

(No Model.)

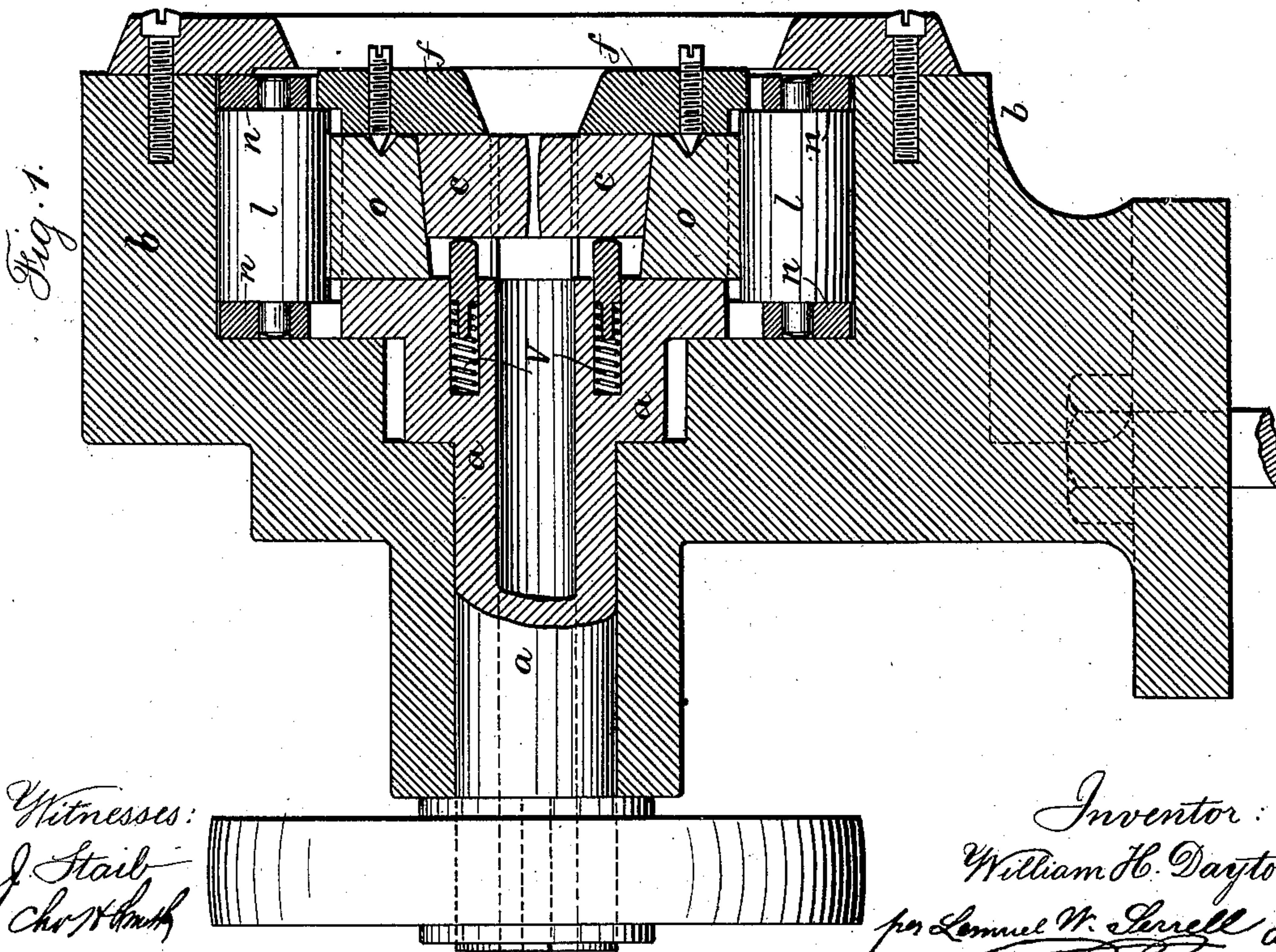
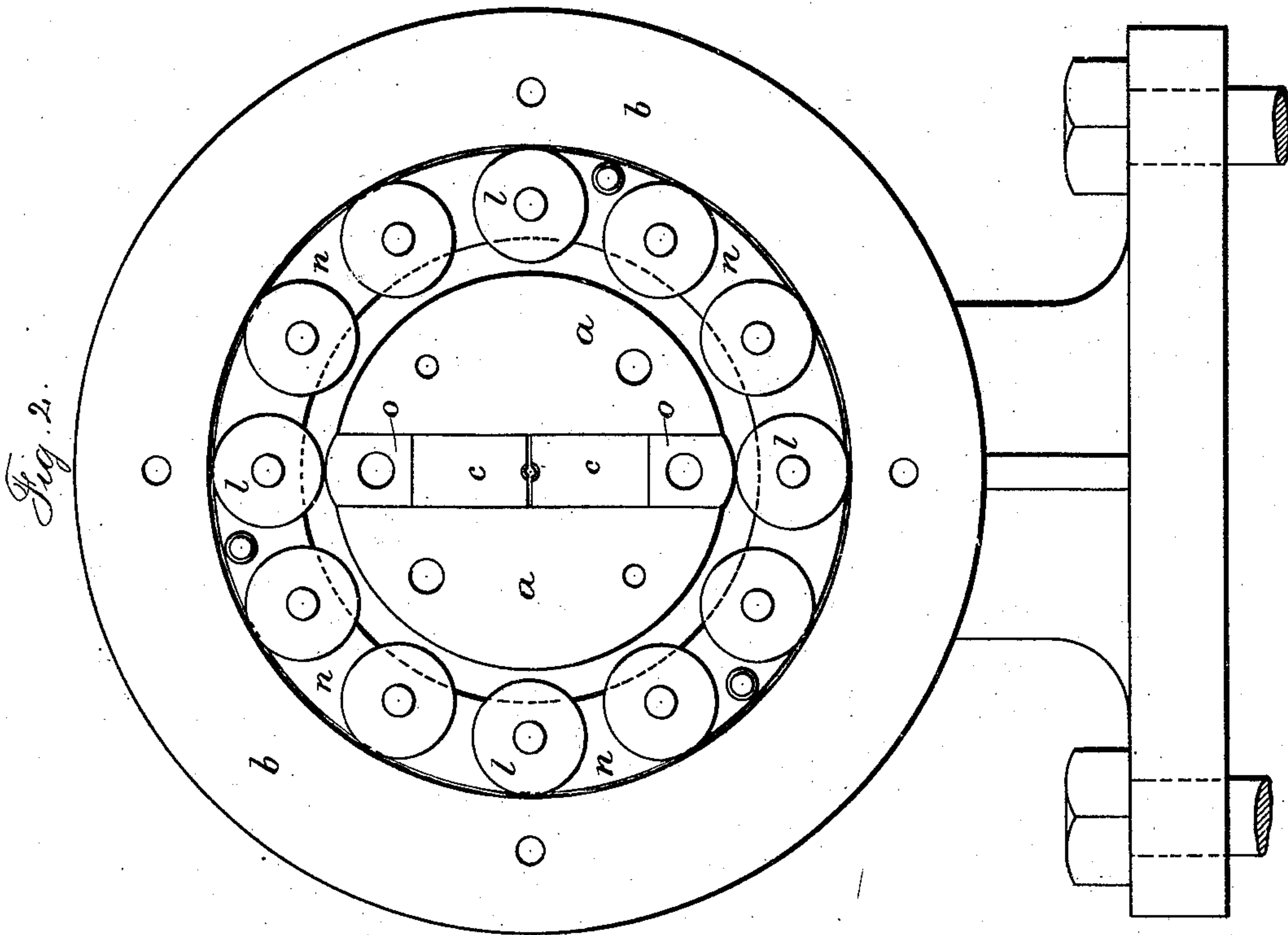
2 Sheets—Sheet 1.

W. H. DAYTON.

MACHINE FOR SWAGING NEEDLE BLANKS.

No. 376,144.

Patented Jan. 10, 1888.



Witnesses:
J. Stail
Chas. H. Smith

Inventor:
William H. Dayton
per Lemuel W. Serrell atty

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2 Sheets—Sheet 2.

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Fig. 6



Fig. 3.

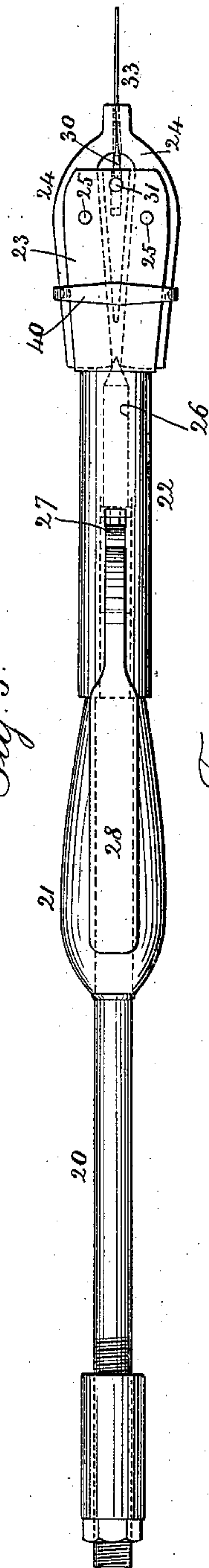


Fig. 7.

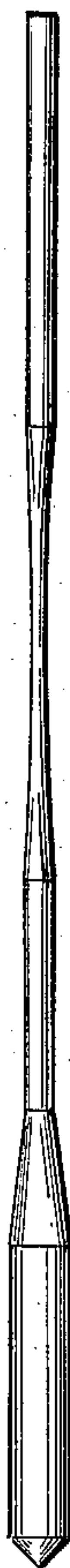


Fig. 4.

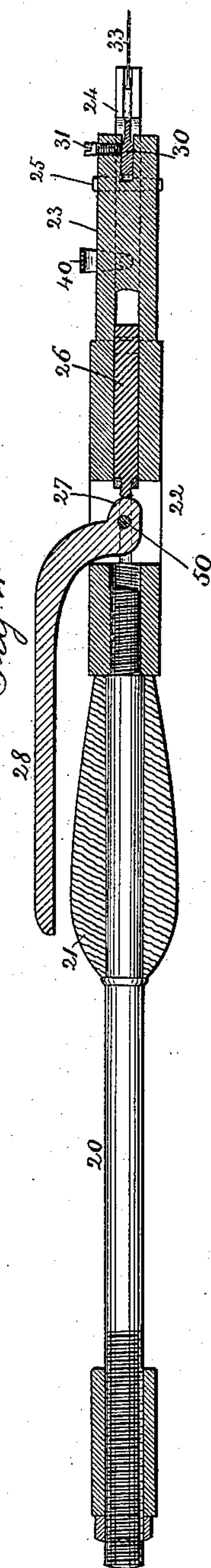


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM H. DAYTON, OF TORRINGTON, CONNECTICUT, ASSIGNOR TO THE
EXCELSIOR NEEDLE COMPANY, OF SAME PLACE.

MACHINE FOR SWAGING NEEDLE-BLANKS.

SPECIFICATION forming part of Letters Patent No. 376,144, dated January 10, 1888.

Application filed March 28, 1887. Serial No. 232,672. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DAYTON, of Torrington, in the county of Litchfield and State of Connecticut, have invented an Improvement in Machines for Swaging Needle-Blanks and other Articles, of which the following is a specification.

My present invention is an improvement upon that for which Letters Patent No. 268,874 were granted to me December 12, 1882.

My present invention is especially available in manufacturing sewing-machine-needle blanks in which the body of the needle is reduced so as to be of less diameter than the point.

I provide a holder into which the needle-blank is to be received while being reduced between the point and the shank, and the dies made use of are provided with springs and the die-followers have inclined faces, so that the dies are caused to approach toward each other as they are pressed back during the swaging operation.

In the drawings, Figure 1 is a vertical section of the swaging-machine. Fig. 2 is an elevation of the machine with the rings in front of the rollers and dies removed. Fig. 3 is a plan, and Fig. 4 a section, of the blank-holder. Fig. 5 shows a section of the finished needle in magnified size, and Figs. 6 and 7 show needle-blanks in magnified size.

The rotating shaft *a*, shell *b*, and range of rollers *l* within the rings *n* are substantially the same as in my aforesaid patent.

In sewing-machines, especially those that are driven rapidly by power, it is found that in sewing some materials the needle becomes heated by friction. To avoid this the body of the needle above the eye has been reduced in size, so as not to touch or rub upon the inner surface of the hole formed by the penetration of the point of the needle. I have adapted my swaging-machine to the manufacture of articles—such as sewing-machine needles—that are swaged of a smaller diameter at one part than at another part. To effect this object the followers *o* are made wider than the dies *c*, and the dies *c* are pressed forward by the springs *v*, so that their front surfaces rest against the back surface of the ring *f* when in a normal

position, and the faces of the followers *o* and of the dies *c* where they come together are slightly inclined; hence when the springs *v* are compressed by pushing the dies *c* backwardly the faces of the dies will be brought closer together. I therefore am able to pass in between the dies a cylindrical article, such as a previously-reduced needle-blank, such blank being contained in a suitable holder, and by pressing the end of the holder against the outer ends of the dies *c* such dies are gradually pressed backwardly against the springs, and they approach closer together as the reducing or swaging operations progress. In the manufacture of needle-blanks the wire is passed into one or more swaging-machines—such as in aforesaid patent—and reduced to the diameter of the needle at the point. Then the needle-blank is placed in a holder that allows the cylindrical portion of the needle-body to project the proper distance, and then the blank is passed in between the dies *c*, which in their normal condition are sufficiently wide open for the needle to pass freely between their faces, so that the point portion of the needle-blank projects inwardly beyond the die-faces, and by pushing the end of the holder against the outer ends of the dies as they revolve the dies will be brought closer together and the body of the needle will be reduced, leaving the point portion of the needle-blank untouched.

In Fig. 6 I have shown a needle-blank after it is reduced to the proper size corresponding in diameter to the point of the needle, and in Fig. 7 the needle-blank is represented after having been subjected to the swaging operation that reduces the body of the needle, these figures being of a magnified size, and in Fig. 5 the finished needle is shown.

In Figs. 3 and 4 I have shown a holder that is well adapted to grasping the needle-blanks and to moving the dies by an endwise pressure of the holder. In these figures the rod 20 has a handle, 21, around it, and there is a tubular stock, 22, at the end of the rod 20, and the body 23 at the end of the stock is slotted at its edges to receive the jaws 24, that are pivoted upon the cross-pins 25, and their back ends are adjacent to the wedge-shaped end of the pin 26, that slides within the stock 22 and receives

its motion from the cam 27 and lever 28, swinging on the pivot-pin 50, such cam being in a cross-mortise in the stock 22, so that when the cam-lever 27 28 is moved the pin 26 is pressed forward and its wedge shaped end is driven in between the back ends of the jaws 24 and their forward ends are swung together to grasp the needle-blank or other article placed between them.

10 There is a gage-piece, 30, in a hole at the front end of the body 23 and in line with the faces of the jaws, and a screw, 31, to hold the pin in its proper place to form a stop for the needle-blank 33, that is placed in between the jaws.

The front ends of the jaws are flat, and hence form a proper bearing-surface for pressing the jaws against the forward ends of the die-blocks and forcing them backwardly to cause them to approach nearer to each other and perform the operation of swaging the body of the needle-blank, as aforesaid. The jaws are opened by a spring as the pin 26 is released by swinging up the cam-lever. The clip or bow-spring 25 40 is a convenient form of spring for opening the jaws.

The holder may be pressed forward against the ends of the swaging-dies by any suitable

mechanism acting at the back end of the rod 20, where there is a screw-sleeve and jam-nut 30 to adjust the length of the holder and adapt the same to the parts with which it is connected.

I claim as my invention—

1. The combination, with the shaft having 35 at its end a head with a cross-slot, of dies with adjacent die-faces, die-followers outside the dies, said dies and followers abutting by inclined contact-surfaces, springs to move the dies in one direction, a shell, and rollers to 40 close the dies by the rotary movement of the parts, substantially as specified.

2. The combination, with the pair of swaging-dies, of a shaft having a slotted head for receiving such dies, die-followers with inclined 45 surfaces in contact with the dies, a shell around the dies, and a range of rollers for acting on the dies, a holder for the blank that is to be acted on, and which holder is adapted to be pressed against the dies to move them endwise, 50 substantially as set forth.

Signed by me this 24th day of March, 1887.

W. H. DAYTON.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.