2 Sheets—Sheet 1

G. W. BUGBEE.

Saw-Sets.

No. 198,077. **Patented Dec. 11, 1877**

Fig. 1.

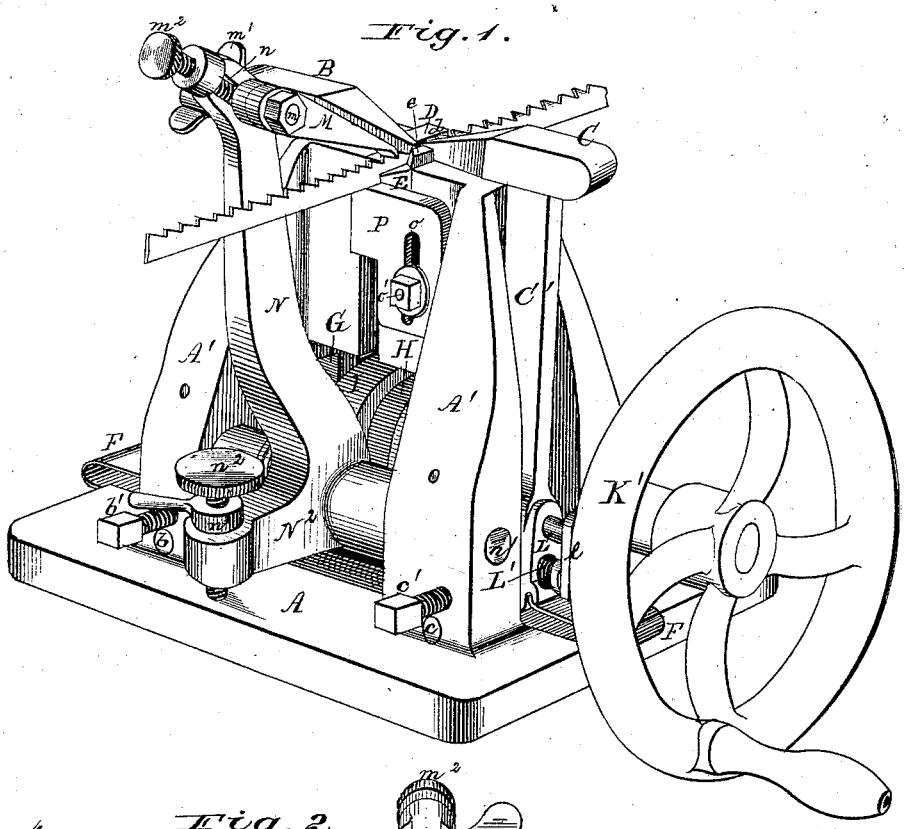
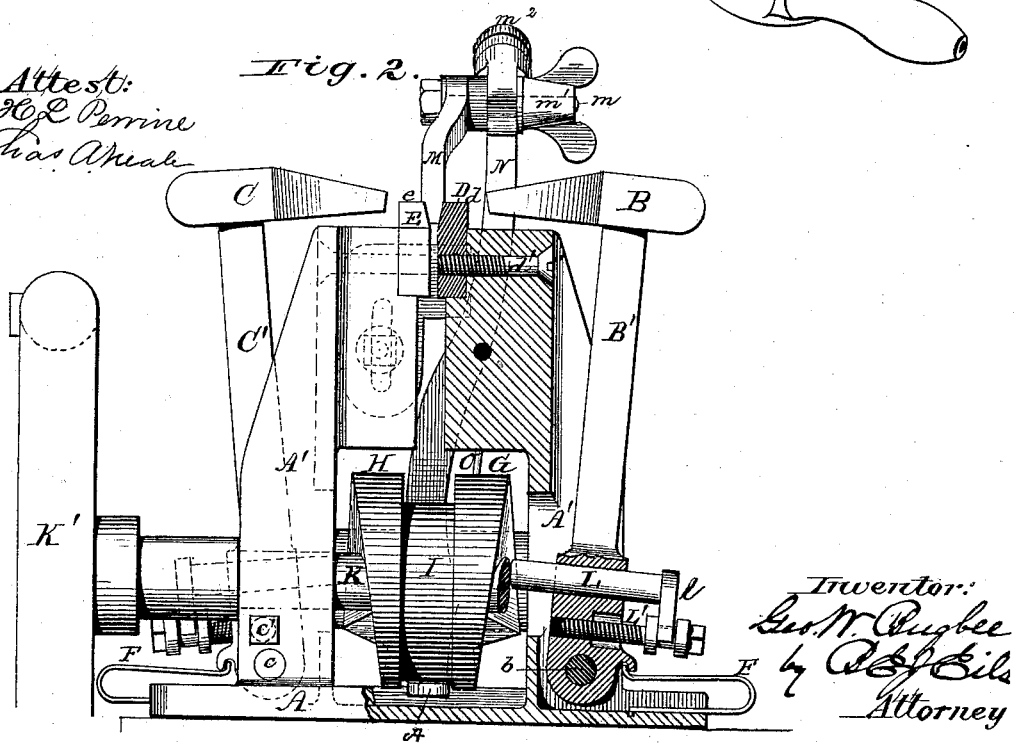


Fig. 2.



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2 Sheets—Sheet 2.

G. W. BUGBEE.

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Fig. 3.

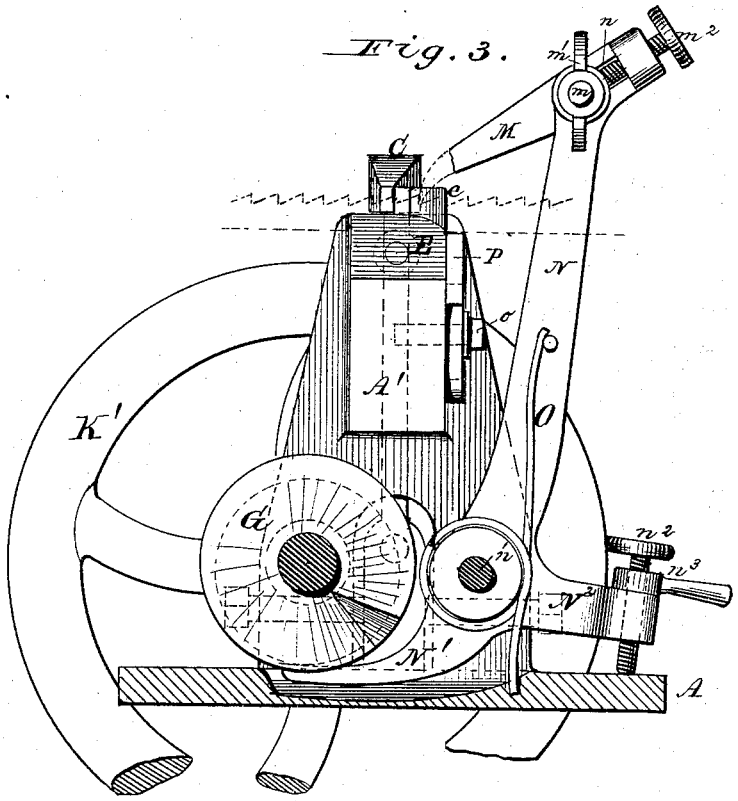
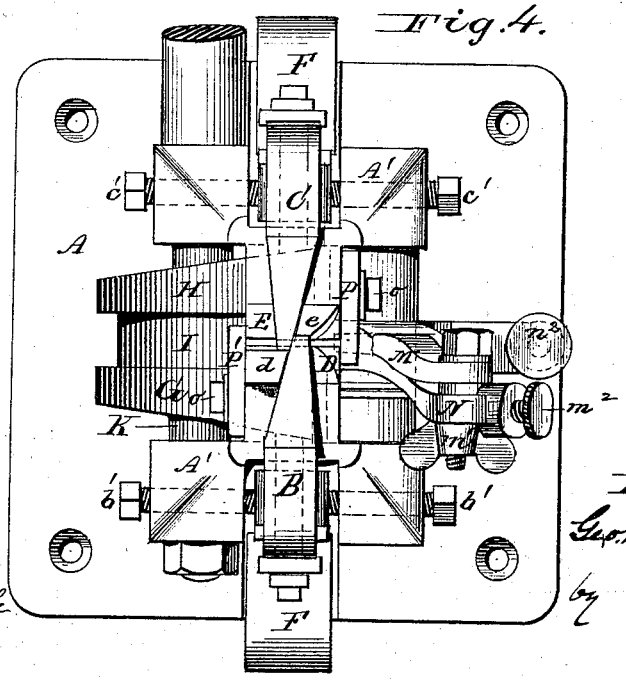


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE W. BUGBEE, OF CINCINNATI, OHIO, ASSIGNOR TO J. A. FAY & CO., OF SAME PLACE.

IMPROVEMENT IN SAW-SETS.

Specification forming part of Letters Patent No. **198,077**, dated December 11, 1877; application filed June 23, 1877.

To all whom it may concern:

Be it known that I, GEORGE W. BUGBEE, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Saw-Sets, of which the following is a full, clear, and exact description.

This invention relates to a saw-setting machine, more especially intended to set the teeth of band-saws, and organized with an automatic feed mechanism to feed the saw along as fast as the teeth are set.

The improvement consists of certain novel features of construction whereby the machine is adapted for operating with one or two hammers, the force of the blow of the hammer or hammers can be regulated, the feed can be nicely adjusted, the hammers can be shifted laterally to adjust them with reference to the pitch of the saw-teeth, and general structural simplicity is attained.

In the annexed drawings, Figure 1 is a perspective view of the improved saw-setting machine. Fig. 2 is a rear elevation, partly sectional. Fig. 3 is a side elevation, partly in section. Fig. 4 is a plan view.

The same letters of reference indicate like parts in all the figures.

The stand or frame of the machine is composed of the base-plate A and a pair of uprights, A′ A′, having the conformation best seen in Figs. 1 and 2. The machine illustrated is organized with two hammers, B and C, the helves B′ and C′ of which are, respectively, pivoted on pins *b* and *c* between the legs of the uprights A, near the base.

The hammers operate in opposite directions to strike on the anvils D and E, which are placed on offsets in the upper ends of the uprights A′, and secured by screws *d*′, so that they may be readily removed for substitution or repairs. The projecting portions *d* and *e* of the anvils are beveled to correspond to the bevel of the ends of the hammers, and are arranged to stand one slightly in advance of the other to permit them to act properly with the hammers, whose points are made to strike past each other. The hammer-helves are adapted to slide on their pivot-pins *b* and *c*, so that the hammers may be adjusted laterally to regulate the space between their striking-points in exact accord with the pitch of the saw-teeth. Temper-screws *b*′ *b*′ and *c*′ *c*′, passing through the legs of the uprights A′, serve to maintain the hammers in position after proper adjustment. The hammers are thrown toward the anvils by U-shaped springs F, which are placed loosely in recesses in the upper side of the base-plate, and engage, by means of a hook at one end, a corresponding hook on the helve of the hammer, as clearly shown in Fig. 2. The hammers are turned back preparatory to delivering blows by the cams G and H, formed in one piece, preferably, with the eccentric or cam I, whose office will be presently described. These cams are secured on a shaft, K, turning in bearings in the uprights A′, and provided with a hand-wheel, K′, at one end.

The cams G and H operate on the hammer-helves through the studs L, which are connected to the helves, and are adapted to be projected more or less, so that the hammers may be thrown out of action altogether or made to strike a blow of greater or less force. To this end the outer end of stud L has an elongated forked head, *l*, which engages a screw, L′, between a couple of collars, as best seen in Fig. 2. The screw enters a threaded hole in the helve, so that by turning it in one direction or the other the stud L can be adjusted to project more or less through the helve.

The saw is fed as fast as the teeth are set by a pawl, M, pivoted on a bolt, *m*, which is seated in a slot, *n*, of a lever-arm, N, the bolt *m* being provided with a thumb-nut, m^1, to clamp it to the lever-arm at any required point in the slot. A temper-screw, m^2, is set up against bolt *m*, after it has been properly adjusted, as an additional safeguard against accidental shifting. The pawl is placed between a collar and washer, so that it can freely turn on the bolt at all times, it being retained in position by a nut, as shown. The lever-arm N is fulcrumed at n^1 in the legs of the uprights A′. From its hub a curved arm, N^1, projects under the eccentric or cam I, and another arm, N^2, projects in the opposite direction. A set-screw, n^2, is fitted in arm N^2 to bear with its foot upon the base-plate.

By adjusting this set-screw the arm N^1 may be raised or lowered with reference to cam I,

whereby the throw of lever-arm N, occasioned by the action of cam I on arm N^1, can be regulated. The set-screw carries a jam-nut, n^3, to lock it after adjustment. A stiff spring, O, acts on lever-arm N in opposition to cam I.

The throw of the lever-arm N is adjusted to the pitch of the teeth, and so as to feed the saw, by the pawl the distance of two teeth after each blow of the hammer or hammers; and as it is desirable that the pawl should act as close up to the anvils as practicable, it will be necessary to shift the position of the pawl on the lever-arm whenever the throw of the latter is adjusted.

The anvils are close together, just sufficient space being left between them to admit of the passage of the saw, the back of which is supported upon guides P P′, attached to opposite sides of the uprights A′.

The guides are provided with slots *o*, to admit of vertical adjustment, and are secured by clamping-bolts *o′*, which pass through said slots into taps in the uprights.

The cam I is so timed with reference to the cams G and H that it will throw the lever-arm forward to feed the saw just after the hammers are beginning to be turned back by the cams G and H, and complete the throw before the hammers deliver the blow.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, substantially as specified, of the hammer-helve, the cam, the stud through which the cam acts on the helve, and the screw for adjusting the stud.

2. The combination, substantially as specified, of the hammer, latterly adjustable on its fulcrum-pin, and the temper-screws for maintaining the hammer in position after adjustment.

3. The combination, substantially as specified, of the feed-lever, constructed with two oppositely-projecting arms, the cam acting on one of said arms, the set-screw in the other arm for regulating the feed, the reacting spring, and the pawl adjustable in, or in about, the line of feed.

4. The combination, substantially as specified, of the adjustable lever feed-arm, the pawl, the adjustable pivot-pin thereof passing through a slot in said arm, and the temper-screw bearing on said pivot-pin.

In testimony whereof I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

GEORGE W. BUGBEE.

Witnesses:
CHAS. S. GROFF,
JOS. C. NOYES.