

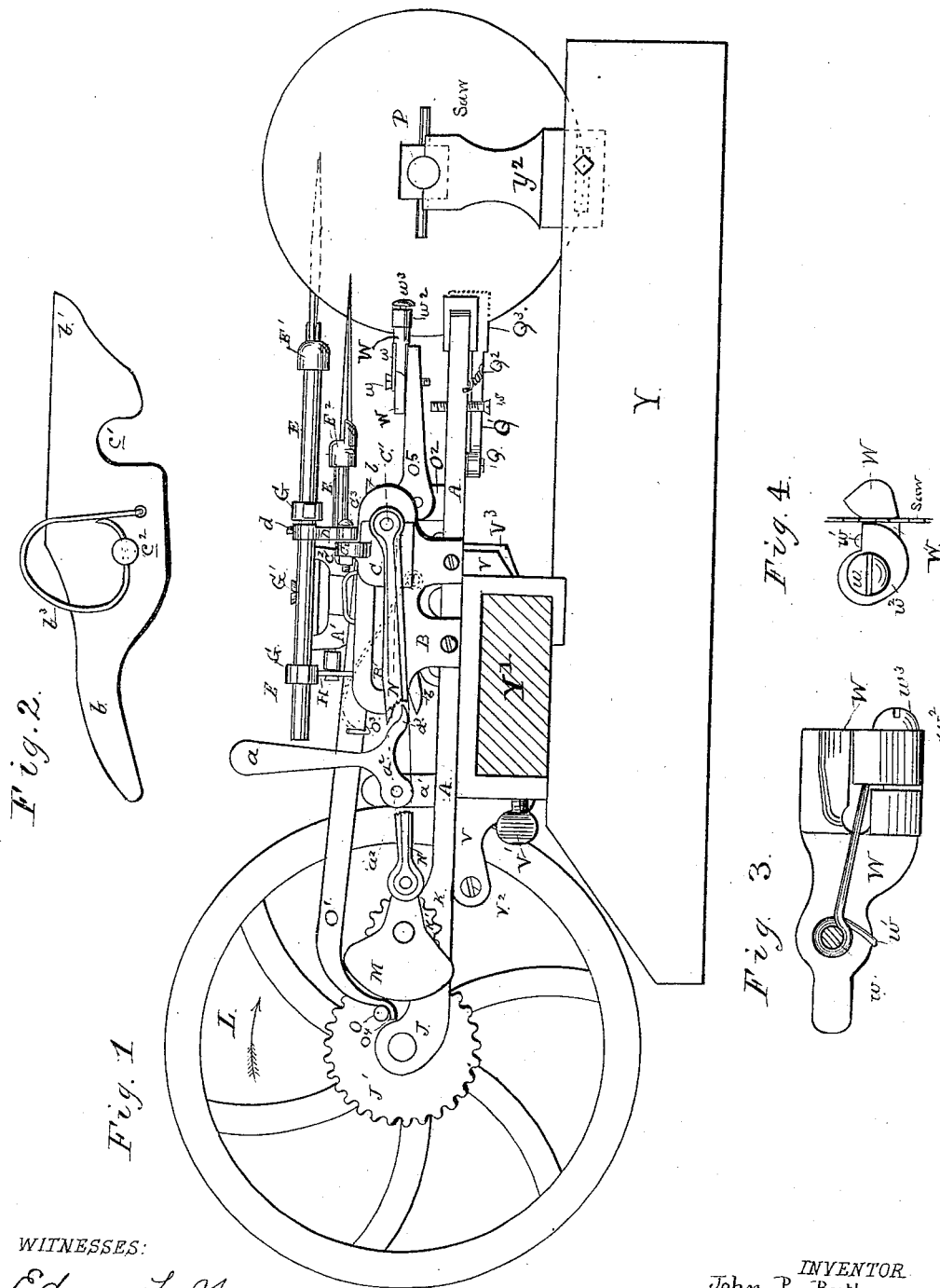
(No Model.)

2 Sheets—Sheet 1.

J. P. BUTLER.
GIN SAW FILING MACHINE.

No. 265,216.

Patented Sept. 26, 1882.



WITNESSES:

Edwin L. Yancey.
R. T. Campbell.

INVENTOR.

John P. Butler.
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2 Sheets—Sheet 2.

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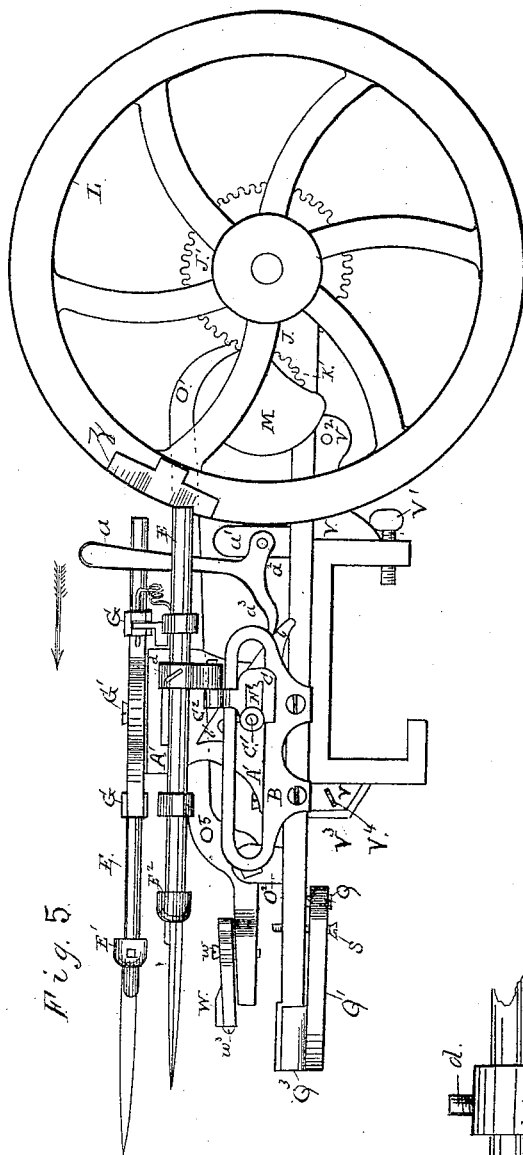


Fig. 5.

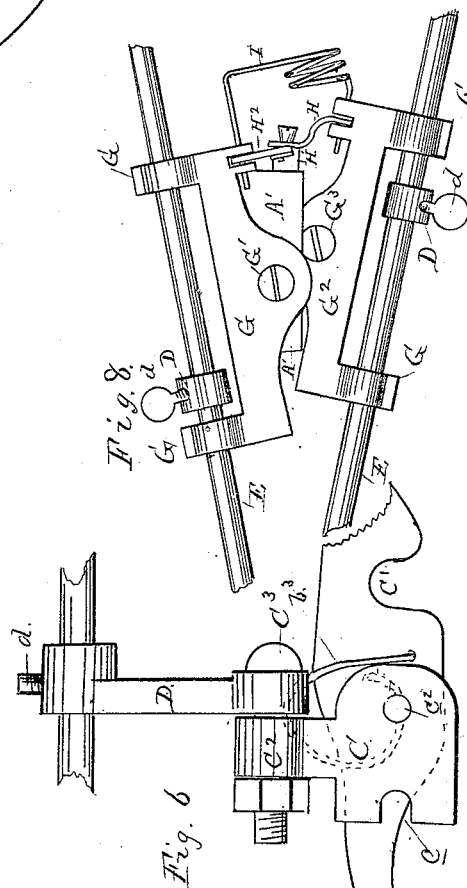


Fig. 6.

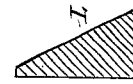


Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN P. BUTLER, OF MONTGOMERY, ALABAMA.

GIN-SAW-FILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 265,216, dated September 26, 1882.

Application filed July 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. BUTLER, a citizen of the United States of America, residing at Montgomery, in the county of Montgomery and State of Alabama, have invented certain new and useful Improvements in Gin-Saw-Filing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in saw-filing machines, and is particularly adapted to filing gin-saws.

The object of the invention is to accomplish this kind of work in a rapid and efficient manner, and to avoid injury to the teeth of the saw by the holder for feed motion. These objects are attained by the mechanism shown in the accompanying drawings, forming a part of this specification, in which—

Figure 1 shows a side elevation taken from one side of the machine. Fig. 2 is a detailed view of the hooked lever *b* and its spring *b*³. Fig. 3 is a plan view of the feeding-clamp detached from the machine. Fig. 4 is an end view of the feeding-clamp, showing part of a saw in position for feeding. Fig. 5 is a side elevation of the machine, taken from the opposite side to Fig. 1, with some of its parts removed. Fig. 6 is a detached view of the slide *C*, with the hooked lever *b* and spring *b*³, carrier *D*, bolt *C*², binding-screw *d*, and file-holder *E*, with some of the parts broken away. Fig. 7 is a cross-section of the rim of the wheel *L*. Fig. 8 is a plan view of the swinging plates *G* and *G*² and some of their attachments.

Y is a wooden frame adapted to hold the machine and also the saws while being filed.

A is the metal frame of the machine proper, which is constructed to be removed from the wooden frame *Y*, as well as to be placed at different angles to it by means of a clamp and thumb-screws.

B B are guides attached to frame *A* by any suitable means, or may form a part of the frame itself.

C is a slide which is fitted to the guide *B*, and may slide backward and forward in the slot *B'*. The slide *C* has an opening, *c*, on one side, designed to embrace the stud *C'*, the object of which will be hereinafter described. The slide *C* is kept in its position on the guide *B* by a bolt, *c*², which passes through the slot

B', and is attached to the hooked lever *b* in such manner that the lever *b* turns freely upon the bolt *c*² as a fulcrum. The slide *C* has a lug, *C*², on its upper part, through which the bolt *C*³ is inserted, and to which is journaled the carrier *D*. The carrier *D* is bored to receive the file-holder *E*, and is provided with a binding thumb-screw, *d*, which enables the file-holder to be adjusted as circumstances may require.

E E are file-holders—round metal rods—which have a reciprocating motion through bearings *G G*, forming part of swinging plate, *G*, which turns on the pivot *G'*.

Each side of the machine is provided with a duplicate set of parts such as described above; but the swinging plate *G*² is set and pivoted at *G*³ on a lower plane than the plate *G*. The plates *G* and *G*² are set at an angle to each other and to the slides *B B*, and are connected together by the links *H H'* *H*² and by a spiral spring, *I*. The outer ends of the file-holders *E* have clamping devices *E'* *E*² to hold the files.

On one end of the frame *A* are suitable bearings, *J K*, to which are journaled the spur-wheels *J' K'*, the larger one of which, *J'*, is on the same shaft as the fly-wheel *L*. The larger spur-wheel *J'* has forty teeth and the small wheel *K'* has twenty teeth. The shaft of the small spur-wheel *K'* has a crank, *M*, on each end, set in opposite directions. To these cranks are journaled pitmen *N*, which extend, one on each side of machine, to the studs *C'*, and when the fly-wheel *L* is turned a reciprocating motion is given to the slides *C*, and is communicated thence through the carriers *D* to the file-holders *E E*.

On the frame *A* is cast or attached a lug, *a'*, extending in an upward direction a suitable height, and this lug is provided with pivot-hole and pivot *a*², on which turns a lever, *a*, having arms at the bottom, one of which, *a*³, bears upon one end of a lever, *b*, that has a hook, *c'*, near its opposite end, which normally engages with the stud *C'* and holds it in the notch *c* in the slide *C*. When the lever *a* is pressed in the direction of the arrow the hook is raised off the stud *C'* and one slide *C* may then remain at rest, while the other slide *C*, on the opposite side, continues in motion; or both slides *C* may be stopped in like manner.

O' is a long lever extending nearly the whole

length of the machine. It is pivoted near the front end to a suitable bearing, O^2 , attached to the frame A, and spring O^3 supports the after end. On the end next the spur-wheel J' it is curved downwardly, and terminates in a proper curvature to permit the pin O on spur-wheel J' to depress it at each revolution, and when released the opposite end, O^5 , is forced downward by the spring.

The end of the lever O' is provided with a pawl and clutch, W, of peculiar construction, as shown in detail in Figs. 3 and 4. The clutch W is secured to the lever O^5 by a screw, w , under the head of which screw w is a spring, w' . This spring extends in a forward direction, and the end of it bears against the lower part of the pawl or eccentric w^2 , so as to support and hold it in proper position. The pawl or eccentric w^2 is secured to the clutch W by a screw, w^3 , upon which it turns, so that the upward motion of the lever O^5 will cause the pawl w^2 to bear against one side of the saw, while the clutch W bears upon the other side of the saw a little in the rear of the points of its teeth. The saw is placed between the jaws or clamps Q' and Q^3 , which are drawn toward each other by the spiral spring Q^2 , and serve to hold and steady the saw during the descent of the lever O^5 . This clutch W engages with the edge of the saw just in the rear of the teeth, and in such manner that it does not injure them, and at every revolution of the wheel L the saw is turned up one tooth by the action of the lever O' and of the clutch W. A thumb-nut, s , regulates the extent of the motion of the feed-lever O' .

Beneath the frame A is attached by a pivot, Q, an arm, Q' , having its outer end flattened and widened into a jaw, Q^3 , to correspond with a similar jaw on the end of the frame A. The object of these jaws is to aid in holding the saw while in the operation of filing. A spring, Q^2 , presses the two jaws together; or, in place of the device Q, a clutch similar to W may be attached to the frame A for the same purpose.

V is an adjustable clamp, pivoted at V^2 . It embraces a lug, V^3 , attached to frame A at the forward end. This clamp V is to hold the machine on the bar Y' , forming part of the wooden frame of the machine. The clamp V, being secured to the frame A by the bolt V^2 , upon which it turns, is made adjustable, so as to be set at any convenient angle to the frame A, and to be clamped at such angle by the binding-screw V^4 , the end of which bears against the lug V^3 , in order to adapt the machine to file saws of different diameters, and the clamp thumb-screw V^4 permits it to be fastened at any point on the bar Y' , so that the machine may be slid along the bar and be adjusted to file the teeth of each saw of the series of a cotton-gin. V^4 is a thumb-nut in the front end of clamp V. It presses against the stud V^3 to hold the machine at different angles. The fly-wheel L has one side of its rim cut at a bevel, and is provided with a lug, Z, on that (the beveled) side, which at every revolution

strikes or presses against the inner side of one of the file-carriers E and causes a lateral movement to both of the files, and causes them to move away from the saw at every revolution of the wheel L, thus permitting the feed of the saw to be made without scratching or otherwise injuring the teeth of the saw.

The bar Y' is attached to two pieces of wood, Y, forming the wooden frame of the machine. These pieces of wood Y have adjustable boxes Y^2 , which support the axle P while the saws are being filed. The boxes Y^2 are provided with slots to permit them to be slid backward and forward when adjusting the machine to larger or smaller saws. (Shown in dotted lines in Fig. 2.)

The manner in which the file-holders E are held causes them to turn partly on their axes at every stroke or reciprocation through the action of the swing-plates G G^2 , spring I, links H H' H^2 , and holders D, the slides B' being in the same plane and the file-holders E being at an acute angle thereto.

The hooked levers b are provided with springs b^3 and hook c' . The spring b^3 is to force the hook down when the lever b is depressed by the lever a . The stud C' is attached at one end to the pitman N, and may slide freely in slot B'. The other end projects through the slot B' a short distance to the hook-lever b , also through the notch or opening c in slide C, and far enough for the hook c' of the lever b to engage with it and hold it in the notch c , and thus be in position to impart the reciprocating motion to the slide C.

The metal frame A has a standard, A' , either cast upon it or otherwise attached. This standard supports the swing-plates G G^2 , to which both the pivots G' and G^3 are attached. The plates G G^2 both swing in a horizontal plane. The screw G' enters the top of the standard A' , and the screw G^3 enters a projecting lug on one side of the standard A' , a little below the top. By pressing the lever O' down the feed is stopped. The clamp W is secured to the lever O' at the end O^5 by a screw, w . One end of spring w' is passed around this screw. The other end is placed under the pawl or clutch w^2 and prevents its turning down on its pivot w^3 . To use the machine it is secured to the bar Y' by the clamp V and binding-screw V' , and adjustment is made by means of the boxes Y^2 and binding thumb-screw V^4 . The saws to be filed are then secured to the axle P and the axle is placed in the boxes Y^2 . The machine can be slid along the bar Y' so as to reach any saw in the series.

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

1. In a saw-filing machine, the combination of long lever O' and clutch W, as described, and for the purposes set forth.

2. In a saw-filing machine, the swing-plates G G^2 , in combination with links H H' H^2 and spring I, as shown and described, and for the purposes set forth.

3. In a saw-filing machine, the slide C, in

combination with hooked lever *b*, as shown and described.

4. In a saw-filing machine, the fly-wheel L, having a beveled rim provided with the lug Z, as described, and for the purposes set forth.

5. In a saw-filing machine, the combination of the fly-wheel L, having lug Z, with the spur-wheels J K', pitman N, guides B, slides C, plates G G², and hooked lever *b*, substantially as shown and described.

6. In a saw-filing machine, the combination of the metal frame A, clamp V, and saw clamp or guide Q' Q³, substantially as shown.

7. In a saw-filing machine, the combination of lever O' O⁵, spring O³, curved end O⁴, pin O, and saw-clamp W, as described, and for the purposes set forth.

8. In a saw-filing machine, the combination of the pivoted adjustable clamp V, bar Y', and wooden frame Y, having adjustable boxes Y², substantially as described, and for the purposes set forth.

9. The clutch W, having pawl pivoted on screw *w*³, in combination with spring *w*', secured thereto by the screw *w*, substantially as described, and for the purposes set forth.

10. In a saw-filing machine, the combination of the forked levers *a*, hooked levers *b*, slides C, and studs C', as shown and described, and for the purposes set forth.

11. In a saw-filing machine, the combination of frame A, clamp V, pivoted at V², binding-screw V', stud V³, and binding-screw V⁴, substantially as described, and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN P. BUTLER.

Witnesses:

J. J. MCCARTHY,
M. MOORE.