No. 634,164. Patented Oct. 3, 1899.

F. E. BUTTS & G. A. DUMBECK.

SAW TOOTH SWAGING MACHINE.

(Application filed May 26, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

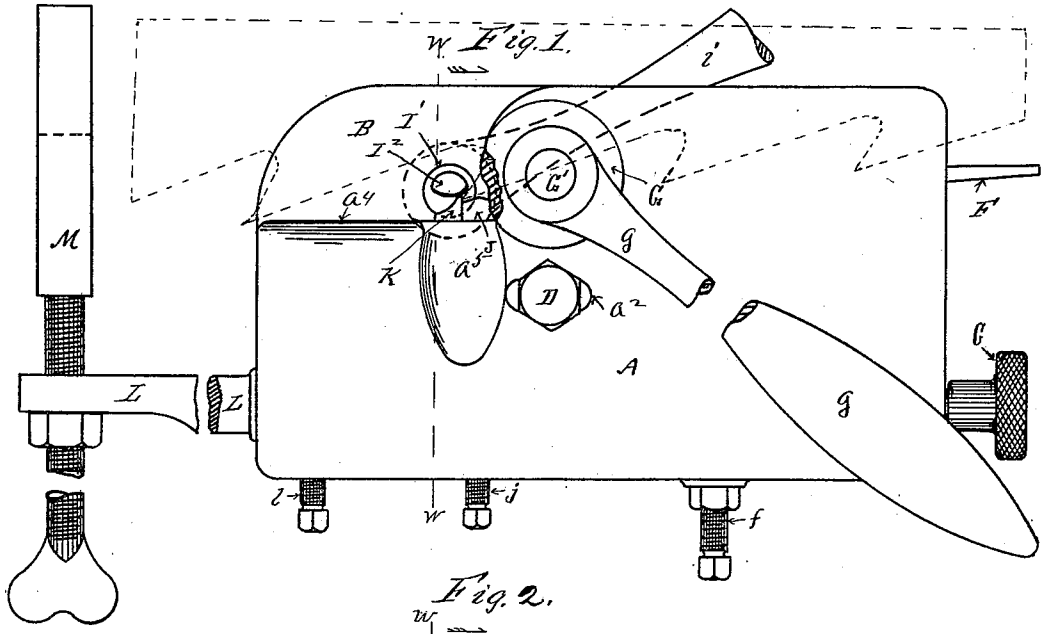

Fig. 2.

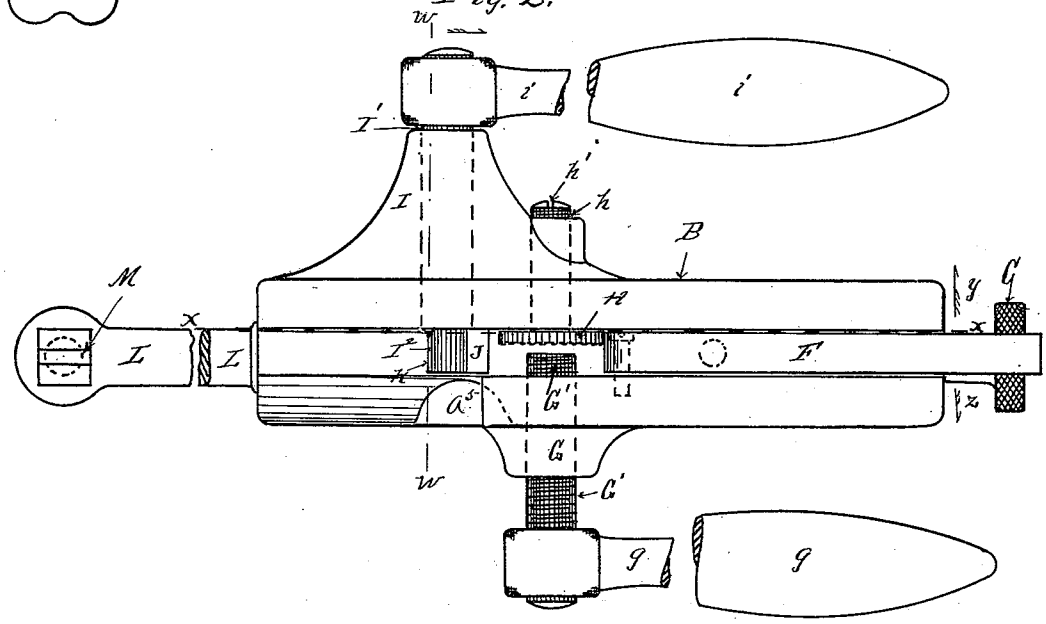

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Fig. 3.

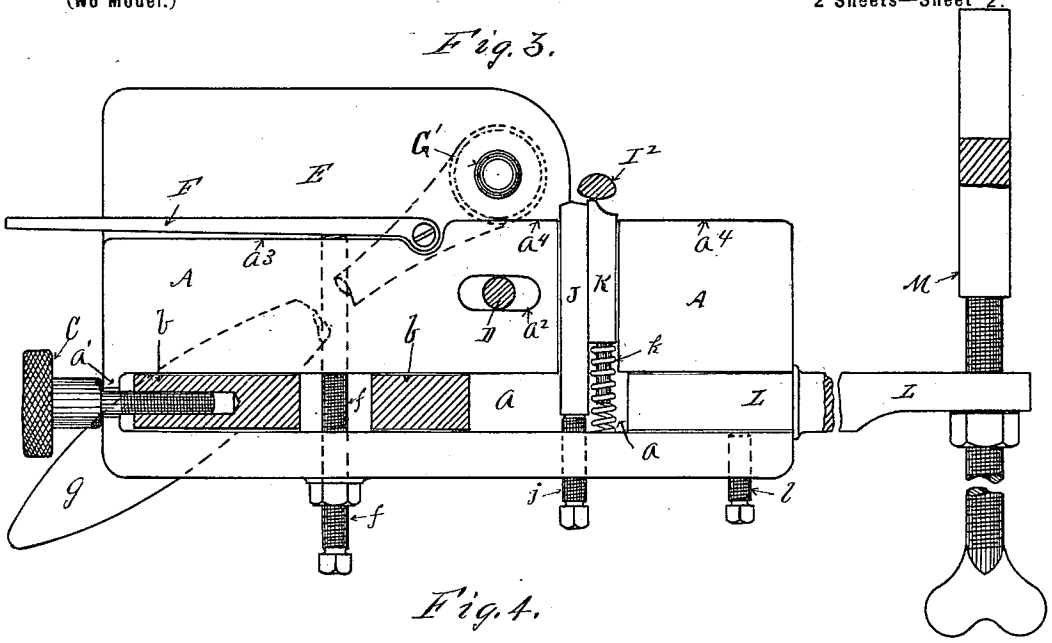


Fig. 4.

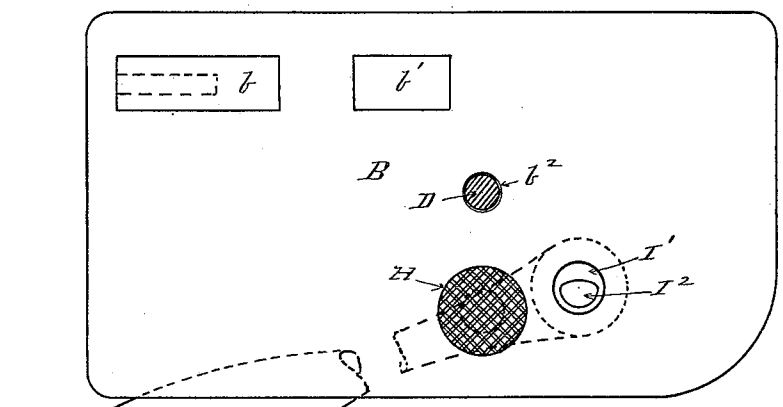
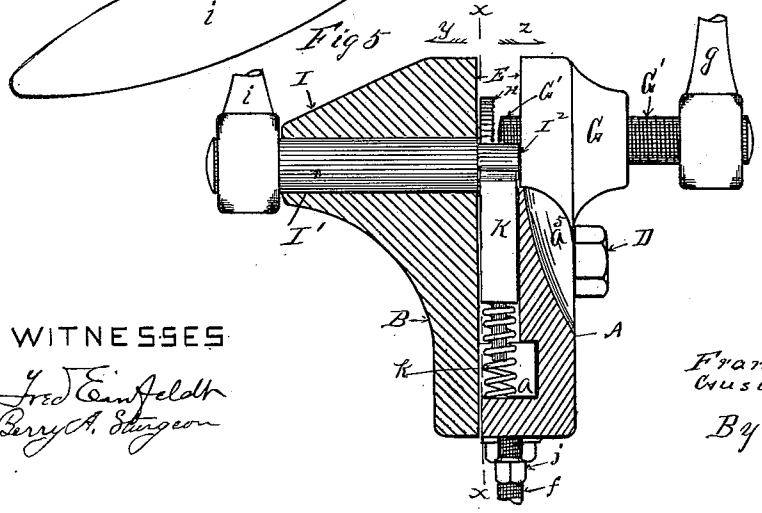


Fig 5



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FRANK E. BUTTS AND GUSTAV A. DUMBECK, OF ERIE, PENNSYLVANIA.

SAW-TOOTH-SWAGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 634,164, dated October 3, 1899.

Application filed May 26, 1899. Serial No. 718,321. (No model.)

To all whom it may concern:

Be it known that we, FRANK E. BUTTS and GUSTAV A. DUMBECK, citizens of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Saw-Tooth-Swaging Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

This invention relates to saw-tooth-swaging machines; and it consists, substantially, in constructing the swaging mechanism with a depressible stop or guide, against which the point of the saw-tooth contacts when on the anvil ready for the swaging-cam to operate, so as to prevent the elongation of the point of the tooth while being swaged, this stop or guide being so constructed and arranged with reference to the anvil and swaging-cam that when the cam operates on the tooth as it rotates thereon also engages the upper end of the stop or guide and depresses it, the side of the stop or guide, however, continuing to contact with the end of the tooth during the entire swaging process, so as to prevent its elongation, and the force of the cam exerted on the tooth therefore widens the point of the tooth instead of elongating it; also, in the improvements in the construction of other parts of the mechanism, all of which improvements are hereinafter fully set forth and described, and illustrated in the accompanying drawings, in which—

Figure 1 is a view in side elevation of our improved saw-tooth-swaging machine. Fig. 2 is a top or plan view of the same. Fig. 3 is a vertical longitudinal view of one section of the machine on the line x between the sections, looking in the direction of the arrow y in Figs. 2 and 5. Fig. 4 is a like view of the other section inverted, looking in the direction of the arrow z in Figs. 2 and 5. Fig. 5 is a vertical transverse section of the machine on the line w in Figs. 1 and 2, looking in the direction of the arrow.

In the drawings thus illustrating our invention the body of the machine is constructed of two halves or sections A and B, which are secured together in the following manner: In the meeting face of the section A there is a longitudinal groove a, which extends the entire length of the section, except at the rear end thereof there is a slotted abutment a', through which the shank of an adjusting-screw C operates, and on the rear portion of the meeting face of the section B is a tongue $b\,b'$, which fits into the rear portion of the groove a in the section A, the adjusting-screw C passing into the end of the tongue b and operating to adjust the sections A and B upon each other, as and for the purpose hereinafter set forth, the sections A and B being clamped together by means of a set-screw D, passing through a slotted hole a^2 in the section A into a screw-threaded hole b^2 in the section B, all of which features are clearly shown in Figs. 3 and 4. The upper edge of the inner face of the section A is cut back for about two-thirds of its length from the rear end down to a shoulder a^3, so as to leave an open slot E from the top down to the shoulder a^3 when the sections A and B are together, and the remainder of the section A for the remaining one-third of its length is entirely removed down to the line a^4, as shown in Figs. 1, 2, 3, and 5. Just above the shoulder a^3 there is an arm F, pivoted at its inner end to the section A, the rear end of which arm projects out beyond the rear end of the open slot E, so as to operate as a saw-guide, and in the section A there is a vertical screw f, which extends up under the arm F, by means of which the rear end of said saw-guide arm can be raised or lowered, which features are clearly shown in Fig. 3.

In a boss G on section A is mounted a clamp-screw G', provided with an operating-handle g, the inner end of which screw extends through into the slot E, and opposite the inner end of the clamp-screw G' there is a serrated clamp-disk H on the section B, the shank h of which disk is screw-threaded and passes through the section B, as illustrated in Fig. 2, and is provided with a groove h' in its inner end, in which a screw-driver can be inserted, so as to adjust the clamp-disk H in and out from the inner face of the section B, this mechanism above described operating to

clamp the saw in place during the operation of swaging a tooth.

In a boss I on the section B is mounted a shaft I′, which is provided with an operating-handle *i*, and on the inner end of the shaft I′ there is formed a swaging-cam I^2, adapted to operate rotatably on the top of a vertically-adjustable anvil J, mounted in a vertical slot in the section A and provided with an adjusting-screw *j* under its lower end, by means whereof it can be adjusted up and down, as desired. Mounted in the slot, directly in front of the anvil J, there is a depressible stop K, the lower end of which rests upon a spiral spring *k*, the upper end of this stop engaging the point of the saw-tooth when in place to be operated upon and remaining in contact with the point of the saw-tooth during the entire swaging operation, as illustrated in Fig. 1, and as the cam I^2 is rotated the stop K is depressed thereby until the swaging of the tooth is completed, and as the stop prevents the expansion of the point of the tooth forward the metal is forced out sidewise, so as to broaden the point of the tooth, as desired, and when the cam I^2 is rotated backward after such operation the spring *k* moves the stop K up again to its normal position. In the slot *a′* at the front end of the machine there is placed a removable arm L, which is secured in place by a set-screw *l* and having on its outer end a vertically-adjustable slotted guide M. This device, however, is separable from the remainder of the machine, as it is only used when operating upon circular saws.

The face of the section A directly below the end of the cam I^2 is cut away, so as to form a recess a^5, which enables the operator to watch the operation of swaging the tooth-point and see whether the machine is operating satisfactorily thereon.

We have hereinbefore described means for adjusting the sections A and B longitudinally upon each other. The object of this adjustment is to bring the swaging-cam I^2 more or less over the end of the anvil J, so that it will engage a greater or less portion of the tooth to be swaged, as desired.

Having thus described our invention, so as to enable others to construct and use the same, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a saw-tooth-swaging machine, of means for clamping the machine to a saw, a rotative swaging-cam, an anvil upon which the swaging-cam operates, and a stop in front of the anvil, adapted to contact with the point of the saw-tooth during the entire swaging operation, substantially as and for the purpose set forth.

2. The combination in a saw-tooth-swaging machine, of clamping devices thereon for securing a saw therein, a rotative swaging-cam, an anvil under said cam, a depressible stop in front of the anvil against which the point of the saw-tooth contacts during the entire swaging operation, and means for adjusting the cam and anvil with relation to each other, substantially as and for the purpose set forth.

3. The combination in a saw-tooth-swaging machine, of a frame consisting of two sections, having a saw-slot between the upper portions thereof, means for adjusting said sections upon each other, saw-clamping mechanism in said sections, a vertically-adjustable saw-guide arm in the bottom of the saw-slot between said sections, a rotative swaging-cam in one of said sections, an anvil in the other section adapted to be operated upon by said cam, and a depressible stop in front of said anvil, and contacting with the point of the saw-tooth during the entire swaging operation, substantially as and for the purpose set forth.

4. The combination in a saw-tooth-swaging machine, of two sections, tongue-and-grooved together near their lower edges and having an open slot between their upper edges, screw mechanism for the longitudinal adjustment of the sections upon each other, a set-screw for clamping them together, a vertically-adjustable arm in the bottom of the slot between the sections, adjustable saw-clamping mechanism adapted to clamp a saw in said slot, a rotatable swaging-cam mounted in one section, a vertically-adjustable anvil arranged so that the swaging-cam will operate thereon, a depressible stop in front of said anvil, and a removable arm and adjustable saw-guide thereon adapted to be secured to said swaging-machine, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK E. BUTTS.
GUSTAV A. DUMBECK.

Witnesses:
B. A. WALKER,
H. E. FISH.