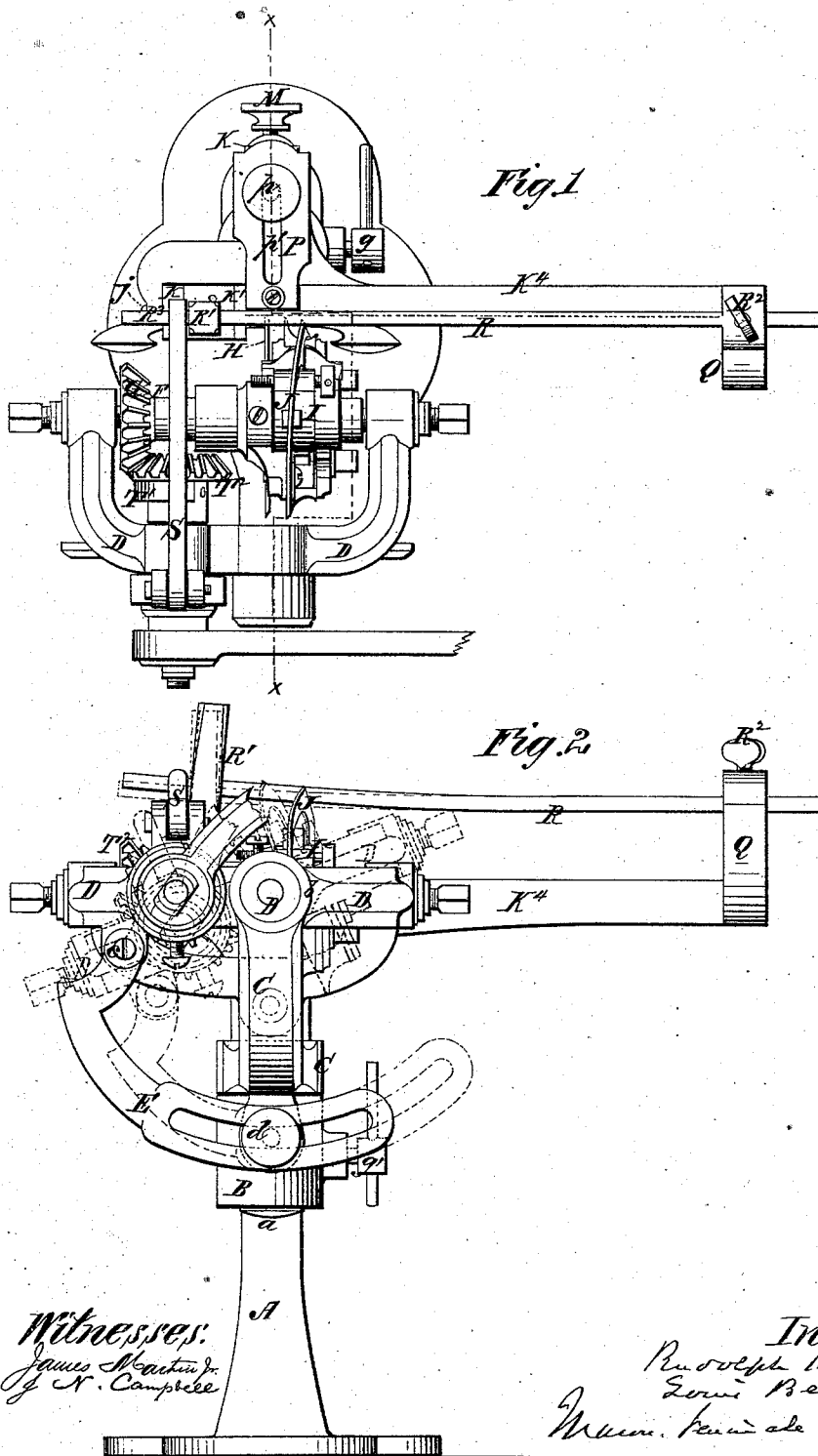


R. HEUNSCH & L. BEYER.
Saw-Tooth Setting Machines.

No.157,517.

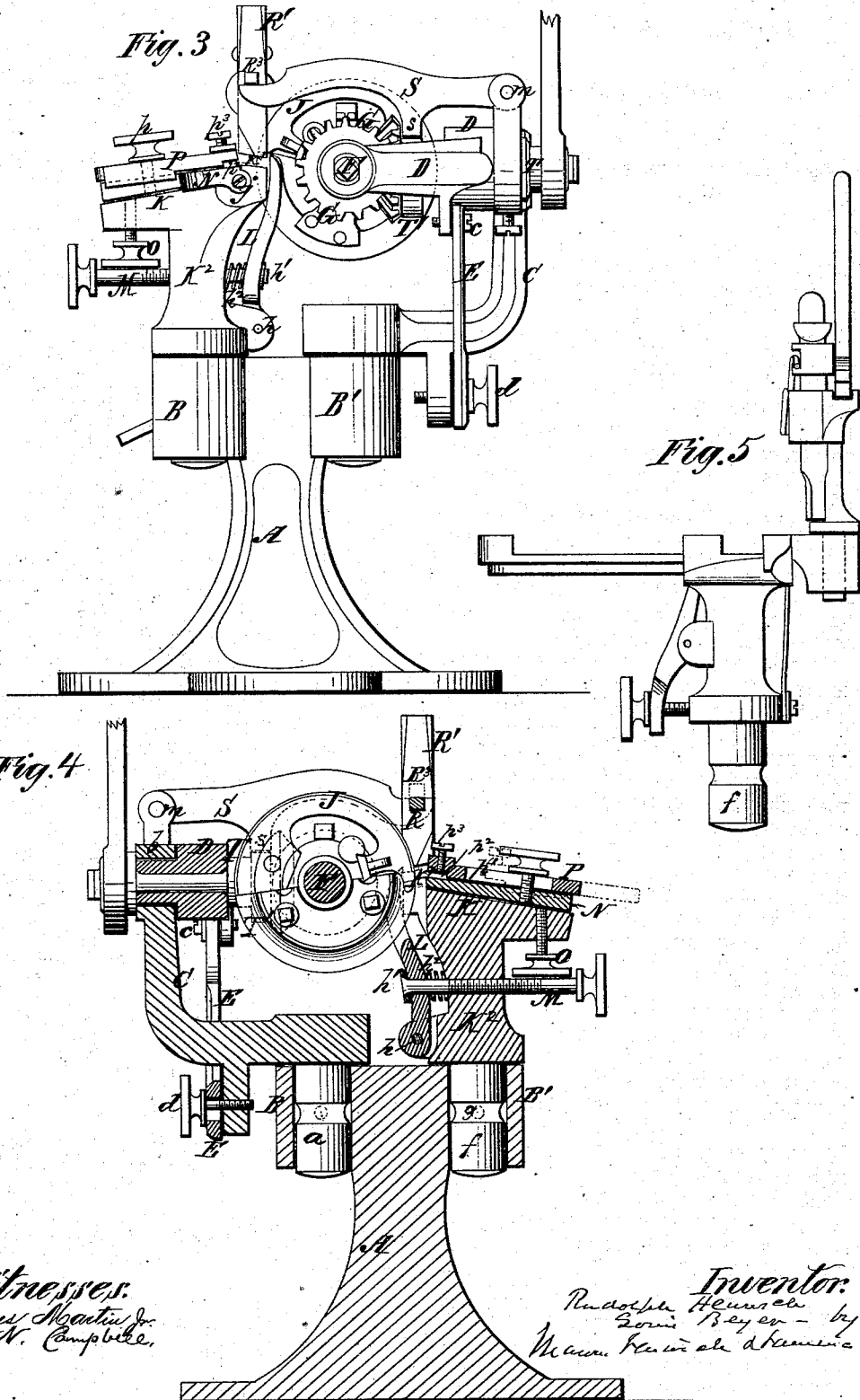
Patented Dec. 8, 1874.



R. HEUNSCH & L. BEYER.
Saw-Tooth Setting Machines.

No. 157,517.

Patented Dec. 8, 1874.



Witnesses:
James Morton Jr.
J. N. Campbell,

Inventor:
Rudolph Heunsch
Louis Beyer - by
Maximilian Heunsch & Klemm

UNITED STATES PATENT OFFICE.

RUDOLPH HEUNSCH AND LOUIS BEYER, OF WASHINGTON, D. C.

IMPROVEMENT IN SAW-TOOTH-SETTING MACHINES.

Specification forming part of Letters Patent No. **157,517**, dated December 8, 1874; application filed October 28, 1874.

To all whom it may concern:

Be it known that we, RUDOLPH HEUNSCH and LOUIS BEYER, of the city and county of Washington, in the District of Columbia, have invented a new and useful Improvement in Saw Setting and Sharpening Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a top view, Fig. 2 is a rear elevation, Fig. 3 is a side elevation, and Fig. 4 a vertical section in the line *x x*, Fig. 1, of our improved machine. Fig. 5 is an end view of the bed used in sharpening saws when the saw-setting bed is removed.

The invention which we have made is intended particularly as an attachment or adjunct for the saw-sharpening machine patented by us at a previous date, and to this end we have modified the form of the saw-filing frame, added some parts thereto, and changed somewhat the construction and operation of some of the elements of the said machine. In all essential things, however, so far as the saw-filer is concerned, we have not departed from the inventions claimed by us under our aforesaid previous patents further than to provide for the substitution for the file of a plain-surfaced segment, and for the saw-bed of a saw-setting bed.

A is the standard or frame of the machine; B B', vertical socketed boxes on the front and rear of the standard, near the top. O is a curved or angular bracket, having a vertical pivot, *a*, on its lower end, which sets in the box B, and is confined by a screw, *g*, which, by being slackened, allows it to turn therein in a horizontal plane, and also having a horizontal pivot-box, *b*, at its upper end, in which a yoke-shaped support, D, is hung, so as to turn thereon in a vertical plane. E is a slotted segment-bar, hinged to the support D at *c*, and connected, by a set-screw, *d*, which passes through the segmental slot in it, to the bracket C, as shown. By means of this arm and the set-screw the support D can be adjusted at any angle desired with respect to the horizon, and clamped in that position. F is a revolving shaft, hung in bearings or boxes of

the arms of the support D. On this shaft are arranged a bevel-wheel, G, a gage, H, and a hub, I, which is adapted for receiving a spiral feeder, J, and a stop or governor, J', which holds the saw until a new feed is proper, and which is of segmental form and smooth on its surface, and has one of its sides perpendicular with the shaft of the hub and its periphery concave; or a spiral feeder and a segmental three-sided file may be applied to the hub whenever it is desired to file the teeth before setting them. As this hub and the devices for adjusting the feeder and governor J', or the feeder and segmental file, as the case may be, is constructed and arranged in all respects, with the exception of the gage H, in the same manner as in our aforesaid patented filer, a description thereof is unnecessary here. The gage H is attached to a hub and arranged on the shaft F, and it may be applied so as to be set at the start for the smallest saws, and afterward adjusted with respect to the governor J'; or it may have a fixed position, and the feeder and governor adjusted with respect to it, accordingly as circumstances may require. K is a saw-setting bed, provided with a beveled anvil, K¹, formed on a short vertical pillar-block, K², which has a grooved pivot, *f*, on its lower end. The pivot of this bed is set in the socket of the box B', and clamped by a screw, *g*, the end of which enters the annular groove of the pivot. The screw *g* is used in order that a saw-filing bed similar to Fig. 5 may be clamped in the socket, (when the setting-bed has been removed and a file has been substituted for the stop J' of the feeder,) and, at will, may be adjusted at any desired angle with respect to the feeder and file. L is a forked stop for the toothed edge of the saw-blade to bear against while setting the teeth. This is pivoted at *h* to the pillar-block K, and connected at *h*¹ to an adjusting-screw rod, M, which passes horizontally through the pillar-block. On a plain part of this screw-rod, between the pillar-block and the stop, a spiral spring, *h*², is placed, for throwing the stop back when the screw is turned backward. N is a plate, hinged at *j* to the bed-piece, and set down flush with the surface thereof. By raising this plate the saw, which is placed upon the bed-piece, can be adjusted, with respect to

the beveled setting-anvil K^1 , so as to vary the degree of set or deflection given to the teeth on the blade. This plate and that surface on which it rests are inclined downward from the ridge of the anvil. O is a set-screw for adjusting the plate N in the manner just mentioned. P is a stop for confining narrow saws which are being set. This stop is fastened upon the plate N by a set-screw, p , which passes through a slot, p^1 , in the stop.

By loosening the set-screw, the stop can be moved inward and outward, according to the width of the saw-blades.

This stop has an under shoulder, p^2 , for the saw to bear against, and a set-screw, p^3 , for clamping the saw after the shoulder has been made to bear against the back edge thereof.

When the saw-blades are large and wide, this stop is not used, and the blade is held in by the hands upon the setting-bed.

Q is a curved overhanging bracket on the outer end of the extension-support K^4 of the setting-bed. In an eye of this bracket the spring-handle R of a setting-die, R^1 , is inserted loosely, and clamped by a set-screw, R^2 .

By loosening this set-screw, the setting-die can be moved back and forth, and the die thus made to come properly over the teeth of the saw, accordingly as the teeth may be of a large or small size.

S is a hinged lever for raising the setting-die and letting it drop. The free concave or curved end of this lever comes under an extension, R^3 , of the spring-handle R . The other end of this lever is hinged at m to an upright bracket of the support D . On the under side of this lever, between the free and hinged ends thereof, a projection, s , is formed. T is the driving-shaft of the machine, hung in a bearing-box of the support. This shaft has a cam, T^1 , and a bevel-wheel, T^2 , applied fast upon it. The bevel-wheel gears with the wheel G on the shaft of the saw-feeder, or filer and feeder, and the cam is under the projection of the lifting-lever S , as shown.

The operation is as follows: A saw-blade being placed upon the setting-bed, the shaft T is turned by a crank-handle. This causes the feeder to revolve between the teeth and feed the blade intermittently the distance permitted by the gage H . While the blade is resting momentarily for a new feed, the setting-die R^1 is raised by the cam T^1 , and caused to descend by the action of the spring-handle R of the die upon the tooth which is on the anvil below it. Thus the operation continues until the blade is completed, the amount of set being regulated by the set-screw O , and the force of the blow of the die made light or heavy by turning the support more or less in a vertical plane, as illustrated by the dotted lines in Fig. 2. This adjustment causes the cam to be lowered and the die to be raised less, when moved by it.

To operate the machine for sharpening saws, remove a segmental portion of the feeder, and insert a rough segmental file in its place; also, remove the setting-bed, and substitute the file-sharpening bed, and place a saw upon the said bed and clamp it in position. On turning the driving-shaft, the feeder will feed the saw-blade, the file file its teeth, and the gage H will insure that all the teeth of a previously irregular saw will be uniform throughout.

If it is desired to change the angle of the back and shoulders of the saw-teeth, the support of the file and feeder can be adjusted so as to give any angle desired; or one adjustment may be made by moving the support of the file and feeder, and another by moving the sharpening-bed.

The adjustments made produce the same effect as in our previously-patented machine, and therefore need not be particularly stated here.

What we claim as our invention is—

1. The combination of the rotary feeder J , the cam T , the lifting-lever S , die R^1 , having a spring-handle, setting-bed K , frame A , and gearing G T , substantially in the manner and for the purpose herein described.

2. The support D , pivoted on a bracket of the frame A , and made adjustable in a vertical plane by means of the slotted segment E , in combination with the cam T^1 on the driving-shaft, and with the hinged lifter S and the die R^1 , for the purpose of regulating the force of the blow upon the saw-teeth, substantially as described.

3. The combination of the hinged stop L , screw-rod M , spring h^2 , and setting-bed K , substantially in the manner shown and described.

4. The combination of the inclined setting-bed K , anvil K^1 , hinged plate N , stop P , set-screws p p^3 , and hinged spring-stop L , substantially as and for the purpose described.

5. The gage H , in combination with the spiral rotary feeder J , and governor or stop J^1 , substantially as described.

6. The frame A , constructed with two socket-boxes, B B' , and provided with clamp-screws g g' , in combination with two supports, C K^2 , having grooved pivots a f on their lower ends, for the purpose and in the manner substantially as herein described.

7. The combination of the rotary feeding device with its adjustable yoke D and the bracket C fitting in and adjustable in a socket of the frame, substantially as and for the purpose set forth.

RUDOLPH HEUNSCH.

LOUIS BEYER.

Witnesses:

R. D. A. HYDE,
C. C. BAUGH.