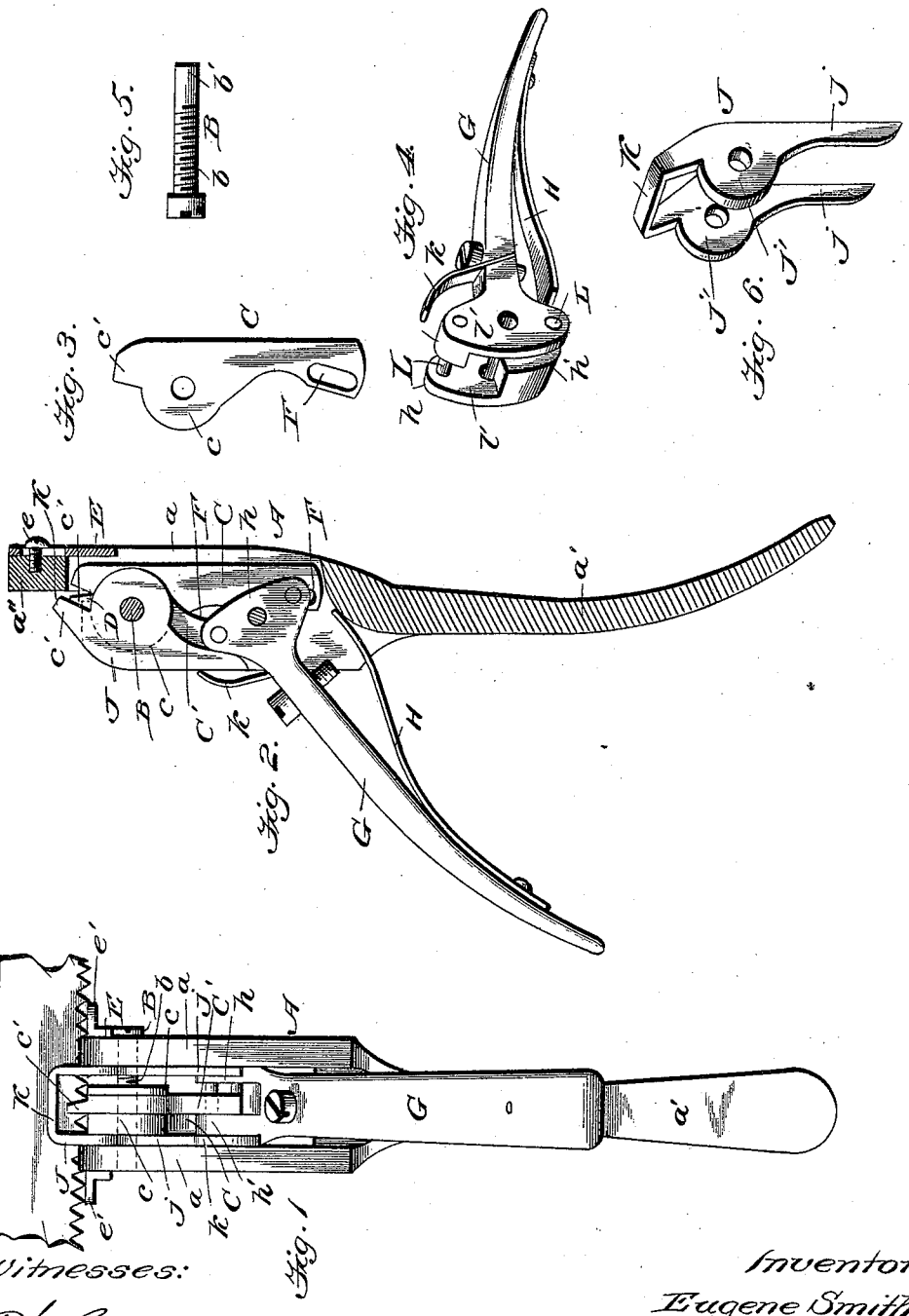
(No Model.)

E. SMITH.

SAW SET.

No. 490,371. Patented Jan. 24, 1893.



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SAW-SET.

SPECIFICATION forming part of Letters Patent No. 490,371, dated January 24, 1893.

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To all whom it may concern:

Be it known that I, EUGENE SMITH, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Saw-Sets; and I 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.

My invention relates to improvements in tools or devices for setting the teeth of saws, and more particularly to the class which are used principally on ordinary hand saws to simultaneously set two of the adjoining teeth thereof.

The object of my invention is to provide a compact, simple device for setting saws, which can be easily and rapidly operated and is adapted to set two teeth of the saw at each operation.

A further object is to provide means whereby the dies which set the teeth can be quickly adjusted to saws of different sizes, having large or small teeth which are spaced at different intervals from each other, and also to provide a device for holding the saw rigidly in the tool to prevent it from being displaced during the setting operation.

With these ends in view, my invention consists of a frame having a rigid handle and two parallel side pieces, between which the dies are arranged. Pivotally secured on a screw shaft extending through the upper ends of the frame are two die plates which are provided with dies at one end, and their other ends are separated and held apart by a cam lever fulcrumed in the frame between the die plates. The lever is provided with short shafts in its cam surfaces which operate in slots in the die plates, and when the lever is operated the lower ends of the die plates are forced apart by the lever, and the dies are forced inward, past each other, to set the teeth against which said dies impinge. These die plates are normally held in place by a flat spring on the lever which bears against the rigid handle, and the stroke of the dies is regulated by a set screw operating in the lever which limits the movement of the lever. The screw on which the die plates are pivoted is threaded almost its entire length, but a smooth plain portion is provided on said shaft to receive one of the die plates, while the other operates on the threaded portion; and as the screw is turned this die plate which is connected to the screw is moved nearer to or farther away from the other plate, as desired, but such plate is provided with a lateral hub which prevents the plates themselves from impinging against the sides of the frame. A clamping jaw is also pivoted on the screw and is adapted to be operated by the cam lever to hold the saw firmly and rigidly between said jaw and a rigid jaw on the frame.

My invention consists further of certain details of construction and arrangement of parts, as will be fully pointed out and described hereinafter.

To enable others to more readily understand my invention, I have illustrated the same in the accompanying drawings, in which

Figure 1 is a front elevation of my invention, showing the same adapted for operation on a section of a saw. Fig. 2 is a side elevation partly broken away to show the arrangement of the die plates and clamping jaw. Fig. 3 is a detail view of one of the die plates. Fig. 4 is a detail view of the lever. Fig. 5 is a detail view of the screw shaft, and Fig. 6 is a detached view of the clamping jaw.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A, designates the frame of my improved device, having the parallel side pieces a, a, arranged a suitable distance apart to form a space between them, in which the dies and operating devices are arranged; and this frame is also provided with a rigid handle a' of any desired size and construction, and rigid jaw a'' which projects above the frame.

Near the upper ends of the side pieces a, a, is a screw shaft B which is journaled in said side pieces and on this shaft are pivoted the die plates C, C'. This shaft B is provided with a thread b, for the greater part of its length, but a part b' thereof is smooth or plain, without a thread, to receive one of the die plates C, while the threaded portion b, extends up to and bears against the plate C which is arranged on the unthreaded portion b'. The other die plate C' is provided with a thread, and when the screw is operated, this

plate is moved nearer to or farther from the other plate C, and the dies can thereby be adjusted readily to set the teeth on saws of different thicknesses. These die plates are provided with hubs *c*, *c*, which project laterally from opposite sides of the plates to prevent the plates themselves from impinging against the sides of the frame and thus obviate the frame from impeding the operation of the die plates. The plates are pivoted on the screw shaft, near one end thereof, and these ends are provided with the dies *c'*, *c'*, which extend in opposite directions and operate side by side to set the adjoining teeth of the saw, said dies being cut away or recessed a short distance below their impinging points to facilitate their operation.

The upper ends of the side pieces *a*, *a*, of the frame may have longitudinal slots D extending below the line of the dies, and through these slots the saw blade is passed, which is also guided by the slots and an adjustable guide E fitted around the frame and held in place by a screw *e*; and this guide is provided with the lips *e'* which project laterally from the guide in line with the slots D in the frame.

The longer ends of the die plates C, C', extend to the lower portion of the space between the side pieces *a*, *a*, and said lower ends of the die plates are provided in their inner opposing edges with the slots F. In the frame A, between these die plates, is fulcrumed a lever G, and this lever is provided with the projecting cam surfaces *h*, *h'*, opposite each other and the short shafts L which fit into the slots F in the die-plates, and when the lever is operated these shafts will bear against the die plates and force the longer ends of said plates apart, while the dies will be pressed against the teeth and set the same simultaneously. These die plates are held together, when the device is not in use, by means of a flat spring H secured on the cam lever, and when the lever has once been operated and the die plates are forced outwardly by the lever, this spring H bears against the rigid handle and brings the device back to its normal position. After the tool or implement has been moved or adjusted along the saw blade, and the dies adjusted to different teeth, the device is again in position to set two more teeth.

It has been found in some instances that the saw will be forced out by the operation of the dies, and to prevent this I provide a clamping jaw J which is also pivoted on the screw shaft B and is arranged to force the saw blade tightly against the rigid jaw *a''*. This clamping jaw is constructed in the form of a strap which is bent to fit between the parallel side pieces of the frame, and each side *j* of said clamping jaw has an enlarged bearing *j'* through which the screw shaft B passes. The rearwardly extending ends of these sides *j*, rest upon the cam surface *h* on the operating lever so that when the lever is depressed to operate the dies the cam surface *h* will force the ends of the clamping jaw upward which will depress the front end or jaw K against the saw blade. In this way the saw blade will be tightly clamped between the clamping jaw and the rigid jaw at each operation of the lever and dies. A small arm *k* is provided on the lever which extends up and over one of the ends of the sides *j* to return said clamping jaw to its normal elevated position out of engagement with the saw blade, as the lever is forced upward by the spring H.

In making the cam surfaces on the lever they may be either solid, or, as shown in the drawings, short shafts L may be rigidly fixed in side pieces *l'*, and these shafts may work in slots F in the die plates. It is obvious that both die plates may have recesses and the lever two solid cam surfaces to operate therein, however, and I do not desire to limit myself to either construction.

The operation of my invention is obvious from the foregoing description. When it is desired to use the device on larger or smaller saw teeth, the dies are adjusted by simply turning the screw shaft B until the dies have assumed the proper position relatively to each other and according to thickness of the saw blade, and, if desired, the dies may be adjusted in like manner to operate on alternate teeth of the saw.

I am aware that changes in the form and proportion of parts and details of construction can be made without departing from the spirit of my invention, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device for setting saw teeth, the combination of a frame, die plates pivoted within the frame and each provided near one end with a longitudinal slot F, and a lever fulcrumed between the die plates and provided on opposite sides of its fulcrum with short shafts which extend into the slots in the die plates, substantially as and for the purpose described.

2. In a device for setting saw teeth, the combination of a frame, the die plates having the slots and pivotally secured on a screw shaft journaled in the frame, one of which plates is adapted to be adjusted by the shaft, and the lever fulcrumed in the frame between said die plates and provided with short shafts which fit in the slots in the plates, the spring secured to said lever, the lever being adapted to force the plates apart and operate the dies, substantially as described.

3. In a device for setting saw teeth, the combination of a frame provided with a rigid jaw, die plates pivoted on a single shaft within the frame, a clamping jaw pivoted within the frame and a lever fulcrumed between the die plates and arranged to operate said plates and the clamping jaw, substantially as described.

4. In a device for setting saw teeth, the combination of a frame provided with a rigid jaw, two die plates pivoted on a single shaft within the frame, a lever fulcrumed between and connected to both of said die plates and a clamping jaw pivoted on the pivot shaft of the die plates and contacting with a cam surface on the die operating lever, substantially as described, for the purpose specified.

5. In a device for setting saw teeth, the combination of a frame, the screw shaft secured in said frame and having a threaded and a smooth portion, the die plates pivoted on said screw shaft, a lever adapted to operate said die plates, a clamping jaw secured on said screw shaft and adapted to be operated by the lever simultaneously with the die plates, and an arm on the lever to return said clamping jaw to its normal elevated position when the pressure is removed from the lever, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EUGENE SMITH.

Witnesses:
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