

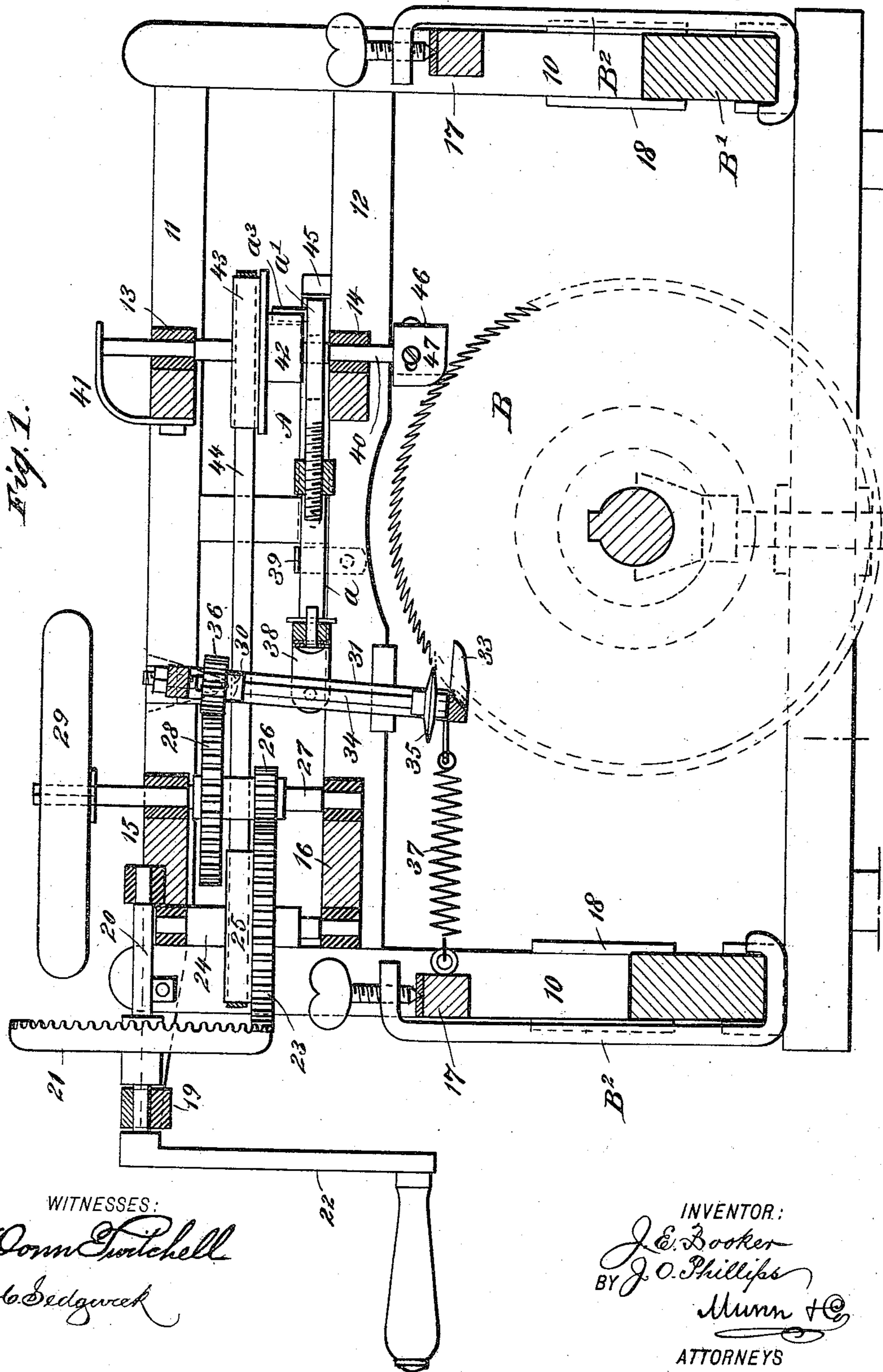
(No Model.)

2 Sheets—Sheet 1.

J. E. BOOKER & J. O. PHILLIPS.
GIN SAW GUMMER.

No. 430,333.

Patented June 17, 1890.



WITNESSES:
Donn Twitchell
G. Sedgwick

INVENTOR:
J. E. Booker
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Munn & Co.
ATTORNEYS

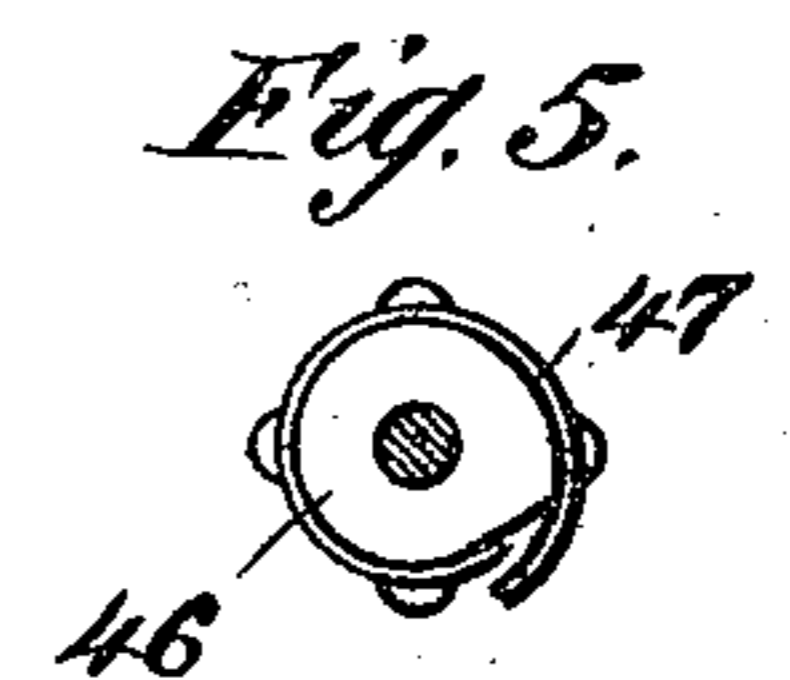
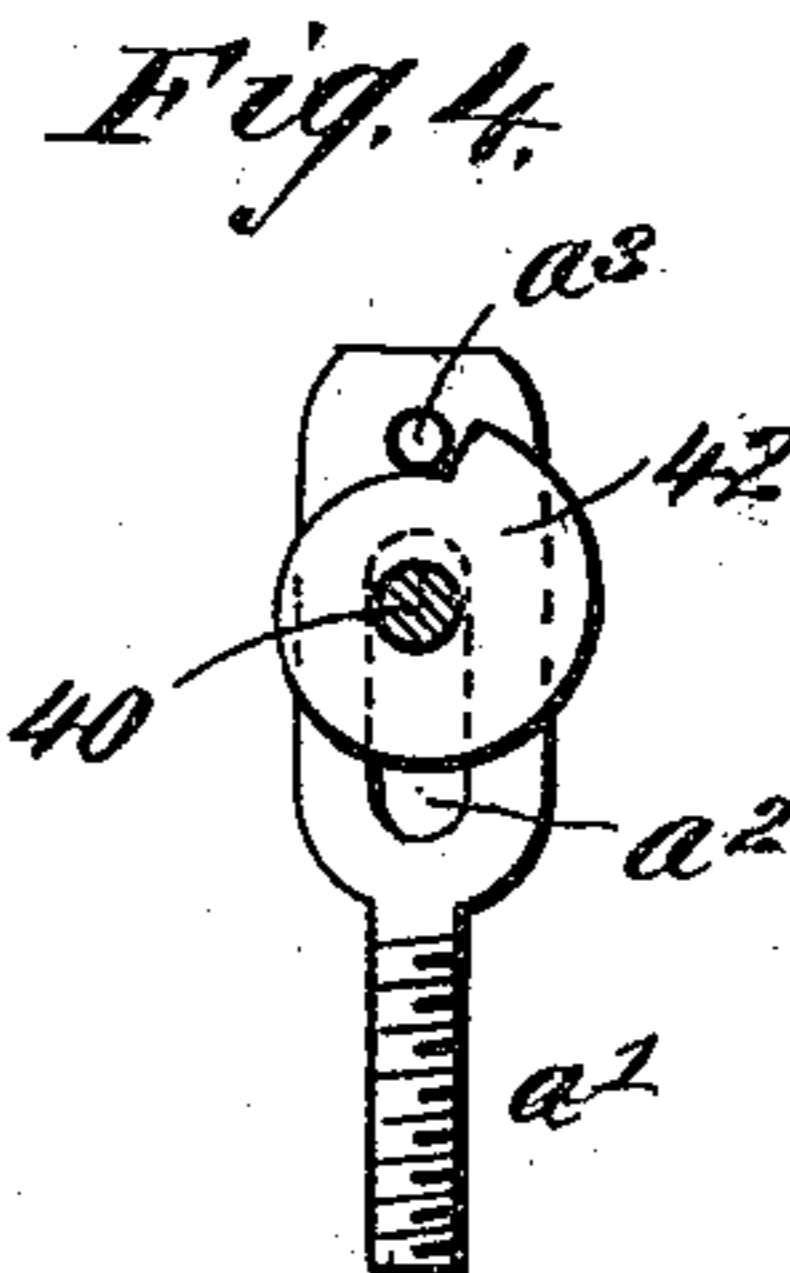
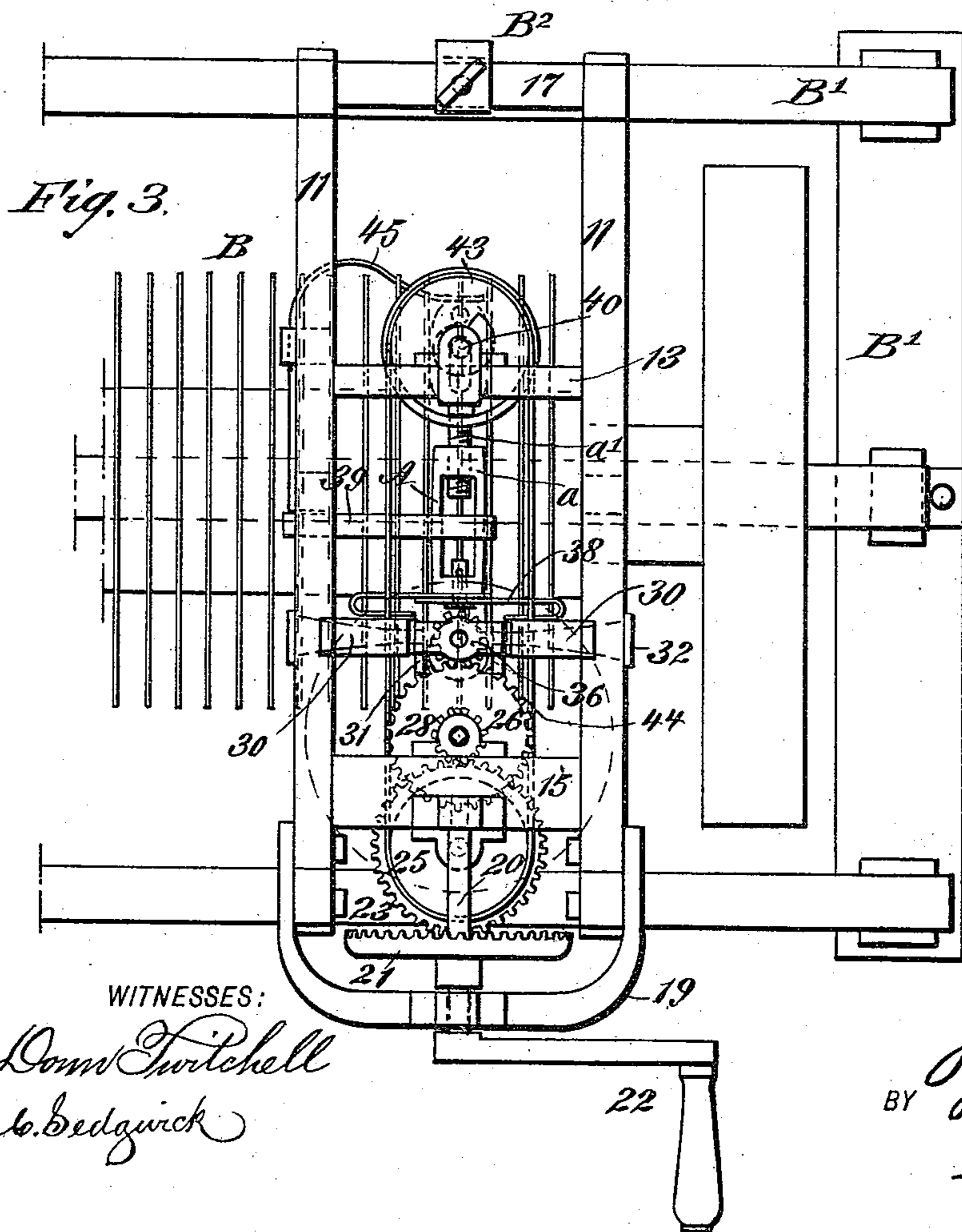
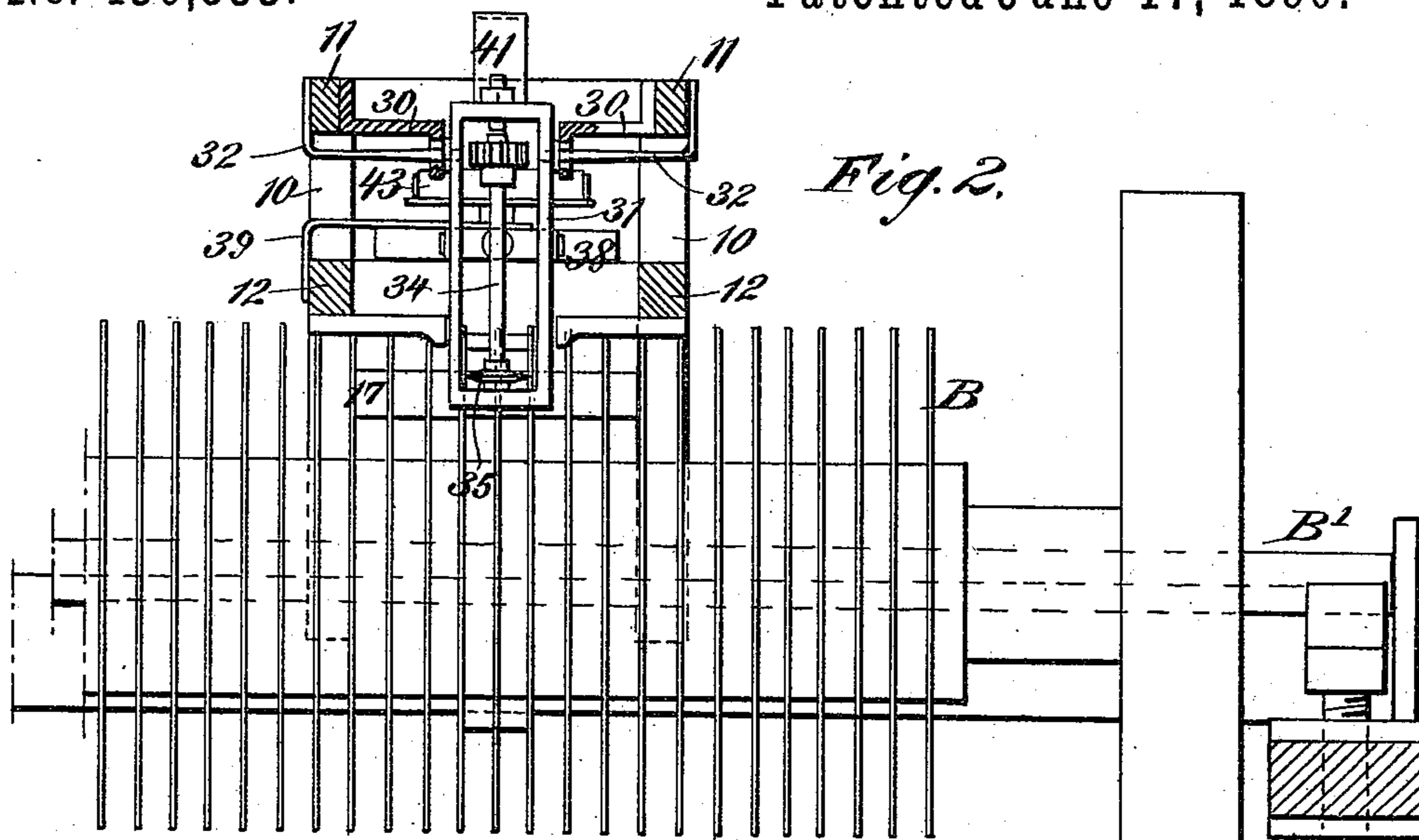
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UNITED STATES PATENT OFFICE.

JOSEPH E. BOOKER AND JOHN O. PHILLIPS, OF RALEIGH, NORTH CAROLINA.

GIN-SAW GUMMER.

SPECIFICATION forming part of Letters Patent No. 430,333, dated June 17, 1890.

Application filed January 9, 1890. Serial No. 336,336. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH E. BOOKER and JOHN O. PHILLIPS, of Raleigh, in the county of Wake and State of North Carolina, have invented a new and useful Improvement in Gummers for Gin and Linter Saws, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in gummers especially adapted for use in filing gin and linter saws, and has for its object to provide a machine of simple and durable construction and readily manipulated, which will leave the teeth of the saw of full length and with keen points, and in every respect similar to the teeth first formed upon the saw.

A further object of the invention is to provide a machine capable of adjustment to saws of different diameters and having a steady and positive feed.

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

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a central vertical section through the machine. Fig. 2 is a transverse section through the same. Fig. 3 is a plan view, and Figs. 4 and 5 are detail views of the feed mechanism.

In carrying out the invention the frame of the machine consists, principally, of four corner-posts 10, connected at the top by side rails 11 and at or near their center by lower side rails 12, the said side rails 12 and 11 being connected at one end by cross-bars 13 and 14 and at or near the other end by cross-bars 15 and 16. The corner-posts are also connected by end cross-bars 17, located, preferably, below their center, and each of the corner-posts is provided upon opposite sides with downwardly-extending guide-plates 18, adapted to fit over the frame in which the gang of saws to be sharpened is mounted.

At the forward end of the machine a horizontal yoke 19 is secured at the upper end,

and in said yoke and upon the upper forward cross-bar 15 a shaft 20 is horizontally journaled, which shaft has attached thereto within the yoke a crown-gear 21, and a crank 22 is secured to the outer end of the shaft, whereby it is revolved. The crown-gear 21 meshes with a spur-wheel 23, mounted upon a spindle 24, journaled in bearings attached to the forward edges of the upper and lower cross-bars 15 and 16 of the frame, the said spur-gear 23 having attached to its spindle or integral with its upper face a pulley 25. The spur-gear 23 meshes with a pinion 26, secured to a spindle 27, vertically mounted in bearings attached to the rear edge of the said frame cross-bars 15 and 16, and upon said spindle above the pinion 26 a gear-wheel 28 is secured. The spindle 27 projects upward beyond the upper cross-bar 15 of the frame, and to its upper end a balance-wheel 29 is attached.

Brackets 30 are projected horizontally from the opposed faces of the upper side bars 11 of the frame to the rear of the spur-gear 28, and between said brackets a rectangular metal box 31 is pivoted, the pivoting of the said box being effected by passing spring-arms 32, attached to the outer faces of the upper side bars of the frame, through suitable apertures in the brackets 30 and into the box 31 at or near its upper end. The lower end of the box has attached thereto, near its center, a rearwardly-projecting horizontal guide-bar 33, as best shown in Fig. 1, and in the box a shaft 34 is mounted, the said shaft having attached at its lower end a disk file 35, the edges whereof are beveled at top and bottom. The shaft 34 is provided with a pinion 36 near its upper end, which meshes with the spur-gear 28.

To the lower end of the box 31 one end of a spring 37 is attached, the other end being secured to the forward end cross-bar 17 of the frame. At or near the center of the box, upon its rear side, a yoke 38 is secured, to which one end of a turn-buckle A is pivoted, the said turn-buckle consisting of a loop-section *a*, which is pivoted to the yoke, as aforesaid, and upon the upper surface of which a spring-arm 39 is made to bear, secured to one

side bar of the frame, and the turn-buckle is completed by a threaded rod α' being screwed into the rear end of the turn-buckle, the rear extremity of which rod is enlarged and flattened, and made to slide upon the lower rear cross-bar 14 of the frame. The flattened enlarged end of the turn-buckle is provided with an elongated slot α^2 , as best shown in Fig. 4, and a pin α^3 upon its upper face near the rear extremity.

A feed-shaft 40 is journaled in suitable bearings attached to the rear face of the upper and lower rear cross-bars 13 and 14, which shaft passes upward through the slot α^2 in the turn-buckle and extends above and below the said cross-bars, the upper end of the shaft being pressed by a spring 41. Upon this shaft 40, immediately above the slotted rear extremity of the turn-buckle, a cam 42 is rigidly secured, as best illustrated in Fig. 4, and above said cam a pulley 43 is mounted upon the shaft, which pulley is connected with the forward pulley 25, with which it is in horizontal alignment by a belt 44. By this means the feed-shaft is revolved directly from the drive-shaft or spindle. Against the rear extremity of the turn-buckle one end of a spring 45 is made to press, the tendency of which spring is to press the box 31 in the direction of the forward end of the machine.

Upon the lower end of the feed-shaft 40 an essentially cylindrical block 46 is secured, provided with a cam-face, and upon the periphery of the said block a plate 47 is attached, having a spiral lower edge, this plate being adjustably attached to the block by set-screws passing through slots in the plate and into the block.

In operation the gang of saws B to be sharpened is mounted longitudinally to revolve in any suitable frame B'. The machine is placed upon the frame B' transversely of the same, and is clamped to the side bars of the frame by clips B² or in any other approved manner. The machine is so set upon the frame that the file 35 and the feed-plate 47 will contact with the teeth of the first saw, as illustrated in Fig. 1, and by means of the screw turn-buckle A the distance between the file and the feed-plate may be regulated, so that the said file and feed-plate will contact properly with opposite sides of the saw.

In operation, at one revolution of the crank a tooth is sharpened and another tooth presented to be sharpened. This is effected in the following manner: Upon revolving the crank 22 motion is communicated from the main shaft or spindle to the feed-shaft, whereupon the said shaft is revolved, and as the shaft revolves the peripheral surface of the cam 42, contacting with the pin α^3 upon the turn-buckle, forces the said turn-buckle to the rear and draws the lower end of the box 31 rearward against the tension of the spring 37. The revolution of the feed-shaft also causes the spiral edge of the feed-

plate 47 to so contact with one of the rear teeth of the saw being filed to feed the saw gradually forward as the file shaft or spindle 34, journaled in the box 31, advances. When the largest peripheral portion of the cam 42 contacts with the pin α^3 of the turn-buckle, the file has cut to its greatest depth, and when the pin α^3 drops from the enlarged peripheral surface of the cam to the smaller surface of the same the turn-buckle and the box 31 are drawn forward by the spring 37, attached to the latter, and the feed-plate will have so revolved as to carry another tooth in position to be engaged by the file upon the next revolution of the crank 22, and this operation is repeated until each tooth of the saw has been filed, whereupon the machine is moved upon the frame B' and placed in position to file the next saw of the gang.

It will be observed that every movement of the machine is positive, and that the feed, both of the saw forward to the file and of the file to the saw, is uniform at all times.

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

1. In a saw-gummer, the combination, with the drive-shaft and a feed-shaft provided with a spiral feed-plate upon its lower extremity, of a box pivoted at its upper end and spring-controlled at its lower end, a file-spindle revolving in said box, and an adjustable turn-buckle attached to the box and having a cam-connection with the feed-shaft, substantially as specified.

2. In a saw-gummer, the combination, with the drive-shaft, a feed-shaft provided with an attached cam and a spiral feed-plate, of a pivoted box spring-controlled at its lower end, a file-spindle journaled in said box, and a screw turn-buckle attached at one end to the box and having connection at its other end with the cam of the feed-shaft, substantially as specified.

3. The combination, with a drive-shaft, a feed-shaft provided with an attached cam between its ends, a block secured to the lower end of the feed-shaft, having attached thereto a feed-plate provided with a spiral lower edge, and a pivoted box having a file-shaft journaled therein and connected with the main shaft, of a screw turn-buckle pivotally attached at one end to the box, slotted at its other end to receive the feed-shaft, and provided with an attached pin for contact with the cam upon said feed-shaft, substantially as shown and described.

4. In a saw-gummer, the combination, with the main shaft, a feed-shaft, and a connection, substantially as shown and described, between the main shaft and feed-shaft, a cam secured upon the feed-shaft between its ends, a feed-plate provided with a spiral lower edge attached to the lower extremity of the feed-shaft, a pivoted box located between the drive-shaft and feed-shaft, the lower end of

which is spring-controlled, and a file-shaft journaled in said box, of a turn-buckle pivotally attached at one end to the box and provided with a slot at its opposite end to receive the feed-shaft, and a pin for contact with the cam, springs bearing upon the upper face of the turn-buckle and the rear end of the same, and a guide-finger projected from the lower end of the box, substantially as and for the purpose specified.

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Witnesses:

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