

(No Model.)

F. WILCOMB.
STRAIGHT KNITTING MACHINE.

No. 408,561.

Patented Aug. 6, 1889.

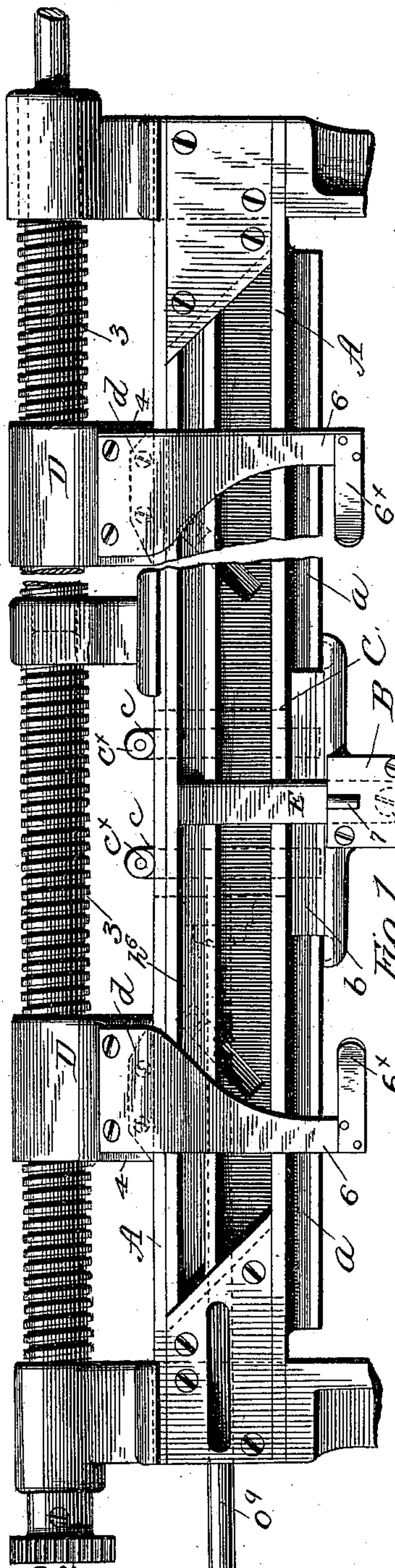


Fig. 1.

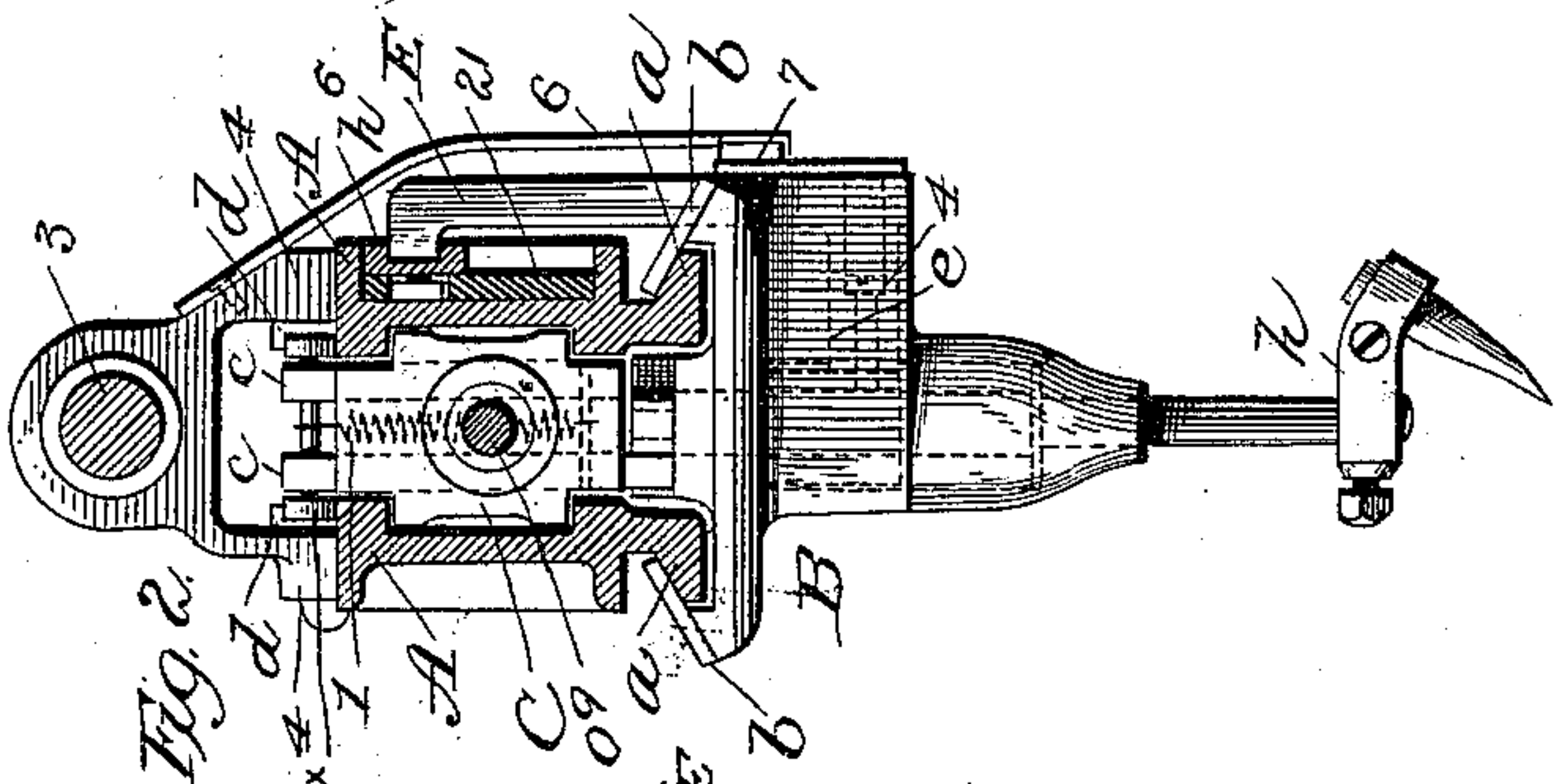


Fig. 2.

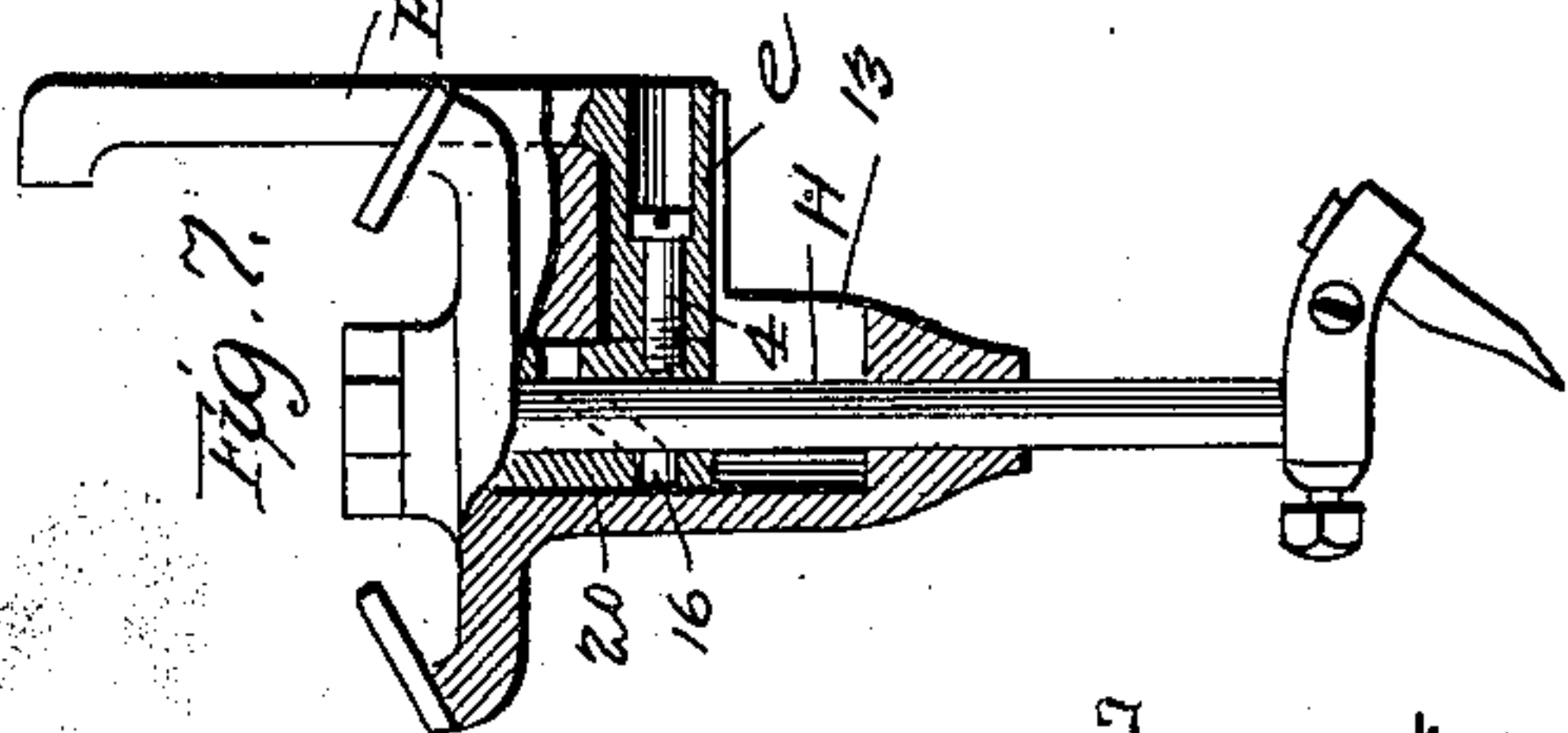


Fig. 3.

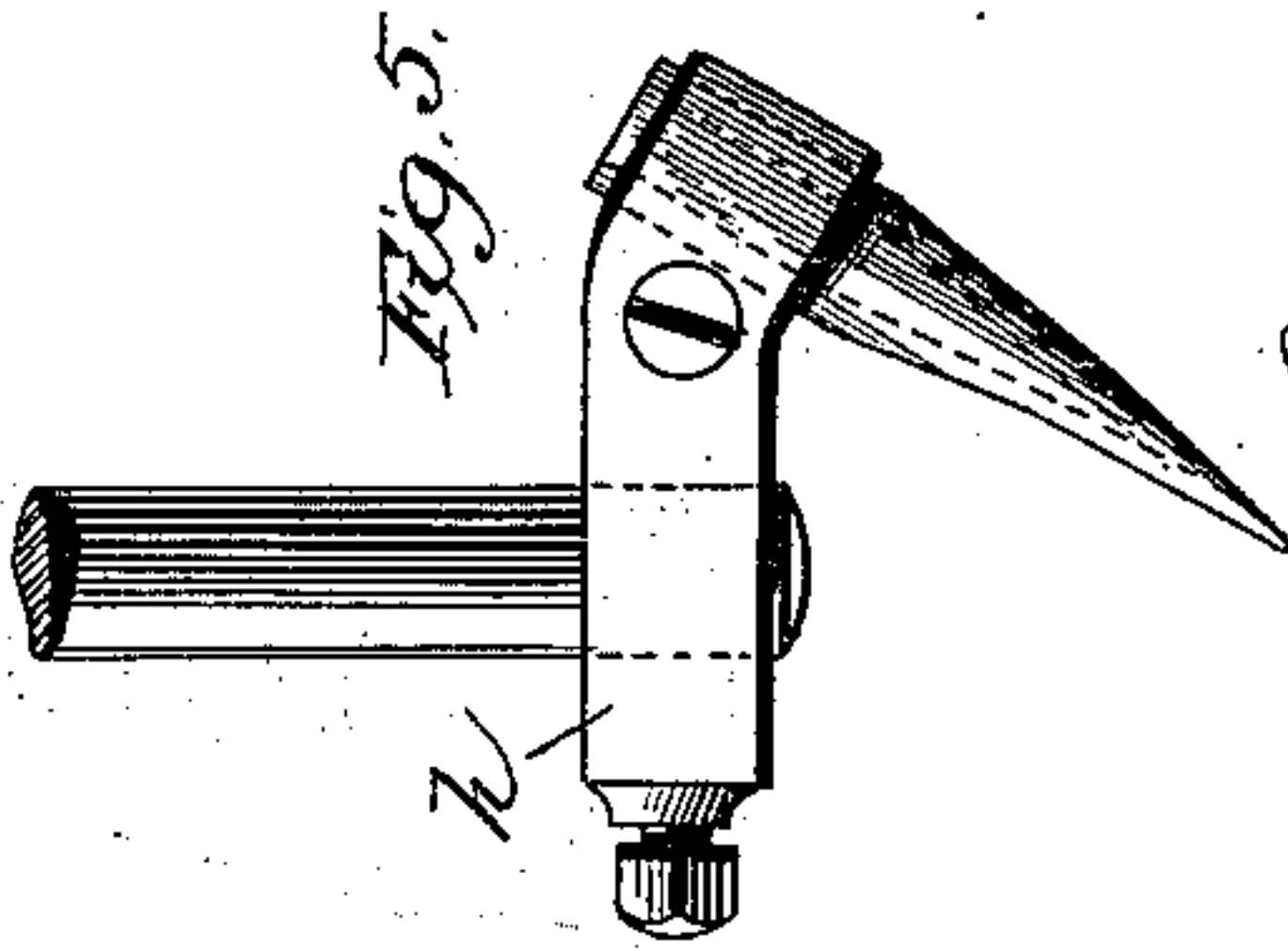


Fig. 4.

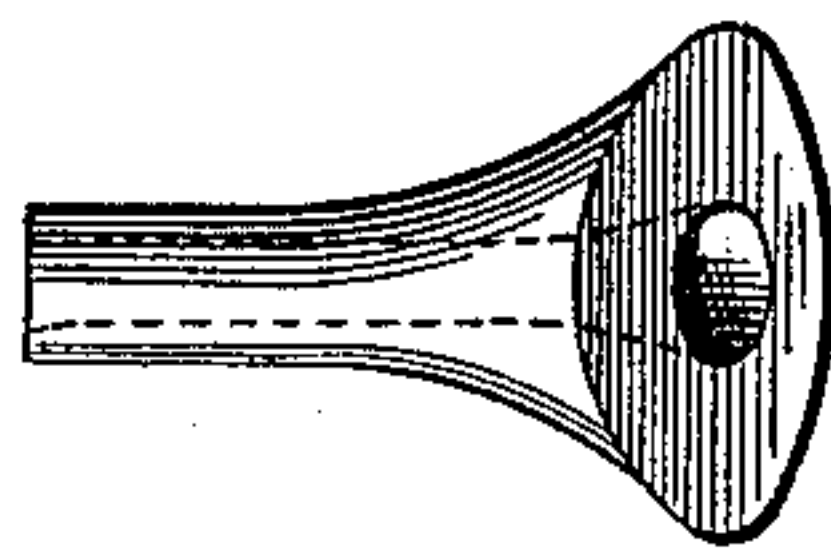


Fig. 5.

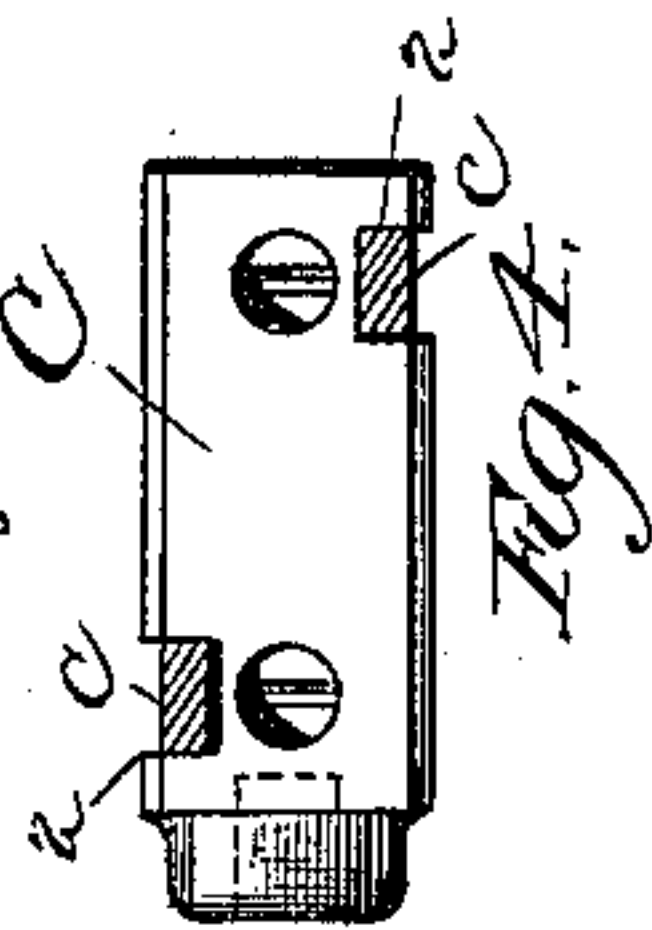


Fig. 6.

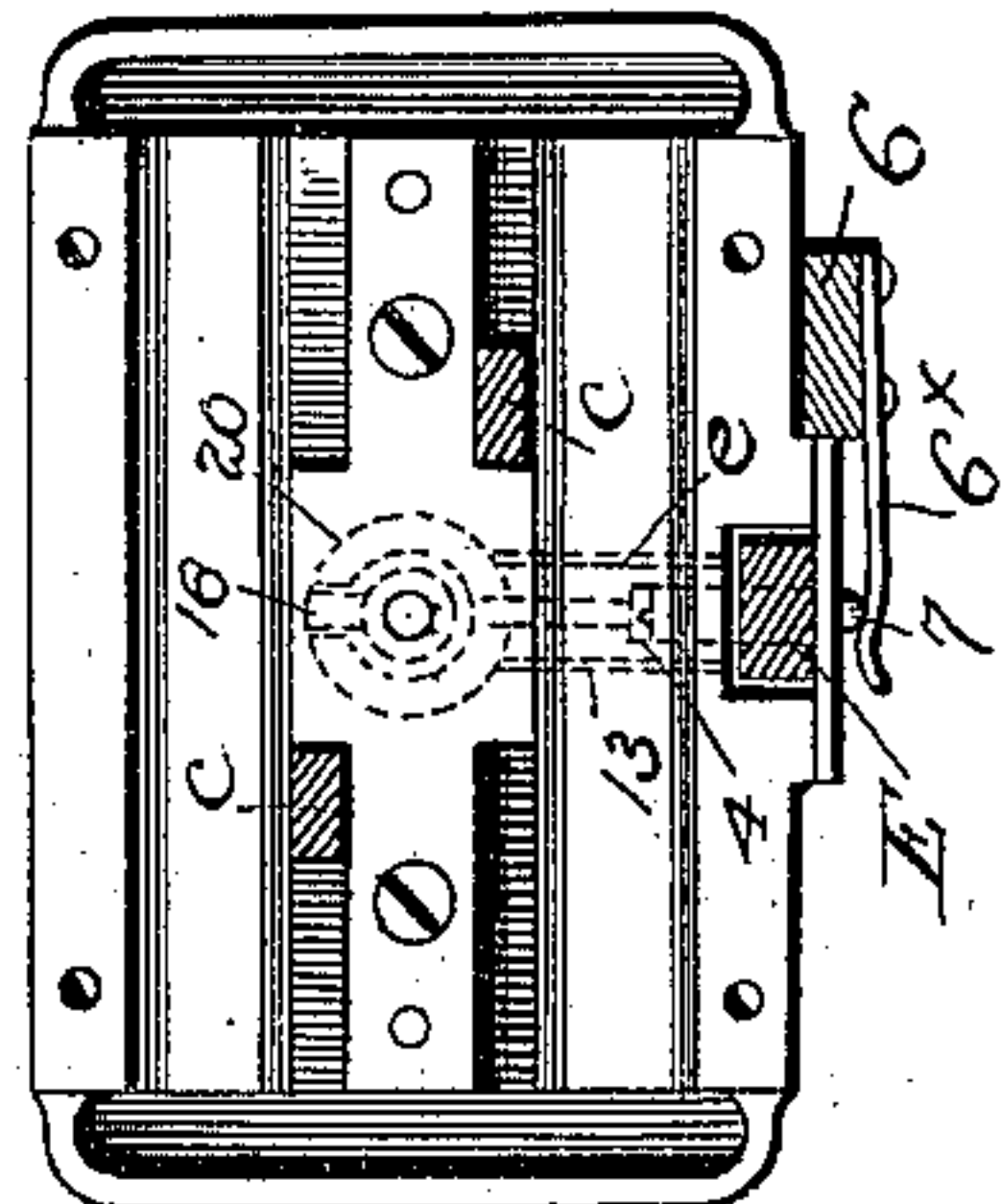


Fig. 7.

Witnesses

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By his Attorney

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UNITED STATES PATENT OFFICE.

FRANK WILCOMB, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE WILCOMB KNITTING MACHINE COMPANY, OF JERSEY CITY, NEW JERSEY.

STRAIGHT-KNITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 408,561, dated August 6, 1889.

Application filed April 11, 1889. Serial No. 306,893. (No model.)

To all whom it may concern:

Be it known that I, FRANK WILCOMB, of Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Straight-Knitting Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improvement on the thread-carrier for knitting-machines and the detachable driving means therefor shown in Letters Patent, numbered 405,640, granted June 18, 1889.

The object of said invention is to arrest the carrier at the end of the active row of needles, and thus avoid drawing unnecessary thread beyond the end of the row of active needles whether in knitting plain or in fashioning.

The novel feature herein consists, mainly, in the arrangement of the reversible carrier in its relation to the driving means, whereby said means may pass the carrier when released therefrom, so that the carrier may be arrested at any point and on either stroke of the machine, said mechanism being combined with reversing mechanism. This arrangement adapts the carrier for use on a machine which fastens at both ends.

My invention also consists in the construction of the thread-guide and in reversing mechanism therefor.

In the drawings, Figure 1 is a side elevation of a portion of a knitting-machine embodying the invention. Fig. 2 is an end view partly in section; Fig. 3, a plan view of the carrier, showing in section the detachable driving-pins therefor and the guide-reversing bar. Fig. 4 is a plan view of the driving-block with its pins in section. Figs. 5 and 6 are detail views of the thread-guide. Fig. 7 is a detail view of the carrier, partly in section, showing the reversing mechanism in immediate connection with the spindle.

In the drawings, A are the guide-bars formed with flanges or ways *aa* at their lower edges, with which engage the gibs *bb* of the carrier B. The carrier is thus supported to move entirely below the plane of the guide-bars, between which the driving-block C

moves back and forth. The block is driven by the bar *o*⁹, which is connected to the cross-brace of the slide-bars, as in my aforesaid application.

The essential feature of my invention is the relative arrangement of driving-block, reversible carrier, and reversing mechanism, by which said block may move freely past the carrier, when detached therefrom, without disturbing it from its arrested position, and it will be obvious that the block may move alongside the carrier, or be arranged in other ways. I do not therefore wish to limit myself to the precise arrangement of the block at a point above the carrier. The block has movable pins *c*, arranged in notches 2. Said pins are under tension of springs 1, and when they are in normal position they engage the carrier and move it with the block. The pins are raised to detach the carrier from the block by cams or inclines *d* on nuts D.

In machines not intended for narrowing the supports D for the cams may be fixed in proper relation to the ends of the needle-rows. In the present case the cams are on the movable nuts D, operated by screws 3, extending from the ends of the machine above the carrier guide-bars. The nuts have downwardly-extending portions 4, which bear upon the guide-bars and hold the cams. The screws may be connected with the point-block-shifting device, as in my above-mentioned application, so that the cams will keep pace with the shifting of the point-block and needle-lifting bar. The pins have rollers *c*^x, adapted to ride on the inclines.

Stop-arms 6 depend from the nuts D to arrest the carrier at the proper point, said arms having springs 6^x engaging a projection 7 on the carrier.

The above-described detachable connection necessitates a rearrangement of the thread-guide-reversing mechanism. The guide is carried by the spindle H, adapted to be rotated by means of a pin 16 and slotted sleeve 20, as in my application before mentioned, and the movable channel-bar *h*⁶ is also used, operated by the sliding plate 21; but instead of the bar *h*⁶ being in direct engagement with the stud projecting from the sleeve a bent arm E is

used, which extends upward outside the guide-bar, at which place the channel-bar h^6 is located. The bent arm E has a boss e at its lower end, which passes through a slot 13 in the carrier, and is secured by a screw 4 to the movable sleeve. The thread-carrier is also of improved form, together with the means by which it may be held or adjusted in position. The objects sought are simplified construction both of the guide itself and the holding and adjusting bracket; and, further, a construction that will permit easy threading of the yarn through the guide. The guide consists of a tubular bar the opening through which extends clear to the top to receive the thread. The lower part is flattened to form a knife-edge to open and hold latches. The bracket h is the means of attachment between the guide and the spindle of the carrier, this being secured to the lower end of the spindle and extending laterally. The guide is clamped between the ends of the bracket which engage the periphery of the tube. When properly adjusted, the guide is inclined in position, and its open upper end being directed outward permits the yarn to be conveniently and quickly threaded, while the adjustment of the guide may be easily effected by raising or lowering the bracket on the spindle or by adjusting the guide through the bracket h .

I claim as my invention—

1. In combination, the reversible thread-carrier, supporting and guiding ways therefor, a driving-block, guideways for said block arranged parallel to the guideways of the carrier, to one side of the same, to permit the block to move past the carrier, a detachable connection between the block and the carrier, means for detaching said connection, and means for reversing the carrier at any point in its stroke, substantially as described.

2. In combination, the reversible thread-carrier, supporting and guiding ways therefor, a driving-block, guideways for said block arranged parallel to the guideways of the carrier, to one side of the same, to permit the block to move past the carrier, a detachable connection between the block and carrier, operating means for said connection, a device for moving said operating means, and means for reversing the carrier at any part of its stroke, substantially as described.

3. In combination, the guide-bars, the carrier supported by the lower portion of said

bars, the driving-block between the bars and above the carrier, the detachable connections, and operating means therefor, substantially as described.

4. In combination, the guide-bars, the carrier, and the detachable driving-block, both of said parts being supported by the guide-bars, and means for operating the detachable driving-blocks to release the carrier, substantially as described.

5. In combination, the guide-bars, the reversible carrier, the operating means for reversing the carrier, and the detachable sliding block, all of said parts being supported by the guide-bars, substantially as described.

6. In combination, the guide-bars, the carrier, the detachable driving-block between the bars, means for operating the detachable driving-block to release the carrier, and the thread-guide-reversing mechanism on the outside of the bars, substantially as described.

7. In combination, the carrier, the reversible guide, the detachable driving-block arranged to move past the carrier, means for operating the same, the bar h^6 , the operating connections between the same and the guide, and means for operating the bar h^6 , substantially as described.

8. In combination, the guide-bars, the driving-block, the reversible carrier, the means for reversing said carrier, the arm E, and means for moving the arm, substantially as described.

9. In combination, the guide-bars, the reversible carrier with operating means for reversing it, the driving-block, the sliding spring-pin for connecting the block and carrier, and the means for operating said pin to release the carrier, substantially as described.

10. In combination, the carrier with its spindle and the guide, said guide consisting of a tubular bar flattened at its lower end and having the opening for the thread extending to the upper end, and a bracket on the spindle, said bracket having the guide secured thereto, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK WILCOMB.

Witnesses:

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MILLARD F. MUNROE.