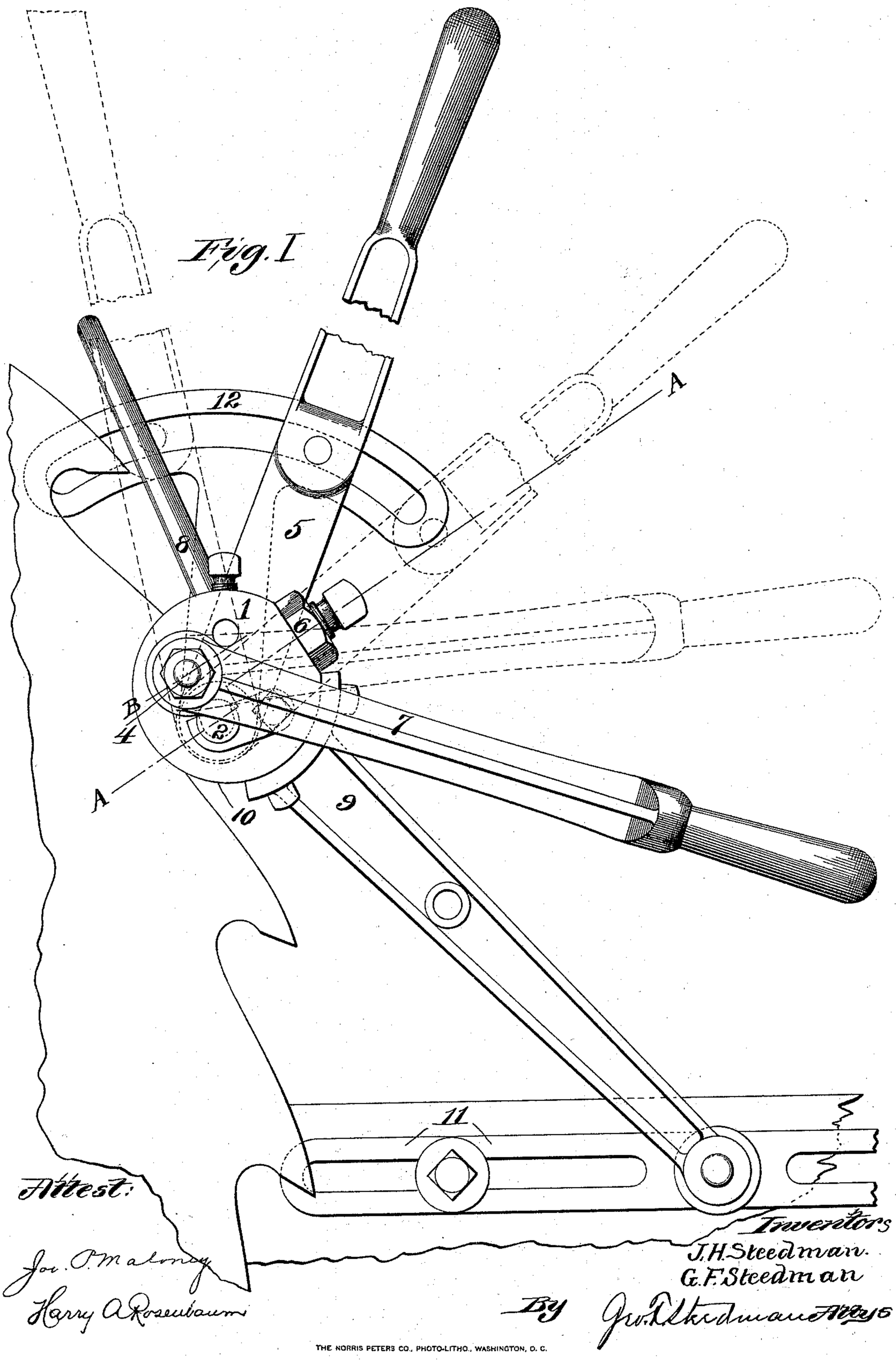
(No Model.) 3 Sheets—Sheet 1.

J. H. & G. F. STEEDMAN.

SWAGE FOR UPSETTING TEETH OF MILL SAWS.

No. 568,004. Patented Sept. 22, 1896.

Fig. 1



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(No Model.) 3 Sheets—Sheet 2.

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SWAGE FOR UPSETTING TEETH OF MILL SAWS.

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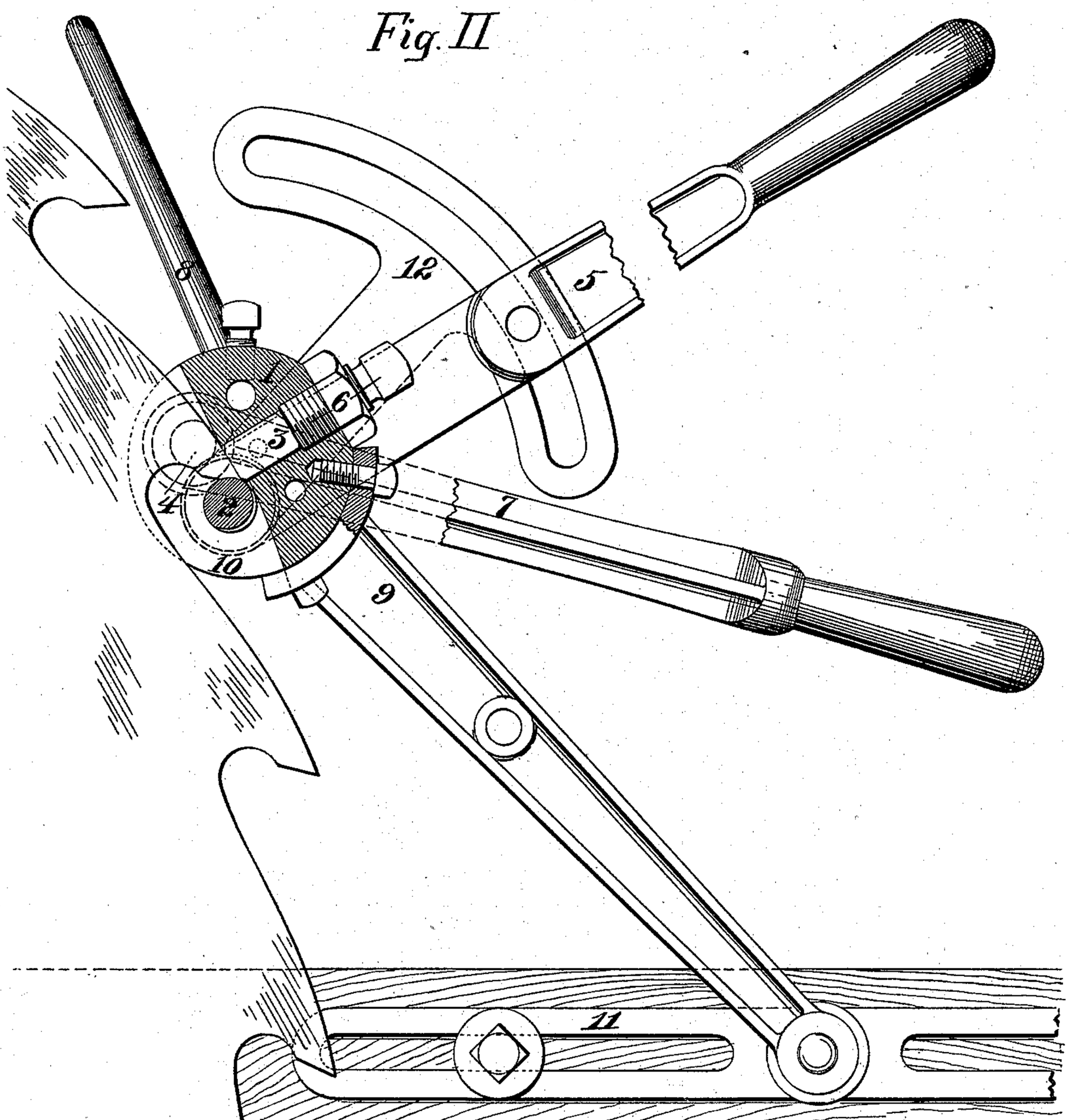
Fig. II



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(No Model.) 3 Sheets—Sheet 3.

J. H. & G. F. STEEDMAN.

SWAGE FOR UPSETTING TEETH OF MILL SAWS.

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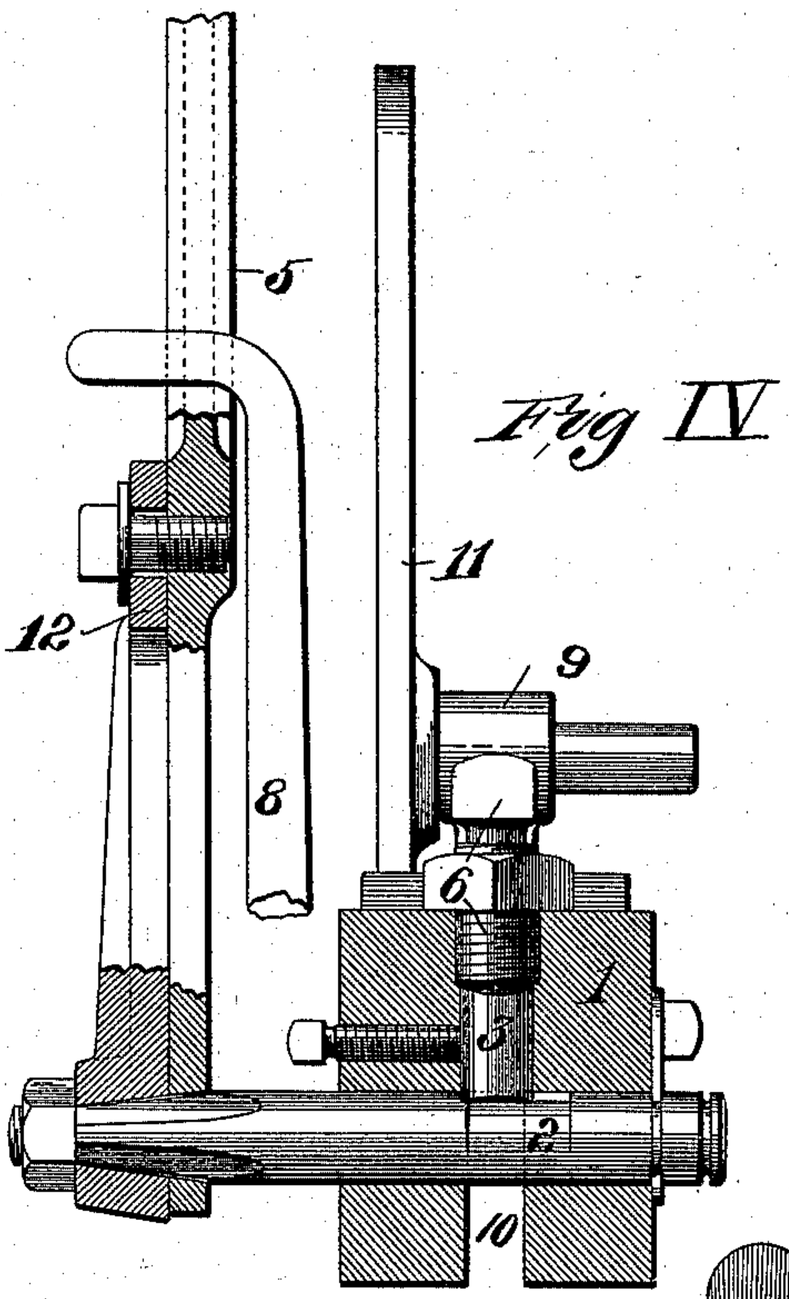


Fig IV

Fig. VI

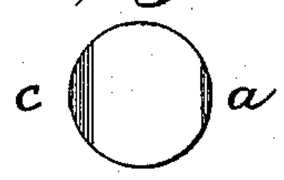


Fig. VII

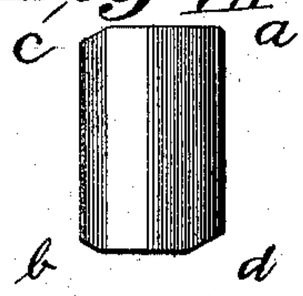


Fig. V

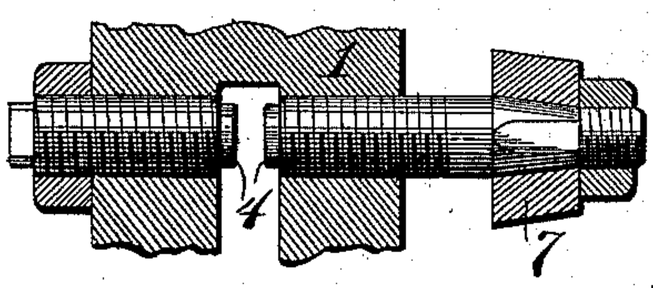


Fig III

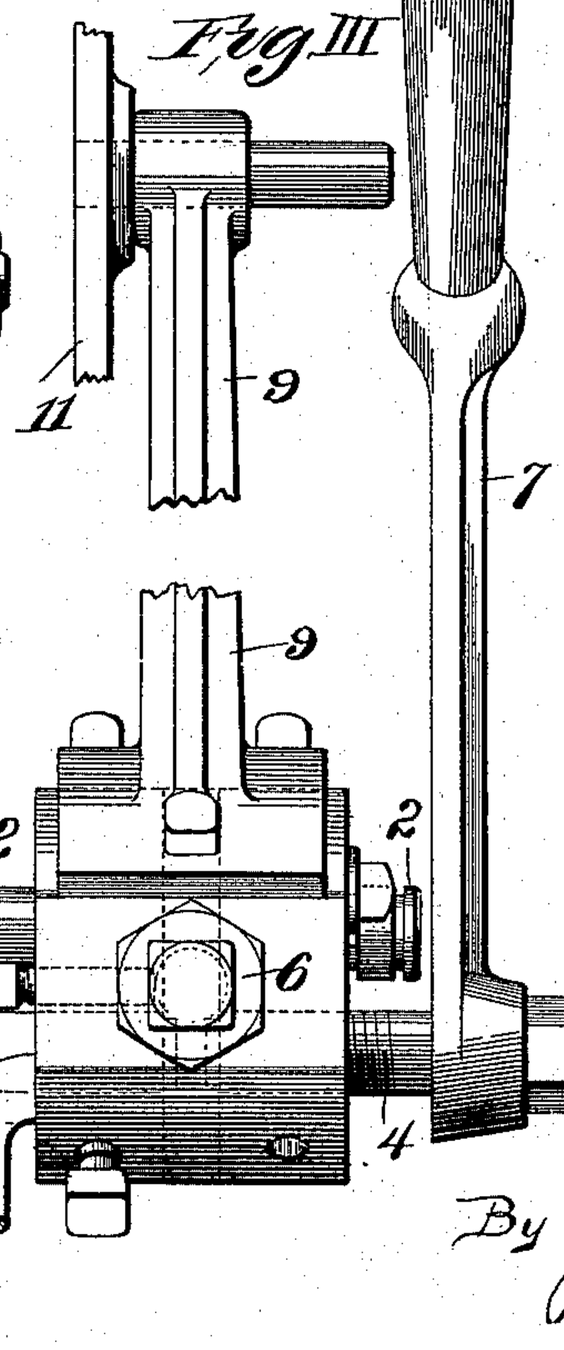
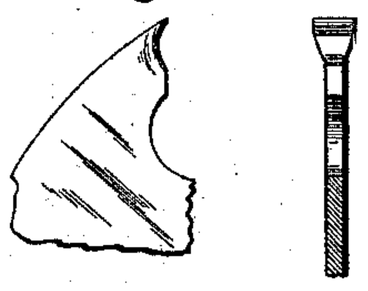


Fig VIII Fig IX



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UNITED STATES PATENT OFFICE.

JAMES H. STEEDMAN AND GEORGE F. STEEDMAN, OF ST. LOUIS, MISSOURI.

SWAGE FOR UPSETTING TEETH OF MILL-SAWS.

SPECIFICATION forming part of Letters Patent No. 568,004, dated September 22, 1896.

Application filed May 6, 1895. Serial No 548,358. (No model.)

To all whom it may concern:

Be it known that we, JAMES HARRISON STEEDMAN and GEORGE FOX STEEDMAN, of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Swages to Upset the Teeth of Mill-Saws, of which the following is a specification.

Our improvement applies to swages wherein an eccentric rotating die swages the saw-tooth by pressing it or rolling it by means of the eccentricity in the die against an anvil.

The object of our invention is to better, simplify, and cheapen swages of this class by certain novel mechanical forms and devices hereinafter described, and also to improve swage by making it adjustable to all conditions.

In the drawings attached to and forming a part of this specification, wherein the same parts bear the same number throughout, a swage adapted to circular saws is shown. We do not restrict ourselves to a swage for circular saws, as the same principle may be employed in swages for band or gang saws by simple mechanical means well known to those having knowledge of the art to which this invention appertains.

Our improvement consists in eliminating useless parts, in employing simple forms which may be cheaply yet accurately manufactured, and in making an adjustable machine which, though cheaper and simpler than any other machine of its class, yet is better adapted to its work.

Figure 1 of the drawings attached is a side elevation of the swage shown in position on a circular saw and attached to a saw-filer's bench. Fig. 2 is a sectional view of the same, showing the relation of its working parts. Fig. 3 is a top view of the swage with some of the longer arms broken off. Fig. 4 is a sectional view taken on the broken line A A of Fig. 1. Fig. 5 is a sectional view on line B, Fig. 1. Figs. 6 and 7 are top and side views of the anvil. Figs. 8 and 9 are side and end views of a saw-tooth swaged with our machine.

In all the figures, 1 is the body of the machine, carrying the other members.

2 is the eccentric die, which swages the saw-tooth against the anvil 3.

4 are clamping-screws to hold saw-tooth while being swaged.

5 is lever-handle by which the die 2 is turned.

6 is a set-screw over anvil to hold and adjust the same and is locked by a jam-nut.

7 is lever-handle on the clamp-screws 4.

8 is an adjustable stop for the handle 5 to strike against, so as to regulate the amount of opening between the eccentric part of the die and anvil.

9 is an arm to hold in a convenient manner the swage in working position. It is in the change of this arm 9 and its attachments that the machine can be applied to either band or gang saws in a manner well known.

10 is a slot in the head 1 to receive the saw-tooth.

11 is an adjustable slide for holding the arm 9.

12 is an adjustable sector to set the relation of eccentric of die and handle 5.

Head 1 is a piece of cylindrical machinery-steel or other material. In this head the numerous holes shown in the drawings are drilled. Fig. 2 in section shows the simple form of the slot 10. On account of its shape and the peculiar arrangement of parts all the work done upon this head can be done very cheaply and no expensive labor is necessary to make the same perfectly true.

The die 2, which is capable of rotating in a drilled hole in the head 1, as shown in the drawings, is of the regular form and has no novel features in itself.

The anvil 3, as shown in Figs. 3, 4, 6, and 7, upon whose form we hereinafter lay special claim, is a simple circular cylinder of steel whose bases are at right angles to its axis.

Figs. 6 and 7 show the anvil in detail, Fig. 6 being a top view and Fig. 7 a side view.

The bases of the cylinder are cut, as shown in Figs. 6 and 7, by secant planes cutting off or beveling the bases, as shown. The secant planes cut off unequal amounts, as is shown by corners *a*, *b*, *c*, and *d*.

By examining Fig. 2 it will be seen that upon the amount of bevel on the corners of the anvil which bear against the die depends the relationship between the face of the anvil and the die 2, as the greater the bevel on the anvil the nearer the face of the anvil comes to being in the same plane as the center of the die. The less the bevel on

the anvil 3 the nearer the face of the anvil approximates to a tangent plane to the concentric part of the die 2, and the angle between die and anvil is so changed. Upon this simple means of varying the relation between the anvil and the die special claims are hereinafter made, as well as upon the principle of having the adjustment. Upon this relation depends the adjustability of the swage to all shapes of saw-teeth. In other respects the working of the swage and its parts do not differ from those already known to the art. By the simple means of the slot 10 it will be seen from Fig. 2 that there are no projecting corners to catch the point of the saw-tooth during the operation of swaging the saw, as the tooth strikes against the bottom of slot 10 and slides directly into position between the anvil and die.

Fig. 2 shows a tooth that has just been swaged. Before swaging, the handle 5 would have been against stop 8 and eccentric part of die would have been under anvil, leaving a space for the saw-tooth to enter. This shape of slot and its relation to the anvil and die is important for the quick working of the swage in guiding the saw-tooth directly to its proper position.

The die 2 has been shown as laterally adjustable. This is not necessary to the proper working of the swage, but is a desirable feature. Die 2 is held from lateral movement by a simple clamping device. There are, however, many ways of holding the die into position laterally, and no claim is made to this point.

In our invention we show a machine adapted to the work it is to perform, simple to manufacture, easy to adjust, and not complicated by needless parts. The saw-tooth always enters to its place without fail. These desirable features are due to the novel points claimed herein.

Having described our invention by specification and drawings, so that one skilled in the art to which it appertains can make and use the same, what we claim as new, and desire to secure by Letters Patent, is—

In a saw-swage wherein the saw-tooth is swaged by the rotation of an eccentric die, swaging out the tooth against an anvil; the combination of the head 1, having slot 10, the eccentric die 2, the cylindrical anvil 3, clamping-screws, 4, the lever 5, set-screw 6, the clamping-lever 7, the adjusting-stop 8, the arm 9, the adjustable slide 11, and the adjustable arc 12, as shown and described.

J. H. STEEDMAN.
G. F. STEEDMAN.

Witnesses:
WM. F. LUPTON,
ERNEST SCHLEUR.