(No Model.) 2 Sheets—Sheet 1.

D. W. JOHNS.

SAW SHARPENING MACHINE.

No. 332,611. Patented Dec. 15, 1885.

Fig. 1

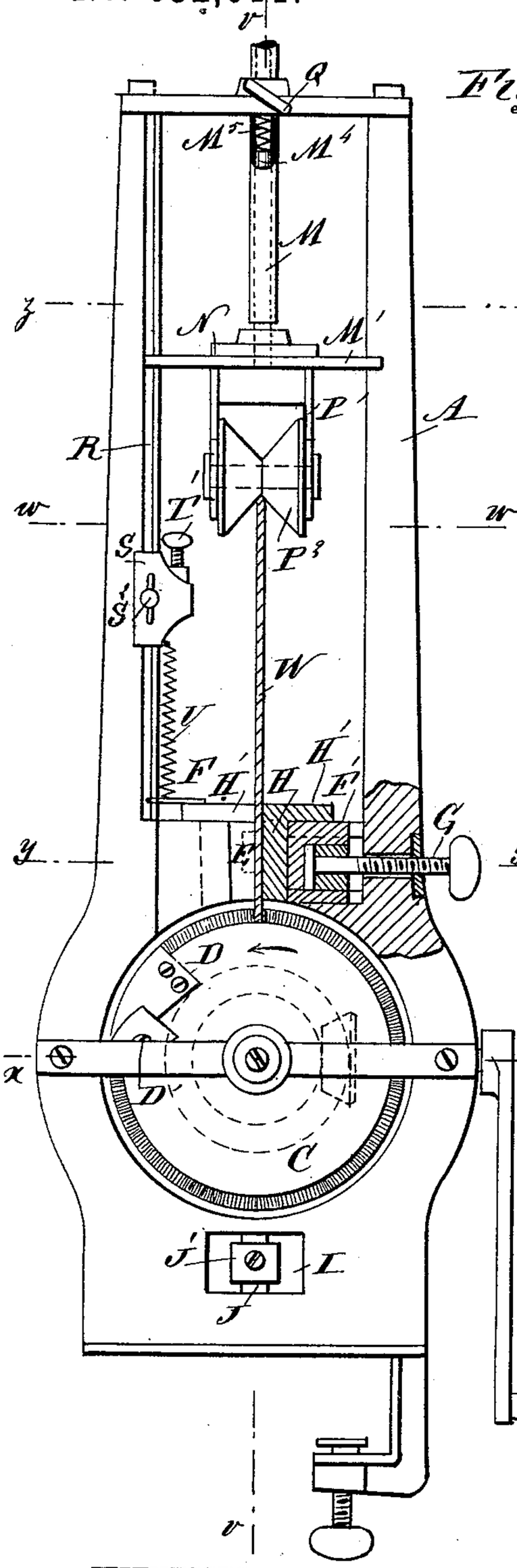
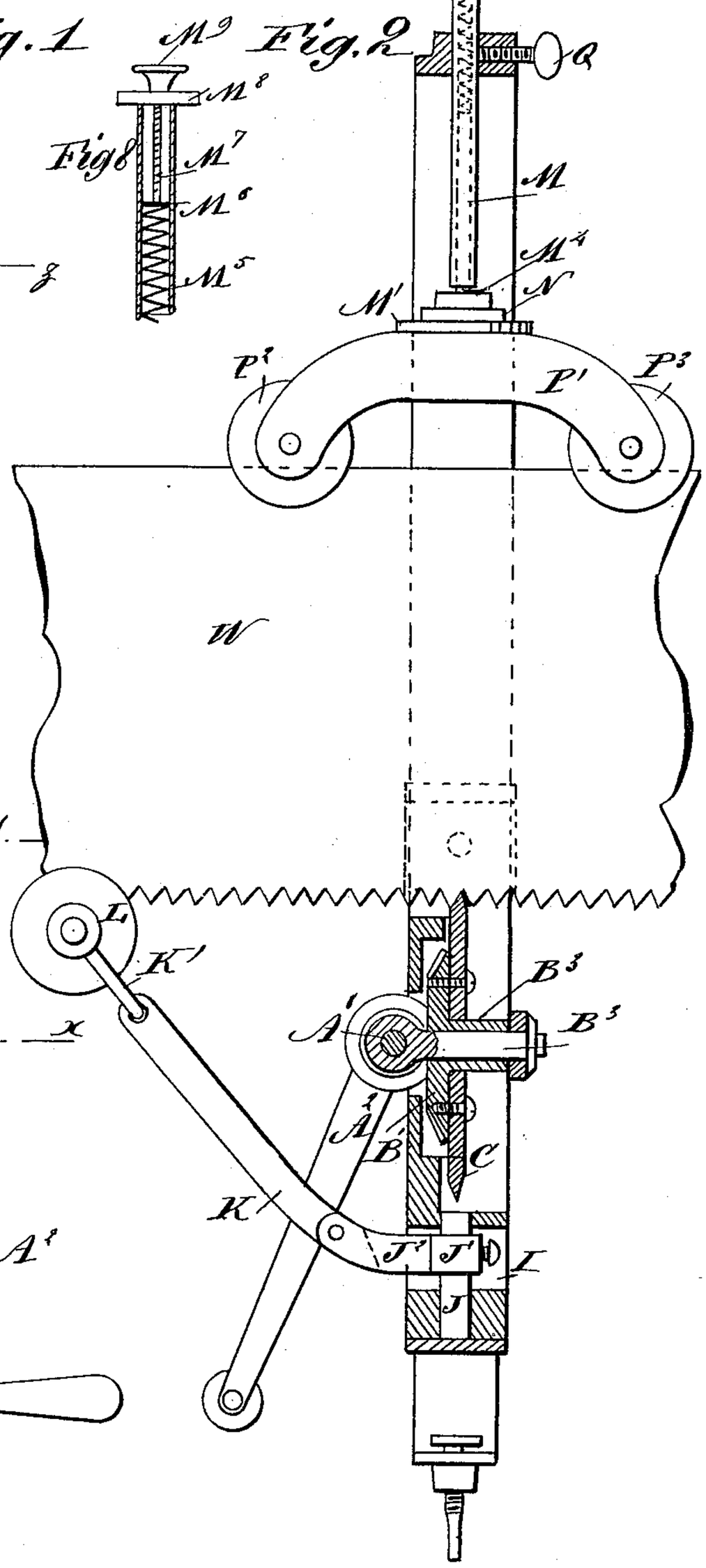


Fig. 2



WITNESSES:

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C. Sedgwick

INVENTOR:

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(No Model.) 2 Sheets—Sheet 2.

D. W. JOHNS.

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Fig. 3

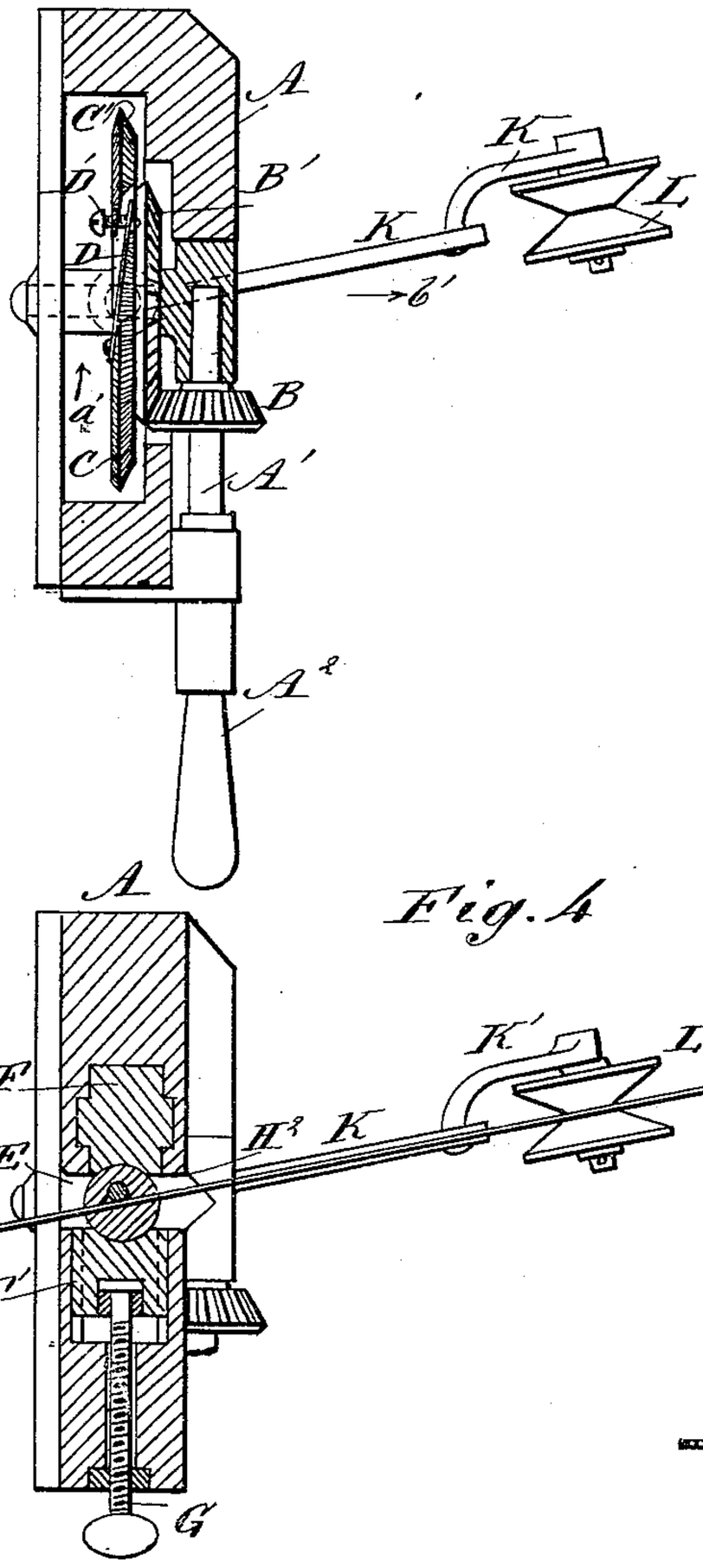


Fig. 4

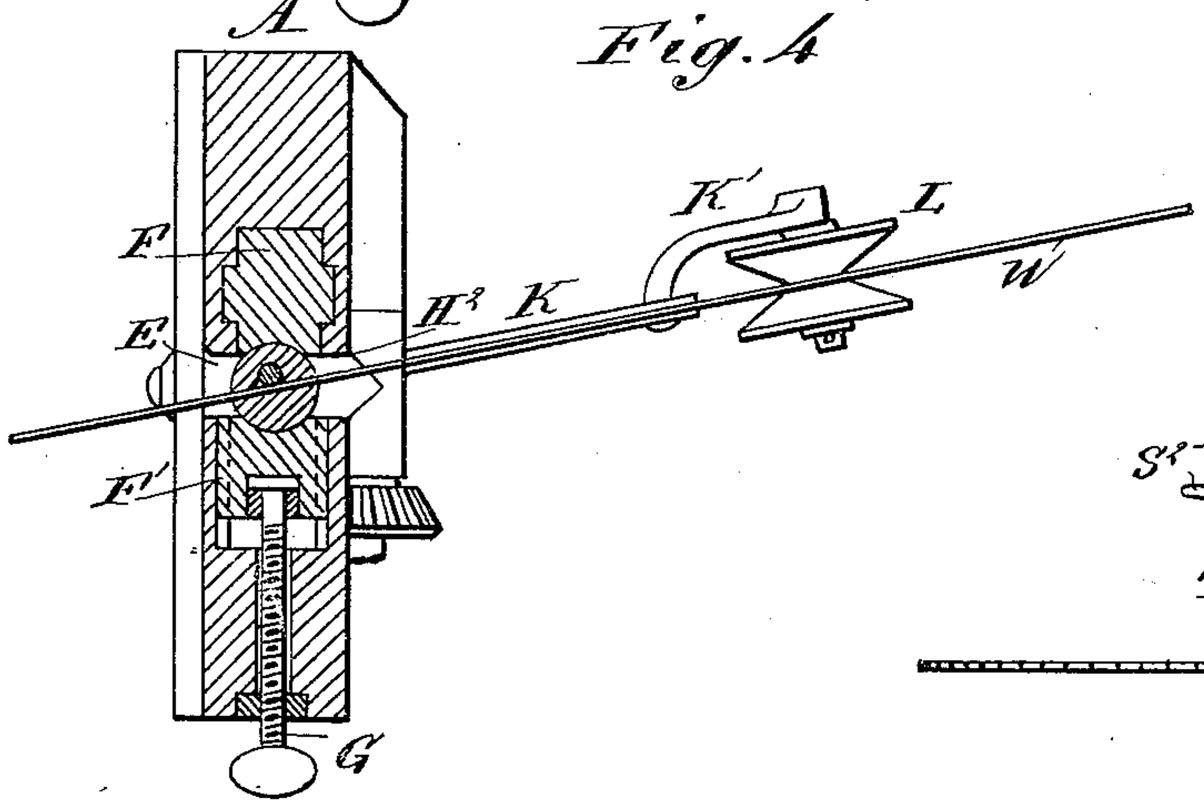


Fig. 5

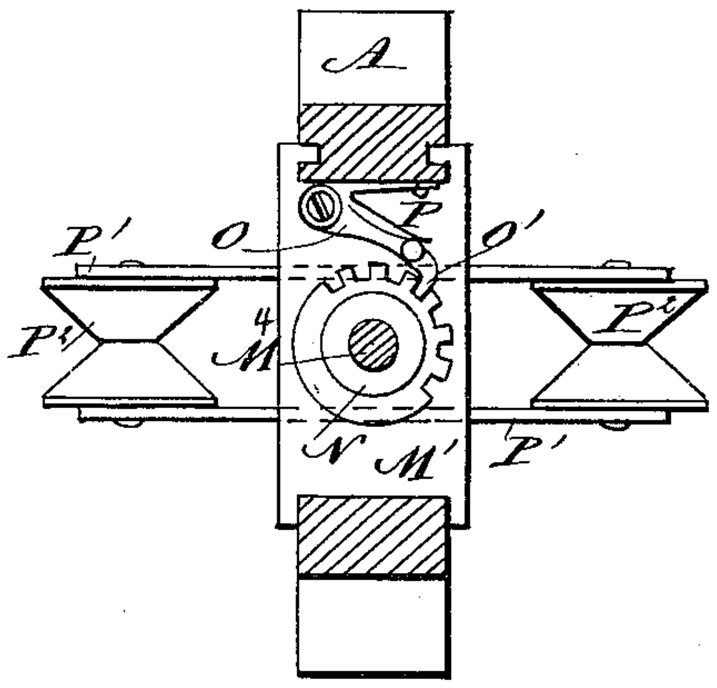


Fig. 6

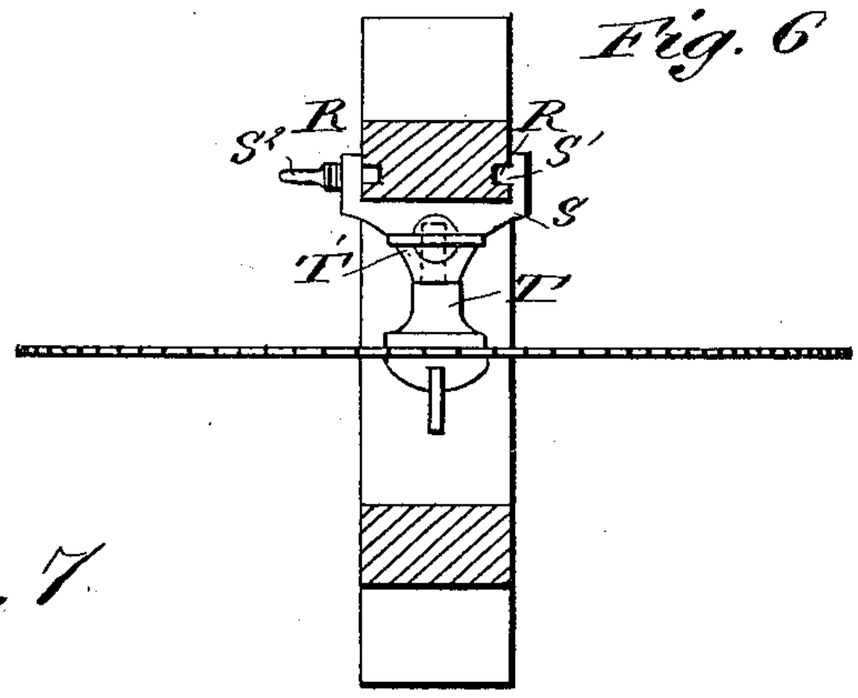
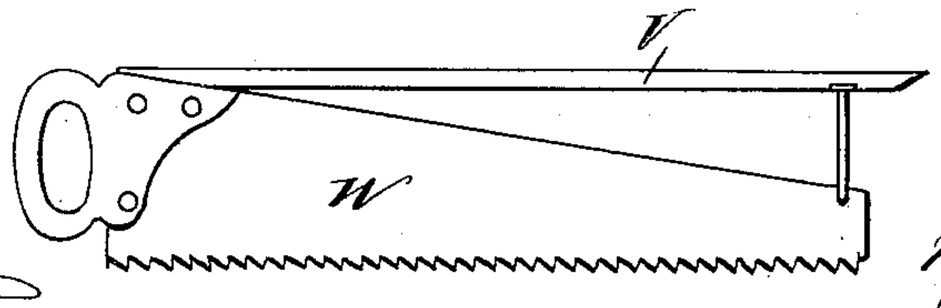


Fig. 7



WITNESSES:

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UNITED STATES PATENT OFFICE.

DAVID W. JOHNS, OF NEW ALBANY, INDIANA.

SAW-SHARPENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 332,611, dated December 15, 1885.

Application filed August 27, 1885. Serial No. 175,460. (No model.)

To all whom it may concern:

Be it known that I, DAVID W. JOHNS, of New Albany, in the county of Floyd and State of Indiana, have invented a new and Improved Saw-Sharpener, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved saw-sharpener, which can be used for sharpening saws of all kinds, either straight or circular.

The invention consists in the construction and combination of parts and details, as will be fully set forth and described hereinafter, and pointed out in the claims.

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 front elevation of my improved saw-sharpener, parts being broken out and others being in section. Fig. 2 is a cross-sectional view of the same on the line *v v*, Fig. 1. Fig. 3 is a sectional plan view on the line *x x*, Fig. 1. Fig. 4 is a sectional plan view on the line *y y*, Fig. 1. Fig. 5 is a sectional plan view on the line *z z*, Fig. 1. Fig. 6 is a sectional plan view on the line *w w*, Fig. 1, showing a modified construction. Fig. 7 is a side view of a taper saw and the filling-piece. Fig. 8 is a detail view of a part.

On one face of the upright frame A the shaft A′ is journaled transversely, and is provided with a crank-handle, A^2, for turning it. It carries a bevel-pinion, B, engaging with a bevel-pinion, B′, mounted rigidly on a tubular shaft, B^2, journaled on a fixed pin or bolt, B^3, and on said pinion B′ the hard-steel circular file or cutting-disk C is bolted, which disk has a filed bevel-edge, C′. The disk C also has a notch extending inward from the edge, and on one edge of said notch a metal plate, D, is secured by screws, the other or free end of the plate D being held by a screw, D′, passed through the disk C. The plate D extends diagonally across the notch—that is, one end is on one face of the disk C and the other end is on the other face, and the top edge of the plate D, which edge has the same radius as the disk C, is a part of a spiral line, as shown in Fig. 3. The inclination or pitch of said line can easily be adjusted according to the size of the teeth of the saw to be sharpened. Above the disk C a slot, E, is formed, and at each side of the same a groove is formed, in which the blocks F and F′ are placed, the former being fixed and the latter movable by means of a winged screw, G, passed through the upright frame A from one side edge. Semi-cylindrical clamping-pieces H, each having a top flange, H′, are placed in vertical grooves in the adjacent ends of the blocks F F′. In one piece, H′, an anti-friction roller, H^2, is placed. A short shaft, J, extends vertically through an aperture, I, in the bottom part of the frame A, and is adapted to turn on its longitudinal axis. A collar, J′, is held adjustably by a screw on the shaft J, and is provided with an arm, J^2, to which the rod K is pivoted, and which has a curved arm, K′, on its free end, a grooved roller, L, being pivoted on said arm. The lower end of the rod K is beveled, and can strike a bevel of the arm J^2, and is thus prevented from swinging down too far. The toothed edge of the saw rests on the bottom of the groove of the roller L. A tube, M, projects through the top cross-piece of the frame A, and contains a sliding rod, M^4, between which and a plate, M^6, in the tube M, a spiral spring, M^5, is placed. The plate M^6 is secured on a screw, M^7, passed through the top plate, M^8, of the tube M, having a knob, M^9, on its upper end for turning it. By moving the plate M^6 up or down the tension of the spring is changed, and thus a greater or less pressure is exerted on the rod M^4, which passes through a vertically-movable cross piece, M′, guided between the uprights of the frame A. Directly above the cross-piece M′ a toothed disk, N, is rigidly mounted on the rod M^4, and on the top of the cross-piece M′ a latch, O, is pivoted, which is provided with a tooth, O′, and is pressed by a spring, P, against the edge of the disk N. Bars P′ are secured to the lower end of the rod M^4, and between the ends of said bars grooved rollers P^2 are pivoted.

The tube M and the parts connected with the same can be locked in place by a binding-screw, Q, in the upper part of the frame A.

For holding circular saws a different device is used, which will now be described. Grooves R are provided in the front and rear surfaces

of one of the uprights of the frame A, and in the same the prongs S′ of a sliding frame, S, are placed, which frame can be locked in place on the upright by means of a binding-screw, S^2. A saw-clamping device, T, is provided with a pin, which is passed into the slide S, and can be locked in place by a binding-screw, T′. The slide S is drawn downward by a spring, U, secured to the frame A and to said slide.

The operation is as follows: By turning the screw G the guide-pieces H are separated more or less, according to the thickness of the saw to be sharpened. The saw is placed between the two pieces H, its toothed edge resting on the edge of the disk C and on the grooved pulley L. The rod M^4 is then adjusted so that the grooved rollers P^2 rest upon the top edge of the saw and hold the toothed edge of the same on the edge of the disk C. The rod M^4 is turned more or less in its longitudinal axis to give the required lateral inclination, which is necessary to give a bevel to the edges of the saw-teeth. The lateral inclination of the saw is shown in Figs. 3 and 4. The saw is kept at the desired inclination by the toothed disk N and latch O. The saw being in the proper position the disk C is turned in the direction of the arrow *a′*. The bevel-edge of the disk C files and cuts the bevel-edges of the teeth, the disk acting on a tooth during one complete revolution of the disk. When the plate D strikes the tooth, it forces the entire saw in the direction of the arrow *b′* the distance of one tooth, which is then sharpened, and so on. Circular saws are not fed forward, but are revolved on their central pivot by the plate D, the saw being held at its center by the clamp on the slide S.

For taper saws, as shown in Fig. 7, a filling-frame, V, must be used, the top of which is parallel with the toothed edge of the saw, so that the rollers P^2 can at all times exert the same pressure on the saw.

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

1. A saw-sharpener having a rotary file or cutting-disk provided with a notch in its rim, in which a plate is held, the outer edge of the plate being on a spiral line, substantially as herein shown and described.

2. In a saw-sharpener, the combination, with a rotary file or cutter having a notch in its edge, of a plate held at one end on the disk and extending diagonally across the recess, and a screw for adjusting the pitch of the said plate, substantially as herein shown and described.

3. The combination, with a frame, of a rotary file, the tube M, the rod M^4 in the same, the rollers P^2, held on arms on the lower end of the rod M^4, a spring resting on the upper end of the rod M^4 and contained within the tube M, and a screw for adjusting the tension of the spring, substantially as herein shown and described.

4. In a saw-sharpener, the combination, with a frame, of a rotary file in the same, two guide-pieces above the rotary file, and a screw for adjusting one of the guide-pieces, substantially as herein shown and described.

5. In a saw-sharpener, the combination, with a frame, of a rotary file, guides above the rotary file, and a vertically and laterally swinging arm for supporting the saw, substantially as herein shown and described.

6. In a saw-sharpener, the combination, with a rotary file, of guides above the same, a laterally and vertically swinging arm mounted below the rotary file, and of a grooved pulley on the free end of said arm, substantially as herein shown and described.

7. In a saw-sharpener, the combination, with a frame, of a rotary file, a guide for the saw, a laterally and vertically swinging arm supporting the saw, and a frame above the file, for holding the saw down on the file, substantially as herein shown and described.

8. In a saw-sharpener, the combination, with a frame, of a rotary file, a rod in the top of the frame, rollers on said rod, which rollers are to rest on the top edge of the saw, together with a tube containing a spring acting upon said rod, and a screw working in said tube, substantially as herein shown and described.

9. In a saw-sharpener, the combination, with a frame, of a rotary file, a rod in the top of the frame, rollers on said rod, and a latch for locking the rod, together with a tube containing a spring acting upon said rod and a screw working in said tube, substantially as herein shown and described.

10. In a saw-sharpener, the combination, with a rotary file, of a rod in the top of the frame, a binding-screw for locking the rod in place, and of rollers held on plates on the lower end of the rod, together with a tube containing a spring acting upon said rod and a screw working in said tube, substantially as herein shown and described.

11. In a saw-sharpener, the combination, with the frame A, of the rotary file C, the rod M^4, the movable cross-piece M′, the toothed wheel N, the latch O, the plates P′, and the rollers P^2, substantially as herein shown and described.

DAVID W. JOHNS.

Witnesses:
FRED SAUER,
GEORGE MCCLINTICK.