

(No Model.)

E. C. MERSHON.
SAW SWAGE.

No. 532,802

Patented Jan. 22, 1895.

Fig. 1.

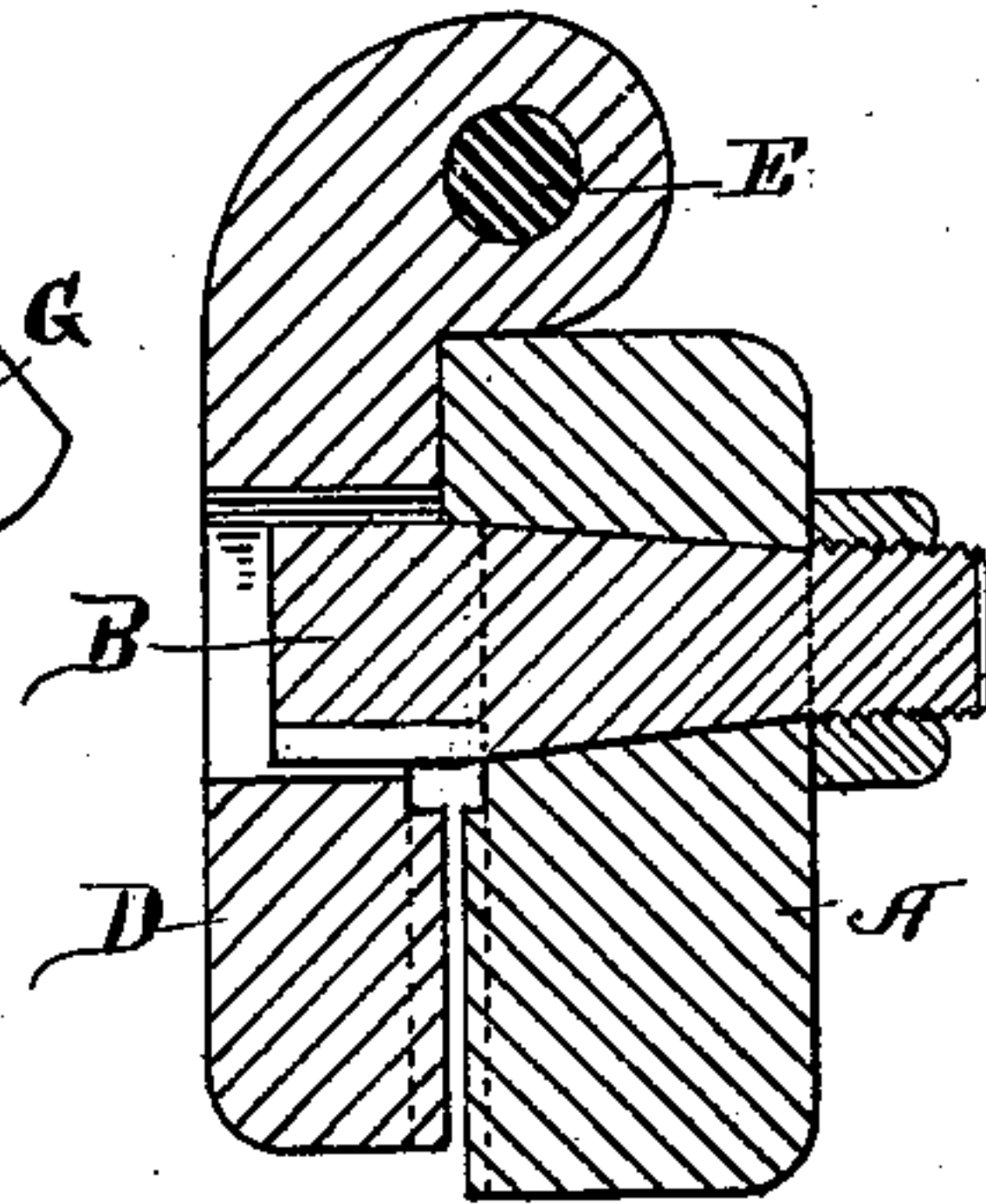
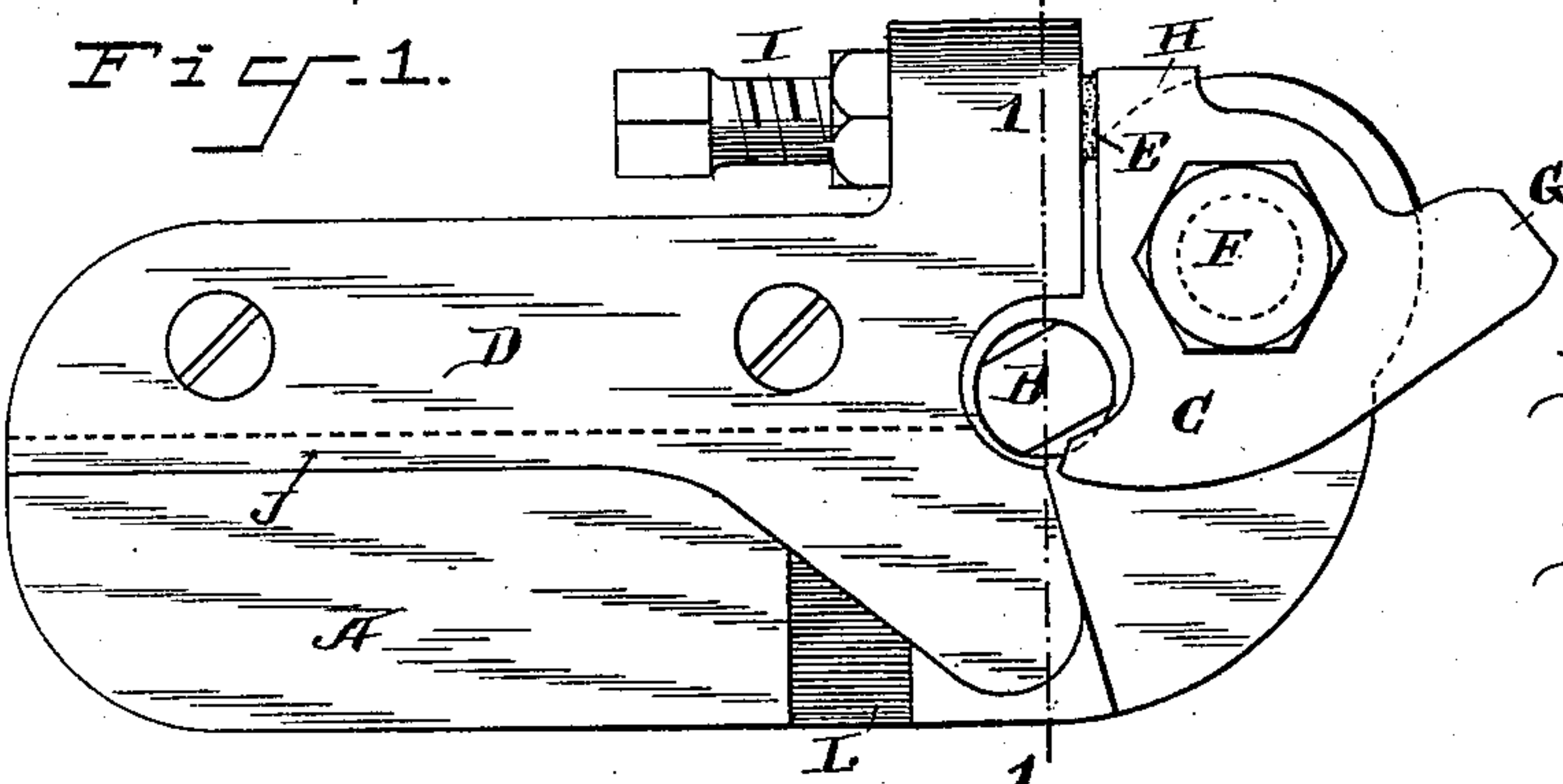


Fig. 2.

Fig. 3.

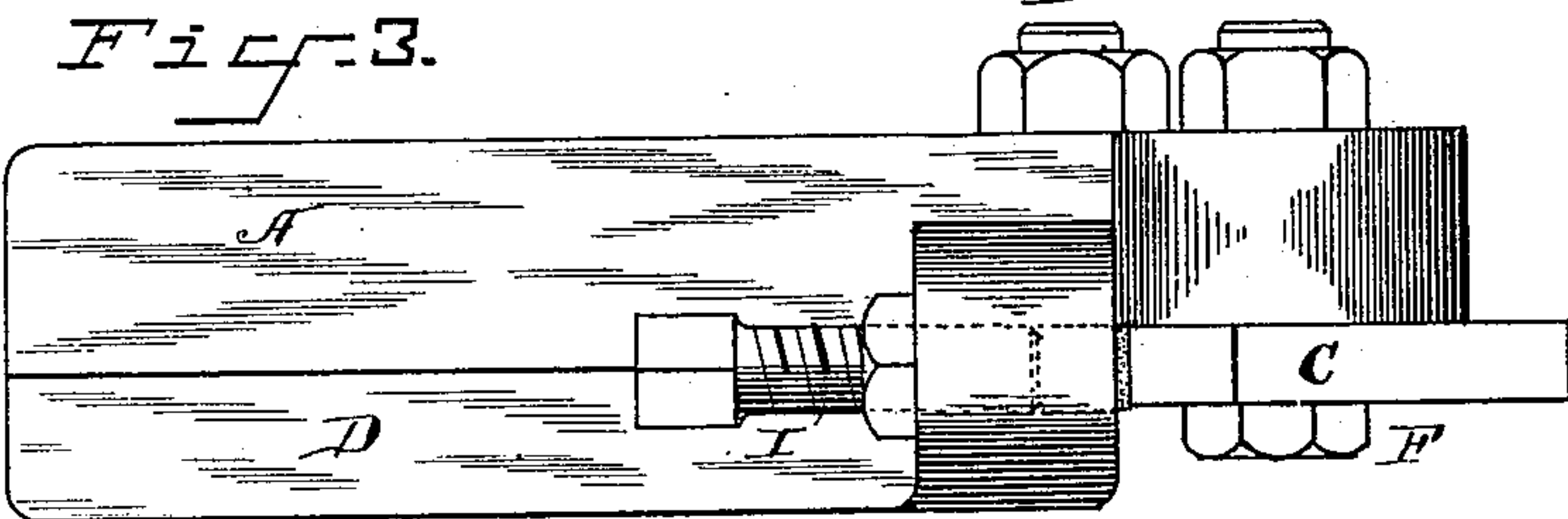


Fig. 4.

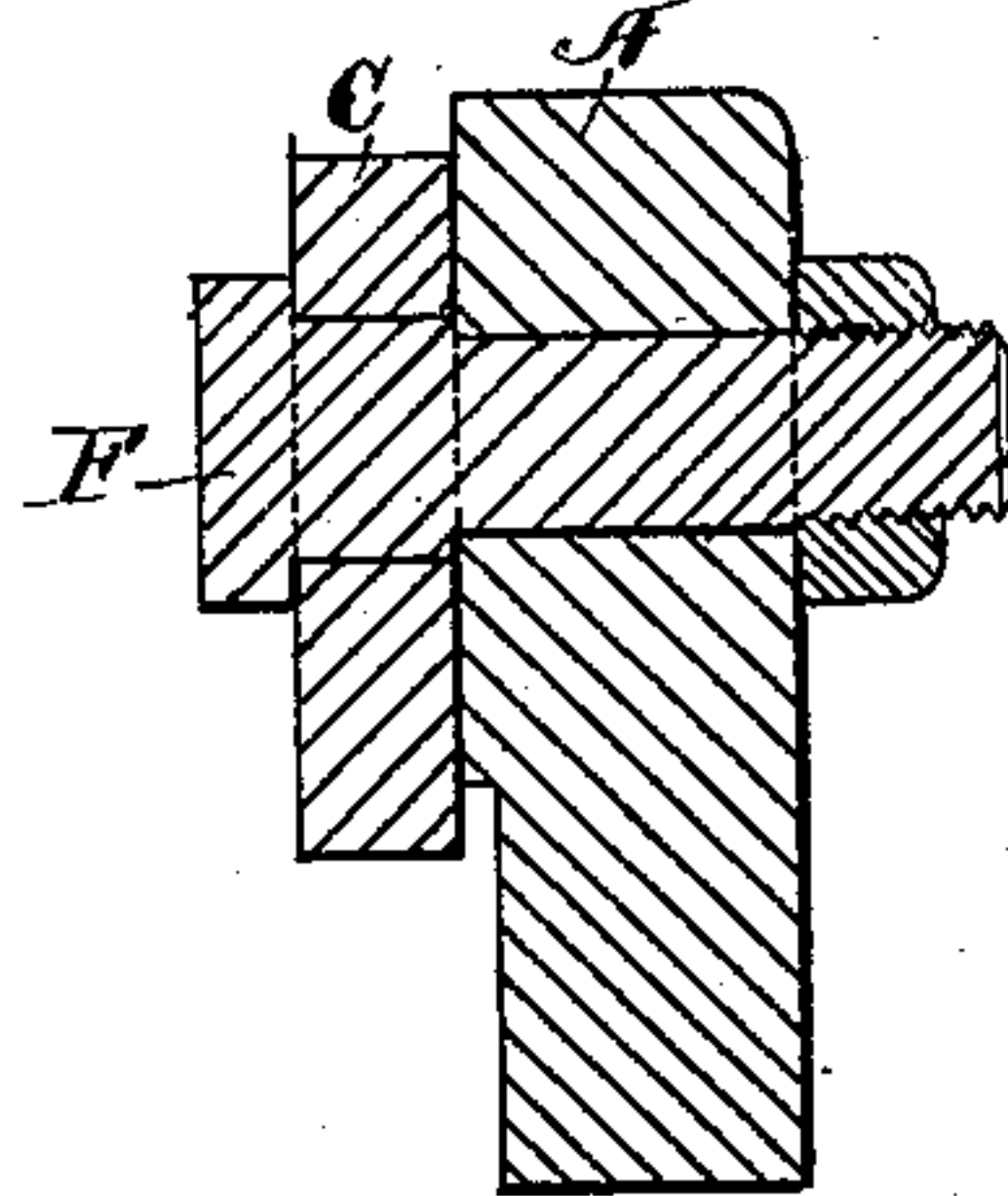
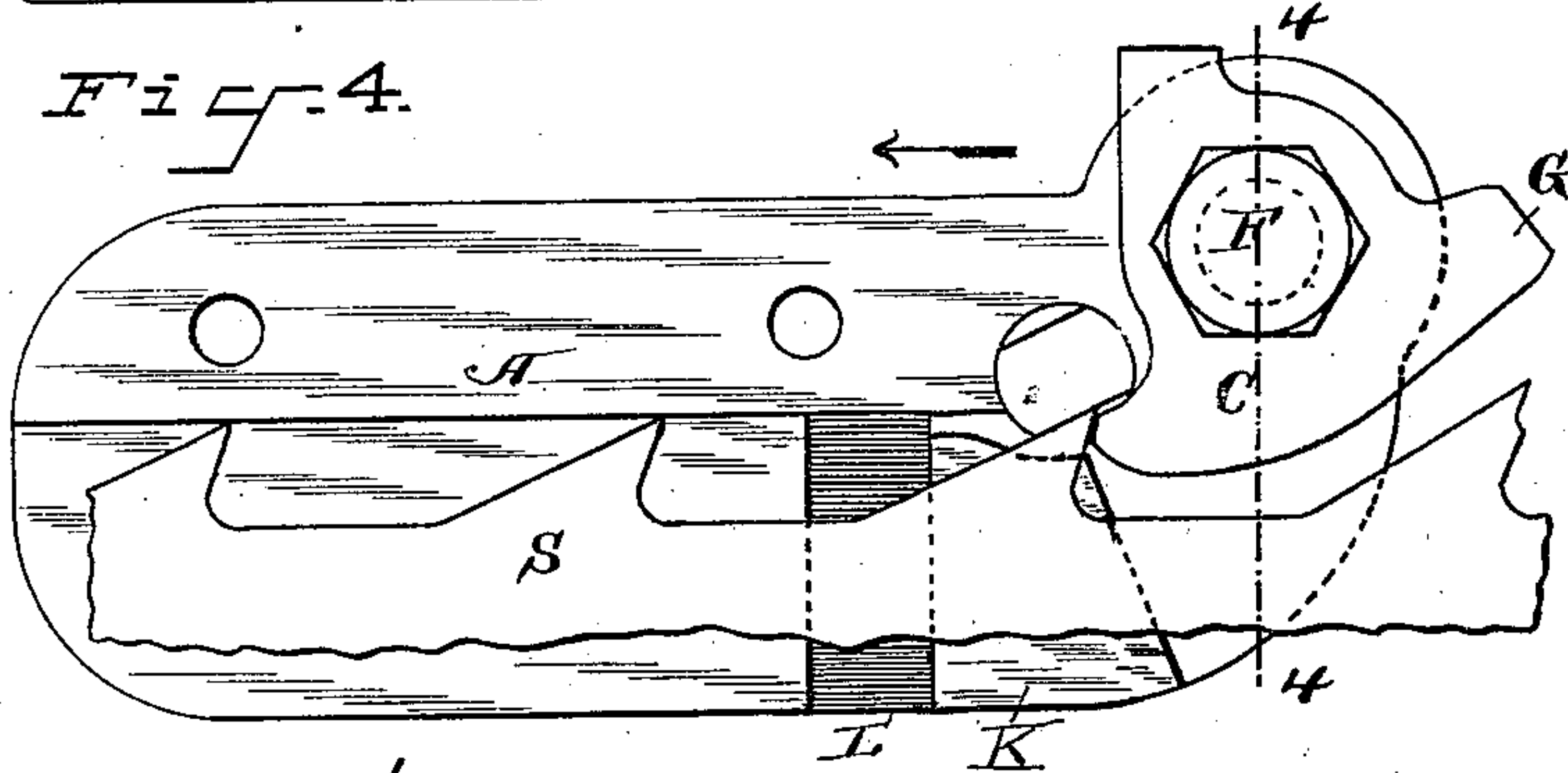


Fig. 5.

Fig. 6.

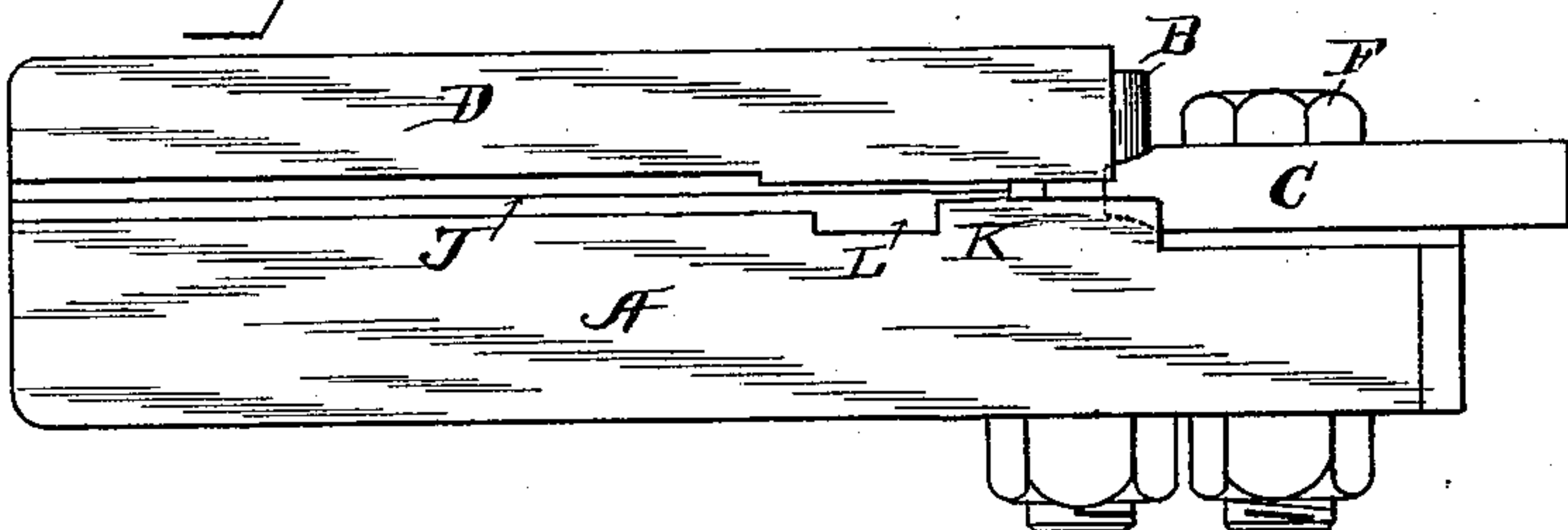
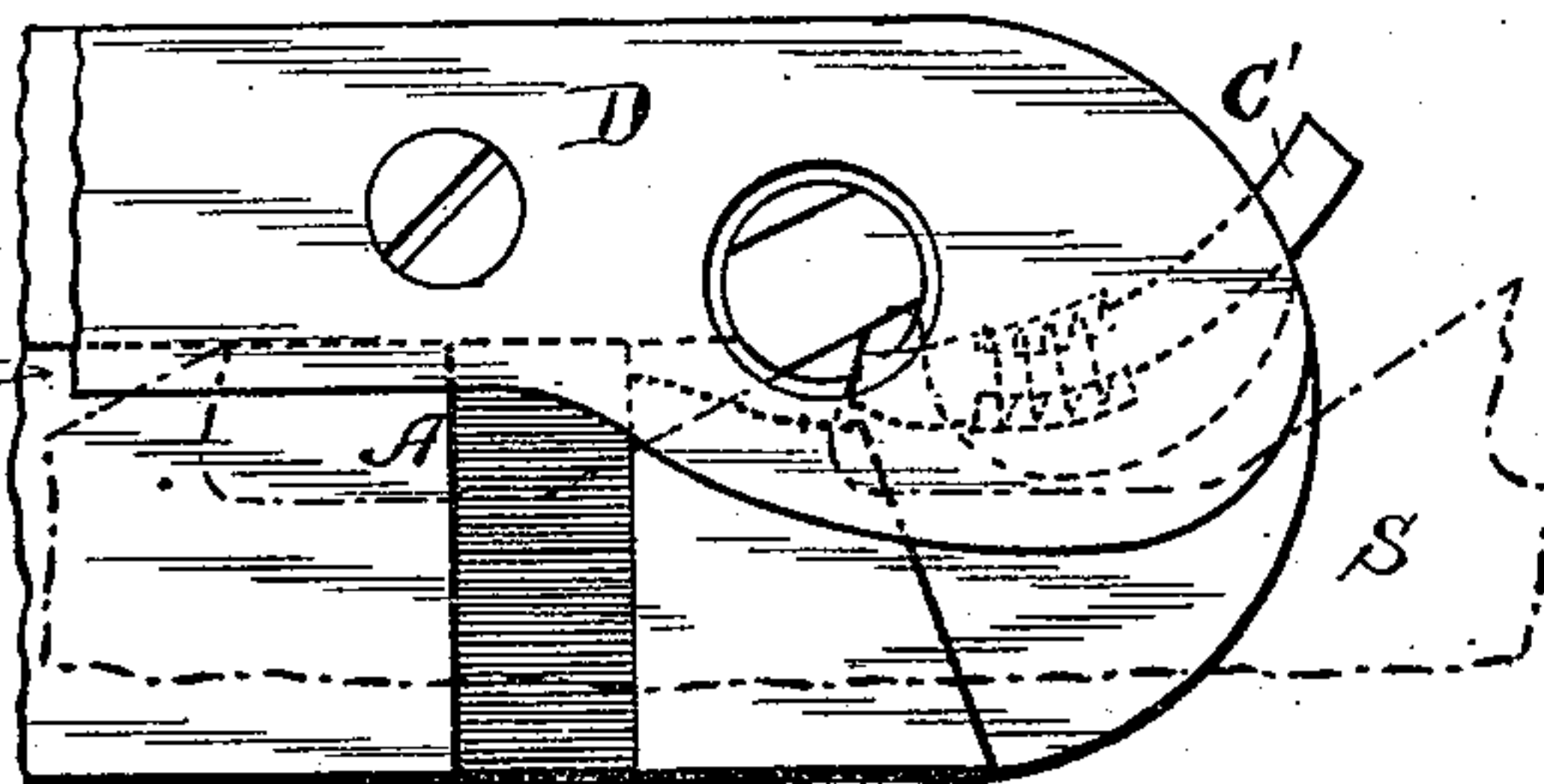


Fig. 7.



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UNITED STATES PATENT OFFICE.

EDWARD C. MERSHON, OF SAGINAW, MICHIGAN.

SAW-SWAGE.

SPECIFICATION forming part of Letters Patent No. 532,802, dated January 22, 1895.

Application filed August 14, 1894. Serial No. 520,244. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. MERSHON, a citizen of the United States, and a resident of Saginaw, in the county of Saginaw and State of Michigan, have invented a certain new and useful Saw-Swage, of which the following is a specification.

My invention relates to saw swages such as are used for broadening or expanding laterally the ends of the teeth of slitting, rip or re-saws.

The object of the invention is to produce a simple instrument such as can be readily constructed, easily manipulated and adapted to expand the teeth at the desired point and in the proper manner.

The swages now in use are either very expensive or ineffectual in their operation. Some of them expand the teeth below the point and are incapable of producing an equal expansion to the extremity of the point thus making teeth which cannot give a clean cut and which cause a great deal of friction in operation and moreover are readily turned aside by knots. In swaging by means of the upset the points of the teeth are driven back thereby necessitating a great deal of grinding or filing in order to again give the teeth the proper hook or lead, and when this has been done the broadening of the teeth exists at only the extreme points and wears off with the first dulling of the saw, necessitating a repetition of the upsetting operation at each sharpening of the saw. By the use of my swage the teeth are expanded by a gradual increase from a suitable distance back of the points to their extreme points which may be drawn out to a sharp edge, thus necessitating but very little filing or grinding to keep a saw in order.

My invention consists in a swage provided with an anvil which shall conform to and bear against the back of the saw teeth and so sustain the teeth while they are expanded by blows from a hammer applied to them from the under side.

It also consists in the combination with a suitable stock, of an anvil made to conform to the rear or back of the saw teeth, and a hammer mounted in said stock in a position to strike against the under side of the teeth and produce the desired expansion thereof.

My invention further consists in the construction and combinations of parts hereinafter fully described and set forth in the claims.

In the accompanying drawings forming a part of the specification; Figure 1, represents my improved swage in side elevation. Fig. 2, is a vertical section thereof taken in the plane represented by the line 1—1 Fig. 1. Fig. 3, represents a plan view. Fig. 4, is a side view of the main portion of the stock, the cap being removed. Fig. 5, is a vertical section thereof taken in a plane indicated by line 4—4 Fig. 4. Fig. 6, is an under side plan of Fig. 4. Fig. 7, represents in side elevation a modification in the form of hammer which may be used in my swage; and Fig. 8, represents in outline the forms of teeth produced by different swages.

My swage composes a main body portion or stock A, an anvil B, secured therein, a hammer C, mounted on said stock, a cap D, forming a part of the stock, and a suitable adjustable cushion E, for the hammer. The stock may be of cast iron and should be large enough to add the desired weight to the anvil which is so formed and located to fit the backs of the saw teeth. The anvil might be formed in various ways. For instance, it might be a case-hardened projection formed on the stock but I have thought it best to make it of steel and in a manner such that it could be adjustable for the purpose of fitting the teeth of different makes of saws. In the form shown the anvil consists of a stud bolt coned where it passes through the stock and having its head flattened on one side to fit the backs of saw teeth and sufficiently flattened on the opposite side to accommodate a wrench for assisting in the proper adjustment thereof.

The hammer in its preferred form consists of a triangular steel plate secured to the stock by the pivot bolt F, the peen G, projecting beyond the stock to receive the blows of the hammer used in driving the swage hammer against the saw teeth. The face of the hammer rests normally against, or in close proximity to, the anvil and serves as a stop for a tooth that is presented for swaging. Thus the swage may be always accurately located upon the teeth of the saw. The projection H, on the hammer, located about equally distant from the peen and face, furnishes an

abutment for the cushion E. This cushion may consist of a spring of any sort and may be formed and located in any convenient way so that it may tend to keep the hammer in
5 and return it to the proper position. I have shown said cushion as located in a projection on the cap D, and have used therefor a piece of rubber seated in a bore in said projection and have applied the desired tension to said
10 rubber by means of the screw I, provided with a jam-nut as shown.

The swage is provided with a longitudinal groove J, formed partly in the stock and partly in the cap and in this groove fits the
15 saw, the swage resting upon two or more teeth at the rear of the one being swaged. This groove is contracted upon the body of the tooth being swaged so as to give lateral support thereto to prevent it from being bent.
20 This contraction is formed by a cheek projecting into said groove from the cap and a corresponding and opposing cheek K, projecting into the groove from the stock. As seen, for instance, in Fig. 4, these cheeks are
25 so located that while supporting the sides of a tooth they leave the point thereof free to be expanded laterally as desired. Said groove J, is also sufficiently wide to enable the swage to be moved slightly out of the plane of the
30 saw so as to enable the hammer to act at different places across the point of a tooth in the process of expanding said point.

A depression as L, is formed at the left of the cheek K, which not only assists in the
35 operation of planing the surfaces of the groove but also provides for the discharge of any gum which may be scraped from the teeth by the said cheeks as the swage is moved along over the saw.

In using the swage it is simply placed upon the saw S, as indicated in Fig. 4. It does not have to be clamped or in any manner secured thereto. Then with a light hammer, blows are delivered upon the peen of the hammer C,
45 until the desired expansion is given to the tooth. The swage is then lifted sufficiently at the forward end to allow the swaged tooth to pass the hammer, when it is moved backward, as indicated by the arrow, until stopped
50 by the next tooth engaging the hammer. Thus the hammer acts to properly locate the swage. The swage may, however, be operated by moving it over the saw in the direction reverse to that above described; the full width
55 of the groove J, being extended under the anvil across the upper ends of the cheeks at K, as shown in Figs. 2 and 4, to allow the expanded points of teeth to pass said cheeks. This is perhaps the preferable form for operating the swage as it can then be simply
60 shoved along on the saw until the next tooth to be swaged comes into place between the anvil and the hammer. Any other stop may be used for the purpose of properly locating
65 the swage but I find that the hammer itself acts perfectly in this capacity. In this way the swage is worked over the saw just as a

pawl works over a ratchet, stopping at every tooth and in the proper position.

The cheek K, and its counterpart may be
70 adjusted to or from each other in any suitable way as for instance by inserting washers of different thicknesses between the cap and stock said cap being secured to the stock by means of screws as shown or by any other
75 suitable device. The cap may also be formed integral with the stock and the grooves J, planed or milled as desired.

The hammer C, though shown in its preferred form as pivoted and oscillating may be
80 mounted in any other desired manner. It may consist of one or more rods or bars mounted in the stock or cap and constructed to reciprocate under the blows of a hammer.

In Fig. 7, I have indicated the swaging hammer C', as consisting of a curved bar in a
85 socket formed between the stock and cap, its outer end projecting in a manner to be struck by a hammer.

In Fig. 8, I have outlined the teeth produced by different processes of swaging. O,
90 represents a tooth swaged by a roller swage which makes the teeth wider a little back of the point than at the points. Such a tooth of course cannot cut smoothly and causes unnecessary friction. P, represents a tooth
95 swaged by the upsetting process, which produces an expansion at the extreme point only and of such form that it immediately wears off and necessitates upsetting each time the
100 saw is sharpened. Q, represents a tooth when swaged as by hammering it out with blows given thereto from the under side. This is the form of tooth produced by my swage and is
105 clearly the best form of tooth for use and wear.

Obviously the form of swage may be varied in many respects and still retain the gist of my invention which resides in swaging or expanding a saw tooth by hammering it from
110 beneath or upon the lower side.

I claim as my invention—

1. In a saw swage, the combination with a stock provided with a groove for receiving the saw upon which the swage rests, cheeks or
115 projections formed on the walls of said groove to laterally sustain the tooth being swaged, an anvil extending through the stock and groove and fitted to the back of the saw teeth, and a hammer mounted upon the stock for
120 striking the teeth on the under side of the points.

2. In a saw swage, the combination with a heavy stock grooved for riding upon the saw teeth, of an anvil passing through the stock
125 and fitted to the back of the saw teeth, and a hammer pivoted to the stock to swing in the arc of a circle and strike up under the points of the teeth.

3. In a saw swage, the combination with the
130 stock constructed to rest upon and move freely over the saw teeth, of an anvil fitted therein and made to conform to the rear side of the teeth, a triangular hammer pivoted to

the stock one angle being provided with a face for striking against the underside of the points of the teeth and another angle being constructed as a peen, and a spring cushion
5 interposed between the third angle of said hammer and a projection on the stock for the purpose set forth.

4. A saw swage consisting of the main portion A, of the stock, the cap portion D, re-
10 movably secured thereto, the cushion E, and its set-screw I, seated in a projection on said

cap, the adjustable anvil B, and the pivoted hammer C, constructed and operating, substantially as shown and described.

Signed at Saginaw, in the county of Sag- 15
inaw and State of Michigan, this 10th day of August, A. D. 1894.

EDWARD C. MERSHON.

Witnesses:

R. L. JONES,

CHAS. D. CURTIS.