

No. 609,152.

Patented Aug. 16, 1898.

F. P. LEDREUX.

MACHINE FOR MAKING BEADED TRIMMINGS.

(Application filed Apr. 30, 1897.)

(No Model.)

4 Sheets—Sheet 1.

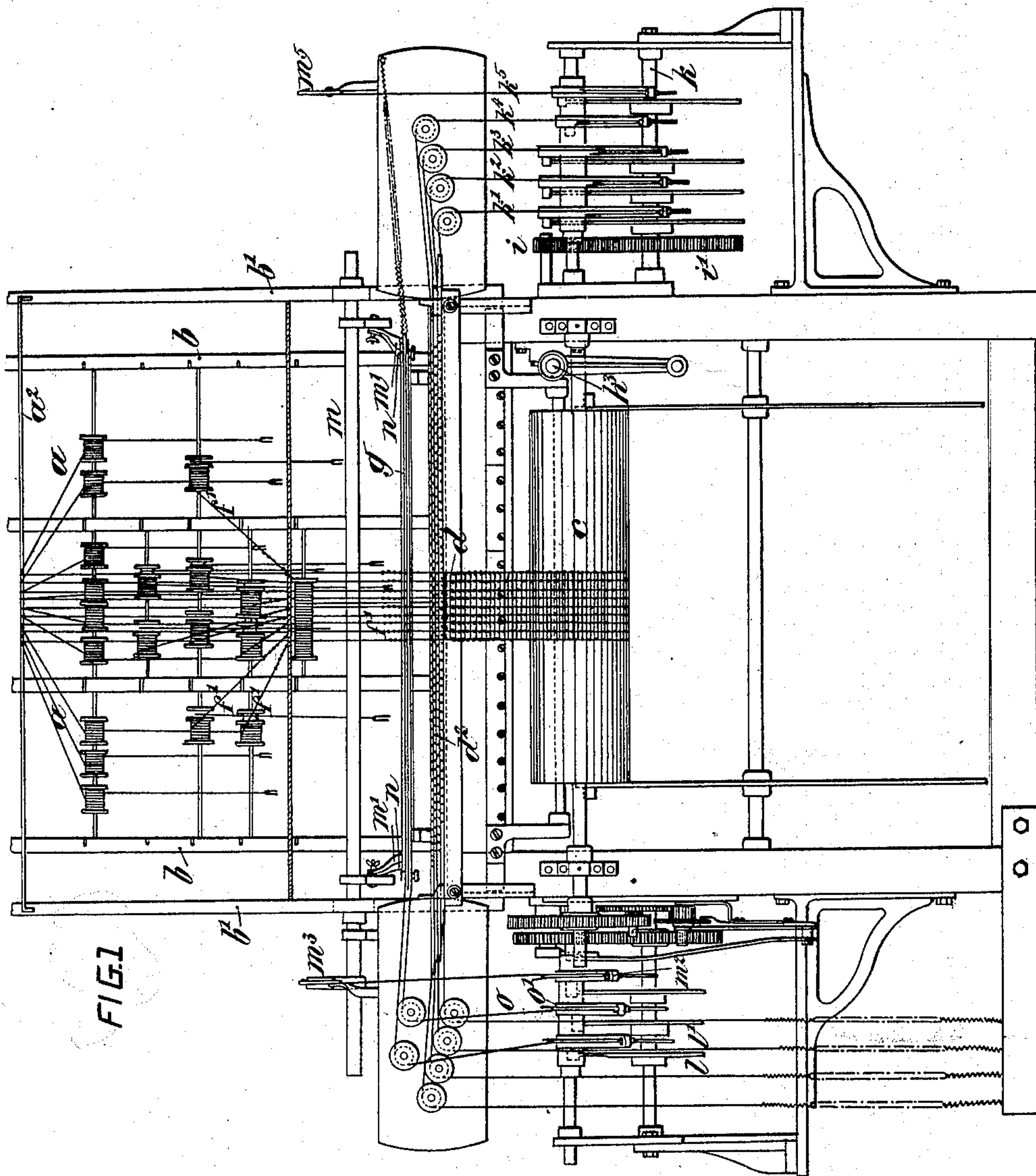


FIG. 1

Fig. 3.

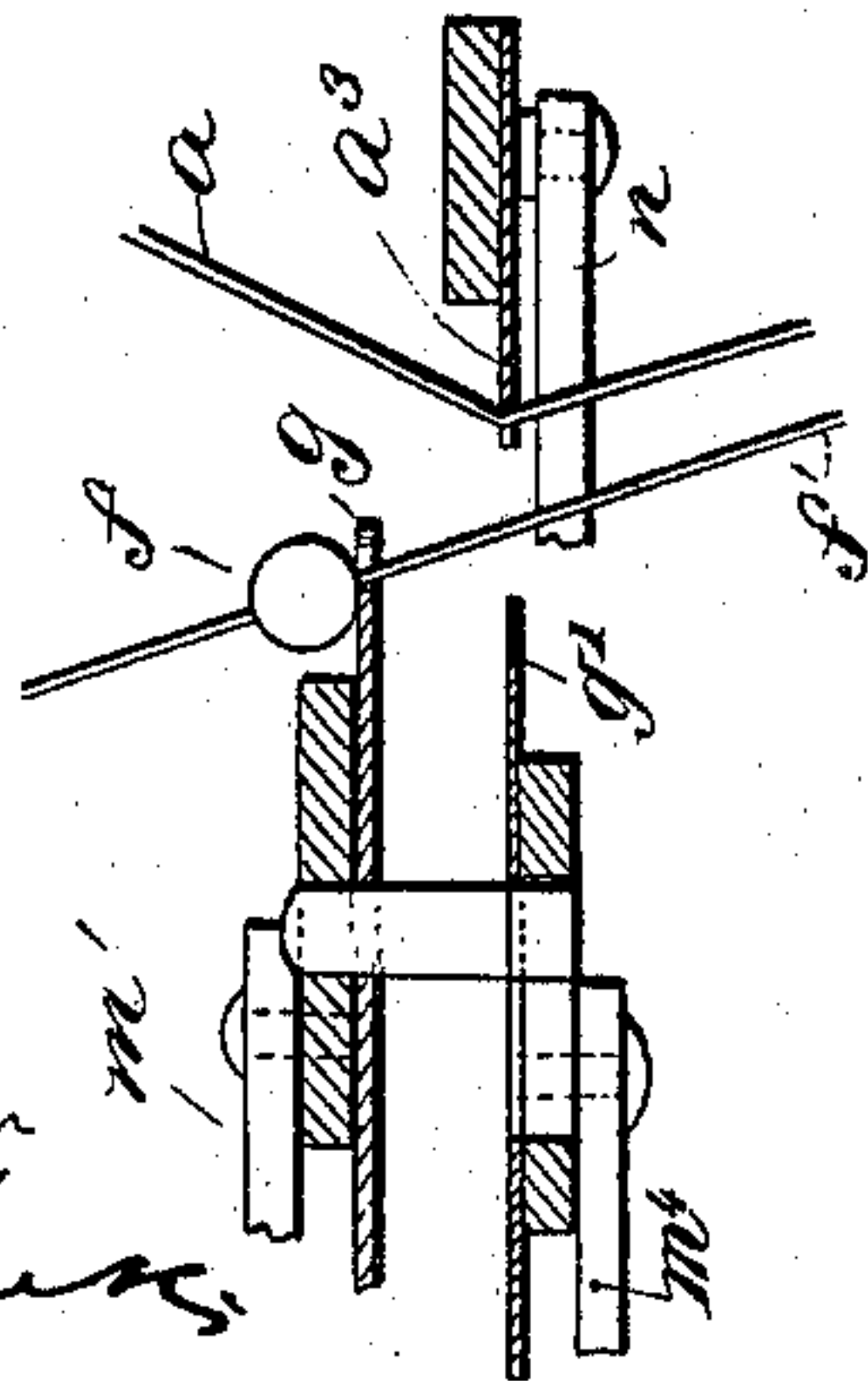
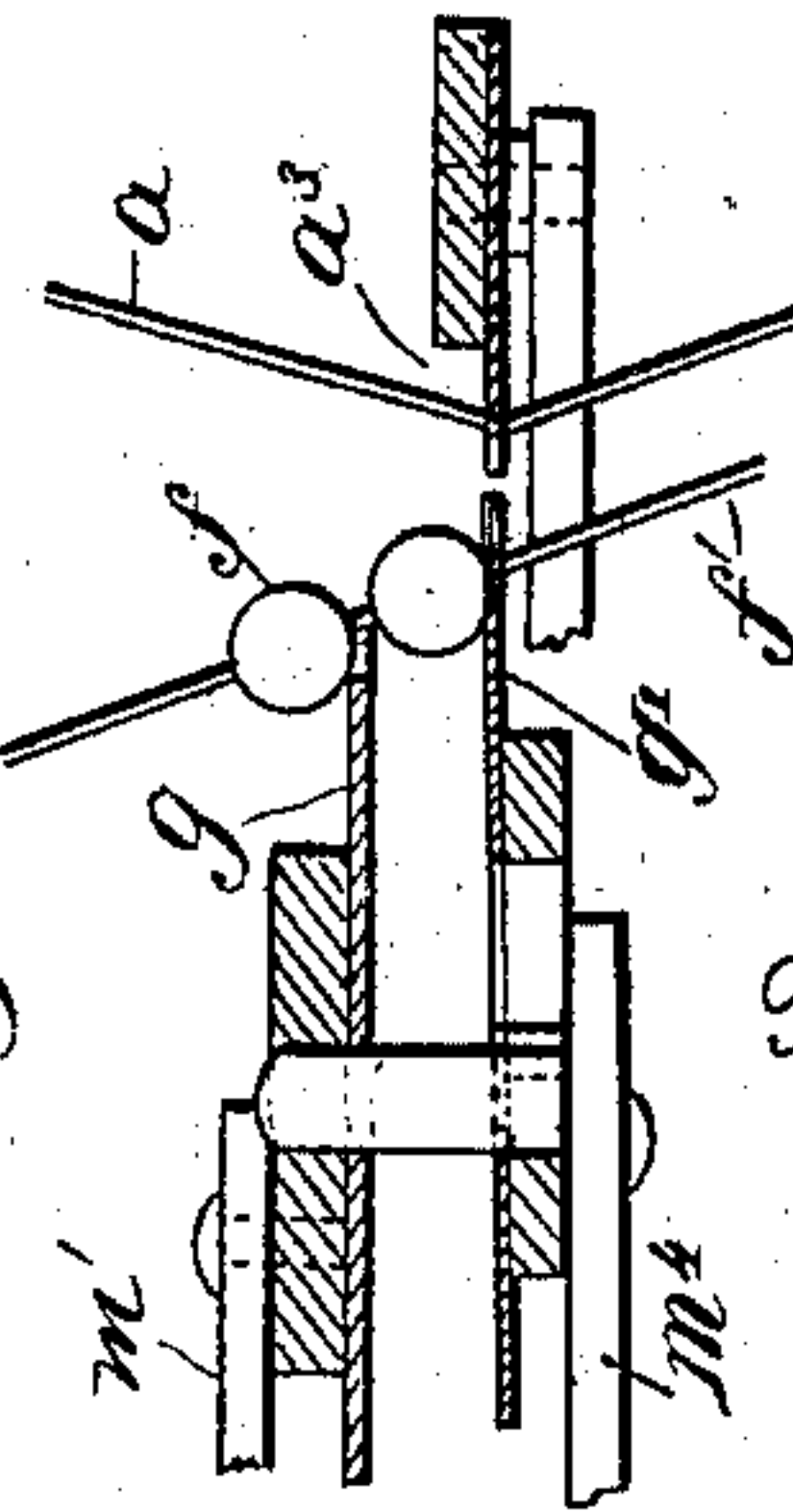


Fig. 4.



Witnesses:
L. M. Hachschlager,
Fred. O. Hachschlager.

Inventor
Florent P. Ledreux,
By Briesen Knaut
his Attorneys

No. 609,152.

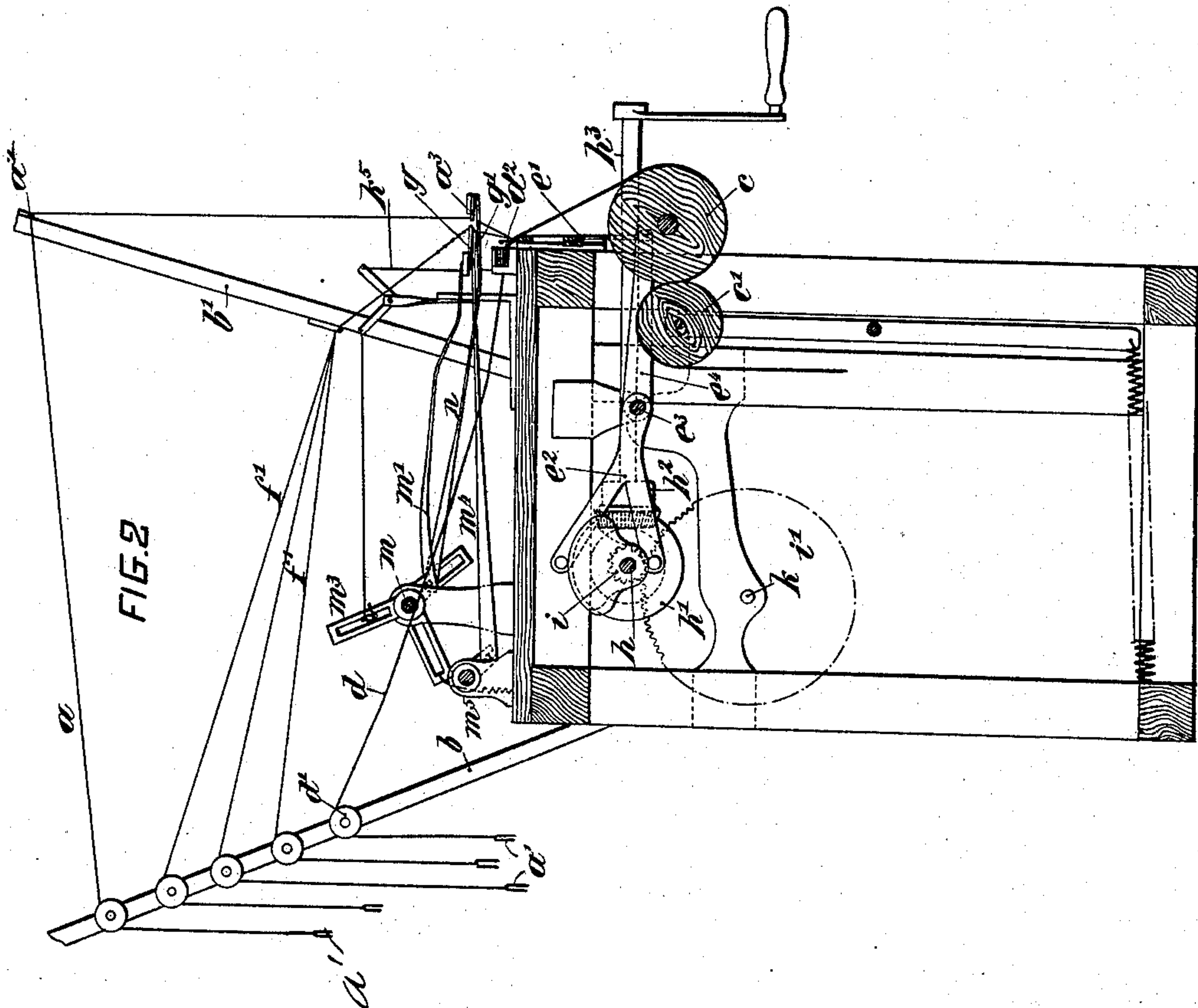
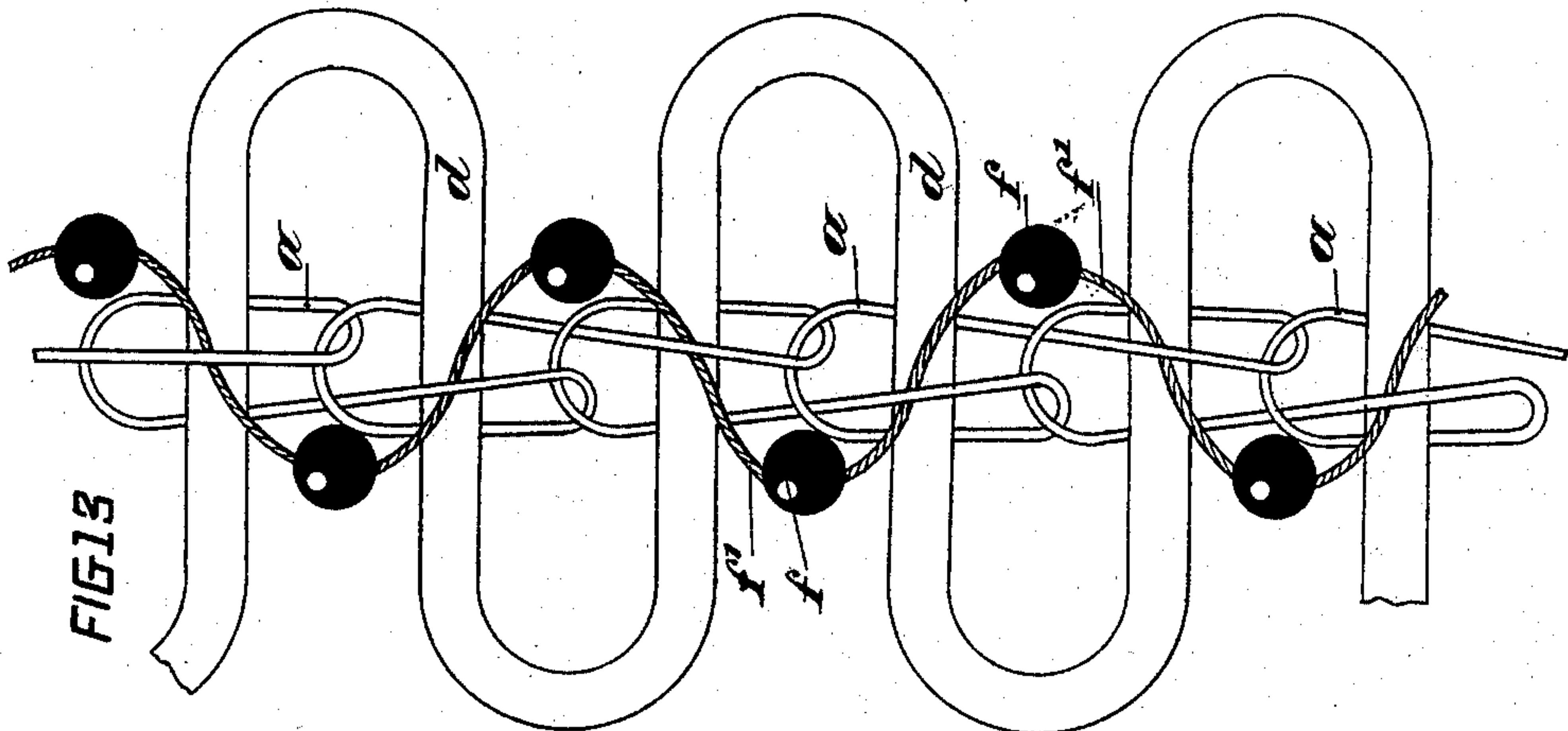
Patented Aug. 16, 1898.

F. P. LEDREUX.
MACHINE FOR MAKING BEADED TRIMMINGS.

(No Model.)

(Application filed Apr. 30, 1897.)

4 Sheets—Sheet 2.



Witnesses:
L. M. Hachschlager,
Geo. E. Moore.

Inventor
Florent P. Ledreux,
By Briesen Knautz
his Attorneys.

No. 609,152.

Patented Aug. 16, 1898.

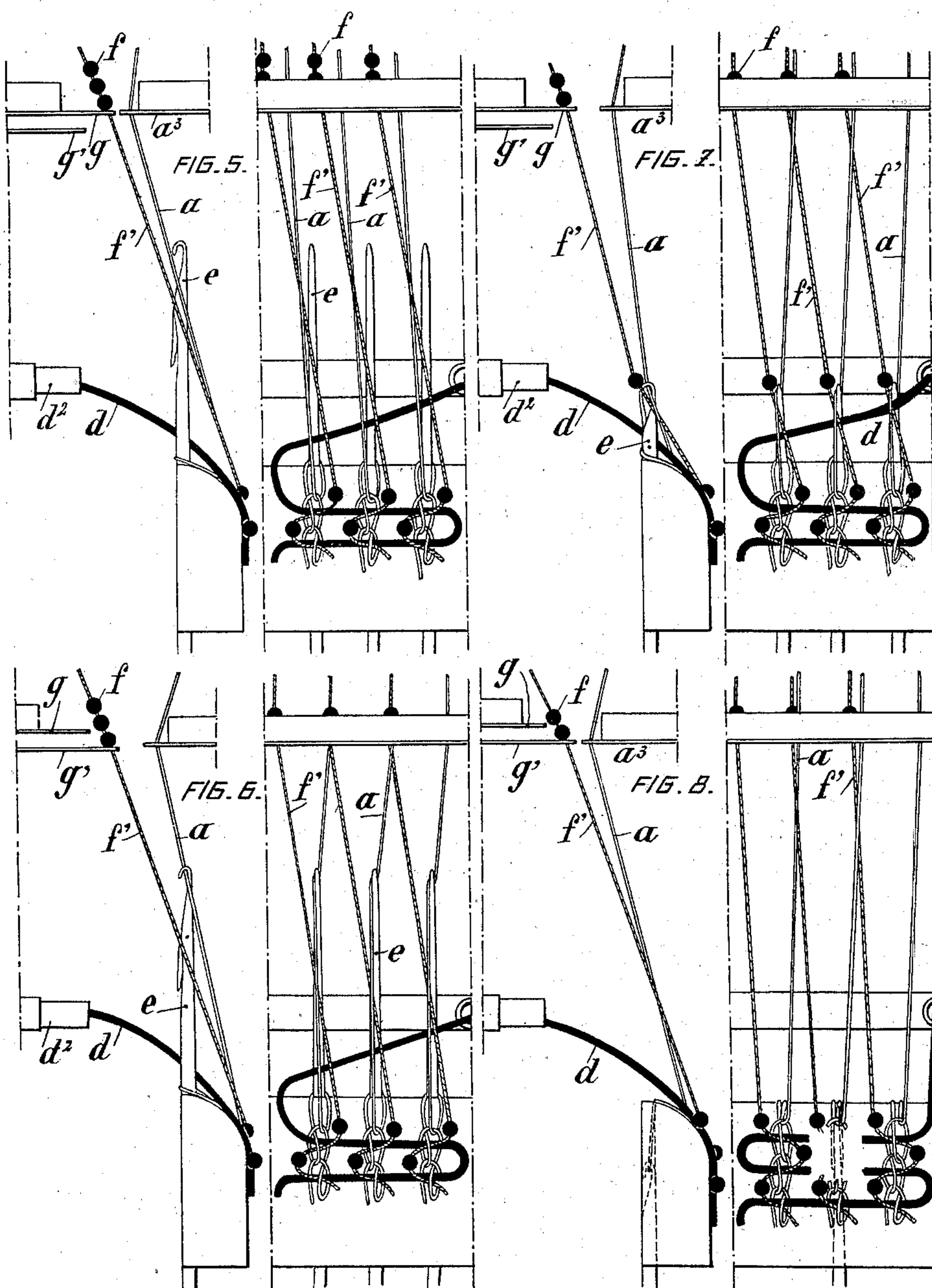
F. P. LEDREUX.

MACHINE FOR MAKING BEADED TRIMMINGS.

(Application filed Apr. 30, 1897.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses:
L. M. Hachschlager,
Jed. O. Moore,

Inventor
Florent P. Ledreux,
By Briesen & Knaut
his Attorneys

No. 609,152.

Patented Aug. 16, 1898.

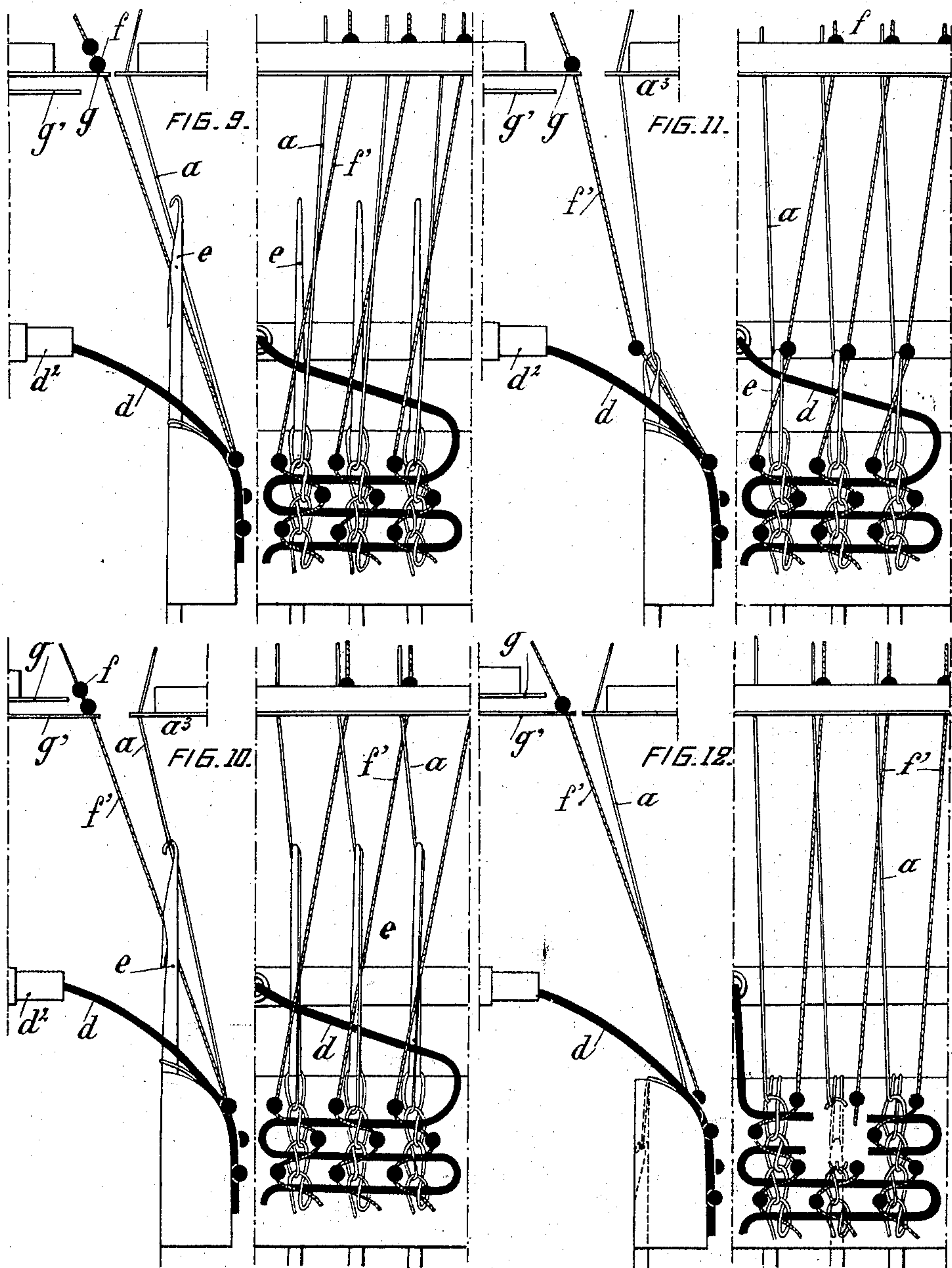
F. P. LEDREUX.

MACHINE FOR MAKING BEADED TRIMMINGS.

(Application filed Apr. 30, 1897.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses:
L. M. Wachschlager,
Jed. A. Muise.

Inventor
Florent P. Ledoux,
by Briesen Knautz
his Attorneys.

UNITED STATES PATENT OFFICE.

FLORENT PIERRE LEDREUX, OF PARIS, FRANCE.

MACHINE FOR MAKING BEADED TRIMMINGS.

SPECIFICATION forming part of Letters Patent No. 609,152, dated August 16, 1898.

Application filed April 30, 1897. Serial No. 634,562. (No model.) Patented in France September 9, 1893, No. 219,561, and in Germany January 22, 1894, No. 84,912.

To all whom it may concern:

Be it known that I, FLORENT PIERRE LEDREUX, of the city of Paris, France, have invented a Machine for Making Beaded Trimmings, (for which I have obtained Letters Patent in France for fifteen years, dated September 9, 1893, No. 219,561, and in Germany for fifteen years, dated January 22, 1894, No. 84,912,) of which the following is a full, clear, and exact description.

This invention relates to a machine for making a gimp or other trimming in which beads are introduced in course of the operation of laying the threads constituting the trimming.

The invention also relates to the new trimming thus produced. The desired result is attained by the introduction into the fabric of a special thread, termed the "third" or "binding" thread, having for its particular function to bind the bead-carrying thread to the weft of the fabric by a sort of crochet-stitch.

Reference is to be had to the accompanying drawings, wherein—

Figure 1 is a front elevation, and Fig. 2 a cross-sectional elevation, of a machine embodying my invention. Figs. 3 and 4 show the mechanism for effecting the feeding of the beads to the points where the threads are bound into the fabric. Figs. 5 to 8 show the respective positions of the looper-needles and binding-threads for forming a loop, the said figures being on a larger scale than the preceding figures. Figs. 9 to 12 show the formation of the next following loop, and Fig. 13 shows a specimen of the fabric thus made.

The same letters of reference denote like parts in all the figures.

The trimming essentially comprises three distinct elements: first, the binding-threads forming the loop on the weft and tying to it the bead-carrying threads; second, the weft which is composed of twist, chenille, gimp, or other thread; third, the bead-carrying warp-threads on which the beads are strung.

The machine is adapted to make trimmings of the most varied designs and dimensions. For instance, for each strip or galloon one or more wefts of the same or different kinds may be employed, the bead-carrying threads

may follow a more or less extended course or their feed movements may be interrupted according to the design which is to be produced, and the binding-threads which are looped by the needles in the ordinary way of making such trimmings may be of variable number proportionately to the width of the strip or galloon to be produced.

I will describe a machine for making a gimp strip or galloon having a single weft with nine rows of beads in its width. The nine binding or crochet threads a forming the loops tying together the other elements of the strip are drawn from bobbins counterweighted by weights a' and mounted on a creel b over a transverse guide-bar a^2 , the threads a thence passing down through a row of guide-holes in a guide-bar a^3 , (shown on a larger scale in Figs. 3 and 4,) and are temporarily attached to the take-up roller c , frictionally driven from a second roller c' . The weft d , which in this example is a single cord or twist, is drawn from a bobbin d' and enters one of the guide-tubes d^2 , four parallel series of which are shown in Fig. 1. The beads f are strung on bead-carrying warp-threads f' , drawn from counterweighted spools in creel b , these beads f resting, by reason of the inclination of the threads, against a double reed $g g'$, (which acts as a bead-distributor,) between the dents of which reeds the threads pass into the work into which they are drawn by the take-up rollers $c c'$. Figs. 3 and 4 show the two toothed members of the double reed or bead-distributor in their different positions. They act as an escapement for the beads and distribute the same as follows: When the upper member g is retracted, the beads rest on the lower member g' , as in Fig. 6, and when the upper member g comes forward again it separates the beads on the lower member from those which follow, so that when the lower member is retracted, as in Figs. 7 and 8, the beads which were retained by it will escape and slide down the bead-carrying threads until they meet the weft. Besides this backward and forward motion of the two members of the reed they have a longitudinal movement similar to that of the weft, but of slightly less amplitude, by which means the warp-threads f , which carry the

beads, are laid sinuously and will appear thus in the finished fabric. (See Fig. 13.)

Referring to Figs. 5 to 8, I will explain the operations of forming the trimming. At 5 starting the needles e are raised. The guide a^3 is then shifted laterally to the right, while the needles remain stationary, so that the binding-threads a lie across the bead-carrying warp-threads f' . The needles e then descend, taking the binding or crochet threads 10 a into their hooks, the latches of which then close. At the same time the bead-distributor or double reed is operated to release a set of beads, which slide down to the weft, 15 and the needles form the binding or crochet threads a into loops, which encircle both the warp or bead threads and the weft, as shown in Figs. 7 and 8. The remaining operations are shown in Figs. 9 to 12. The weft-guide 20 tubes d^2 are now moved laterally to the left, so as to lay the weft d behind the binding or crochet threads a , which have been thus looped. As soon as the weft has been thus laid the needles rise, passing behind the shoot 25 of weft, and the threads a are drawn backward by a second movement of the thread-guide a^3 to permit the next following loop to be formed therein. These two movements of the latch-needles e and their binding-threads 30 a are effected simultaneously and then the needles descend again, drawing tight about the weft the loops of the binding-threads.

When the needles, having inclosed their loops, are again lowered, the weft d is laid in 35 the opposite direction to the previous shoot. It will be observed that the weft d is only laid when the needles are lowered. It will likewise be observed that the effect of this alternate lateral movement of the weft-laying 40 tubes d^2 is to lay the weft-threads sinuously, which effect shows in the finished fabric. Thus the tubes d^2 and their operating mechanism constitute a means for laying a weft-thread sinuously.

45 In the interlacing motions of the weft-threads d and the binding or crochet threads a above described the introduction of the beads has been omitted for the sake of clearness. While the needles e are completely lowered, the warp or bead threads f' are behind 50 the crochet or binding threads a , as shown in Fig. 8, but when the needles rise these binding or crochet threads recede at the same time as the warp or bead threads, Fig. 9, the ascending motion of the needles ceasing for a moment, while the guide a^3 effects its lateral motion, carrying the binding or crochet threads. During these movements of the needles and the lateral movement of the 60 thread-guide the bead-threads, each with its bead, and the weft remain stationary. It is when the crossing of the binding-threads by the lateral motion of their guide has been effected that these threads are taken by the 65 needles in their descending movement, thus forming a loop about both the bead or warp threads and the weft-threads, as above de-

scribed and as shown in Figs. 10, 11, and 12. The operation is thus continued, the needles are completely lowered, the weft is passed 70 behind the threads, the following bead falls into position, and a new loop binds the whole, and so on, as above described. It will be observed that the needles form the thread a into crochet-stitches around the intersections 75 of the weft and warp threads.

The invention is not limited to the mechanical organs shown; but it may be mentioned that to vary the designs produced by the beads suitable cams or other pattern mechanism are used to control or actuate the reeds 80 g g' or bead-distributor. To increase the number of beads introduced into the work by each thread, the distance between the two reeds g g' is varied proportionally to the number of beads to be produced at one time, and 85 to vary the design produced by the weft several wefts of cord, twist, or chenille may be used, passing each in its appropriate weft-laying tube d^2 , and being placed upon 90 the bar and in the position determined by the nature of the design which it is desired to produce.

The above-described movements are derived from a shaft h , driven by means of a 95 bevel-gear h' h^2 from a shaft h^3 and geared by pinion i with a wheel i' , keyed on a shaft k , carrying cams k' k^2 k^3 k^4 k^5 , of which the first four produce the alternate to-and-fro motion of the thread-guide bars d^2 . The 100 same movement is imparted to the two reeds g g' by cams l l' and by springs attached to the thread-guide and reed-bars. The reed-bars, besides their lateral motion, receive a backward-and-forward motion relatively to 105 each other through connecting-rods from shaft m , which is actuated by cam m^2 or other pattern mechanism, and an arm m^3 , the upper reed-bar g being actuated by the connecting-rods m' and the lower one g' by the rods 110 m^4 from another shaft m^5 , actuated by lever k^5 . The needle-bar e' is operated from shaft h through parts e^2 , e^3 , and e^4 . The slotted arms of shaft m are also connected by bars n to the guide-bar a^3 of the binding-threads in 115 order to give it its backward and forward movements, the lateral movement of this bar being produced by connection o and cam o' .

What I claim, and desire to secure by Letters Patent, is— 120

1. As a new and useful article of manufacture, a substantially flat strip of trimming comprising in its structure a weft-thread of chenille, twist, gimp or the like, laid sinuously and running laterally of the fabric, a warp- 125 thread crossing the weft-thread and also laid sinuously and running laterally of the fabric and carrying beads at intervals thereon, and a binder or crochet thread looped around weft and warp threads at their intersection 130 and binding the said warp and weft threads together.

2. In a machine for making beaded trimming, the combination of means for laying a

weft-thread sinuously, means for laying a warp-thread sinuously, means for looping a thread around the weft and warp threads at their intersection, and bead - distributing means for distributing beads to the fabric in the course of its formation.

3. In a machine for making beaded trimmings, the combination of means for laying a warp-thread carrying beads, means for laying a weft-thread sinuously upon the warp-thread and means for looping a binding-thread around the weft and warp threads at their points of intersection and means for feeding the beads to the fabric in the course of its formation.

4. In a machine for making beaded trimmings, the combination of means for laying a weft-thread sinuously, means for laying a bead-carrying warp-thread sinuously, means for looping a binder-thread around the warp and weft threads at their intersection and pattern-controlled bead-distributing means for distributing beads to the trimming in the course of its formation.

5. In a machine for making beaded trimming, the combination of means for laying a

weft-thread sinuously, means for laying a bead-carrying warp-thread sinuously, means for looping a binding-thread around the weft and warp threads at their intersection and a plurality of reeds engaging the warp-threads and movable backward and forward to separate beads carried by the warp-threads to allow the beads to be fed to the trimming in the course of manufacture.

6. In a machine for making beaded trimming, the combination of means for laying a weft-thread sinuously, means for laying a bead-carrying warp-thread sinuously, means for supporting a binder-thread, latch-needles for engaging the binder-thread and looping the same around the intersection of warp and weft threads in a crochet-stitch and means for distributing beads to the work.

The foregoing specification of my machine for making beaded trimmings signed by me this 16th day of April, 1897.

FLORENT PIERRE LEDREUX.

Witnesses:

EDWARD P. MACLEAN,
MAURICE HENRI PIGNET.