

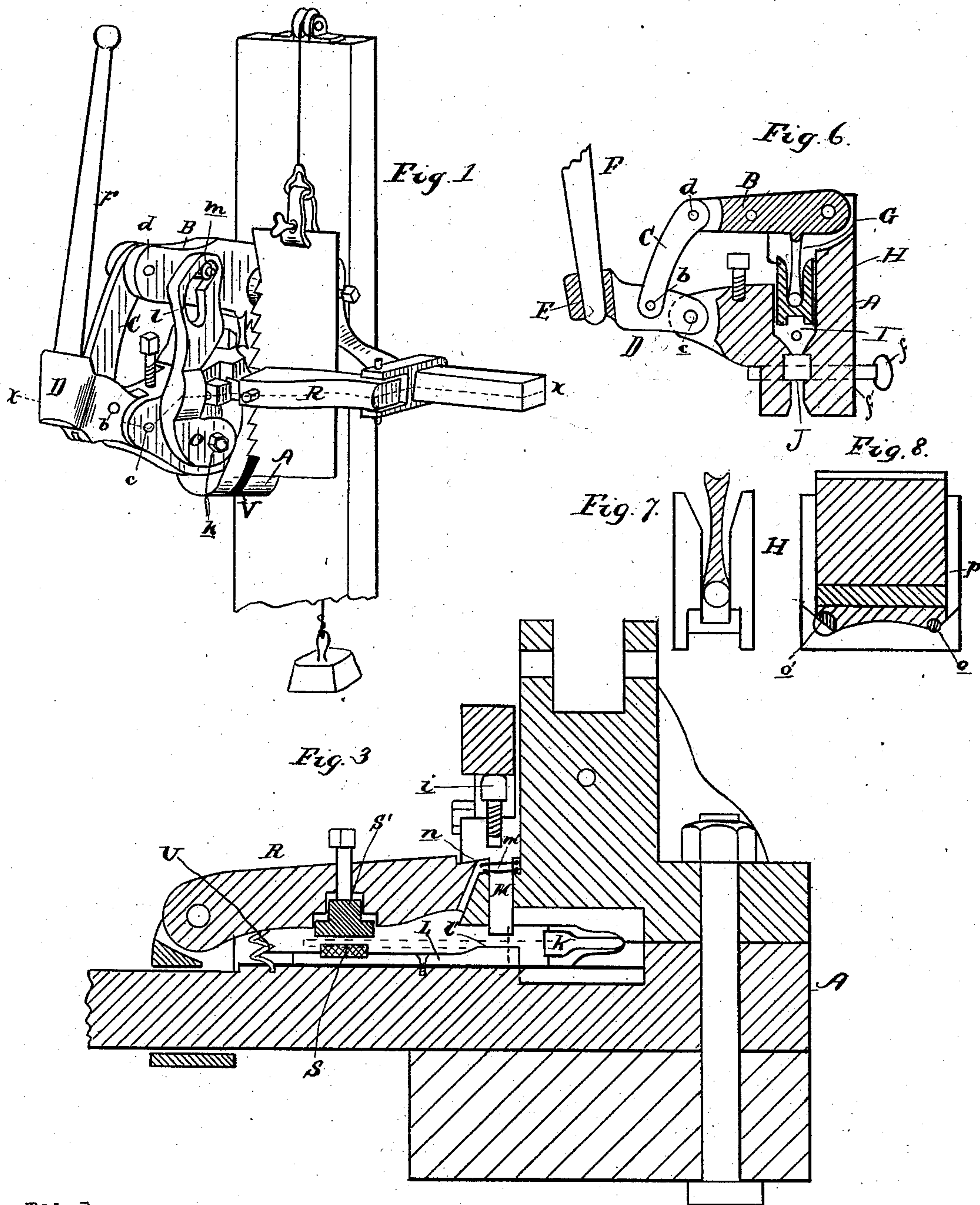
(Model.)

2 Sheets—Sheet 1.

P. B. CHARBONEAU
SAW SWAGING MACHINE.

No. 294,439.

Patented Mar. 4, 1884.



Attest:
E. Scully

Inventor:
Pascal B. Charboneau
By his Atty. *Thos. J. Maguire*

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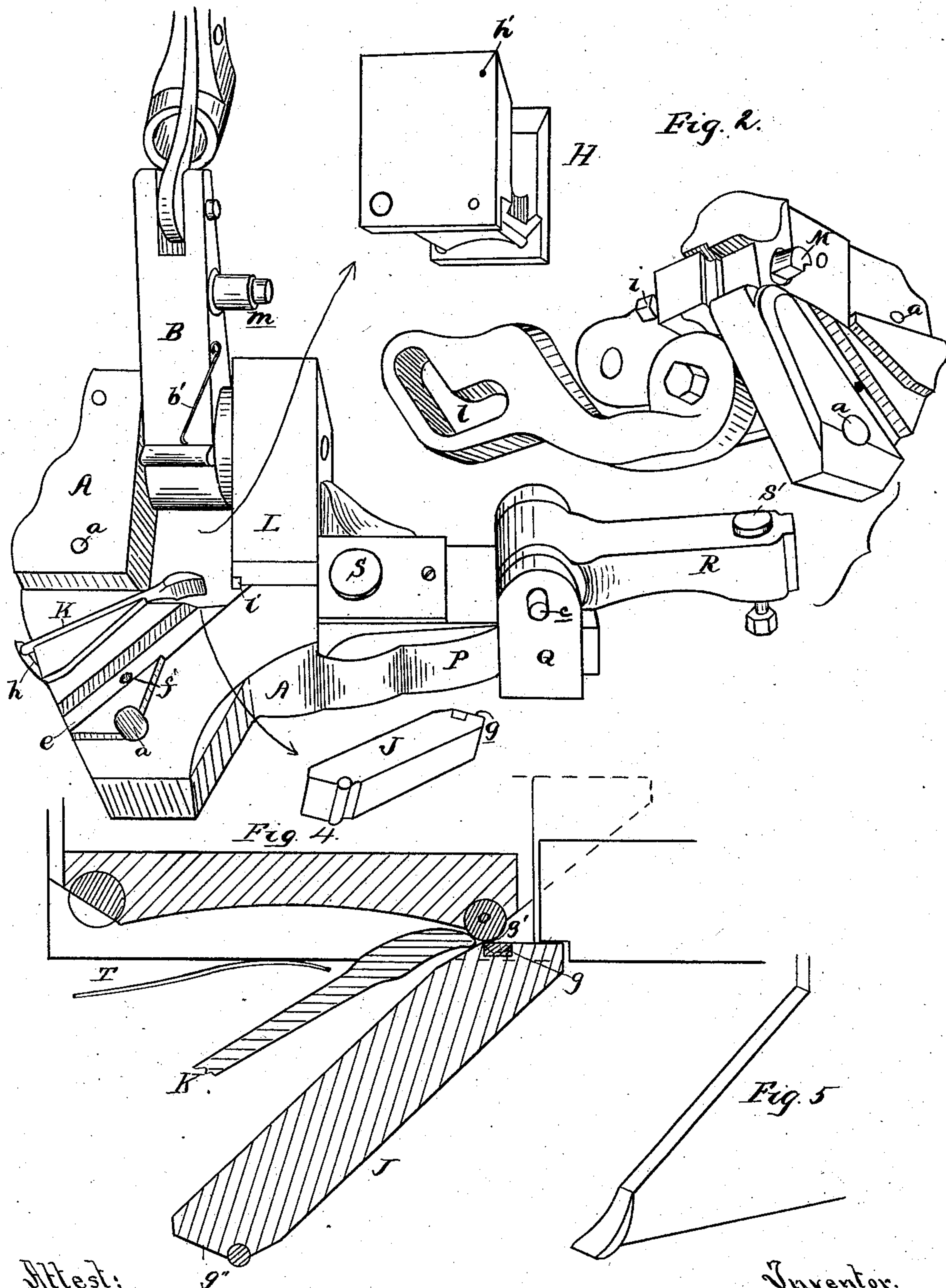
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UNITED STATES PATENT OFFICE.

PASCAL B. CHARBONEAU, OF BAY CITY, MICHIGAN, ASSIGNOR OF TWO-THIRDS TO H. A. FRASER AND J. B. BARBER, BOTH OF SAME PLACE.

SAW-SWAGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 294,439, dated March 4, 1884.

Application filed April 26, 1883. (Model.)

To all whom it may concern:

Be it known that I, PASCAL B. CHARBONEAU, of Bay City, in the county of Bay and State of Michigan, have invented new and useful Improvements in Saw-Swaging Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to an improvement in saw-swages; and the object of the invention is to do the swaging of gang and circular saws in a more mechanical way than has been done heretofore by hand with so-called "swaging" tools or machines.

My invention consists, first, in the combination of a power-press with the necessary swaging-tools adjustably secured thereto; second, in the improvement of the various swaging-tools proper; and, third, in the general construction and arrangement of parts whereby the desired result is obtained, all as more fully hereinafter described.

Figure 1 is a perspective view of the machine secured in place and ready for work. Fig. 2 is a perspective view of the different parts of the machine, some of the same being removed from their working position in order to better illustrate their form. Fig. 3 is a horizontal cross-section on the line *x x* in Fig. 1, with the lever and its socket removed. Fig. 4 is a diagram elevation, showing the interaction of the various tools in the act of swaging a saw-tooth. Fig. 5 is a perspective view of a swaged saw-tooth. Fig. 6 is a central vertical section. Fig. 7 is a sectional end view of the upper die and follower, and Fig. 8 is a central vertical section of the same.

In the drawings, A is the body of the device, which is secured to an upright or standard in any convenient manner in the position shown in Fig. 1. This body is, for the sake of convenience in manufacturing, made in two parts. (Shown detached in Fig. 2.) Bolts passing through the holes *a a* serve to secure these parts together.

To the top of the device is pivotally secured a power-lever, B.

C is a link, and D a lever, pivoted together

at *b*. The lever D is pivotally secured at *c* to an outwardly-projecting arm secured to the lower end of the body A, and the link C is pivotally secured at *d* to the power-lever B. The lever D has an extension or socket, E, into which a handle, F, may be inserted, and by actuating the same the power-lever B actuates the follower G, which in turn communicates motion to the upper swaging tool or die H. This tool is shown in Fig. 2 detached, and is held and guided in its vertical movements within the vertical chamber I in the body of the device.

J is the bottom tool or bottom die. It is likewise shown detached in Fig. 2, and rests in position in a slot, *e*, within the body of the device. This slot is inclined from the vertical line, and the tool J is removably secured therein by a pin or key, *f*, passing through the transverse slot *f'* and extending through the slot *e*, forming thereby a stay for the said tool. The upper face, *g*, of this tool forms a horizontal plane when in position, and is intended to form the anvil upon which the saw-tooth rests while being swaged.

K is a spring-stop secured within the body A of the device, and provided with a spring, *h*, which makes it yielding under pressure.

L is a side support for one side of the saw-tooth, stationarily secured to the body of the device. (See Fig. 3.) M is a movable side support or stay for the other side of the saw-tooth, and it projects out through the front side of the body, and is upon its end provided with an adjusting-screw, *i*.

O is a link or lever pivoted at its lower end to the body, as shown at *k*, and at its upper end is provided with a cam-slot, *l*, which engages with the cam-pin *m* on the side of the power-lever B.

P is a bracket or arm extending from the body A of the device.

Q is a clip slipped upon the farther end of same arm or bracket.

R is a lever pivotally secured at one end to the clip Q, with its other end extending under an offset, *n*, of the movable side support, M.

S is a friction-plate secured to the front face of the arm P, and registering with another friction-plate, S', adjustably secured to the le-

ver R, as shown in Figs. 2 and 3. In the operation of the device the two friction-plates S S' act as a clamp to hold the saw in position.

In practice, with the parts arranged and in position as shown and described, the saw to be swaged is held in position as shown in Figs. 1 and 4, with the tooth resting upon the face *g* of the bottom tool or die, J, the stop K enabling the workman to hold it in the desired position. Now, the lever F is actuated, and, by means of the connections before described, actuates the link O in such manner as to force the movable side support M against the side of the tooth, the other side of which is supported against the raised portion *e'* of the stationary side support L. This same movement has also brought the friction-plates S S' in contact on opposite sides of the saw, so as to clamp it firmly between them. The operation of the lever F has at the same time actuated the power-lever B, forcing the follower G down upon the swaging-tool H, which, with its round steel die *o*, is forced down upon the end of the saw-tooth and swages it, as shown in Fig. 5. The position and configuration of the bottom tool, J, which acts as an anvil, are of importance to obtain the desired result, for it will be seen that while it is removably secured it nevertheless is firmly embedded, owing to its inclined position, and also to the manner of staying it by a transverse key. The angle formed at *g'* between the face *g* and the side affords a possibility to the die *o* to pinch off all superfluous metal. During the descent of the swaging-tool H the spring-stop K has been pressed aside, owing to its impingement on the sides of the concave bottom of the same, as shown in Fig. 4; but on the withdrawal of the swaging-tool holder H it will spring again in position to form a stop to gage the amount of insertion for the next following tooth to be operated upon.

The side supports, L and M, have no other function than to firmly hold the tooth while it is operated upon by the die *o*, holding it as close near the end of the tooth as possible without interfering with the action of the die *o*. The groove *p* in the holder above the die *o* is for the purpose of permitting the tool-holder H to be raised without interfering with the tooth above the one just acted upon, and which is the one to be operated upon next. To restore the parts in position after the power is removed, a spring, T, is interposed on the bottom of the vertical chamber I, (or a hook, *b'*, may be attached to the lever B and caused to engage with the tool-holder H at *h'*, as shown in Fig. 2,) and another spring, U, under the lever R, and a third spring, *m'*, around the support M.

To adapt the machine for swaging circular saws, the upper tool-holder, H, is made reversible, and is provided on the end opposite and

adjacent to the one carrying the circular die *o* with a flat-faced die, *o'*, which is brought in the position occupied by the die *o*, and the bottom tool, J, is also made reversible, so as to use its lower end, *g'*, in the position before occupied by its upper face, *g*, said end carrying a rounded die. This reversal will, in the operation of the device, reverse the position of the swage, which in circular saws is on the opposite side to the tooth of the gang-saws. To allow the circular saw to be brought in position, a slot, V, is provided between the lower parts of the body A. As seen from the drawings, all the necessary parts are made adjustable, so as to allow the device to operate upon saws of different size and thickness, and vary also the amount of swaging. For the swaging of circular saws, the clamping-arm R is removed and the saw supported upon an arbor.

I deem it important that the bed-tool J be seated obliquely in the body of the device, as it affords an easy means for staying the same with the least possible danger of its being forced from its seat, as the pressure on the same, being out of a direct line, has a tendency to crowd it against the lower side of the slot and cause it to firmly bind therein, thereby relieving the staying device of the greatest portion of the strain.

What I claim as my invention is—

1. In a swaging device, the combination, with the stay M and the lever R, of the cam-lever O, constructed to operate said stay M and lever R, and provided with means for operating the same, substantially as described.
2. In a swaging device, the power-lever B, connected with lever D, and means for actuating the same, in combination with stay M, lever R, and the cam-lever O, constructed to operate the said stay M and lever R, substantially as described.
3. In a swaging device, the power-lever B and means, as C D, for operating the same, cam-lever O, and side stay, M, in combination with the clamping-jaw R, all combined and constructed as and for the purposes specified.
4. In a swaging device, the bed-tool J, constructed substantially as described, and secured obliquely in the body of the device, as set forth.
5. In a swaging device, the obliquely-seated bed-tool J, in combination with the obliquely-seated spring-stop K, substantially as and for the purpose set forth.
6. In a swaging device, the combination of a reversible swaging tool with a reversible bed-tool, substantially as and for the purpose described.

PASCAL B. CHARBONEAU.

Witnesses:

H. S. SPRAGUE,
E. SCULLY.