

No. 620,035.

Patented Feb. 21, 1899.

P. HOFFMAN.

MACHINE FOR PRODUCING STRIPED KNITTED FABRIC.

(Application filed Feb. 28, 1898.)

(No Model.)

3 Sheets—Sheet 1.

FIG. 1

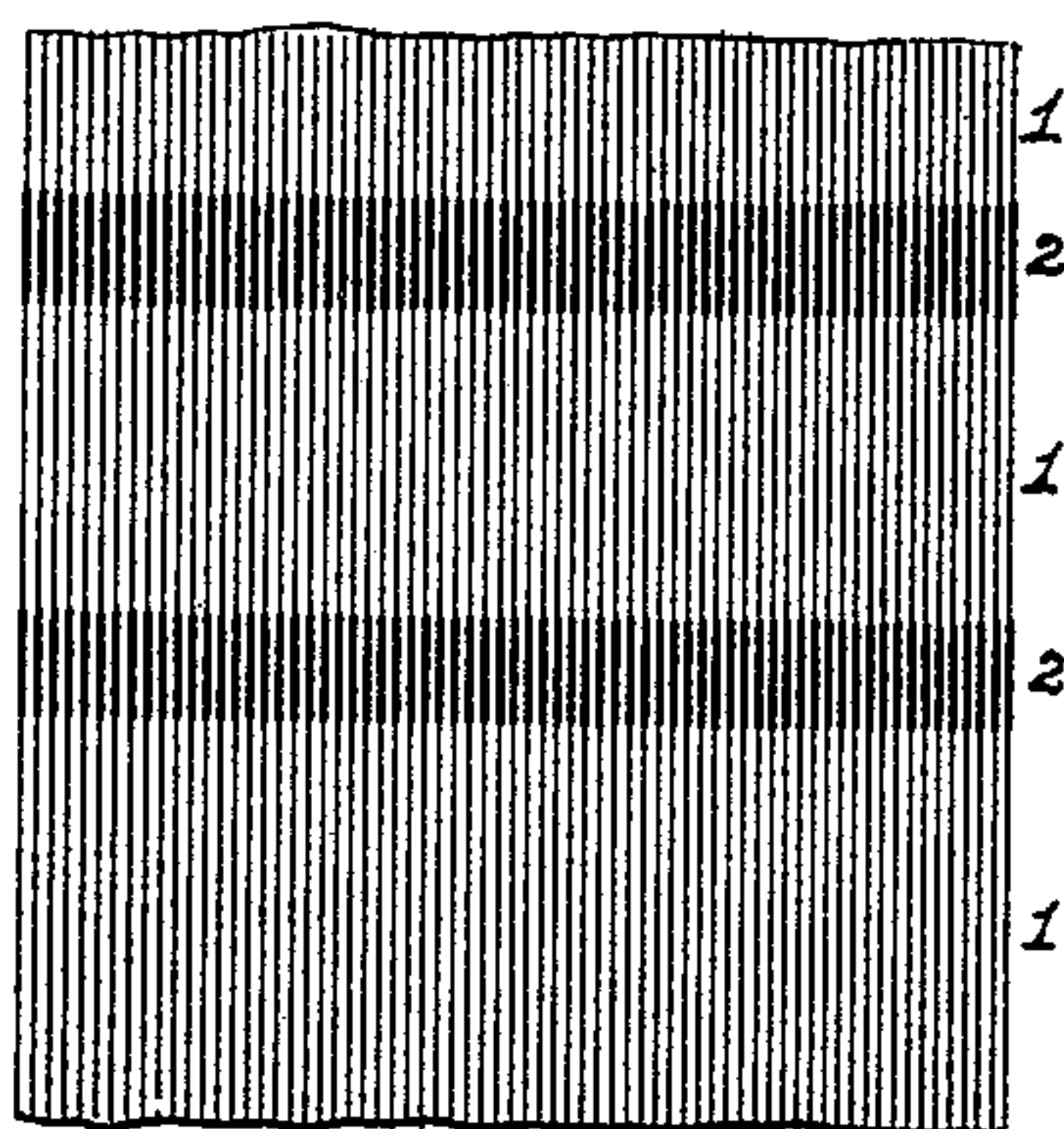
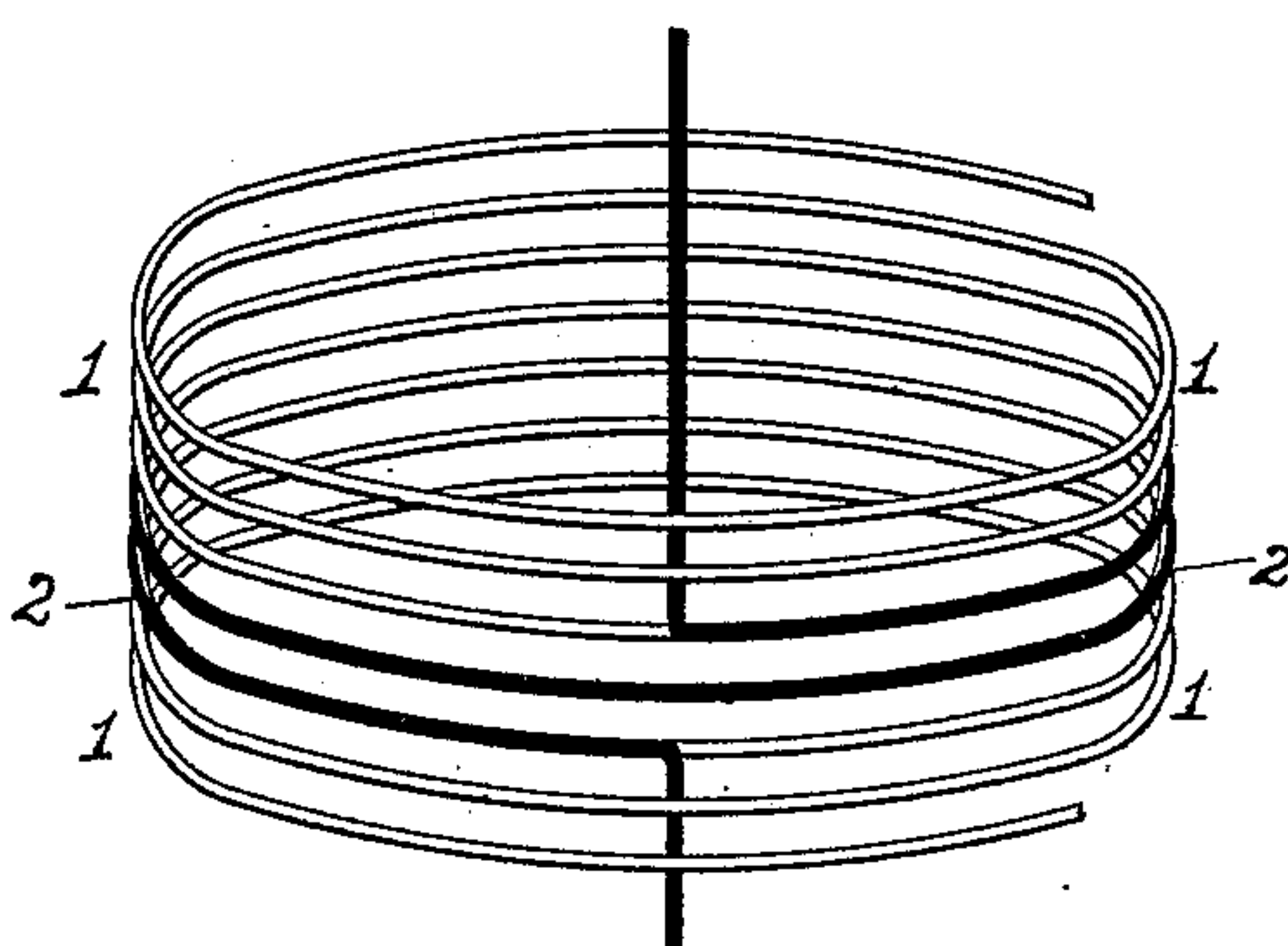


FIG. 2.



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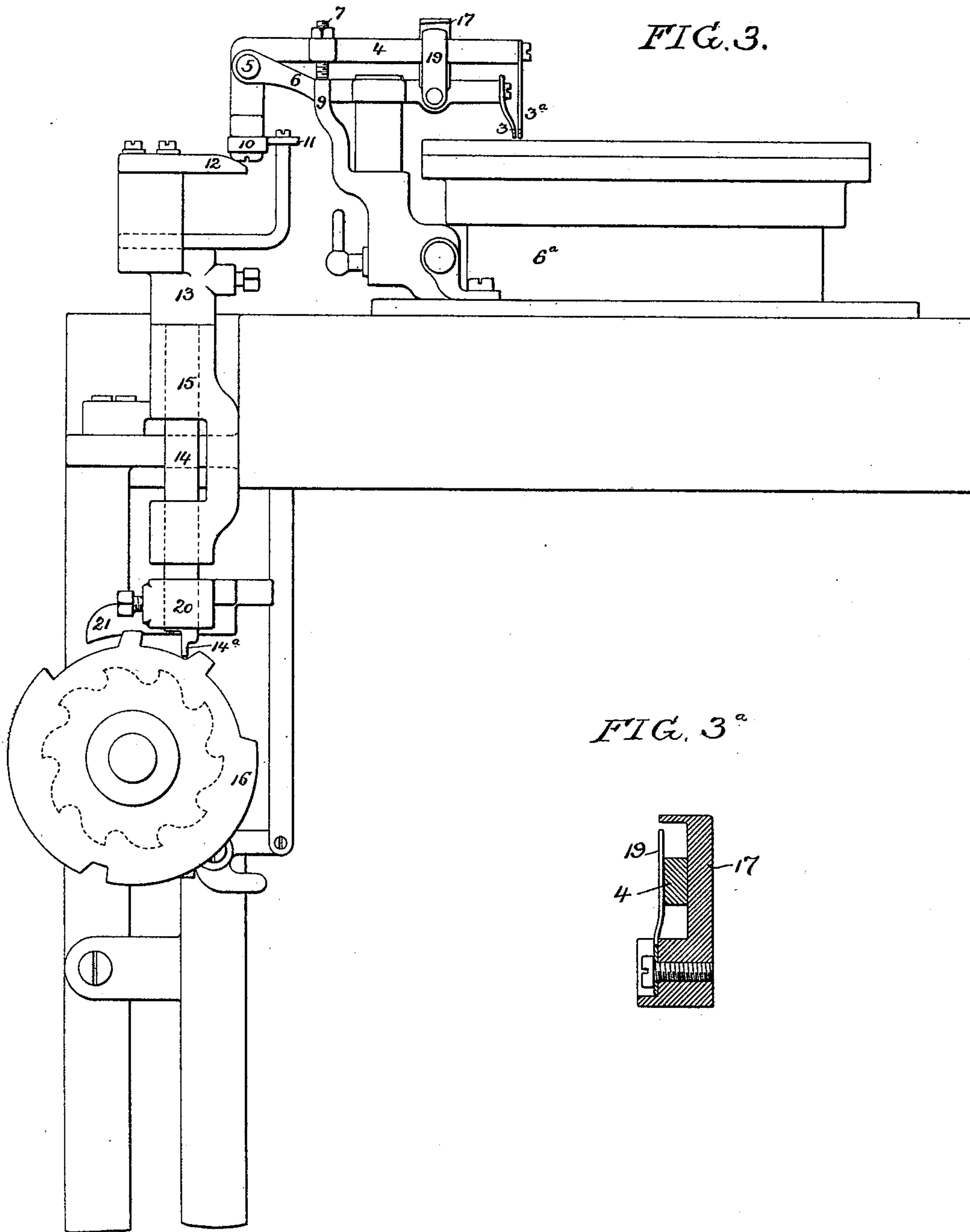
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3 Sheets—Sheet 3.

FIG. 4.

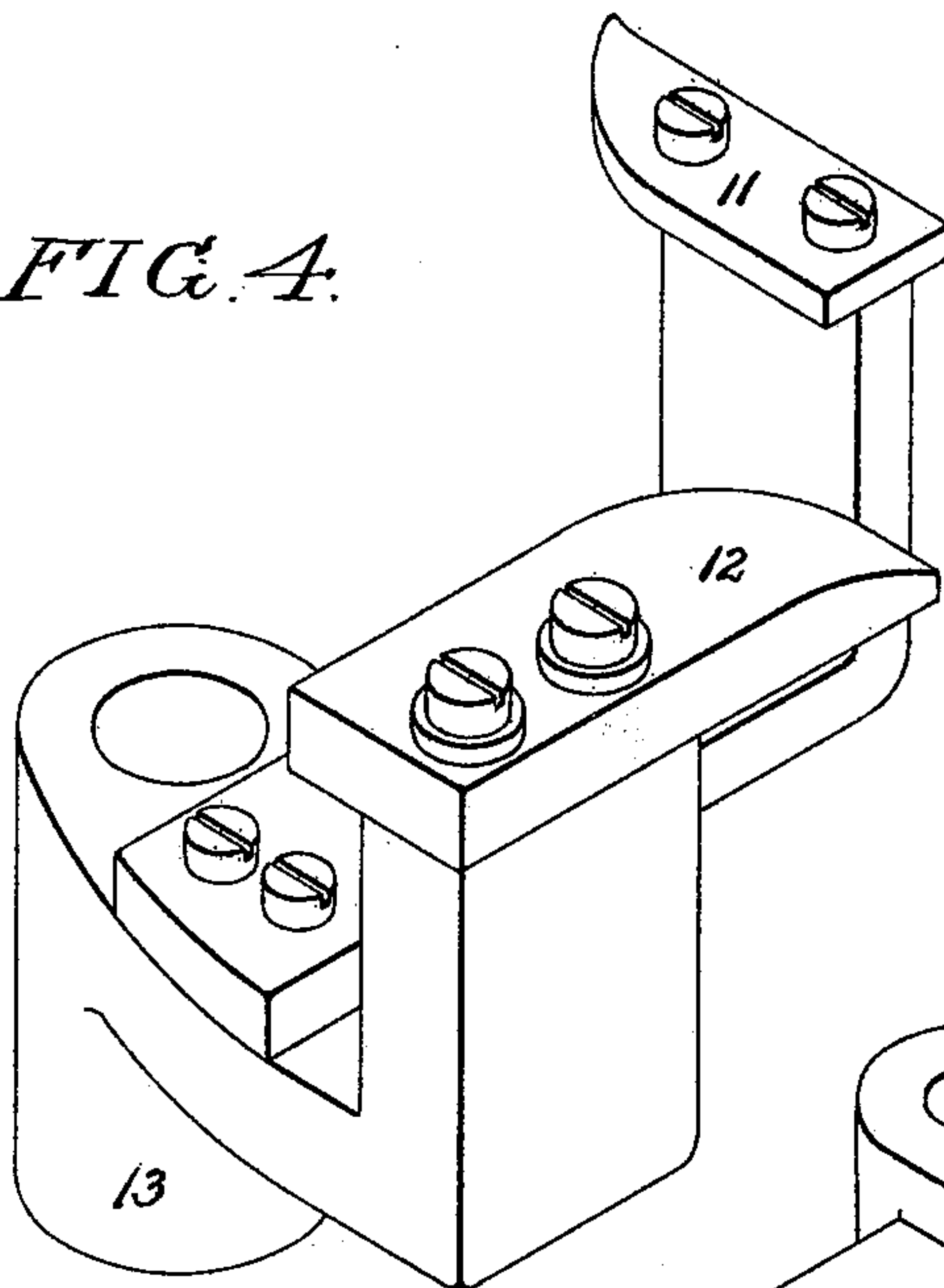


FIG. 6.

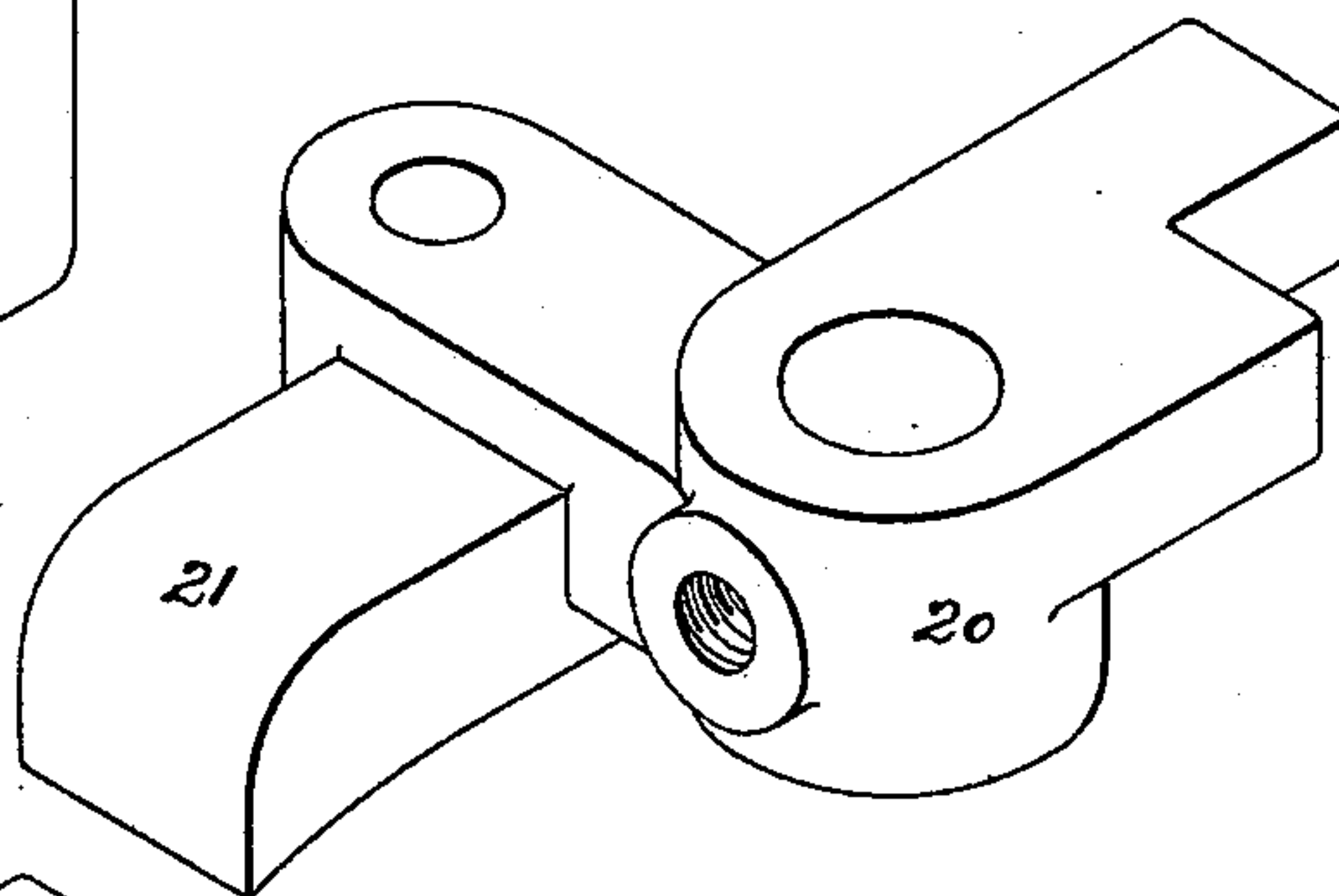
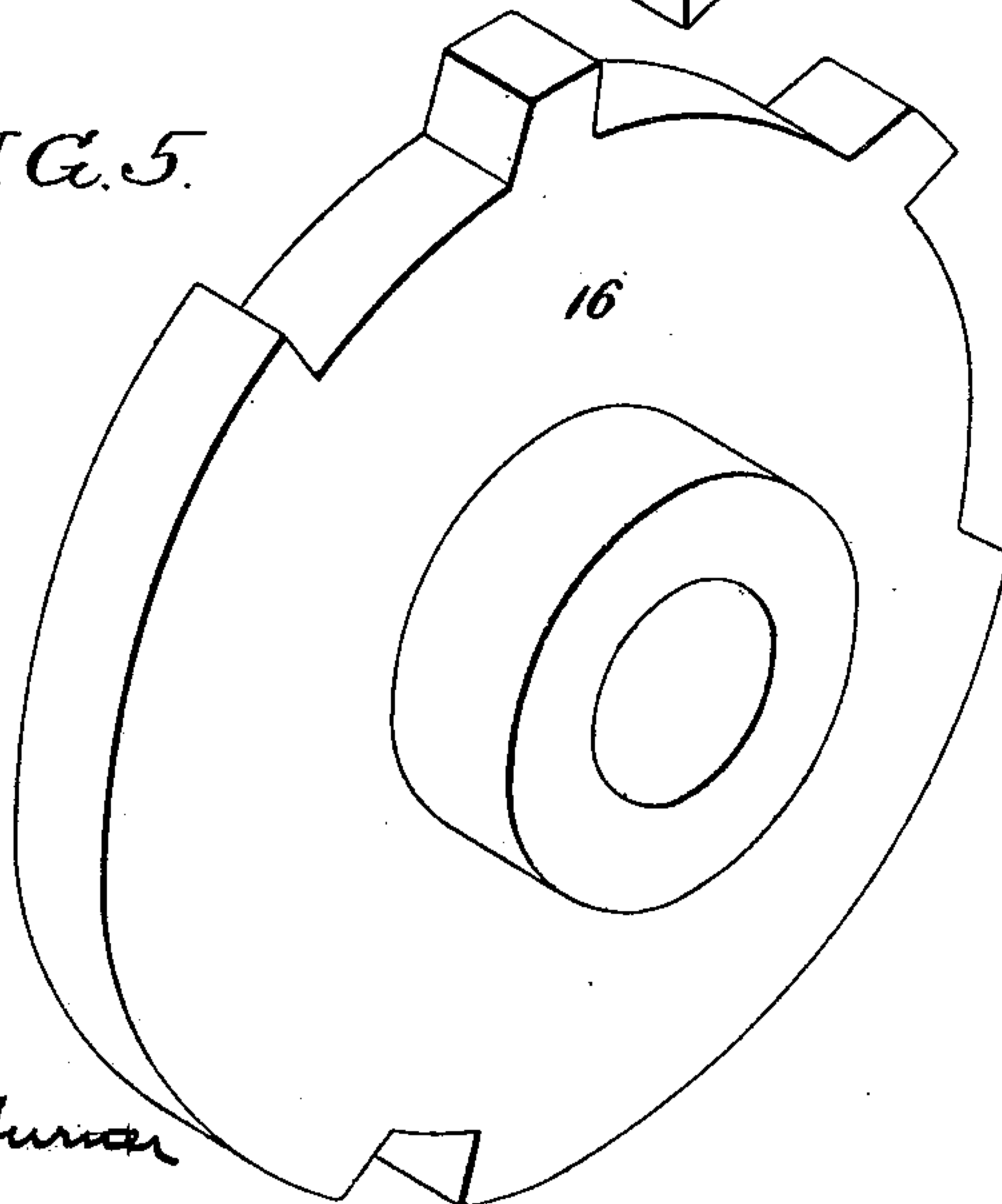


FIG. 5.



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UNITED STATES PATENT OFFICE.

PHILIP HOFFMAN, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR PRODUCING STRIPED KNITTED FABRIC.

SPECIFICATION forming part of Letters Patent No. 620,035, dated February 21, 1899.

Application filed February 28, 1898. Serial No. 672,026. (No model.)

To all whom it may concern:

Be it known that I, PHILIP HOFFMAN, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Machines for Producing Striped Knitted Fabric, of which the following is a specification.

The object of my invention is to produce a knitted fabric having transverse stripes
10 formed by striping-yarn interposed upon the main knitting-yarn, an object which I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

15 Figure 1 is a view representing the appearance of a piece of striped fabric made in accordance with my invention. Fig. 2 is a diagram illustrating the disposition of the yarns. Fig. 3 is a side view of sufficient of a knitting-
20 machine to illustrate the mechanism employed in carrying out my invention. Fig. 3^a is a sectional detail view of the frictional clamping-plate. Fig. 4 is a perspective view of certain cams forming part of said mechanism. Fig. 5 is a perspective view of a pattern-wheel for governing the adjustment of
25 said cams, and Fig. 6 is a perspective view of the lower portion of the cam-adjusting device.

30 In producing a knitted fabric in accordance with my invention I use an ordinary circular-knitting machine having a guide which continually feeds to the needles of the machine one or more strands of knitting-yarn to pro-
35 duce a continuous tubular web of knitted fabric, and in connection with this main guide I employ one or more supplementary and adjustable guides carrying an extra yarn or yarns, either of which may by proper ad-
40 justment be caused to feed its yarn to the needles along with the strand or strands from the main guide and in such relation to the latter that the supplementary yarn will always appear upon the face of the fabric.
45 Hence when the supplementary yarn-guide is out of action the fabric will be produced from the strand or strands delivered by the main yarn-guard; but when the supplementary guide is thrown into operation the stitches
50 produced by the main knitting-yarn will be overlaid by the supplementary yarn, which will appear upon the face of the fabric and

will thus produce a stripe extending throughout as many courses as may be knitted while said supplementary yarn-guide is in action. 55
Thus in Fig. 1 the portions 1 1 1 of the fabric are those produced by the main knitting-yarn, while the portions 2 2 are those in which the main knitting-yarn is overlaid by the supplementary yarn, the course of the yarns being 60
shown in the diagram Fig. 2, in which convolutions of single yarn represent the successive courses of stitches.

In carrying out my invention I may use any ordinary form of circular-knitting machine; 65
but I use in connection with the main yarn-guide of the machine, which in Fig. 3 is represented at 3, one or more supplementary yarn-guides, one of such yarn-guides being shown at 3^a, said supplementary guide being 70
carried by a lever 4, which is hung at 5 to a bracket 6, applied to a rotating element of the machine—such, for instance, as the rotating cam-box 6^a—said lever having an adjustable set-screw 7, which by contact with a 75
finger 9 serves to limit the descent of the long arm of the lever and the approach of the guide 3^a toward the needles of the knitting-cylinder. The lever 4 is of the bell-crank variety, and its depending short arm carries an 80
antifriction-roller 10, which is adapted to be acted upon by either of two cams 11 and 12, both of which are carried by a head 13, secured to the upper end of a rod 14, which is mounted in a bracket 15 on the fixed frame, 85
so as to be vertically movable therein, the lower end of said rod 14 being adapted to be acted upon by a pattern-wheel 16, which is intended to be rotated from any available 90
moving part of the machine.

The lower end of the rod 14 is cut away, so as to form a narrow projecting finger 14^a, upon which the pattern-wheel 16 acts, so that the length of the lugs and recesses of the pattern-wheel can be much less than they would 95
have to be if the full diameter of the rod bore upon said pattern-wheel. Hence a wheel of comparatively small diameter will effect all of the changes in pattern ordinarily required.

The cams 11 and 12 bear such relation to 100
each other and to the antifriction-roller 10 of the lever 4 that when the rod 14 is depressed the cam 11 will act upon said antifriction-roller 10 and cause the depression of the in-

ner end of the lever 4, so as to bring its guide 3 into operative or feeding relation to the needles of the machine, the cam 12, under these circumstances, being below the antifric-
 5 tion-roller 10, and hence out of the path of the same as the latter rotates with the rotating portion of the machine upon which it is mounted. When the rod 14 is raised, how-
 10 ever, the cam 12 acts upon the antifric- tion-roller 10 of the lever 4 and serves to lift the inner end of said lever, so as to carry its guide 3 out of operative relation with the needles of the knitting-machine, in which position the lever may be retained by any suitable means—
 15 such, for instance, as a pair of friction clamp- ing-arms 17 and 19, mounted upon the bracket 6 and embracing the long arm of the lever, as shown in Fig. 3^a. Hence it will be seen that by a proper conformation of the pattern-
 20 wheel 16 the striping-thread can be introduced into the fabric at any desired point and for any desired number of courses of stitches.

To the lower end of the rod 14 is secured a head 20, having a shoe 21, and when it is de-
 25 sired to hold the striping-thread guide out of action for any considerable period of time without regard to the action of the pattern- wheel 16—as, for instance, in forming the foot of a stocking or other unstriped portion of
 30 fabric of considerable extent—said shoe 21 may be acted upon by high links on the pat- tern-chain with which an ordinary automatic circular-knitting machine is usually pro-
 35 vided, such chain running upon a sprocket- wheel alongside of the pattern-wheel 16, as shown by dotted lines in Fig. 3. By this means the reduced lower end of the rod 14 will be held above the periphery of the pattern-wheel 16 and will not be acted upon thereby.

40 Having thus described my invention, I claim and desire to secure by Letters Pat- ent—

1. The combination of a knitting-machine
 45 having a permanent guide for continuously feeding the main knitting-yarn to the needles, a supplementary guide mounted so as to be movable directly in front of or away from said permanent guide so as to introduce into some of the courses a continuous striping-yarn

which overlies the main knitting-yarn on the 50 surface of the fabric, and floats on the back of the fabric when not in use, and provision for operating said supplementary yarn-guide, substantially as specified.

2. The combination of a circular-knitting 55 machine having a permanent main yarn-guide for feeding the yarn continuously to the needles, a supplementary guide movable in front of and away from said permanent guide for feeding striping-yarn to the needles, a le- 60 ver carrying said guide, cams adapted to act alternately upon said lever so as to move its guide into and out of operative relation with the needles, means for operating said cams, and a friction-retainer consisting of a pair of 65 plates one of which is elastic and between which the lever plays, whereby they serve to hold the lever in the elevated position, sub- stantially as specified.

3. The combination of a circular-knitting 70 machine having a main yarn-guide, a supple- mentary guide for feeding striping-yarn to the needles, a lever carrying said guide, means for operating the same so as to move its guide into and out of operative relation with the 75 needles, a retainer for holding said lever in the elevated position, and an adjustable stop for limiting the descent of the lever, substan- tially as specified.

4. The combination of a circular-knitting 80 machine having a main yarn-guide, a supple- mentary guide for feeding a striping-yarn to the needles, a guided rod, and mechanism whereby the movement of said rod is caused to move said striping-yarn guide into and out 85 of operative relation with the needles, a pat- tern-wheel for acting on said rod, and a shoe connected to the rod and serving as a means whereby a pattern-chain may lift the rod out of the control of the pattern-wheel, substan- 90 tially as specified.

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

PHILIP HOFFMAN.

Witnesses:

CHAS. H. BANNARD,
 WILL. A. BARR.