

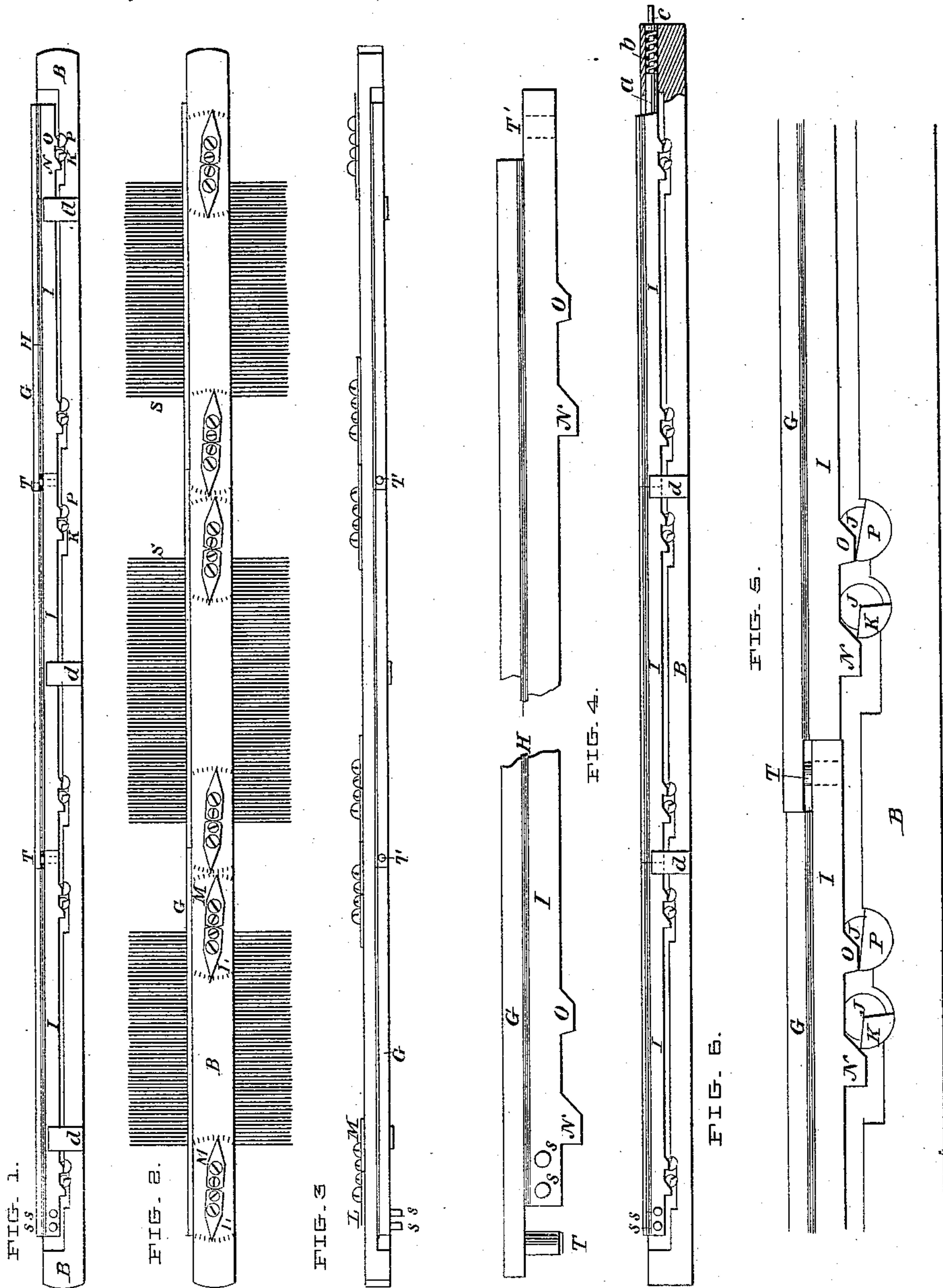
(No Model.)

E. TIFFANY.

FALLING BAR FOR STRAIGHT KNITTING MACHINES.

No. 430,201.

Patented June 17, 1890.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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FALLING BAR FOR STRAIGHT-KNITTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 430,201, dated June 17, 1890.

Application filed March 15, 1890. Serial No. 343,987. (No model.)

To all whom it may concern:

Be it known that I, ELI TIFFANY, of the village of Bennington, in the county of Bennington and State of Vermont, have invented certain Improvements in Falling Bars for Straight-Knitting Machines, of which the following description, in connection with the accompanying sheet of drawings, constitutes a specification.

10 This invention is an improvement upon that shown in the United States patent, No. 408,363, dated August 6, 1889, granted to me for falling bar for straight-knitting machines. The falling bars described in both cases are such
15 as are employed in machines using two sets of needles to knit flat ribs for cuffs for undershirts and bottoms for drawers-legs.

As most flat-rib-knitting machines are adapted to knit several separate ribs or strips of goods at once, and the separate mechanism specially adapted to knitting each separate strip is technically known as a "section," and the sinkers of all the sections in the aggregate have been controlled in their action by a common fall-
20 ing bar, experience has shown that in using the bar shown in said patent, No. 408,363, by reason of its length and the slender nature of its impact-bar, after some considerable use and wear, and from other causes, the proper
25 adjustment of the bar to the needles and sinkers of different sections will vary, and a difference between the welts and slack courses of one section and those of another will result. Thus the product of different
30 sections of the same machine will be variable, and other undesirable results will follow, all of which are attributable largely to the fact that the length of the impact-bar, which spans all the sections, and its rigidity prevent separate adjustment with reference to the sink-
40 ers of each section.

The object of this invention is to remove these imperfections and difficulties, and to effect this I have divided the impact-bar into
45 as many parts as there are sections of the machine, and have provided each division with an independent set of adjusting-keys at each end of such division, so that an adjustment of the falling bar may be made for each
50 section of the machine, if necessary.

The invention is fully shown in the drawings, in which—

Figure 1 shows a back side view of the falling bar as detached from the machine. Fig. 2 is a front view of the same. The vertical parallel lines represent sinkers. Fig. 3 shows a plan of the top edge of the falling bar. Fig. 4 is a broken view of the back side of a single section of the impact-bar, of full size, detached from the main bar. Fig. 5 shows a full-size view of the jointed connection of two divisions of the impact-bar, one of which has one of its ends adjusted a little above that of the other. Fig. 6 shows a modification of the invention, in which the articulation between the adjacent ends of the divisions of the impact-bar is dispensed with, and contact between them is maintained by means of a spring at the end of the bar opposite that where the motion is imparted to the series, so arranged that the thrust of the spring shall be opposed to that of the actuating member, which moves the bar toward said spring.

When the several divisions of the impact-bar I I I are connected in place on the main bar by either of the modes shown, and their elevations are properly adjusted by means of the keys K K K and P P P, the falling bar performs all the functions and is operated in the same way as that shown in my said patent, No. 408,363, the difference between the two consisting in the fact that in that patent a single rigid impact-bar is used, which was incapable of adjustment vertically to accommodate different sections of sinkers on a multi-section rib-machine, while in this the said bar is subdivided into as many divisions as there are sets of sinkers for separate flat ribs or webs in the machine.

For the desired purposes I scarf the ends of each division of the impact-bar, as shown in Fig. 4, so that when the several sections are placed end to end the upper part of one end shall overlap the under part of the end of the adjacent division, as in Fig. 5. One end is provided with a pin T, which is adapted to enter a hole T' in the end of the adjacent division. This pin and hole provision permits of slight elevation of either end which forms a part of this joint, as there is enough free space between the overlapped ends to permit of such adjustment without interfering with the other end.

The cam-ledges N and O co-operate with

the keys K and P in precisely the same way as they do in the machine or apparatus covered by said patent, and each key K or P can be adjusted independently of the other to regulate the length of the welt-stitch or that of the regular fabric.

In the construction shown in Fig. 6 the contact is maintained between the adjacent ends of the several divisions of the impact-bar by the following means: The left-hand division of the bar has the two pins *s s*, between which the arm or finger works, as shown in the patent before cited, while the contiguous ends of the divisions are squared off and butted together, the right-hand end of the division on the right being slightly beveled, as shown. A hole is then bored through the solid part of the end of the main bar for a seat or socket for the reception of the plug and spring *a* and *b*. The plug *a* is beveled to correspond with the bevel of the end of the impact-bar as a means for preventing the bar from lifting up as the same is manipulated. This plug is shouldered to receive the spring *b*, which finds abutment against a washer or plug which closes the hole. The normal force of this spring is exerted to crowd the bar to the left or against the arm which operates the bar itself.

Many other devices could be devised for effecting the connection and performing the function performed by the pin and hole T and T', all of which fall within the purview of my invention, provided they permit the two adjacent ends of two separate divisions to be independently elevated by the adjusting-keys beneath. Therefore I do not confine myself to the precise device shown; but

I do claim—

1. An impact-bar composed of divisions cor-

responding in number to the sections of the machine, each division being vertically adjustable at each end, as shown, in combination with the main bar, and provisions connected therewith for effecting such vertical adjustment, and means, as shown, for maintaining end-to-end contact between the several divisions, substantially as shown, and for the purpose set forth.

2. As an improvement in falling bars, the combination, with the main bar, of an impact-bar composed of as many divisions as there are sections in the machine, and mechanism, substantially as shown, for maintaining the end-to-end contact of the several divisions during the reciprocating movement of the impact-bar, substantially in the manner described, and for the purpose set forth.

3. As an improvement in falling bars for use in flat-rib-knitting machines constructed for knitting more than a single web at the same time, the combination, with the main bar, of a series of divisional impact-bars corresponding in number to the number of sections in the machine, united at their adjacent ends by provisions admitting of an independent vertical adjustment, and keys interposed between said main bar and divisional impact-bars, whereby they may be adjusted independently of each other with reference to the respective lengths of the web and welt stitches, substantially in the manner described, and for the purposes set forth.

In testimony whereof I have hereto subscribed my name this 1st day of March, A. D. 1890.

ELI TIFFANY.

In presence of—

FRANKLIN SCOTT,
J. H. WALBRIDGE.