

(No Model.)

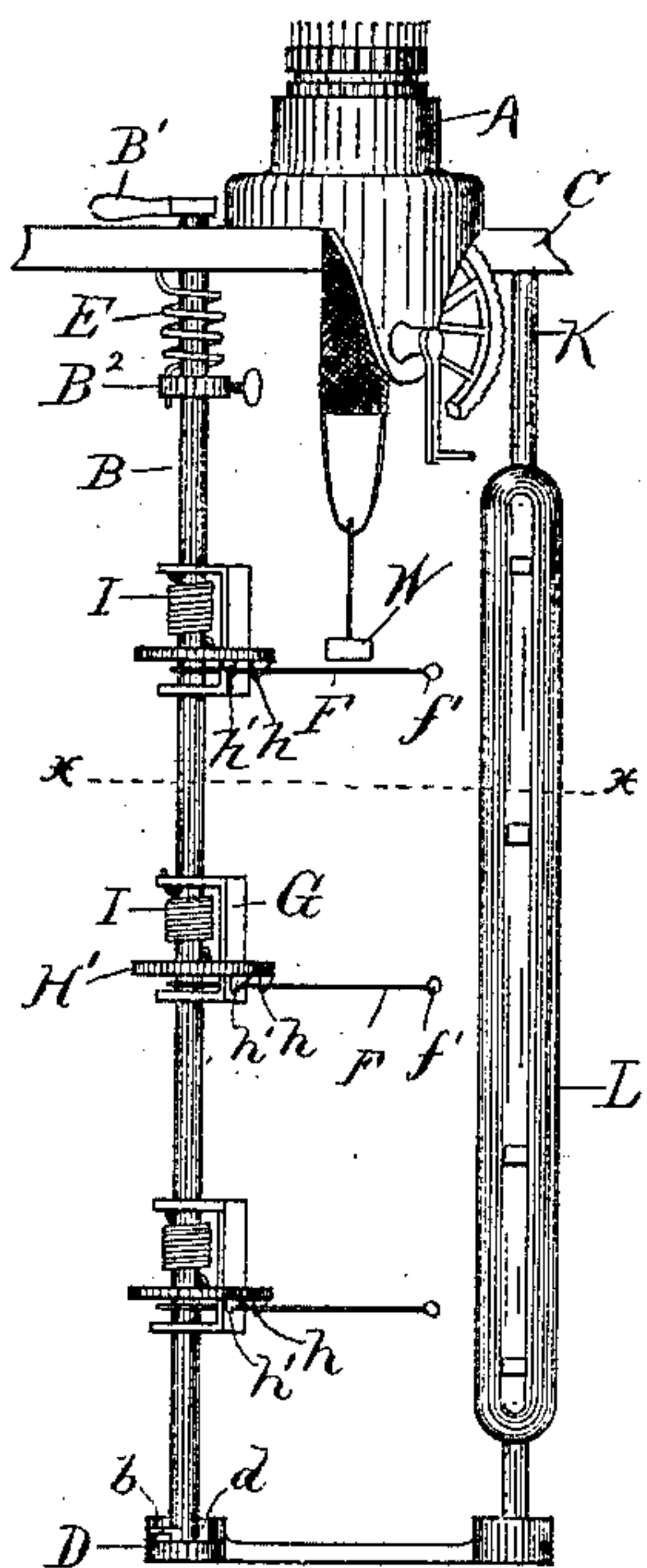
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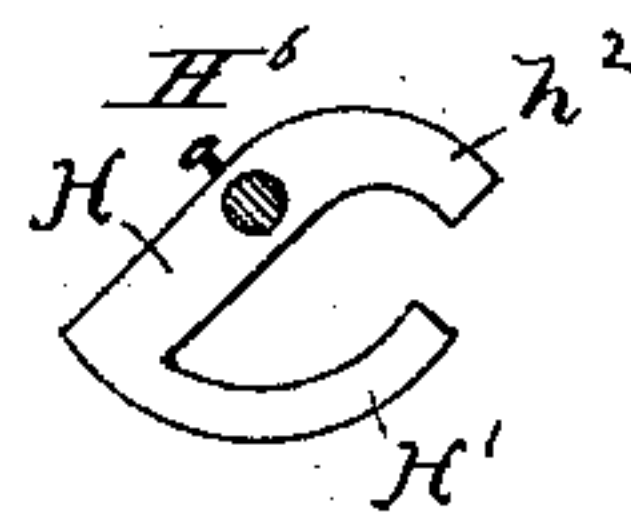
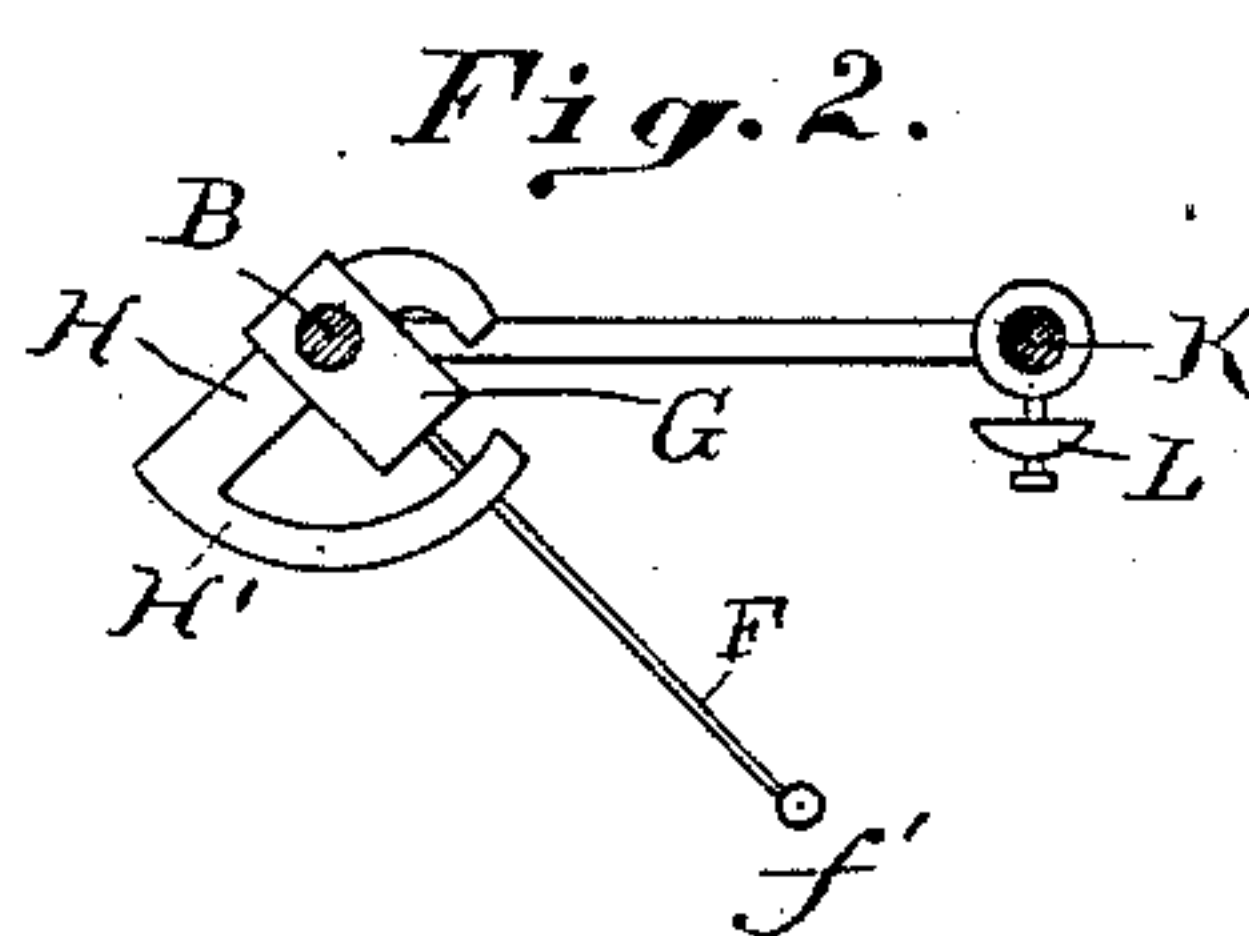
ATTACHMENT FOR KNITTING MACHINES.

No. 360,551.

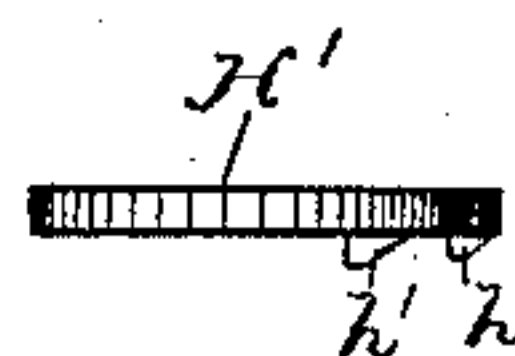
Patented Apr. 5, 1887.



*Fig. 1*



*Fig. 3.*



*Fig. 4.*

*Attest*  
*E. M. Harmon.*  
*O. B. Smith.*

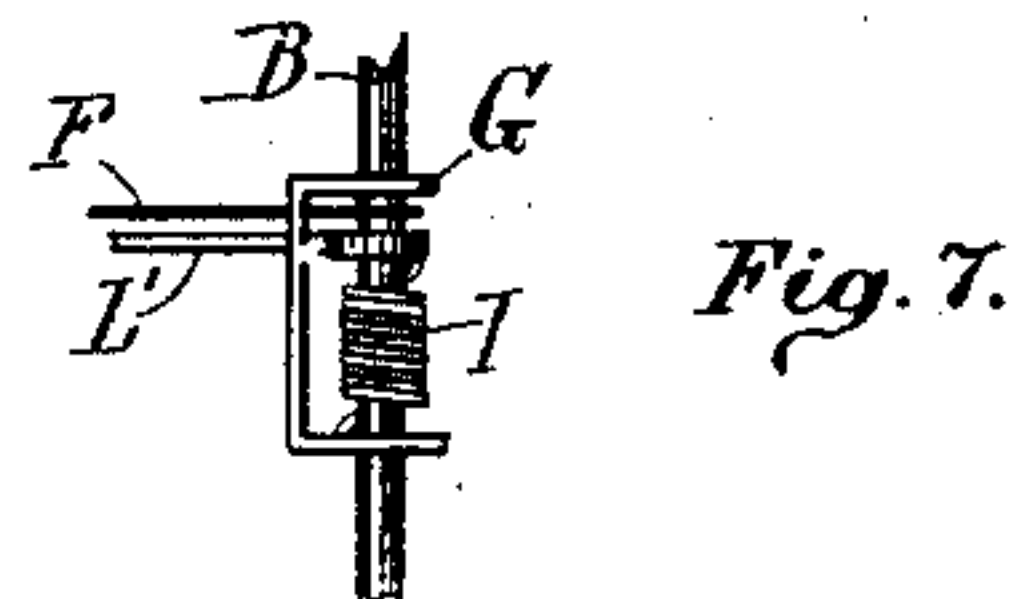
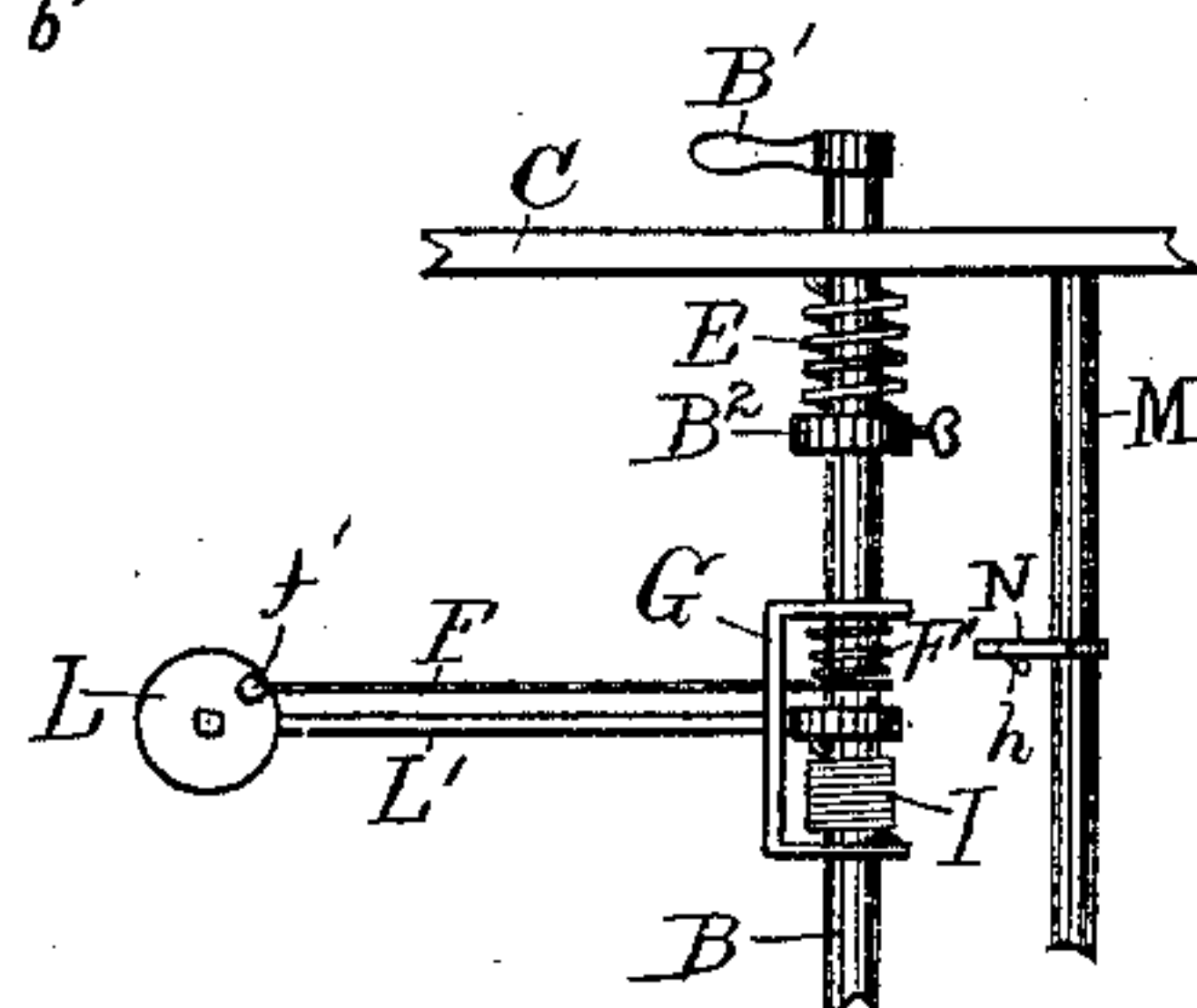
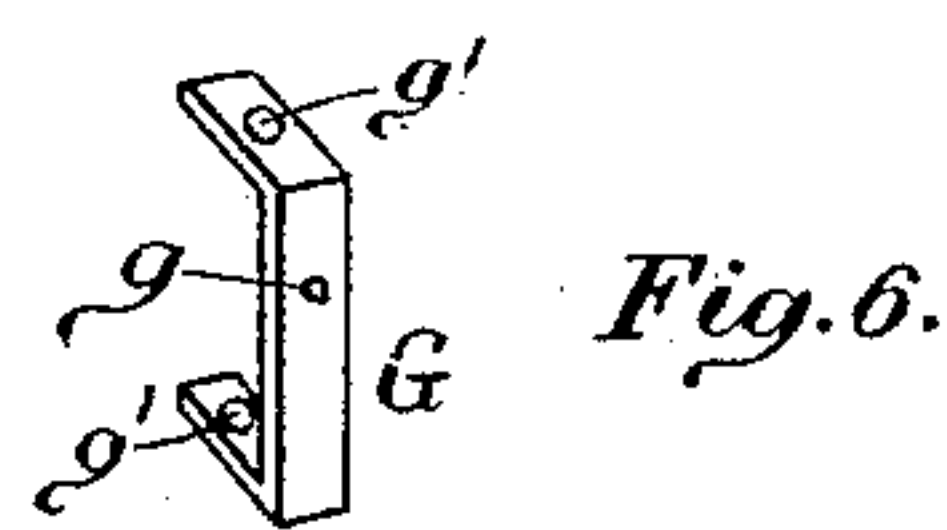
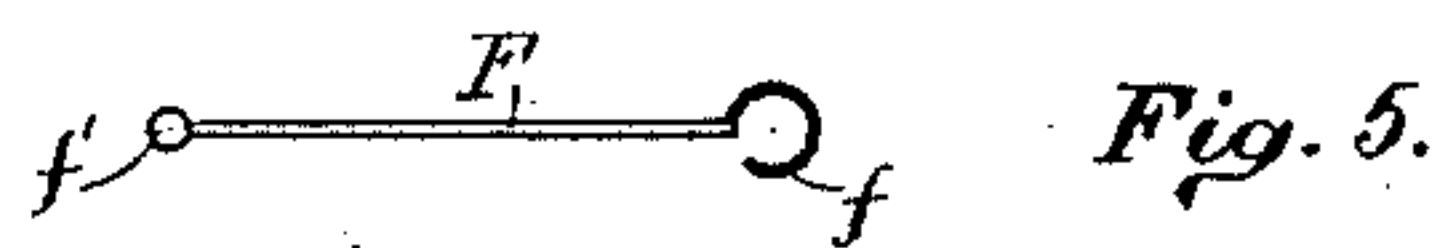
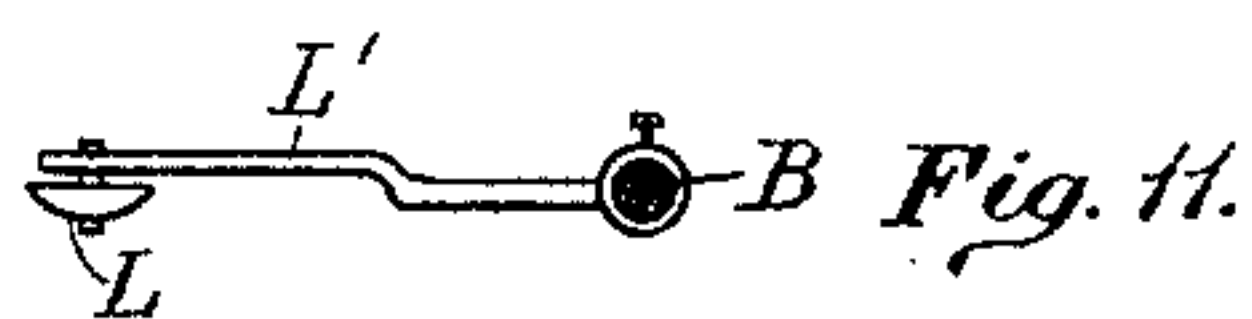
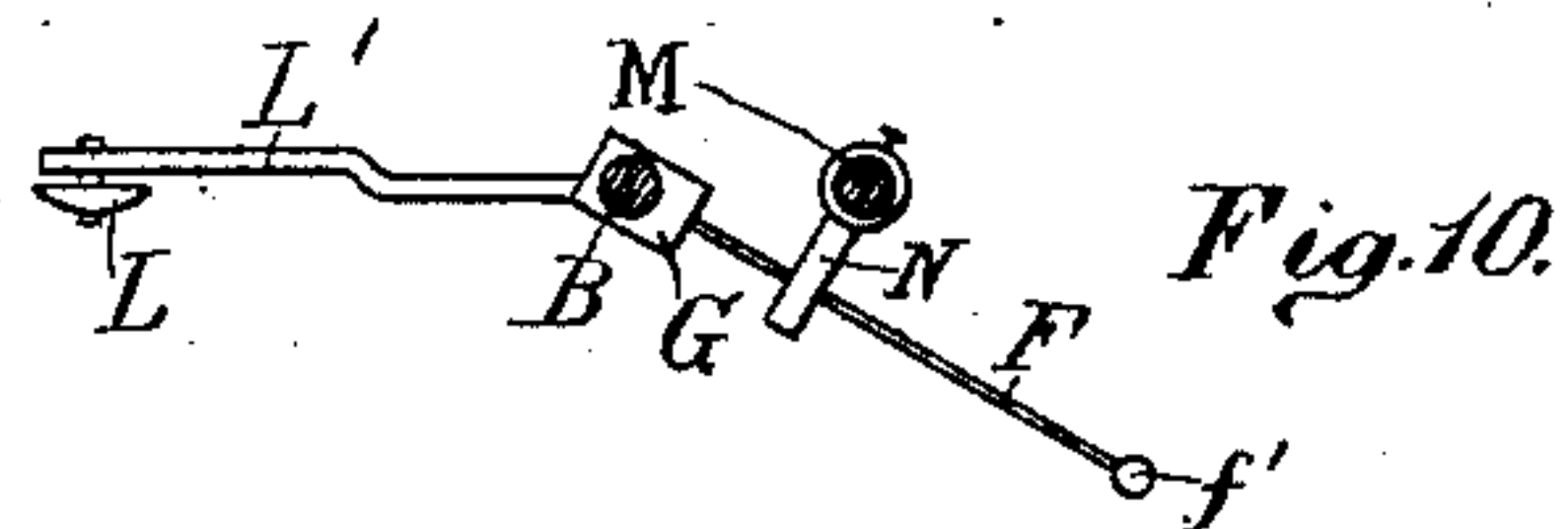
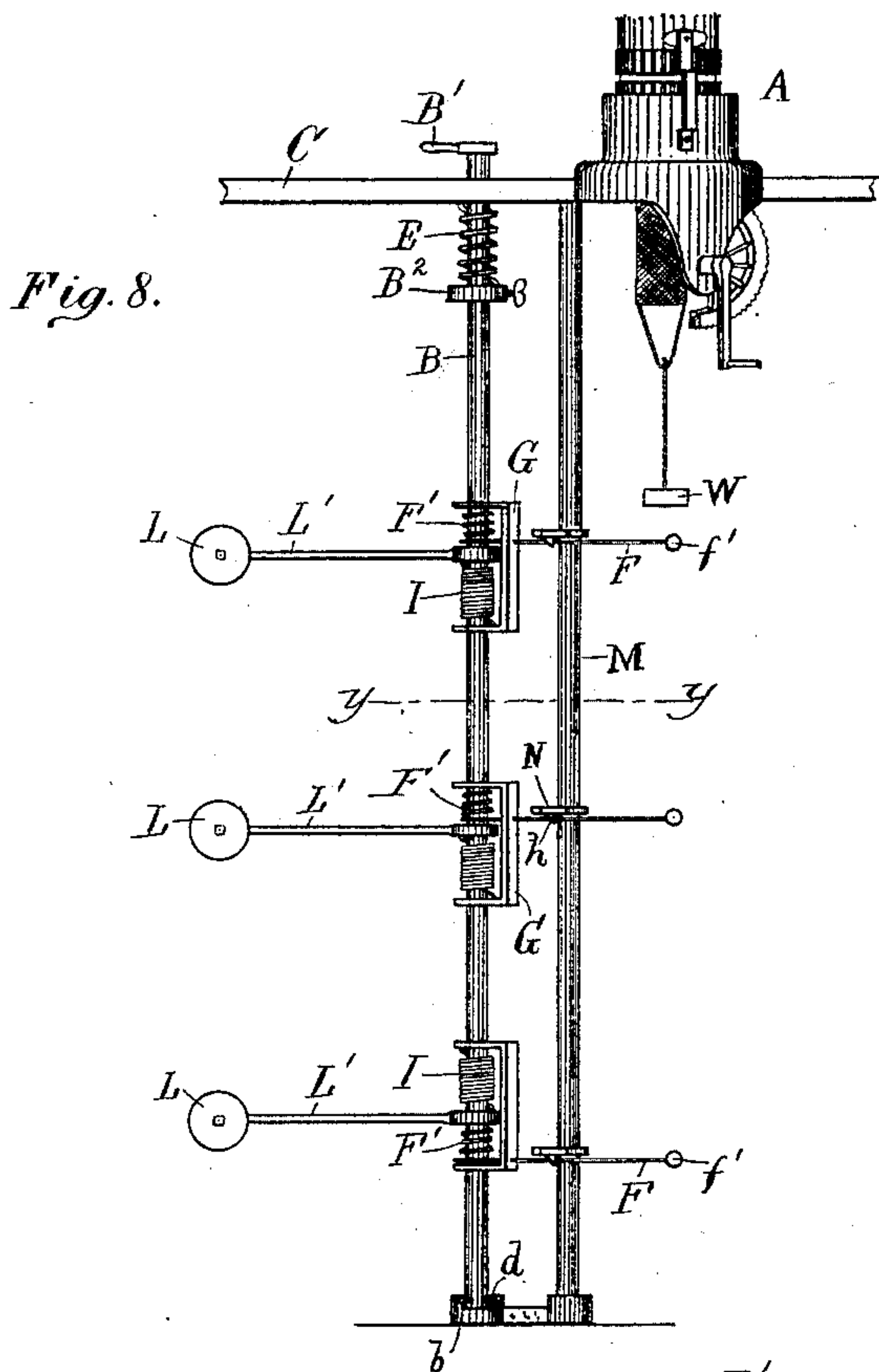
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ATTACHMENT FOR KNITTING MACHINES.

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Attest

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*Fig. 9.*

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# UNITED STATES PATENT OFFICE.

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## ATTACHMENT FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 360,551, dated April 5, 1887.

Application filed September 18, 1886. Serial No. 213,946. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN AUREDENN, a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Attachments for Knitting-Machines, of which the following is a specification.

The object of my invention is to provide a device for attachment to a knitting-machine, which shall automatically announce by the tapping of a bell the completion of each of the various steps in knitting a sock or stocking.

In the accompanying drawings, forming part of this specification, Figure 1 is an elevation of my device applied to a knitting-machine, the clappers being shown set. Fig. 2 is a sectional view taken at the line *x x*, Fig. 1, and looking down. Fig. 3 is a top view of one of the brackets for holding the clappers when set. Fig. 4 is an elevation of the bracket shown in Fig. 3. Fig. 5 is a top view of the clapper. Fig. 6 is a perspective view of one of the yoke-frames for operating the clappers. Fig. 7 is a modification showing the arrangement when the wire attached to the clapper-rod is dispensed with. Fig. 8 shows in elevation a knitting-machine with a modification of my device applied thereto. Fig. 9 shows the position of one of the bells and clapper in the modification shown in Fig. 8, after the bell has been struck. Fig. 10 is a sectional view taken at the line *y y*, Fig. 8, looking downward. Fig. 11 is a top view of the bell-arm and bell, as shown in Fig. 8. Fig. 12 is an elevation of one of the clutches for holding the clappers.

A represents a knitting-machine mounted on the table C. The rod B extends vertically from the table to the floor. Its upper end projects above the table and is provided with a handle, B', which is rigidly attached to it. The lower end of the rod B rests in a cup or other suitable bearing, D, the upper edge of which is provided with a slot, *d*. A pin, *b*, projecting from the rod B, plays in the slot *d*, and, impinging against the ends thereof, determines the amount of rotation of the rod B.

The spiral spring E has one end attached to the table C in any convenient manner, and the other end attached to the collar B<sup>2</sup>, which lat-

ter is clamped to the rod B. The tendency of the spring E is to keep the rod B rotated to the left—that is, with the pin *b* bearing against the left-hand end of the slot *d*, as shown in Fig. 1.

On the rod B, at suitable intervals, are placed a series of clappers, whose number depends upon the character of the work to be done. Each clapper consists of a rod, F, which terminates in a ring, *f*, at one end, and a ball, *f'*, at the other end, as shown in Fig. 5. The ring *f* clasps the rod B loosely, and the rod F passes through the opening *g* in the yoke G, which latter is swung on the rod B, the openings *g'* affording a passage for the rod B.

Between the ends of each of the yokes G a bracket, H, is rigidly clamped to the rod B. Each bracket H is provided with a segmental arm, H', the latter having two downwardly-projecting beveled teeth, *h h'*, on its lower surface. The bracket H also has a short arm or lug, *h<sup>2</sup>*. (Shown in Figs. 2 and 3.)

A spiral spring, I, surrounds the rod B between each of the yokes G, and has one end attached to the bracket H and the other to the yoke.

The whole combination of the bracket H, the spring I, the frame G, and the clapper is held in position by the clamp-screw H<sup>o</sup> of the bracket. This arrangement enables the clappers to be adjusted vertically on the rod B. The rod K also extends from the table C to the floor, and is held firmly in position. It forms a support for the long bell L.

The mode of operation of the device is as follows: The clappers being adjusted in proper position on the rod B, and set as shown in Fig. 1, the knitting is commenced. As soon as the ribbed top to a sock or stocking has been finished, the weight W, attached to the stocking which is being knit, has descended far enough to release the first clapper, F, from the tooth *h*. As soon as the clapper is released from the tooth, the spring I and yoke G throw it around to strike the bell L. Before it strikes the bell L, however, the frame G strikes the lug *h<sup>2</sup>*, which causes the clapper to recoil from the surface of the bell immediately after the latter has been struck. The completion of the ribbed top being thus announced, the yarns



are changed and the body of the sock is knit, and the completion of this latter operation is announced by the striking of the bell L by the second clapper. The yarns are again  
 5 changed and the heel is knit in, and then the foot, and the completion of this latter is similarly announced by the ringing of the bell by the third clapper. The rod B is rotated forward and to the right by the handle B', the  
 10 teeth *h* slip over the clappers F, and on releasing the handle B' the whole is thrown back into the position shown in Fig. 1 by the spring E. In knitting striped hose, I provide a clapper to announce the completion of each stripe,  
 15 thus saving much time over the old method of counting the rows knit in.

A modification of my device is shown in Figs. 8, 9, 10, and 12. In this modification I provide a separate bell, L, for each clapper,  
 20 and mount each bell on a separate arm, L', which is rigidly secured to the rod B. I also provide a rod, M, to which are attached arms N, corresponding to the segmental arms H', and, like those arms, provided with beveled  
 25 teeth on their under surfaces to hold the clappers when the latter are set.

In Fig. 8 I have shown a spring, F', which may be used with the device as shown in Fig. 1. The springs F' encircle the rod B and depress  
 30 the inner ends of the clapper-rods, so as to always insure their being caught by the teeth on the arms N. In both modifications it will be seen that the arms to hold the clapper-rods are each provided with two teeth. The second  
 35 tooth is so placed that when the clapper is caught under it, it is out of the line of the descending weight, and consequently does not announce the arrival of the weight at that point.

40 While the spring F', as shown in Fig. 8, serves an important purpose, it may still be omitted. The necessary modification of the mechanism when this spring F is omitted is shown in Fig. 7, where the clapper-rod F ex-  
 45 tends through the upper part of the frame G,

and has its inner end bearing against the under surface of the top of the frame G.

This attachment saves much time in knitting, as it avoids all necessity for separate measuring or counting of rows, and at the same  
 50 time accomplishes the work much more accurately than it can be done the old way.

I claim—

1. In an automatic annunciator for knitting-machines, the combination of a bell or series  
 55 of bells, a series of clappers, each provided with a spring to throw it against the bell, and each provided with means for holding it in position to be sprung, and means, in connection with the article being knitted, to release the  
 60 clappers separately to announce the completion of the several steps of the work, substantially as specified.

2. The combination of the rod B, spring E, yokes G, springs I, brackets H, clappers F,  
 65 and bell L, substantially as and for the purposes set forth.

3. In an automatic annunciator for knitting-machines, the combination of the rod B, bracket H, having lug *h*<sup>2</sup> and arm H', the latter being  
 70 provided with teeth *h* *h'*, yoke G, spring I, and clappers F, and bell L, substantially as and for the purposes set forth.

4. The combination of the rod B, spring E, yokes G, springs I and F', brackets H, clappers F, and bell L, substantially as and for  
 75 the purposes set forth.

5. The combination of the rod B, spring E, yoke G, spring I, bracket H, clapper F, and bell L, substantially as and for the purposes  
 80 specified.

6. The combination of the rod B, spring E, yoke G, spring I, spring F', bracket H, clapper F, and bell L, substantially as and for the purposes set forth.

JOHN AUREDENN.

Witnesses:

E. M. HARMON,

W. S. CHRISTOPHER.