

UNITED STATES PATENT OFFICE.

PATRICK O'NEILL, OF MURFREESBOROUGH, TENNESSEE.

IMPROVEMENT IN MACHINES FOR FILING GIN-SAWS.

Specification forming part of Letters Patent No. 197,793, dated December 4, 1877; application filed August 11, 1877.

To all whom it may concern:

Be it known that I, PATRICK O'NEILL, of Murfreesborough, in the county of Rutherford and State of Tennessee, have invented a new and useful Improvement in Machines for Filing Cotton-Gin Saws, of which the following is a specification:

Figure 1 is a side view of my improved machine, part being broken away to show the construction. Fig. 2 is a top view of the same. Fig. 3 is a detail side view of the file and file-holder. Fig. 4 is a front view of the file and file-holder, the file being shown in cross-section.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved machine for filing or sharpening cotton-gin saws, which shall be simple in construction, convenient in use, and effective in operation, filing the teeth accurately and uniformly.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

A are two upright frames, made with inclined top bars, and placed at such a distance apart as to receive the saw-cylinder B of a cotton-gin between them, the journals of said cylinder B working in half-bearings C, attached to the top bars of the said frames A near their upper ends, where they are held in place by the levers D, which rest upon said journals. The inner ends of the levers D are inserted in eyes or keepers E, attached to the top bars of the frames A, at the inner ends of the bearings C, and from the outer ends of said levers are suspended weights F.

To the top bars of the frames A, near their lower ends, is attached a cross-bar, plank, or frame, G, in which is formed a groove to receive the lower edge of an upright frame or plate, H, which slides in it, and is secured in place, when adjusted, by a U-bar, I, one arm of which is inserted in a hole in the plate or frame H, and its other arm passes beneath the bar or plank G, and has a hand-screw, J, passed through it against the lower side of the said bar or plank G.

To the forward side of the plate or frame H is attached the end of a frame, K, the forward end of which is slotted or forked, to rest upon

the cylinder B between the saws L, and upon the opposite sides of the saw to be filed.

To the lower side of the frame K is attached a downwardly-projecting arm, k^1 , which rests against the rear side of the cylinder B, and is strengthened by inclined braces k^2 , attached to it and to the frame K.

To brackets M, attached to the frames H K, is pivoted the shaft N, to one end of which is attached the crank O, by which the machine is operated.

To the middle part of the shaft N is attached a large gear-wheel, P, the teeth of which mesh into the teeth of the small gear-wheel Q, placed in a slot in the plate or frame K, and the journals of which revolve in bearings attached to said plate or frame. The teeth of the large gear-wheel P should be an exact multiple of the teeth of the small gear-wheel Q, so that each revolution of the said large gear-wheel P may always bring the various parts of the machine to the same relative position. To the journals of the small gear-wheel Q are attached two short cranks, R, to which are pivoted the rear ends of two connecting-rods, S, the forward ends of which are pivoted to the frames or carriages T, that slide back and forth in slots in the plates or frames U, placed above and below the frame K, and the rear ends of which are attached to the upper and lower parts of the plate or frame H.

In bearings in the frames or carriages T work the cylindrical rear parts of the file-holders V, the forward parts of which are flattened and twisted so as to form a spiral having a quarter-turn.

The spirals of the holders V pass through guide-slots in the plates W, attached to the forward ends of the frames U, and have open sockets v' formed in their forward ends, to receive the rear ends of the three-cornered files X, which are made without tangs, and are secured in said sockets by bands Y and set-screws Z, as shown in Figs. 1, 2, 3, and 4.

The guide-plates W are slotted to receive the plate or frame K, which slots are made a little longer than the width of the said frame or plate K, to give the files the necessary lateral movement.

A' are springs attached to the plate or frame K, and the free ends of which pass through

holes in the guide-plates W, so that the files may be held against the saws by the elasticity of the said springs A'.

To the shaft N is attached a tooth or cam, B', which, at each revolution of the said shaft, strikes against an arm or shoulder, C', attached to or formed upon the pawl D'. The forward or engaging end of the pawl D' rests upon the teeth of the saw L next to the one being operated upon, and, at each revolution of the large gear-wheel P, turns the saw-cylinder B through the space of one tooth.

The rear end of the pawl D' projects at the rear of the plate or frame H, is bent downward at right angles, and has a pin, E', attached to it, which passes through a hole in the said plate or frame H.

F' is a spiral spring placed upon the pin E', between the frame or plate H and the end of the pawl D', to draw said pawl back after being forced forward by the cam B'.

Upon the inner end of the pin E' is cut a screw-thread, upon which is screwed a nut, e', so that by adjusting the said nut e' the backward movement of the pawl D' may be limited as may be required.

If desired, a weight, G', may be suspended

from the forward part of the frame K, to hold the said frame down upon the saw-cylinder B, and act as a brake to prevent said cylinder from being turned back by the rearward movement of the pawl D' and of the files X, and thus hold the saws steady while being operated upon.

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

1. The combination, with the frame carrying saw-shaft, of the frame H, adjustable in grooved cross-bar G, and the forked frame K, having arm k', as and for the purpose described.

2. The combination, with the frame K, of the carriages T, frames U, holders V, and plates W, as and for the purpose set forth.

3. The springs A', attached to frame K, and having free ends passing through plates W, to hold the files by an elastic pressure, as specified.

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Witnesses:

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