(No Model.)

J. A. BORTHWICK.

SAW SET.

No. 320,753. Patented June 23, 1885.

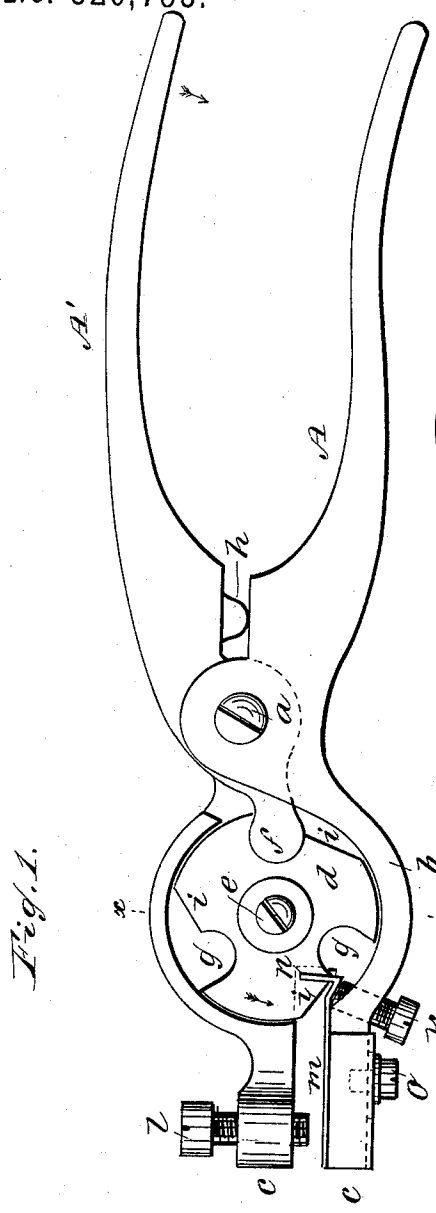

Fig. 1.

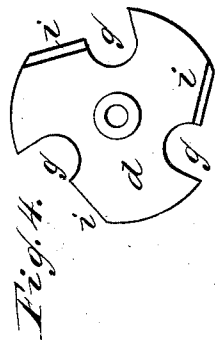

Fig. 4.

Fig. 2.

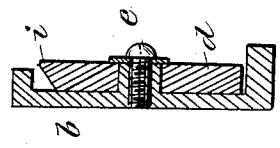

Fig. 3.

WITNESSES:

Theo. G. Hoster.

C. Sedgwick

INVENTOR:

J. A. Borthwick

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN A. BORTHWICK, OF ATLANTIC CITY, NEW JERSEY.

SAW-SET.

SPECIFICATION forming part of Letters Patent No. 320,753, dated June 23, 1885.

Application filed September 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. BORTHWICK, of Atlantic City, in the county of Atlantic and State of New Jersey, have invented a new and Improved Saw-Set, of which the following is a full, clear, and exact description.

In my improved saw-set the operation is in the manner of a pair of nippers by means of pivoted handles, one handle being provided with a clamp for holding the saw, and the other handle operating an adjustable rotary disk by which the tooth is bent down upon an anvil, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the saw-set. Fig. 2 is a plan view. Fig. 3 is a cross section on the line *x x*, Fig. 1. Fig. 4 is a face view of the disk in reverse of its position in Fig. 1.

The two handles A A′ are pivoted together at *a*. The outer end of the handle A is made with an enlargement, *b*, and at the extreme end is slotted to form two jaws, *c c*. The enlarged portion *b* is recessed at one side to receive the disk *d*, that is held in the recess by the pin *e*, so that the disk is free to be rotated. The outer end of the handle A′ terminates in a lug, *f*, that enters one of the slots *g*, formed in the disk *d*, so that when the two handles are pressed together the effect is to give to the disk *d* a partial rotation. A spring, *h*, serves to give the return movement to the handles.

In connection with each slot *g* the disk *d* is formed with tangential surfaces *i* for bearing upon and setting the teeth of the saw. These surfaces act in conjunction with the end of a steel-pointed screw or anvil, *k*, that is tapped through the enlarged portion *b* of the anvil, so as to project into the recess at the base of the lower jaw *c*. There are three of the slots *g* and surfaces *i*, so that the tool can be used for different sizes of saw-teeth; and, as shown in Fig. 4, the disk is beveled on the inner side, so as to obtain operative surfaces of different widths, one being the full thickness of the disk and the other two more or less narrowed by the bevel.

In the upper jaw *c* is a screw, *l*, which is to be screwed down upon the saw-blade for regulating the extent of set.

Upon the lower jaw a plate, *m*, is attached by a screw, *o*, so that it can be set in or out to vary the position of its inner flanges *n*, with relation to the anvil *k*, according to the length of the saw-teeth.

The saw-blade is to be inserted between the jaws *c c*, and the teeth resting against the flanges *n* of the plate *m* have a broad bearing, so that the blade is not liable to rock. In this position the tooth to be set projects above the anvil *k* and below the inclined surface *i* of the disk. By bringing the handles A A′ together the disk *d* is moved and the tooth thus bent down upon the anvil. The disk acts in bending by a drawing movement, which is most effective, without liability of breaking the tooth.

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

1. In a saw-set, the pivoted disk *d*, formed with one or more flat surfaces, *i*, and combined with lever handles, by one of which the disk is given a movement to bend the saw-tooth, substantially as described.

2. In a saw-set, the combination of the handle A, formed with jaws *c c*, the slotted disk *d*, pivoted upon the handle A, and the handle A′, formed with a lug engaging with the disk, substantially as described.

3. In a saw-set, the rotating disk *d*, formed with flat surfaces *i*, beveled at one side, substantially as described.

4. In a saw-set, the combination of the rotating disk *d*, the jaws *c c*, the screws *l*, the anvil *k*, and adjustable plate *m*, substantially as shown and described.

5. In a saw-set, the plate *m* formed with flanges *n*, in combination with the jaws *c*, the anvil *k*, and the rotary disk *d*, substantially as described.

6. In a saw-set, the combination of the rotary disk *d* and adjustable anvil *k* with the handles A A′, substantially as specified.

JOHN A. BORTHWICK.

Witnesses:

JOB G. LEE,

GIFFORD C. SIMS.