

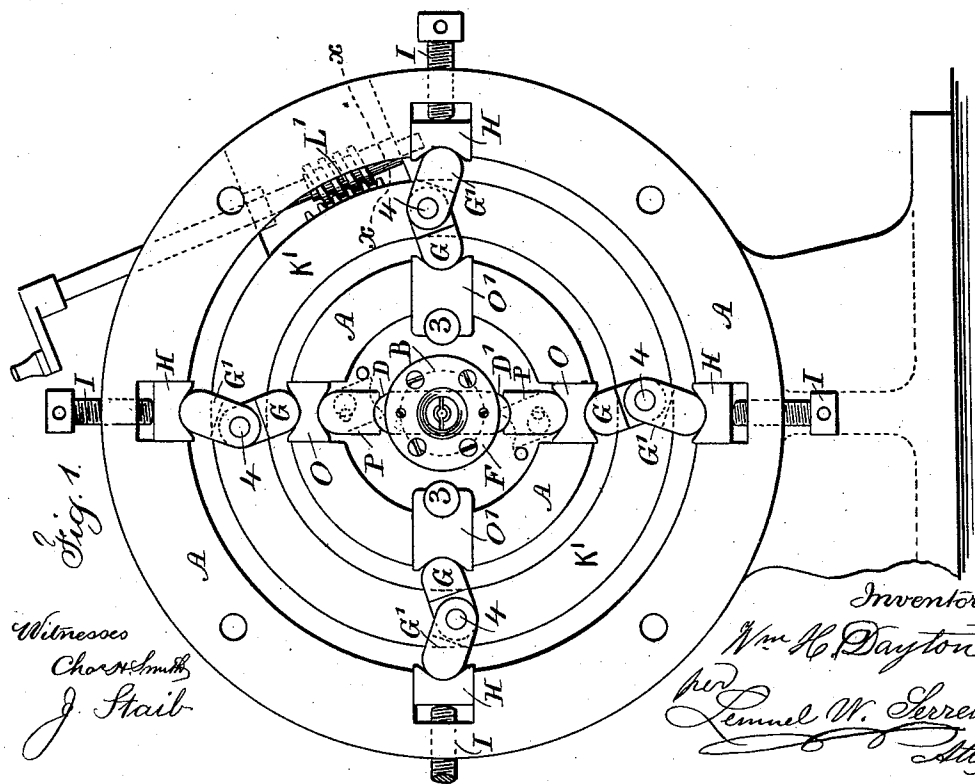
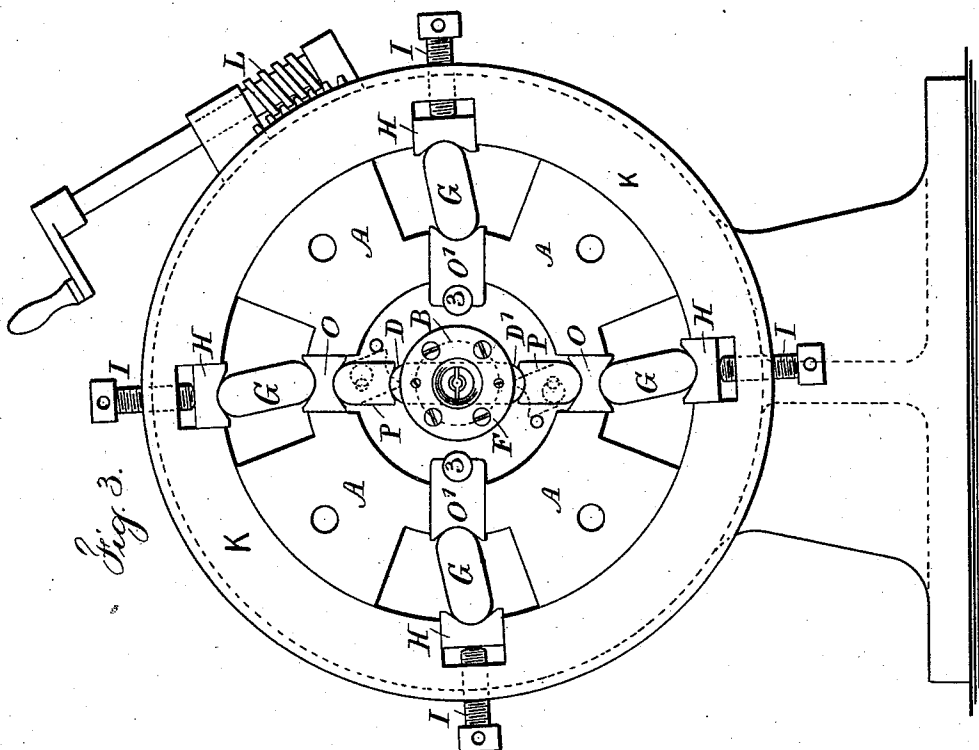
(No Model.)

2 Sheets—Sheet 1.

W. H. DAYTON.
SWAGING MACHINE.

No. 540,906.

Patented June 11, 1895.



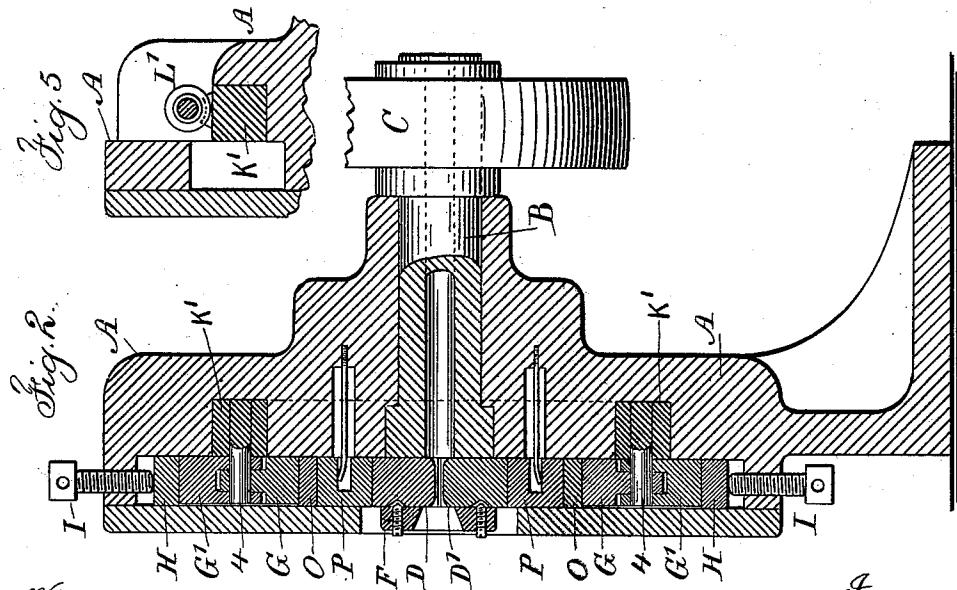
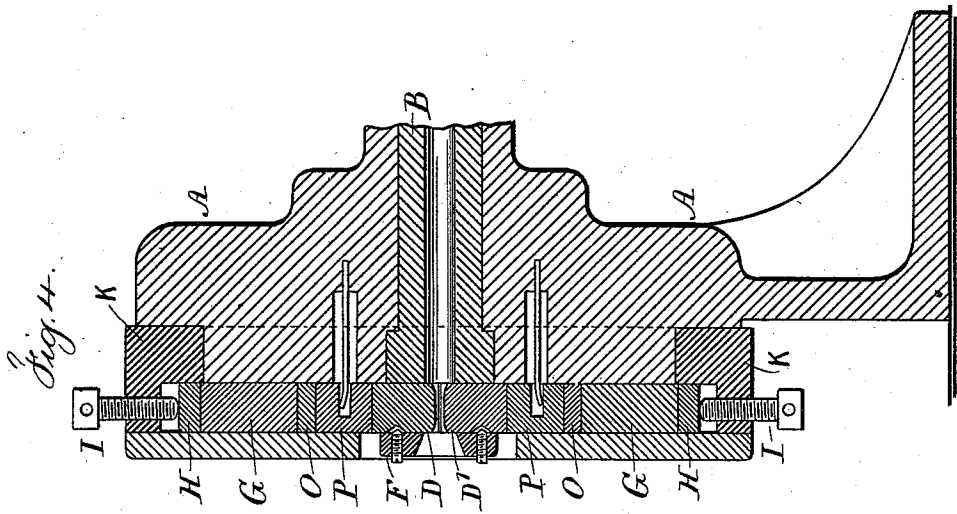
Witnesses
Chas. Smith
J. Stait

Inventor
Wm H. Dayton
per
Lemuel W. Serrell
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UNITED STATES PATENT OFFICE.

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

SWAGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 540,906, dated June 11, 1895.

Application filed November 12, 1894. Serial No. 528,525. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DAYTON, a citizen of the United States, residing at Torrington, in the county of Litchfield and State of Connecticut, have invented an Improvement in Swaging-Machines, of which the following is a specification.

The object of the present invention is to provide for opening or closing the dies to a greater or less extent during the swaging operation, so as to vary the size of the circular article that is swaged, the machine itself being especially adapted to the swaging of wire in the manufacture of spokes for bicycle and tricycle wheels, but the invention is not limited to this use.

In Letters Patent No. 341,558 granted to me May 11, 1886, a machine is represented in which a tubular shaft is provided with dies in a cross mortise at the end, and there are toggle blocks that act in pairs upon the outer ends of the dies as they are carried around by the revolving shaft. The object of the present invention is to adapt a machine of this general character to the swaging of articles in which the dies require to be closed toward each other to a greater extent during one portion of the operation than during another portion of the swaging operation, and with this object in view I make use of links that receive the end thrust in closing the dies, and these links are arranged to stand either in the line of the radius or at an inclination thereto, so that when in line with the radius, the dies are closed to produce the smallest size of the article swaged, and when the links are at an inclination, the dies are not closed as near to each other, and the inclination of the links that receive the end thrust is simultaneously adjusted in the range of links that surround the swaging dies.

In the drawings, Figure 1 is an end view of the swaging-machine. Fig. 2 is a central section through the same. Fig. 3 is an elevation of a modification in the links, and Fig. 4 is a vertical central section of Fig. 3. Fig. 5 is a section at the line $x x$ of Fig. 1.

The head A is of suitable size and supports through its center the shaft B which is rotated by a suitable pulley C and belt or similar device, and across the end of the shaft B

is a mortise receiving the dies D D' that are secured by the cap F.

The head block is to be of a sufficient size for the reception of radial ranges of die closing devices. These die closing devices are in pairs. I have shown four ranges of die closing devices at right angles to each other, but the number may be increased if desired. In each die closing device there is either a sliding block O or O' suitably supported in grooves in the head, and at the inner end of such sliding block there is either a roll 3 received in a recess, or a toggle block P somewhat similar to the toggle blocks in the aforesaid Patent No. 341,558, and the outer ends of the dies as they are brought into contact with the inner ends of the toggle blocks P or with the surfaces of the rolls 3, are pressed inwardly in performing the swaging operation.

Connected with the blocks O or O' are links G that stand in a radial position when the dies are brought the most closely together, and such links G are inclined more or less to allow the dies to be wider apart during the swaging operation. In some instances I make use of only one link G in the range of die closing devices, as shown in Figs. 3 and 4, and in other instances I make use of a second link G' in each range of die closing devices when arranged as shown in Figs. 1 and 2, and the outer end of each link G, when but one link is used in each die closing device, or the outer end of the link G' when two links are employed in each die closing device, is received by a bearing block H suitably supported and adjusted by a screw I.

In the form represented in Figs. 3 and 4, the bearing blocks H and screws I are in a ring K which can be partially rotated around the head A by the action of a worm pinion L upon teeth in the ring K, and in so doing the links G are brought either into a radial position or into a more or less inclined position. Thereby the opening between the dies can be regulated during the swaging operation by partially turning the ring K around the head; and it is to be understood that all the die closing devices are simultaneously and equally acted upon by the partial rotation of the ring K, and that the only duty of the screws I is to adjust the parts so as to act

with uniformity, especially when the machine is first put together. When the double links G and G' are made use of, as shown in Figs. 1 and 2, the bearing blocks H are in grooves 5 in the head A, and the screws I also pass through holes in such head, and the ring K' is recessed into the head and acted upon by the worm pinion L' or similar device to partially rotate such ring K', and this ring K' 10 acts upon the central pivot pins 4 that join together the links G and G', so that by carrying these pivot pins 4 in the different ranges of die closing devices either in one direction or in the other direction, the links G and G' 15 will be either brought into line or nearly so with each other, or swung into an angle to each other, and when the latter movement takes place, the dies are not closed as near to each other in the swaging operation as they 20 are when the links G and G' are brought into line with each other, or nearly so.

It is to be understood that the screws I in Figs. 1 and 2, serve to adjust the parts and compensate wear and obtain accuracy of operation, but these screws otherwise remain in 25 fixed positions, and the dies are opened and closed more or less during the swaging operation by the partial rotary movement given to the ring K'.

30 I claim as my invention—

1. The combination in a swaging machine with the revolving shaft, its dies and the supporting head, of ranges of die closing devices occupying radial or nearly radial positions, 35 each range of die closing devices having at its inner end a block to act upon the dies in closing the same, a link acting against the block to support the same, and mechanism substantially as specified for supporting, plac-

ing and holding the links in the respective 40 ranges of die closing devices either on the line of the radius or at a greater or less inclination to the line of the radius, substantially as set forth.

2. The combination in a swaging mechanism, of a supporting head, a revolving shaft, 45 swaging dies carried by such shaft, ranges of die closing devices occupying substantially radial positions and each range composed of a block for acting at its inner end against the 50 dies in closing the same, links connected together and acting at their outer ends against bearings and at their inner ends against the die closing blocks, and mechanism for swinging the links into line with each other or to a 55 greater or less angular position the one to the other, substantially as set forth.

3. The combination in a swaging mechanism, of a head, a revolving shaft within the head, dies carried by such shaft, ranges of 60 radially placed die closing devices, each range composed of an adjusting screw, a bearing block acted upon by the adjusting screw, links connected together, and a die closing block, 65 the links intervening between the bearing block and the die closing block, and a ring acting upon the pivot pins of the pairs of links, and mechanism for partially rotating such ring and bringing the links into line with 70 each other or moving them to greater or less angles with each other, substantially as set forth.

Signed by me this 7th day of September, 1894.

W. H. DAYTON.

Witnesses:

HERBERT L. THOMAS,
J. HOWARD AVERY.