No. 637,449. Patented Nov. 21, 1899.

W. H. DAYTON.

SWAGING MACHINE.

(Application filed Nov. 30, 1894.)

(No Model.)

Fig. 3.

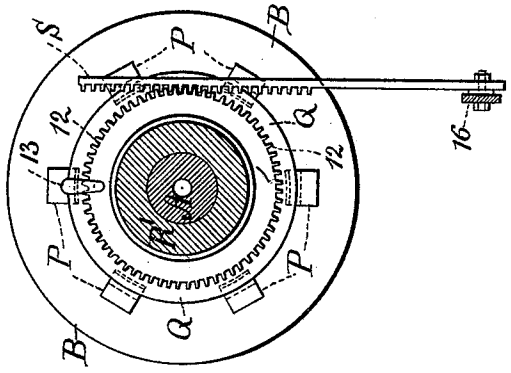


Fig. 1.

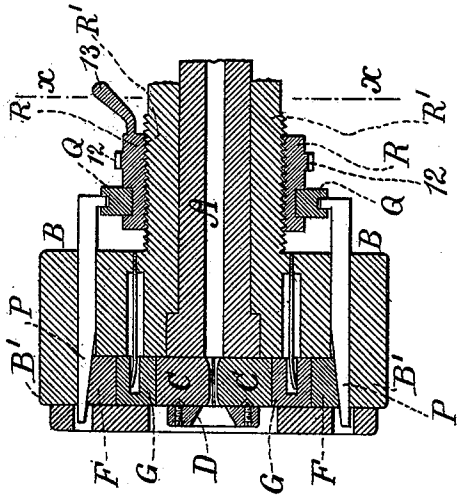
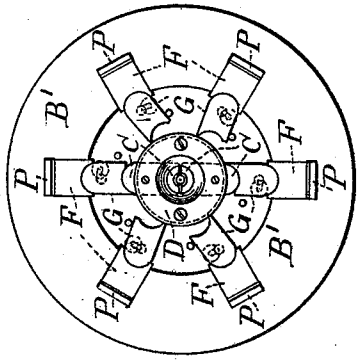


Fig. 2.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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. 637,449, dated November 21, 1899.

Original application filed May 23, 1892, Serial No. 433,967. Divided and this application filed November 30, 1894. Serial No. 530,359. (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.

This invention was patented in my behalf in Great Britain July 14, 1892, No. 12,926.

This invention relates to that class of swaging-machines in which a shaft is provided with a transverse mortise at one end in which is received a pair of dies, and these are pressed together by the action of swinging toggle-blocks as the shaft is revolved within a stationary head or shell that supports such toggle-blocks.

This invention is a division of my application, Serial No. 433,967, filed May 23, 1892, and patented October 22, 1895, No. 548,431.

The special feature of the present invention relates to means for simultaneously acting upon the followers of the toggle-blocks to move them nearer to or farther from the axis of rotation, and thereby cause the dies to be opened to allow a wire to be passed through them without being acted upon or closed to a greater or less extent to swage such wire to the desired size, and in accomplishing this object wedges or incline-ended bars are pressed endwise between the followers and the ends of the recesses in the heads receiving such followers, thereby moving the followers and the toggle-blocks nearer to the axis of rotation for closing the dies nearer to each other or for allowing the follower-blocks to move away from the axis of rotation and thereby allowing the dies to open wider for passing the wire unacted upon or for reducing such wire but slightly, and these wedges are acted upon by a ring to which a movement is given endwise of the revolving shaft to force the wedges in or draw them out, and this endwise movement is given to the ring by a screw or nut that receives a rotation or partial rotation by any suitable mechanism.

In the drawings, Figure 1 is a section longitudinally of the rotated shaft. Fig. 2 is a front elevation with the cap-plate removed, and Fig. 3 is a rear view with the bearing and shaft in section at the line *x x*.

The tubular shaft A is supported in a suitable stationary head B and is rotated by any competent mechanism—such, for instance, as a belt to a pulley—and there is a mortise or slot across the end of the shaft A, receiving the dies C, which are held in position by a ring or plate D, in which there are screws that enter recesses in the surfaces of the dies C to prevent such dies being projected centrifugally, and there is an annular flange B′ around the head B, forming a shell in which are mortises or recesses for receiving the followers F, and the toggle-blocks G intervene between such followers F and the dies C, the outer ends of the toggle-blocks being rounded and received into similar-shaped recesses in the followers F, and the toggle-blocks act upon the dies to close the same successively as the shaft is revolved in the same manner as set forth in Letters Patent No. 341,558, granted to me May 11, 1886.

In order to allow the dies C to open for the passage of the wire or to close such dies more or less, I make use of wedges P, intervening between the ends of the follower-blocks F and the interior surfaces of the annular flange or ring B′, so that when these wedges P are moved endwise the action of the dies is varied, and in order to give end motion to these wedges P a ring Q is provided, to which the back ends of the wedges P are connected, preferably by L-shaped heads passing into grooves or recesses in such ring Q, and there is a nut R surrounding the screw-threaded portion R′ of the bearing that supports the shaft A, so that by rotating this nut R the wedges P are moved endwise in one direction or the other, and to rotate this nut R any suitable mechanism may be employed—such, for instance, as a gear-wheel acting upon teeth 12 or a handle 13, that may be acted upon by hand—and where this improvement is employed in an automatic machine for swaging wheel-spokes, such as that shown in my Patent No. 492,576, granted to me February 26, 1893, then this nut R is rotated at the proper time by gearing intervening between such nut and the

moving parts of the machine in order that the wedges P may be pressed forward to cause the swaging-dies to reduce the wire to the desired extent, or such wedges P may be drawn back to allow the wire to pass through the swaging-dies without being acted upon or to act on such wire but little, thereby regulating the swaging action along the length of the wire in forming a spoke with a reduced body and larger ends or in the swaging of any other desired article.

I do not herein claim, broadly, the combination, with the swaging-dies, of wedges to which an end movement is given for regulating the action of such dies in swaging wire or other articles, as such wedges are represented in Letters Patent No. 474,548, granted to me May 10, 1892. Any suitable screw and nut may be employed to act on the ring Q and move the wedges endwise. I have shown a rack S as the means for moving the gear and nut, and if this rack is connected to a lever 16, similar to that shown in my Patent No. 492,576, the cam and devices therein set forth may be employed in giving motion automatically through such lever and rack to the screw-nut, and thereby moving the wedges endwise instead of by the lever and tubular connections therein shown.

I do not limit myself to any particular devices forming the circular range of die-closing mechanism, as the wedges herein shown that act between the stationary head and the circular range of die-closing devices may be used with either of the well-known circular ranges of die-closing devices.

In my Patents Nos. 474,548 and 492,576 the wedges being next to the die-blocks are subject to vibration resulting from the contact of the followers with the rolls, and hence are liable to wear loose and not be fully reliable, whereas in the present instance the parts that are adjusted by the wedges are not subject to such motion and remain in the position to which the wedges move them.

I claim as my invention—

1. The combination in a swaging-machine with the rotating shaft, swaging-dies carried at the end of such shaft, a stationary head, follower-blocks in recesses in the head and toggle-blocks intervening between the follower-blocks and swaging-dies, of wedge-bars between the follower-blocks and the stationary head, a ring with which the wedges are connected, and a screw and nut to act on the ring and move the wedges for varying the action of the swaging-dies, substantially as set forth.

2. The combination in a swaging-machine, of a tubular shaft and means for rotating the same, a pair of dies within a mortise across said shaft, a circular range of die-closing devices, a surrounding head and parallel wedges acting between such head and the circular range of die-closing devices, a ring with which the wedges are connected, a screw and nut to act on such ring and interlocking teeth for rotating the nut, substantially as specified.

Signed by me this 27th day of November, 1894.

W. H. DAYTON.

Witnesses:
GEO. T. PINCKNEY,
S. T. HAVILAND.