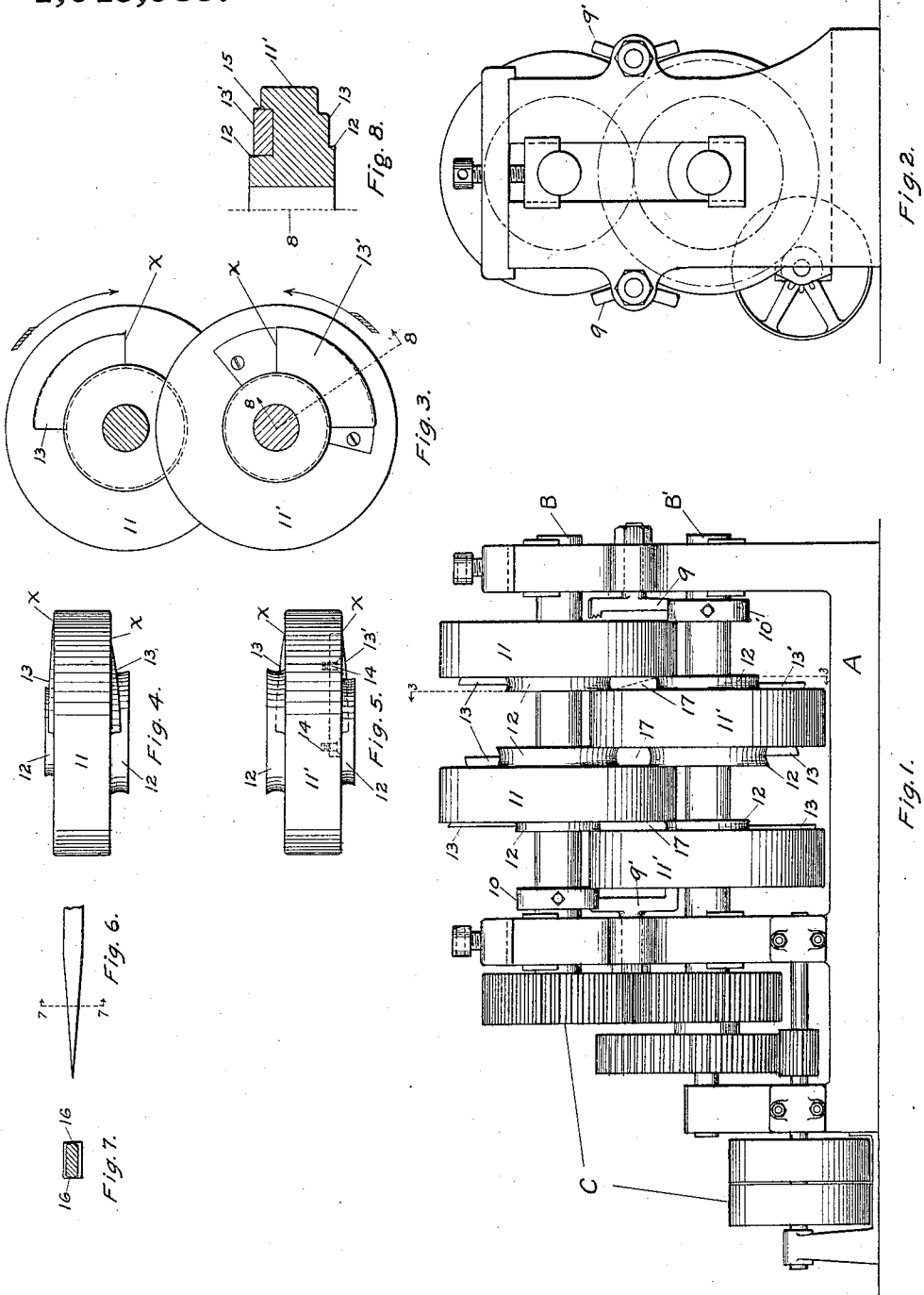


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SWAGING MACHINE.
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1,045,989.

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UNITED STATES PATENT OFFICE.

FRANK LANGE, OF PORTLAND, OREGON.

SWAGING-MACHINE.

1,045,989.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK LANGE, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Improvement in Swaging-Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to a class of devices used in forge-shops, and appertaining to the manufacture of vehicle springs and other springs, generally of long and narrow form with flat surfaces.

The object of my invention is to provide a swaging machine, by which a spring of long narrow shape may be formed, to taper at one end to a very thin edge, or otherwise stated, may be formed wedge-shaped. I contend that in my device I have attained these objects, as well as other advantages, by the construction, combination, and arrangement of parts illustrated in the accompanying drawings, which form a part hereof.

Figure 1 is a front elevation of the device. Fig. 2 is an elevation of the right side of the device as shown in Fig. 1. Fig. 3 is a sectional view on the line 3—3 in Fig. 1. Fig. 4 is a top plan view of the upper roll shown in Fig. 3. Fig. 5 is a top plan view of the lower roll shown in Fig. 3. Fig. 6 is a side view of a swaged spring. Fig. 7 is a sectional view of the swaged spring on the line 7—7 in Fig. 6. Fig. 8 is a sectional view of the lower roll on line 8—8 as shown in Fig. 3.

Like numerals or letters refer to like parts throughout the views.

A is a frame in which the parts of the device are placed.

B—B' are upper and lower shafts mounted in the frame A.

C is pulley and gearing mechanism for receiving and transmitting power to the shafts B—B'.

The frame A is reinforced by transverse yoke-shaped ties 9—9' secured to each side thereof. The rolls 11—11' are rigidly secured upon the upper and lower shafts B—B' respectively. These rolls have hubs 12 grooved on the sides. The rolls as herein shown have tapering integral jaws 13 on one side and removable tapering jaws 13' on the opposite side. The taper extends from zero at X for a suitable distance and angle in both instances. The removable jaws 13' are secured by the screws 14, within recesses 15

in the sides of the rolls 11'. The removable jaws are intended to be made of varying sizes so that springs of different lengths and forms may be made. They may also be placed within all of the rolls instead of the integral jaws herein shown.

The spring shown in Figs. 6 and 7 indicates the form of springs which it is intended to manufacture by this device, the edges 16 being rounded as seen in Fig. 7. The device as thus arranged and constructed provides the passes 17 of various dimensions through which the unfinished bars of metal are passed to form them into springs.

It will now be seen that when the device is in position to receive the material, the rolls 11—11' have rotated the jaws so that the zero taper thereof is at a point on a vertical line through the center of the shafts B—B'. The heated material, in the form of suitable bars, is then introduced into the passes 17 with the edges thereof vertically placed and into engagement with the grooved hubs. At the same time the sides of the bars go into engagement with the oppositely placed jaws on the face of the upper and lower rolls at the lowest or zero taper thereof. Immediately upon the power being applied to the shafts B—B', the rolls 11—11' rotate and draw the heated material through the passes 17 when it drops out on the other side in the finished state shown in Figs. 6 and 7, or wedge-shaped springs. It will be further seen that the jaws are so formed and arranged that they engage the material for a pre-determined distance and thus produce springs of a length and angle of taper as desired. It will be further seen that the rolls may be made with integral jaws of different sizes and forms, and these rolls placed on the shafts B—B' to make springs of the desired forms and sizes, or all the rolls may have removable jaws 13', of varying forms and sizes which may be inserted and secured in the rolls as shown. Either form of jaws will produce exactly the same result, but I believe the removable jaws to be more practicable and economical, for the reason that the machine would require fewer rolls and the rolls would not have to be removed to operate jaws of different sizes or forms.

Having thus fully described my invention I claim:

A swaging machine, comprising a frame with an upper and lower shaft mounted therein, means to receive and transmit power

to the shafts, rolls rigidly secured upon the shafts and formed with suitable recesses in their sides, tapering jaws of suitable form and dimensions, means to secure said jaws in the roll recesses, hubs on the rolls formed with circular grooves therein, the said rolls being arranged to form vertical passes between their faces and the hubs, to engage

material within said passes between the tapering jaws, for a pre-determined distance, substantially as described.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."