth from the knitting-machine passes up between the guides F around rollers C E, and is wrapped upon heavy metal receiving-roller D, which is allowed to rise or fall in guides G, it resting upon the take-up roller C and being rotated by frictional contact therewith.

Take-up roller C consists (see Fig. 3) of the wooden roller H, secured to the tubular shaft I by suitable pins or otherwise, and said tubular shaft passes through the side arms of the frame A, and has secured upon one end the hand-wheel K and upon the other a head, M. It also carries upon the same end as the head M a loose head, N, between which heads a loose ratchet-wheel, O, is placed. Between the ratchet-wheel O and the heads M and N are placed annular rings, washers, or pads P, of leather, felt, or their equivalent, to create a friction, so that when the head N is drawn up toward the head M by the bolt J (having the pin j, which prevents the said bolt revolving independently of the head N) the ratchet-wheel O is clamped to the tubular shaft I, and therefore indirectly with take-up roller C, with a greater or less pressure, as required. The clamping action is controlled by the hand-nut L upon the other end of the rod. The ratchet-wheel is prevented from turning backward by pawls U u, pivoted to the frame A,



the former of which has a spring to keep it pressed in contact with the ratchet-wheel, which is rotated forward by a pawl, S, pivoted to an arm or lever, R, journaled about the tubular shaft I, and connected to a rocking lever, Q, by an adjustable rod, *r*, the arm and lever being kept apart by a spring, *q*. The upper end of the rod *r* is screw-threaded and passes through a hole on the lever Q, and has a nut, *r'*, upon its upper end to hold the lever Q down upon the spring *q* and limit its position with relation to the lever R. By turning the nut the adjustment of the lever Q relatively to arm or lever R is accomplished. The lever Q has a slot, *t*, in which is adjustably secured the lower end of the connecting-rod T, the upper end of which is connected to the crank V, rotated by gearing W, connected to the central pivot, about which the frame A revolves. By adjusting the end of the rod T in the slot *t* any number of ratchet-teeth desired may be turned with one revolution of the crank V. The spring between the levers Q and R makes the connections between the crank V and the pawl S a giving or elastic one, so as to allow for any dragging on the cloth, and the tension under which the cloth is wound may be controlled by tightening up the nut L more or less, for the ratchet-wheel O would turn without winding up the cloth if the tension on the cloth in the knitting-machine were too great.

The take-up roller C is covered with emery or sand paper, so as to positively feed the cloth to the roller D and prevent it slipping upon its periphery.

While we prefer the construction shown, it is evident that the details thereof may be modified without in anywise departing from our invention.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the revolving frame with the receiving-roller D, take-up roller C, a hollow shaft rigidly connected with said take-up roller and supported in said frame, a ratchet-wheel loosely supported upon said shaft, friction-creating devices located external to the take-up frame for causing the shaft and ratchet-wheel to rotate together, pawls and pawl-actuating mechanism adapted to intermittently rotate said ratchet-wheel, a tension-rod for said friction-creating devices, extending through the hollow shaft, and a tension-nut upon the other end and external to the take-up frame, substantially as and for the purpose specified.

2. The combination, in a take-up device for knitting-machines, of the frame A, adapted to rotate on a vertical axis, take-up roller C, the shaft I, carrying said take-up roller and journaled in said frame, disk M, secured to said shaft, loose disk N, ratchet-wheel O, friction-creating pads or washers P, tension-bolt J, tension handle or nut L, and pawl mechanism

to rotate said ratchet-wheel, substantially as and for the purpose specified.

3. The combination, in a take-up device for knitting-machines, of the frame A, adapted to rotate on a vertical axis, take-up roller C, the shaft I, carrying said take-up roller and journaled in said frame, disk M, hand-wheel K, secured to said shaft, loose disk N, ratchet-wheel O, friction-creating pads or washers P, tension-bolt J, tension handle or nut L, and pawl mechanism to rotate said ratchet-wheel, substantially as and for the purpose specified.

4. The combination, in a take-up device for knitting-machines, of the frame A, adapted to rotate on a vertical axis, take-up roller C, the shaft I, carrying said take-up roller and journaled in said frame-disk M, secured to said shaft, loose disk N, ratchet-wheel O, friction-creating pads or washers P, tension-bolt J, tension handle or nut L, and pawl mechanism consisting of hinge-levers Q and R, rod *r*, tension-spring *q*, spring-actuated pawl S, secured to lever R, pawls secured to the frame, and means to rock the lever Q to rotate said ratchet-wheel, substantially as and for the purpose specified.

5. In a take-up device for knitting-machines, the take-up-roller shaft provided with a ratchet-wheel, in combination with levers Q and R, a compressible connection between said levers, pawl carried by lever R, a crank to oscillate said levers, and connecting-rod T, adjustably connected to the lever Q, whereby the oscillation of said levers may be varied with a fixed crank-throw, substantially as and for the purpose specified.

6. In a take-up device for knitting-machines, the take-up-roller shaft provided with a ratchet-wheel, in combination with levers Q and R, a compressible connection between said levers, a pawl carried by lever R, a crank to oscillate said levers, and connecting-rod T, adjustably connected to the lever Q, whereby the oscillation of said levers may be varied with a fixed crank-throw, loose or gravity pawl *u*, and a spring-pawl, U, connected to the frame of the machine, to prevent back motion of said ratchet-wheel, substantially as and for the purpose specified.

7. In a take-up device for knitting-machines, the take-up-roller shaft, provided with a ratchet-wheel, in combination with levers Q and R, a spring, *q*, to thrust said levers apart, a rod-connection, *r*, to draw said levers toward each other and limit the action of the spring, a pawl carried by lever R, a pawl supported by the frame of the machine, mechanism, substantially as described, to oscillate the said levers, and means to increase or diminish the throw of the lever Q, substantially as and for the purpose specified.

8. The combination of the revolving frame with the receiving-roller D, take-up roller C, a hollow shaft rigidly connected with said take-up roller and supported in said frame, a ratchet-wheel loosely supported upon said hollow shaft,



friction-creating devices located external to the take-up frame for causing the shaft and ratchet-wheel to rotate together, pawls and pawl-actuating mechanism adapted to intermittently rotate said ratchet-wheel, a tension-rod for the friction-creating devices extending through the hollow take-up-roller shaft, and means external to the frame to adjust the said rod, and hence the amount of friction by the friction-creating devices, substantially as and for the purpose specified.

9. The combination of the revolving frame with the receiving-roller D, take-up roller C, a shaft rigidly secured to said take-up roller and supported in said frame, a ratchet-wheel loosely supported upon said shaft, friction-creating disks pressing upon the sides of said ratchet-wheel and secured to said shaft, for causing said shaft and ratchet-wheel to rotate together, a rotating crank, levers R and Q, hinged upon the shaft-center, a compressible connection between said levers R Q, a pawl carried by the lever R, and a connecting-rod, T, connecting the crank with the lever Q, substantially as and for the purpose specified.

10. The combination of the revolving frame with the receiving-roller D, take-up roller C, a shaft rigidly secured to said take-up roller and supported in said frame, a ratchet-wheel loosely supported upon said shaft, friction-creating disks pressing upon the sides of said ratchet-wheel, secured to said shaft, for causing said shaft and ratchet-wheel to rotate together, adjusting mechanism to press the disks more or less tightly upon the ratchet-wheel to vary the amount of friction, a rotating crank, levers R and Q, hinged upon the shaft-center, a compressible connection between said levers R Q, a pawl carried by the lever R, and a connecting-rod, T, connecting the crank with the lever Q, substantially as and for the purpose specified.

In testimony of which invention we hereunto set our hands.

HOWARD W. HARLEY.  
JOSEPH BRENNER.

Witnesses:

R. M. HUNTER,  
WILLIAM C. MAYNE.