C. Disston,

Saw-Set,

No. 47,806. Patented May 23, 1865

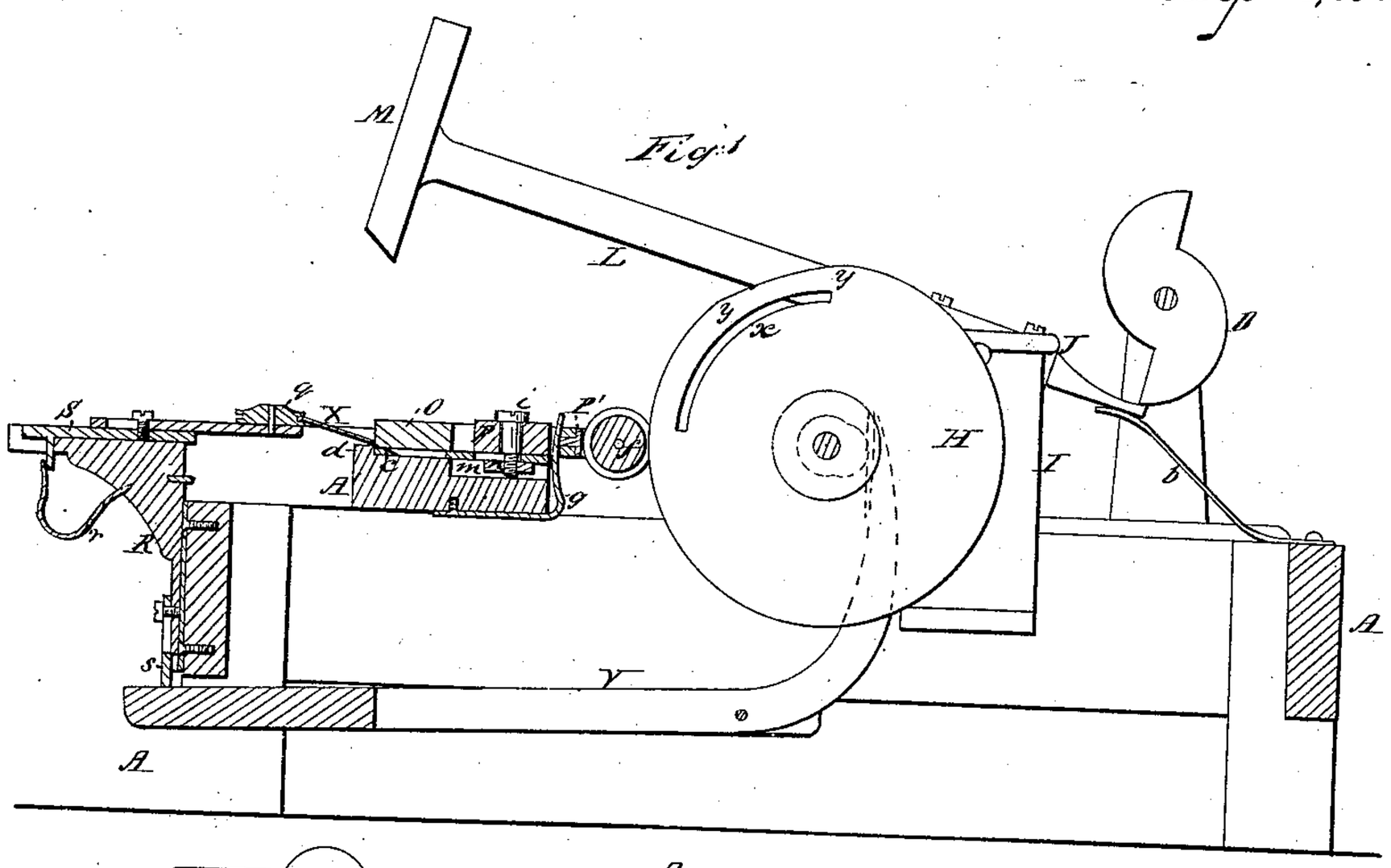

Fig: 1

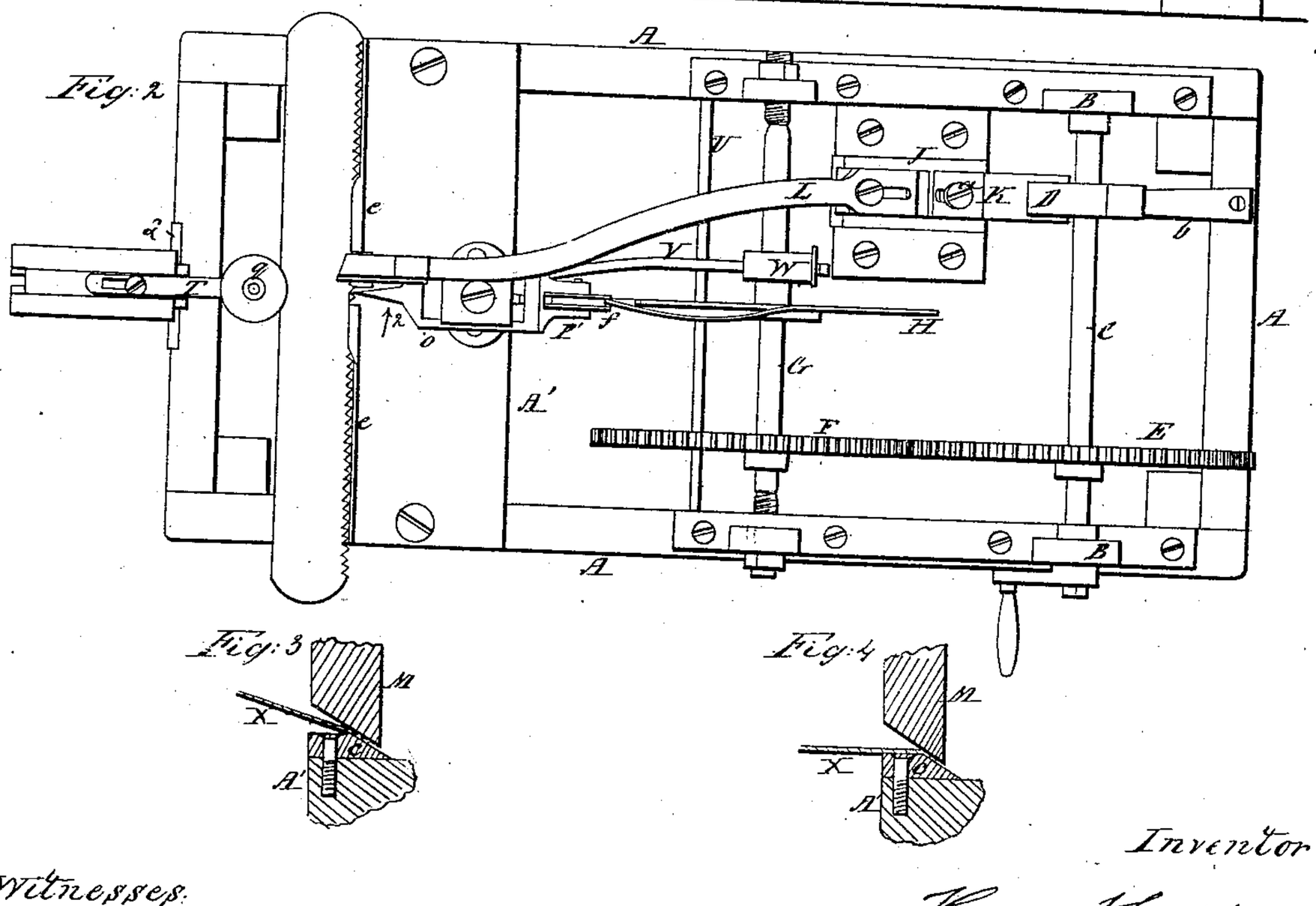

Fig: 2

Fig: 3

Fig: 4

Witnesses.
Wm. Abbott Steel
Charles Howson

Inventor
Henry Howson
Atty for C. Disston

UNITED STATES PATENT OFFICE.

CHARLES DISSTON, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVED SAW-SETTING MACHINE.

Specification forming part of Letters Patent No. **47,806**, dated May 23, 1865.

To all whom it may concern:

Be it known that I, CHARLES DISSTON, of Philadelphia, Pennsylvania, have invented an Improved Saw-Setting Machine; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention consists, first, in combining with the hammer and anvil of a saw-setting machine the automatic mechanism hereinafter described, or the equivalent to the same, for supporting the back edge of the saw, and elevating and lowering the same so that the teeth may be set by two or more blows of the hammer, and so that the wounding or breaking of the teeth may be avoided; secondly, in certain feed mechanism, described hereinafter, for imparting the desired movement to the saw; thirdly, in devices, described hereinafter, for guiding the saw.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a vertical section of my improved machine for setting the teeth of saws; Fig. 2, a plan view, and Figs. 3 and 4 detached sectional views of part of the machine.

Similar letters refer to similar parts throughout the several views.

A represents the frame-work of the machine in standards B B, at the rear end of which turns the main driving-shaft C.

Near one end of the shaft C is a double cam, D, having two abrupt shoulders, and near the other end of the shaft is a toothed wheel, E, which gears into a similar wheel, F, on a shaft, G, the latter turning in suitable bearings on the frame.

On the shaft G is a cam-disk, H, in which is a curved slot, *x*, the edge of the disk adjacent to the said slot being bent to one side, as shown in the drawings, and being cut away on the edge between the points *y y* so as to coincide or nearly coincide with a straight line.

In a standard, I, secured to the frame of the machine, is hung an arm, J, to the rear end of which is attached an adjustable plate, K, the end of the said plate being acted on by the cam D and being maintained in contact with the latter by a spring, *b*, secured to the frame A and bearing against the under side of the plate.

To the front end of the arm J is secured one end of the adjustable handle L of the hammer M, which has a narrow inclined face, bearing, when at the limit of its downward motion, on the inclined face of an anvil, *c*, secured to a cross-piece, A′, of the frame. On the edge of this cross-piece, at each side of the anvil *c*, is a rib, *d*, the top of which is level with the top of the anvil, and on the inner side of each rib is secured a vertical plate, *e*, a portion of the edge of the said plate being turned down.

To a pin, *i*, which passes through a slotted plate, *m*, secured to the face of the cross-piece A′, is hung a vibrating block, P, which is adjustable on the said plate and which fits in an oblong slot in a lever, O, the sharp-edged outer end of the latter projecting into a recess in the rib *d* at one side of the anvil.

In an opening in the rear end of the lever O fits a pin which projects from a bracket, P′, and in the latter turns a pulley, *f*, a groove in the edge of which receives the edge of the cam-disk H, a spring, *g*, bearing against the lever and maintaining the pulley in contact with the disk.

In vertical guides on a plate, Q, at the front of the frame, slides a bracket, R, and in a dovetailed groove in the upper surface of this bracket slides a plate, S, to the top of which is secured an adjustable arm, T, and at the outer end of the arm T turns a horizontal grooved pulley, *q*, the latter occupying a position directly in front of the anvil *c*. A spring, *r*, attached to the bracket R, bears against a projection on the plate S and tends to force the same toward the anvil.

To a shaft, U, turning in bearings at the lower side of the frame, is secured a lever, V, one arm of which bears against the under side of an adjustable plate, *s*, secured to the vertical arm of the bracket, and the other against the edge of a cam, W, on the shaft G. The saw, the teeth of which are to be set, is placed on the anvil *c* so that its toothed edge shall bear against the plate *e*, the overhanging edges of which prevent the saw from being raised from its position on the anvil. The pulley *q* is then so adjusted that its groove shall receive the back edge of the saw, against which the pulley is caused to bear by the action of the spring *n*. The shaft C is now caused to revolve in

the direction of its arrow, when the operation of the machine will be as follows: The bracket R will first be elevated by the action of the lever V, the saw being thereby brought to the inclined position shown in Figs. 1 and 3, and while in this position the tooth immediately below the hammer will receive a blow from the latter which will bend it down to the face of the anvil at a slight angle to the face of the saw. As the hammer is raised the bracket R descends until the saw is brought to a horizontal position, as shown in Fig. 4, when the hammer, again striking the tooth, again bends it down to the anvil, and sets it at a still greater angle to the face of the saw. As the hammer is again raised the straight edge of the cam H is brought opposite to the pulley *f*, and the lever O recedes from contact with the saw, the point of the lever being moved in the direction of the arrow 2, Fig. 2, a distance equal to the width of two of the teeth of the saw. The lever is then moved forward by the action of the cam, so that the point of the same shall be inserted between two of the teeth, after which the end of the lever is moved in the direction opposite to that pointed out by the arrow, the saw being thus moved to such a distance that the hammer, when it next descends, will strike the second tooth to that previously set, after which the bracket is again elevated and the operation proceeds as before and continues until every alternate tooth is set to the proper degree. The saw is then reversed and again placed on the anvil, so that the intermediate teeth may be set in the opposite direction.

In the saw-setting machines heretofore constructed the saws have been maintained in a horizontal position, and the teeth have been set to the required angle by a single blow of the hammer, and, although when the saws are of soft metal a single blow will accomplish all that is required, it has been found that when the saw is highly tempered the teeth are either imperfectly set or are broken by being too suddenly bent.

It will be apparent that in a machine of the above description the difficulties alluded to are perfectly overcome by setting the teeth at a slight angle to the saw by one blow of the hammer, and increasing this angle by succeeding blows, the operation being precisely the same as that which takes place in setting the saw by hand.

When it is desirable to bend the teeth of saws cut from extra heavy metal, the plate K may be adjusted so as to increase the movement and force of the hammer, and should the face of the hammer become worn at one point, it may be adjusted to such a position as to present a new surface to the saw.

It will be apparent that the movement of the lever O may be increased or diminished, in accordance with the size of the saw-teeth, by adjusting the block P to a position nearer to or farther from the cam H. It will also be seen that the extent of the vertical movement of the bracket R may be regulated by the adjustable plate *s*, and that the arm T may be adjusted to accommodate the pulley *q* to saws of different widths. When desirable, also, the hammer may be made to strike each tooth several blows before bending it to the required position, the angle of the saw in relation to the anvil being increased previous to each blow.

I wish it to be distinctly understood that I do not desire to confine myself to the precise devices herein described for elevating and lowering the saw, as they may be varied without departing from the main features of my invention; but

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

1. In combination with the hammer and anvil of a saw-setting machine, the automatic mechanism herein described, or the equivalent to the same, for supporting the back edge of the saw, and elevating and lowering the same, in the manner and for the purpose specified.

2. The feed-lever O, in combination with the cam H and spring *g*, or their equivalents, whereby the within-described movement is imparted to the said lever, for the purpose specified.

3. The ledge or projection *d* and plate *c*, arranged in respect to the anvil as set forth, for the purpose described.

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

CHARLES DISSTON.

Witnesses:

CHARLES E. FOSTER,
JOHN WHITE.