

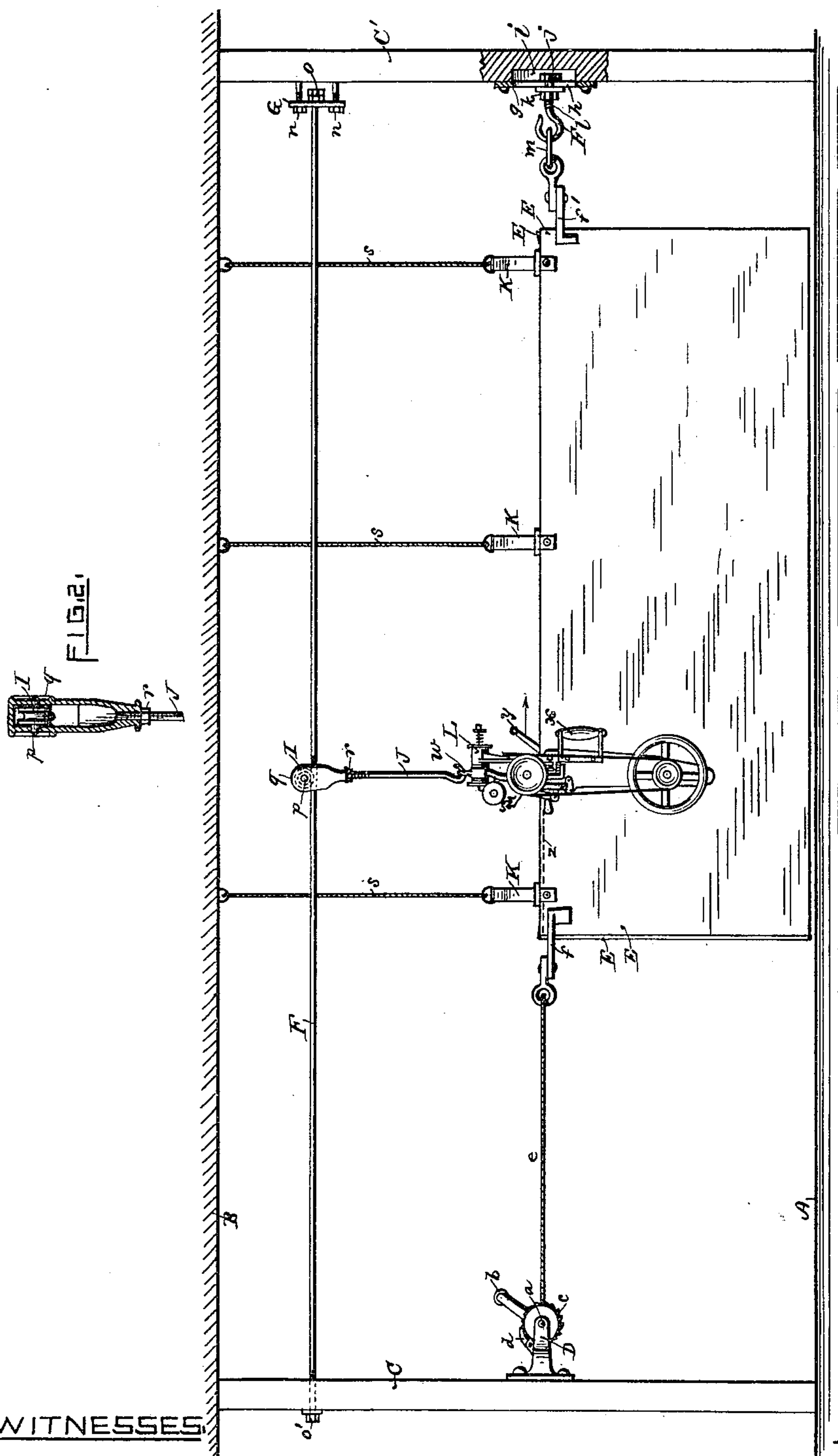
(No Model.)

2 Sheets—Sheet 1.

H. S. FLINT.  
APPARATUS FOR SEWING INGRAIN CARPETS.

No. 405,834.

Patented June 25, 1889.



WITNESSES

*Socrates Scholfield*  
*James W. Williams*

INVENTOR.

*Henry S. Flint*

(No Model.)

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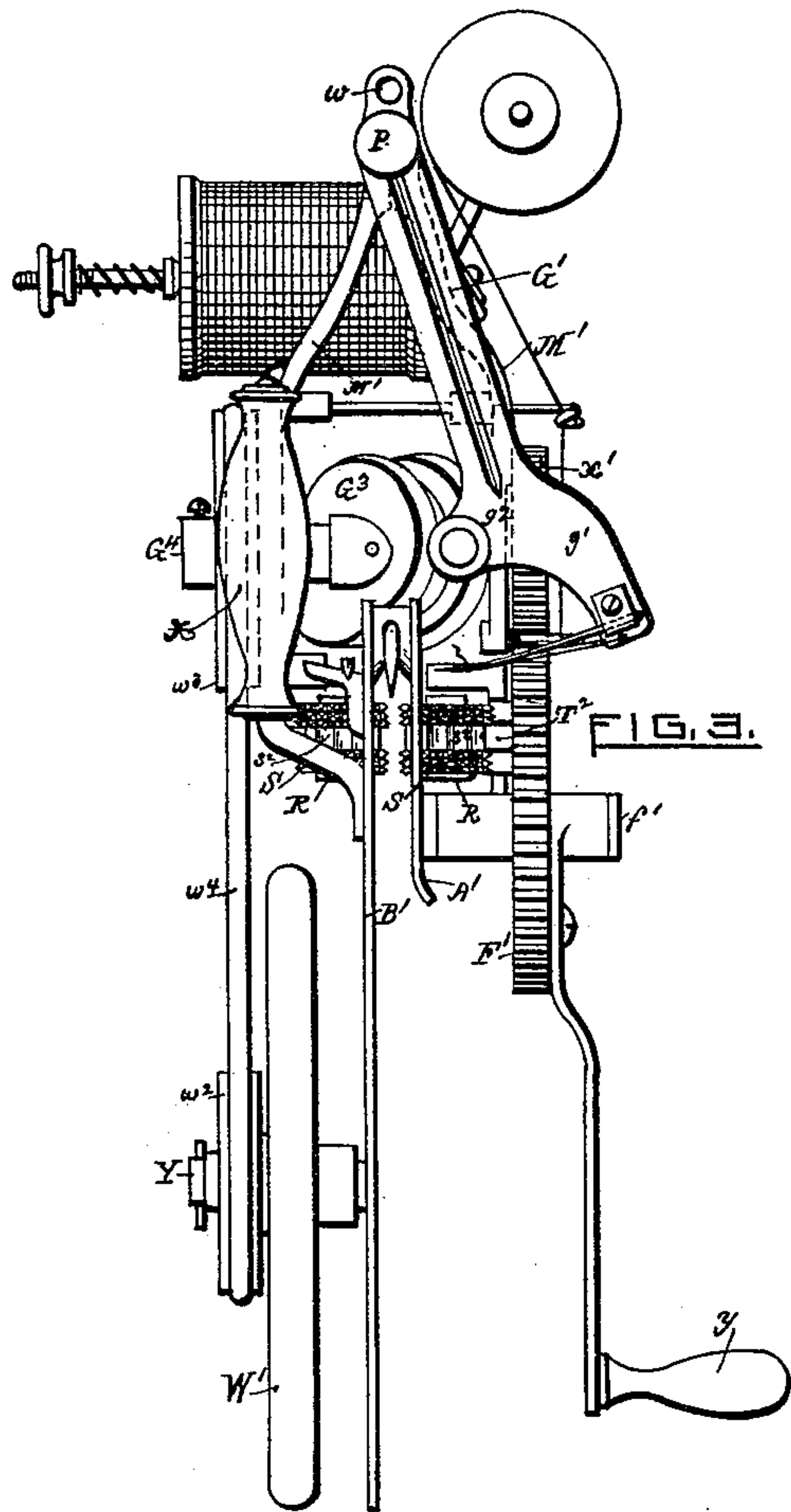


FIG. 3.

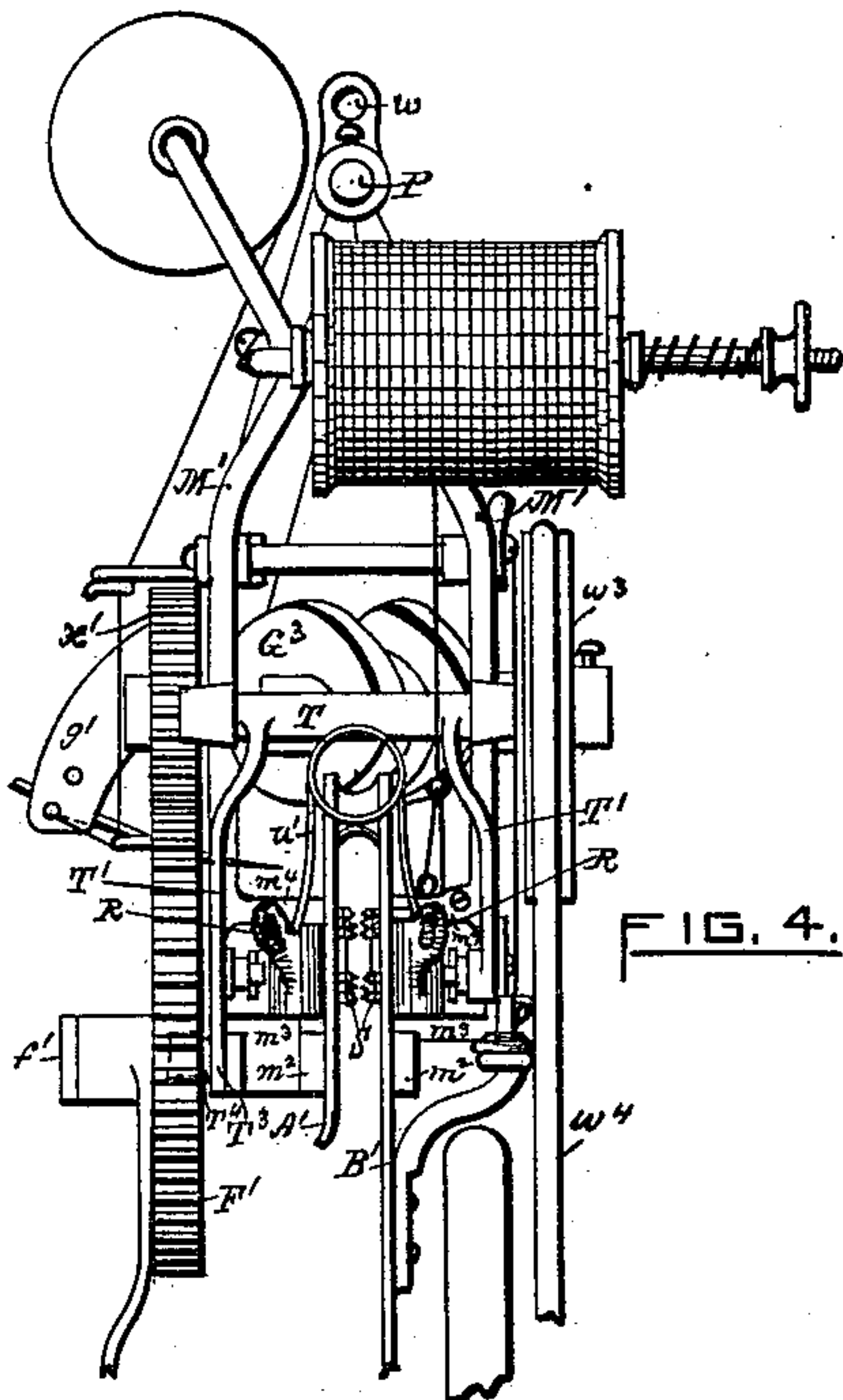


FIG. 4.

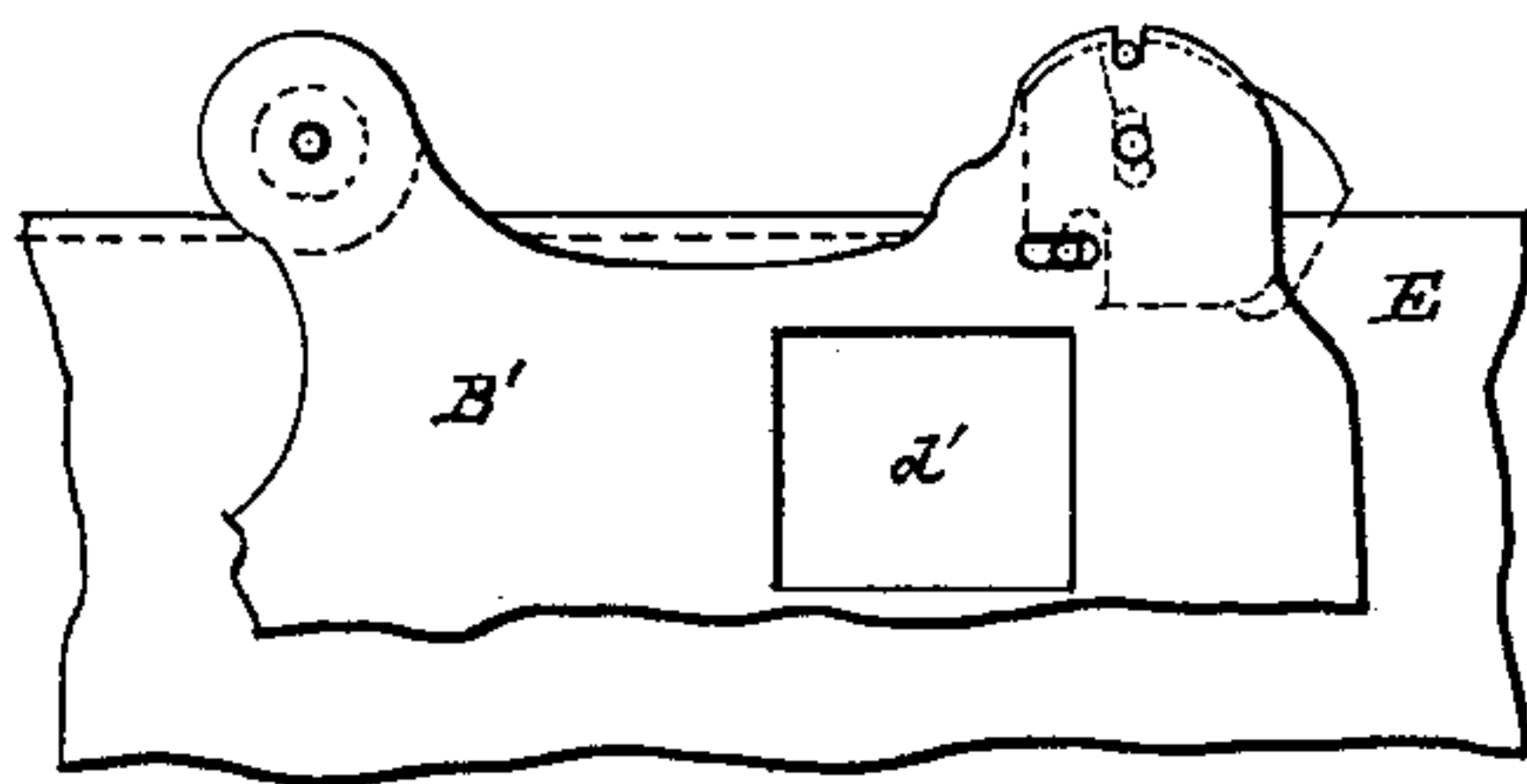


FIG. 5.

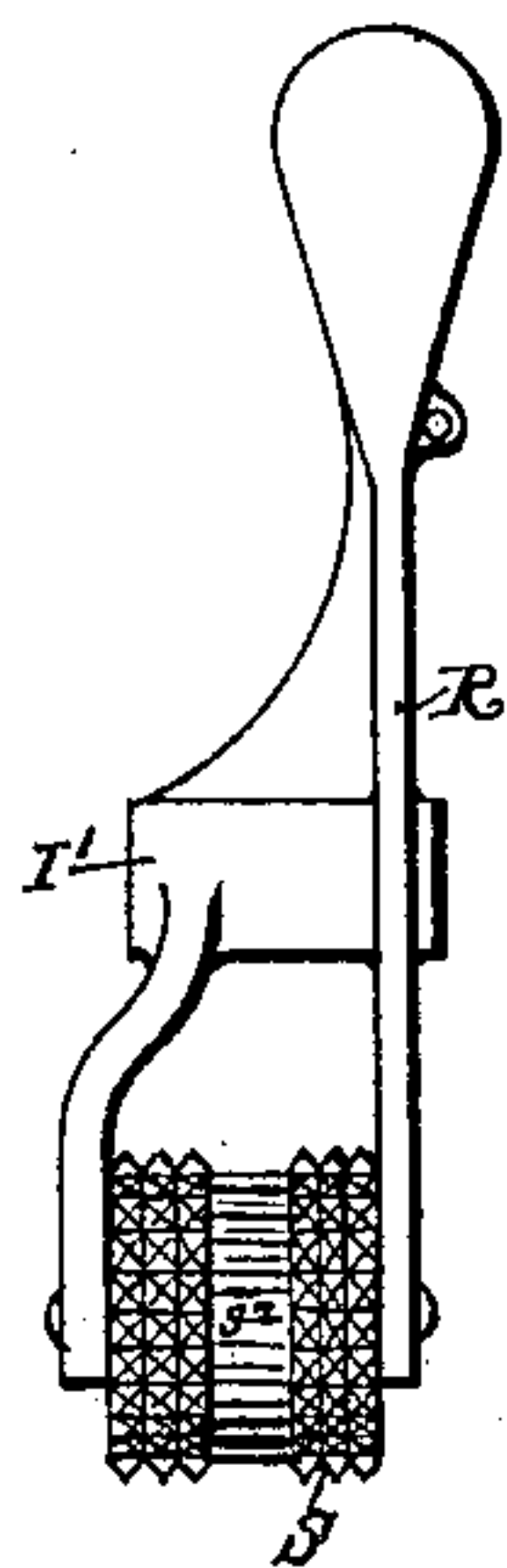


FIG. 6.

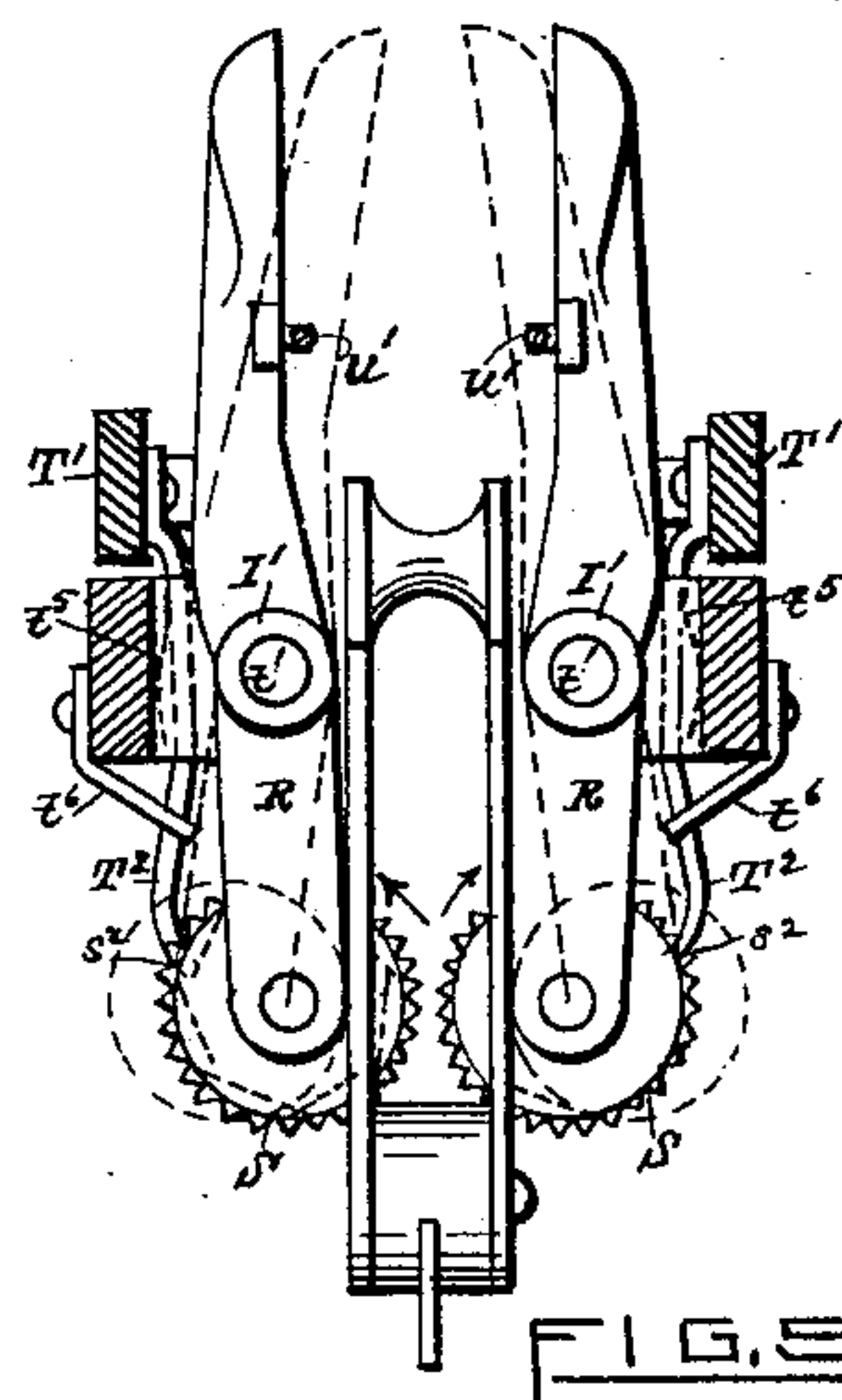


FIG. 7.

WITNESSES,

*Arantes Scholfield*  
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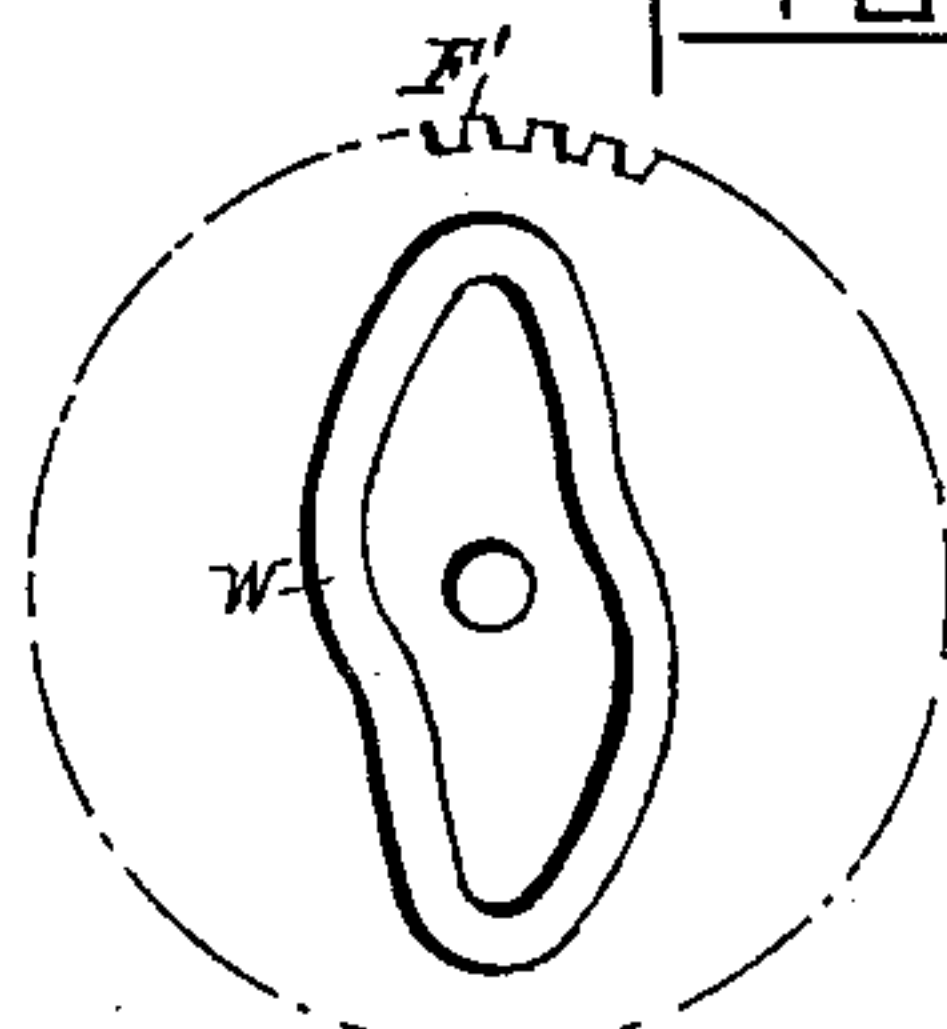


FIG. 8.

INVENTOR,

*Henry S. Flint*



# UNITED STATES PATENT OFFICE.

HENRY S. FLINT, OF PROVIDENCE, RHODE ISLAND.

## APPARATUS FOR SEWING INGRAIN CARPETS.

SPECIFICATION forming part of Letters Patent No. 405,834, dated June 25, 1889.

Application filed March 9, 1887. Serial No. 230,300. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY S. FLINT, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Apparatus for Sewing Ingrain Carpets, of which the following is a specification.

Heretofore in sewing carpets by means of sewing-machines operated by hand it has been the practice to hold the machine by one hand over the tightly-drawn juxtaposed edges of the carpet-strips, so that the weight of the machine would be mainly supported by the said edges; and while this method of operating has proved satisfactory in sewing tapestry and Brussels carpets, which are of comparatively stiff and rigid texture, yet it has failed when applied to the sewing of ingrain and the more flexible kinds of carpet, for the reason that the edges of such carpets are too flexible and yielding to afford a proper support to the machine, thus requiring the operator to mainly support the machine with one hand while he turns the operating-crank with the other, and as the machine is necessarily made of considerable weight the work of sewing on carpets of this class is rendered too laborious; and heretofore, in order to overcome this difficulty, a narrow frame has been built up from the floor to a sufficient height to support the carpet-strips in a vertical plane by means of a long clamp at the edge of the said frame, which edge also forms a track for guiding the hand-operated sewing-machine; but such a track and clamping-support for the carpet is cumbersome, occupying a considerable floor-space, and the machine being thus made to run upon a straight track at the edge of the frame any imperfection in the clamping of the edges of the carpet will cause a corresponding imperfection in the sewing of the same, thus producing an uneven and lumpy seam, which is readily detected upon the laying of the carpet and is very objectionable, so that the sewing of ingrain carpets is still done by hand, while the sewing of Brussels carpet is practically done by machines which rest upon the edges of the carpet; and in order to practically adapt the said hand-operated sewing-machine to the sewing of ingrain carpets, and thus securing the desired result of a seam sewed at a uniform distance

from the juxtaposed edges throughout the whole length of the carpet, I support the machine from an elevated track over the tightened juxtaposed edges to be sewed, so that the machine, while supported by the said track for proper movement, may still press upon the said edges so as to preserve their perfect coincidence, as in the case where the same machine is operated as heretofore over the tightened juxtaposed edges of a stiff Brussels carpet; and in order not to interfere with the proper manipulation of the machine by the operator I provide the machine with a pendulous support from the track, and preferably terminate the said support with a hook, so that the machine can be readily removed therefrom as occasion may require; and my invention consists in the combination, with the hand-operated sewing-machine having an intermittent feed adapted to act upon the carpet, of an elevated guiding-track, a pendulous support for the sewing-machine from the track, means for tightening the juxtaposed edges of the carpet in a position about parallel with the track, and pendulous supports for holding the said edges in proper contact with the pendulous sewing-machine.

Figure 1 is an elevation showing my invention as arranged to sew the juxtaposed edges of two pieces of carpet. Fig. 2 is a detail section showing the roller of the supporting-hook and the wire track upon which the roller travels. Fig. 3 is a front elevation of the sewing-machine removed from the carpet. Fig. 4 is a rear elevation of the upper portion of the sewing-machine. Fig. 5 is a plan view of the feeding devices of the machine. Fig. 6 is a detail view of one of the feed-levers. Fig. 7 is a detail view of the feed-actuating cam. Fig. 8 is a detail view showing the upper portion of the side plates of the sewing-machine as resting over the edges of the carpet-strips to be sewed.

In the accompanying drawings, A represents the floor and B the ceiling of a room.

C C' are upright posts, which are well secured to the floor and ceiling, preferably at a distance apart greater than the ordinary length of carpet to be sewed. Upon the inner face of the upright post C is bolted the winch D, consisting of the shaft *a*, crank *b*, ratchet-wheel *c*, and the pawl *d*. To the end of the



rope *e*, which is wound upon the winch-shaft *a*, are secured the grip-tongs *f*, which serve to firmly clasp one end of the juxtaposed pieces of carpet *E E* at near the upper corner of the same. Upon the inner face of the opposite post *C'* is bolted the slotted plate *g*, in the upright slot *h* of which is placed the shank of the hook *F*, the post *C'* being provided with a recess *i*, made at the rear of the slotted plate *g*, to receive the enlarged head *j* of the hook, the said hook being adjustably secured to the plate *g* in the slot *h* by means of the nut *k*, which is held upon the screw-threaded shank *l* of the hook. Upon the hook *g* is placed the ring *m*, to which are secured the grip-tongs *f'*, which also serve to firmly clasp the juxtaposed pieces of carpet *E E* at near the upper corner of the same, and when the pieces of carpet are so held between the jaws of the grip-tongs *f f'* the closely-held edges of the carpet are to be drawn tight by means of the winch *D*, the carpet being then held in its distended position for sewing by means of the pawl *d* and ratchet-wheel *c*.

At near the upper ends of the posts *C C'* is secured the track rod or wire *F*, which is arranged parallel with the stretched edge of the carpet *E E*, and in securing the said track-rod *F* to the posts *C C'*, I have preferably passed one end through the center of the post *C*, and secured the opposite end to the post *C'* by means of the yoke-piece *G*, which is secured to the post *C'* by means of the coach-screws *n n*, the end of the track-rod *F* being made to pass through a central perforation in the said plate, and is secured therein by means of the nuts *o*. The track-rod *F* is to be drawn tight by means of the end nuts *o* and *o'*, so that it will extend from the post *C* to the post *C'* in a straight line without sagging. The track-roller *I*, which turns upon the pin *p* within the case *q*, is placed over the track-rod *F*, as shown in Fig. 2, and to a threaded cavity at the lower end of the roller-case *q* is secured the suspension-hook *J*, the shank of the hook being screw-threaded to fit the threaded cavity of the case, and provided with a check-nut *r*, whereby the working height of the hook *J* may be properly regulated.

From the ceiling *B*, at intervals, in line with the edge of the carpet *E*, depend the cords or chains *s*, to the lower ends of which are attached the clamps *K*, which serve to support the edge of the carpet, so that the machine will always bear firmly upon the edges of the carpet, and thus make the seam at a uniform distance from the edge, as is the case when the same machine is employed for sewing a Brussels carpet as heretofore, where the machine can be made to rest entirely upon the said edges.

The sewing-machine *L* is provided with an eye *w*, adapted to receive the hook *J*, so that the machine will be removably suspended from the track-rod *F*, and also be capable of

movement along the track, through the intermittent action of the automatic feed of the machine, from one end of the stretched pieces of carpet to the other upon the temporary removal of the holding-clamps *K* when it is necessary to pass the machine by the same.

In sewing the carpet the operator stands at the rear side of the suspended carpet, with his left hand upon the fixed handle *x*. Then upon turning the hand-crank *y* of the machine the needle will be vibrated through the edges to be sewed, and the feeding mechanism will cause the machine to move backward in the direction of the arrow, thus forming the line of stitches *z*, the said machine being allowed to move in accordance with its feed by reason of its roller-suspension from the track *F*; and when the suspended machine has fed itself along so far as to reach one of the clamps *K* then the said clamp is to be loosened from the carpet and passed to the other side of the machine and similarly clamped to the sewed portion of the carpet, thus continuing to perform its function of supporting the carpet-edge as before. The machine *L* may be temporarily removed from its hook or point of suspension upon the completion of the sewed seam, or it may be moved along its track-rod to a point beyond the end of the carpet for subsequent operation upon other seams.

The two plates *A'* and *B'* of the sewing-machine are fixed and held in upright position parallel with each other by means of an arched upright bracket *M'*, having ears *m<sup>2</sup>* on lugs or inwardly-turned ends *m<sup>3</sup>*, and above them are two similar lugs *m<sup>4</sup>*. By means of screws passing into these lugs the two plates and bracket are firmly fastened together. The shape of this bracket is such that while affording bearings for all the operative mechanism excepting the balance-wheel it brings the principal weight of the parts directly over the center of the machine. In the space between the two lugs or feet on the ends of the bracket *M'* are pivoted two levers *R R*, having thumb pieces or handles on their rear end, and on the front each is bifurcated to form arms adapted to receive the feed-roller *S* between them. The hubs *I'* correspond in length to the space between the lugs *m<sup>3</sup> m<sup>4</sup>* and turn upon pivots *t' t'*. These two levers then constitute a pair of jaws, and by means of a spring *u'* their inner or roller bearing ends are forced toward each other with constant pressure, the strength of which is regulated by changing the character of the spring. Large rectangular openings *d' d'* in the sides of the two plates admit the sides of the feed-rollers into the space traversed by the carpet-strips within the frame. The levers *R R*, thus mounted, are free to yield to changes in the thickness of the material, and yet to maintain regular contact and continual grasp of the same, to effect the required intermittent progress of the machine.

A rock-shaft *T* is supported on the frame,



and is provided with vibrating arms or levers  $T'$ , each of which carries a feed-pawl  $T^2$  for engagement with the ratchet-teeth  $s^2$ , provided on the feed-rollers. The levers  $T'$  are  
 5 located far enough apart on the shaft  $T$  to bring the pawls  $T^2$  outside of the plates  $A'$  and  $B'$ . This rock-shaft obtains motion from the cam  $W$  on the inner face of the driving-gear  $F'$ , the connection being made by means  
 10 of the rocking lever  $T^3$  and stud  $T^4$ . Contact of the feed-pawl with the ratchet-surface on the feed-roller is maintained by a spring  $t^5$ , and the pawl is confined during reciprocation by the fixed guide-plate  $t^6$ . The ratchet-  
 15 surface  $s^2$  upon the feed-rollers, for the pawl to act against, is formed on the central part of the periphery, the outer edges of the rollers being suitably serrated or armed with blunt projections to engage with the material.  
 20 The pressure of the pawl is thus applied midway between the bearing parts of the roller. The feed mechanism is carried entirely in parts of the bridge or bracket  $M'$ , the driving-gear  $F'$  being mounted on a stud  
 25  $f'$  secured in the lower end or extension of the bracket.

The needle-arm  $G'$  is a straight bar with a curved offset  $g'$  at one side to carry a clamp for the needle and an ear or short lug  $g^2$  on  
 30 the opposite side of the center line to hold a stud projecting into the groove of the cam  $G^3$ . The pivot  $P$  at the top of the bracket affords a long bearing for the needle-arm, and vibration upon its center is produced by the action  
 35 of the oblique needle-cam  $G^3$  upon the stud. The cam  $G^3$  is fixed on a shaft  $G^4$ , to which continued motion is imparted from the driving-gear through the pinion  $x'$ . The movements of these parts are so timed that the  
 40 needle-arm is swung inward over the center of the pawl at the time the crank-handle is raised. The gears and mechanism are kept close to the frame, while the needle and crank are free to pass each other. The plate  $B'$  on  
 45 that side of the frame opposite to the driving-crank has a vertical limb or prolongation, on which is placed a stud  $Y$  to carry a balance-wheel  $W'$ . Connection of the principal shaft is then made with the balance-wheel by

grooved pulleys  $w^2 w^3$  and a belt  $w^4$ . The  
 50 gearing  $F'$  and  $x'$  and handle  $y$  are attached to the short plate  $A'$ , while the weight of this side is balanced by the long plate  $B'$  and its  
 55 attached fly-wheel  $W'$  on the other side, so that the machine will ride evenly upon the edge of the carpet.

The several parts of the sewing-machine proper, as above described, are shown in Letters Patent of the United States No. 296,744, to which reference is made for a complete description of the other parts of the same, which  
 60 are not directly included in my improvement.

It is of course to be understood that I do not limit myself to the feeding device herein shown and described, but include any equivalent intermittent feeding mechanism which,  
 65 by its action upon the edge of a stretched piece of fabric, will serve to feed the suspended sewing-machine along the track, and I do not separately claim such feeding device  
 70 as my invention, but only as a single element in a novel combination.

I claim as my invention—

1. In combination, the elevated track, the pendulous support adapted for movement  
 75 along the elevated track, the hand-operated carpet-sewing machine connected to the pendulous support and having an intermittent feed mechanism adapted to act upon the  
 80 carpet, the pendulous clamps for supporting the edge of the carpet in proper bearing relation to the machine, and the winch for tightening the juxtaposed edges of the carpet, substantially as described.

2. The combination of an elevated track,  
 85 the depending support adapted to move along said track, the manually-operated carpet-sewing machine carried by the depending support and having feed mechanism adapted to act upon the carpet, the swinging clamps for  
 90 supporting the edge of the carpet in suitable relation to the sewing-machine, and means for tightening the contiguous edges of the carpet, substantially as described.

HENRY S. FLINT.

Witnesses:

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 SOCRATES SCHOLFIELD.