

(No Model.)

F. P. HOLT.

DEVICE FOR ADJUSTING THE STITCH WHEELS OF KNITTING MACHINES.

No. 384,163.

Patented June 5, 1888.

Fig. 1.

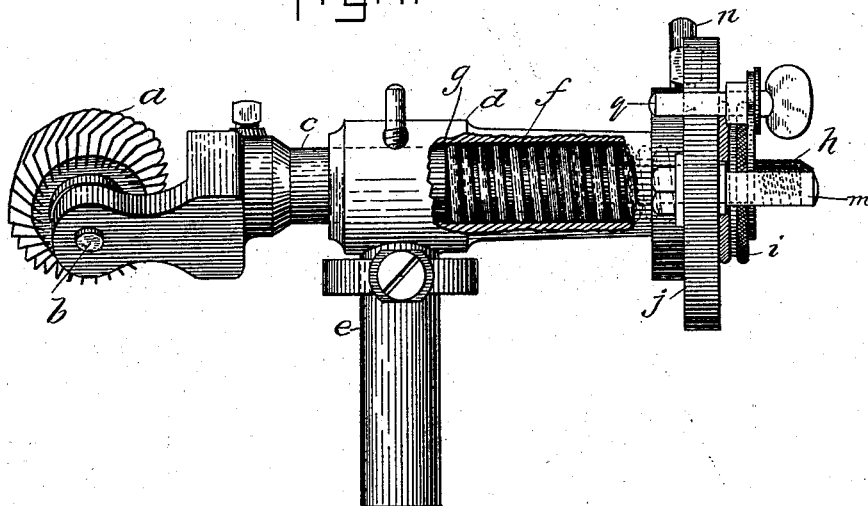
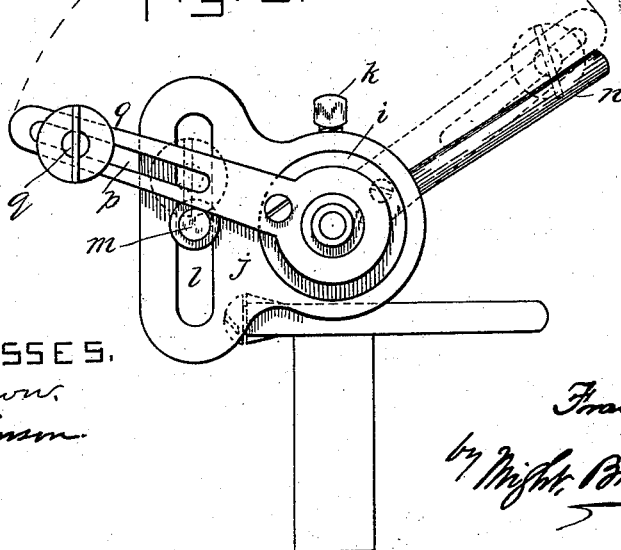


Fig. 2.



WITNESSES.

H. Brown.  
A. D. Hainsman.

INVENTOR.

Frank P. Holt.

by Wright, Brown & Crossley.  
Attys.

# UNITED STATES PATENT OFFICE.

FRANK. P. HOLT, OF LACONIA, NEW HAMPSHIRE.

DEVICE FOR ADJUSTING THE STITCH-WHEELS OF KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 384,163, dated June 5, 1888.

Application filed February 18, 1888. Serial No. 264,518. (No model.)

## *To all whom it may concern:*

Be it known that I, FRANK. P. HOLT, of Laconia, in the county of Belknap and State of New Hampshire, have invented certain new and useful Improvements in Devices for Adjusting the Stitch-Wheels of Knitting-Machines, of which the following is a specification.

My invention has for its object the provision of improvements in the means for adjusting the stitch or loop wheel of circular spring-beard-needle knitting-machines for the purpose of varying the length or size of the stitches or loops, so as to vary the diameter of the tube or circular web being knit. It is desirable in the production of tubular knit webs for the manufacture of hosiery that that portion of the web designed to form the leg of the stocking should be larger in diameter than the portion designed to form the ankle and foot of such article; and this variation in the diameter of the circular fabric is effected by varying the position of the stitch or loop wheel with respect to the needles—a matter of common knowledge to knitting artisans.

It is usual in most knitting-machines of the class mentioned to mount the stitch-wheel on the inward or forward end of a rod or shaft supported and longitudinally movable in a "star-box" or sleeve-bearing secured to the bed of the machine, the stitch-wheel and its support being held or pressed toward the needles by means of a spring and adapted to be drawn backward therefrom against the stress of the spring by a nut on the outer end of the stitch-wheel-supporting rod acting against the outer end of the bearing for said rod. The difficulty met with in the use of devices of this character has been that the operator in adjusting the stitch-wheel was liable to move it too far or not sufficiently far to meet the required ends, there being no means connected with the adjusting-nut to limit such movement or clearly indicate the extent to which it was moved.

My improvement consists in providing the adjusting-nut on the stitch-wheel-supporting shaft with an arm or lever, which, as it is moved with the adjusting-nut, is brought into contact with outwardly or laterally projecting

pins connected with a fixed part of the frame, so as to limit the movement of said nut and consequently the degree of adjustment of the stitch-wheel.

I will first describe my invention in connection with the accompanying drawings, forming a part of this specification, and then particularly point out the improvement in the appended claims.

Of the drawings, Figure 1 is a side elevation of a stitch-wheel and its associated supporting means having my improvements applied thereto, a part of the box or bearing for the stitch-wheel-supporting rod being pictured as broken out. Fig. 2 is an end view of the parts shown in Fig. 1.

Similar letters of reference designate similar parts in both views.

In the drawings, *a* designates a stitch-wheel supported by and adapted to turn on the axial pin *b*, fixed in the forward end of the stitch-wheel-supporting rod or shaft *c*, which latter device is supported by the star-box or sleeve *d*, attached to the upper end of the stationary standard *e*. The construction and arrangement of the stitch-wheel-supporting shaft *c* with respect to the sleeve-bearing *d* is such that it may move longitudinally though not turn therein.

*f* designates a spring surrounding the shaft *c* and bearing at its forward end against a shoulder, *g*, on said shaft, its rear end resting against an offset on the interior of the sleeve-bearing *d*, this means serving to hold the stitch-wheel and its support pressed forward. The rear or outer end of the shaft *c* is screw-threaded, as represented at *h*, and a nut, *i*, is turned thereon and bears against the outer end of the sleeve or star-box *d*, whereby the shaft *c* can be drawn rearwardly in its bearing. The means thus far described are of common construction and function, and serve to effect an adjustment of the stitch-wheel *a* with respect to the needles, for the purposes hereinbefore explained.

*j* designates a bracket secured in any suitable manner to the outer end of the sleeve *d*, (here shown as secured thereto by means of a set-screw, *k*,) in which bracket there is formed a slot, *l*, in which is adjustably secured, by means

of a nut and screw, a stop-pin, *m*, projecting outward or rearward. In the bracket *j* on the side opposite to that in which the slot *l* is formed is fixed a pin, *n*, projecting outward in a lateral direction considered with respect to shaft *a* and sleeve *d*.

*o* designates an arm or lever secured to or formed integral with the nut *i*, and provided with a slot, *p*, in its free end, in which is adjustably fixed a stop-pin, *q*, which, as the lever is moved over toward stop-pin *n*, as indicated by dotted lines in Fig. 2, is adapted to come in contact with said pin *n*, and so prevent the lever from being moved farther in that direction. When the lever is moved in the opposite direction, as indicated by the full lines in Fig. 2, it (the said lever) will come in contact with stop-pin *m* and be by it kept from being moved farther in that direction, so that the nut *i* cannot be turned to a greater extent than is allowed by the movement of lever *o*, which may be supposed to be the limits within which it is practicable or desirable to adjust the stitch-wheel. The lever *o* also affords a means by which the extent of adjustment of the stitch-wheel, through the medium of the nut *i*, can readily be ascertained, since it can without much care or calculation be moved to any point within the limit of the two extremities of its movement.

By adjusting stop-pin *m* in slot *l*, as also stop-pin *q* in slot *p* of arm or lever *o*, the possible throw of the latter may be varied, so as to vary the extent of adjustment of the stitch-wheel. A very fine or slight adjustment of the stitch-wheel, or the extent to which it may be adjusted, is often desirable, and as the adjustment of pin *q* in the slot *p* of arm *o* is capable of affecting the position of the stitch-wheel to a slight extent only, the desired end before mentioned is met.

It is obvious that the bracket *j* might be made to extend outward on opposite sides of the sleeve-bearing *c*, and be provided on each side with a slot, *l*, having a stop-pin, *m*, adjustably secured therein to limit the throw of lever *o*, in which case the latter device would not need to be provided with the slot *p* and stop-pin *q*.

In the use of my device, it being supposed that it is desired to first knit the portion of the web having the greatest diameter, and that

when lever *o* is in the position represented by full lines in Fig. 2, the said lever will be adjusted in this position, and knitting will be proceeded with until it is desired to narrow the diameter of the tube, when the lever will be at once or gradually or intermittently moved from its full to its dotted line position, which will draw the stitch-wheel outward or in a direction from the needles, and so make the loops as short or small as it is practicable to form them, my improvements making it impossible to adjust the stitch-wheel beyond certain predetermined limits.

It is obvious that changes may be made in the form and arrangement of parts comprising my improvements without departing from the nature or spirit of the invention.

What I claim is—

1. The stitch-wheel and its supporting-rod, the latter being screw-threaded at its outer end, combined with the bearing for the rod, a spring for pressing the wheel and its rod forward or in one direction in its bearing, an adjusting-nut on the outer end of the rod for drawing the latter rearwardly or against the stress of the spring, an arm, lever, or projection connected with said nut, and stop-pins connected with a fixed part of the device for limiting the extent of movement of the lever or projection, substantially as set forth.

2. The stitch-wheel and its supporting-rod, the latter being screw-threaded at its outer end, combined with the bearing for the rod, a spring for pressing the wheel and its rod forward or in one direction in its bearing, an adjusting-nut on the outer end of the rod for drawing the latter rearwardly or against the stress of the spring, an arm, lever, or projection provided with a stop-pin connected with said nut, a bracket connected with the sleeve and provided with an adjustable stop-pin, and a fixed stop pin connected with said bracket or sleeve, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 16th day of February, A. D. 1888.

FRANK. P. HOLT.

Witnesses:

C. F. BROWN,  
A. D. HARRISON.