June 17, 1930. F. E. COLLIER 1,763,760

SAW SET

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Fig. 1

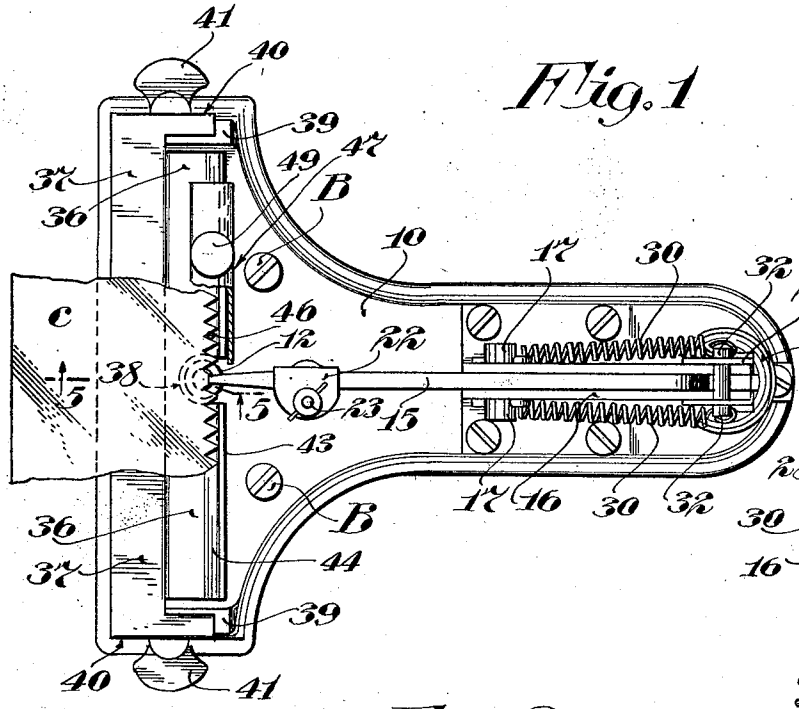

Fig. 3

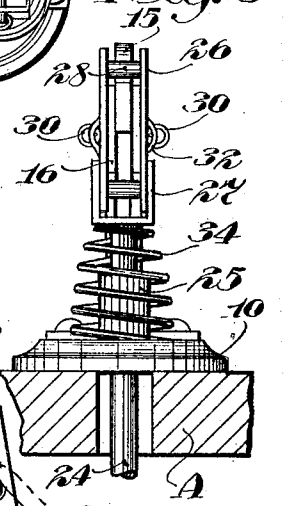

Fig. 2

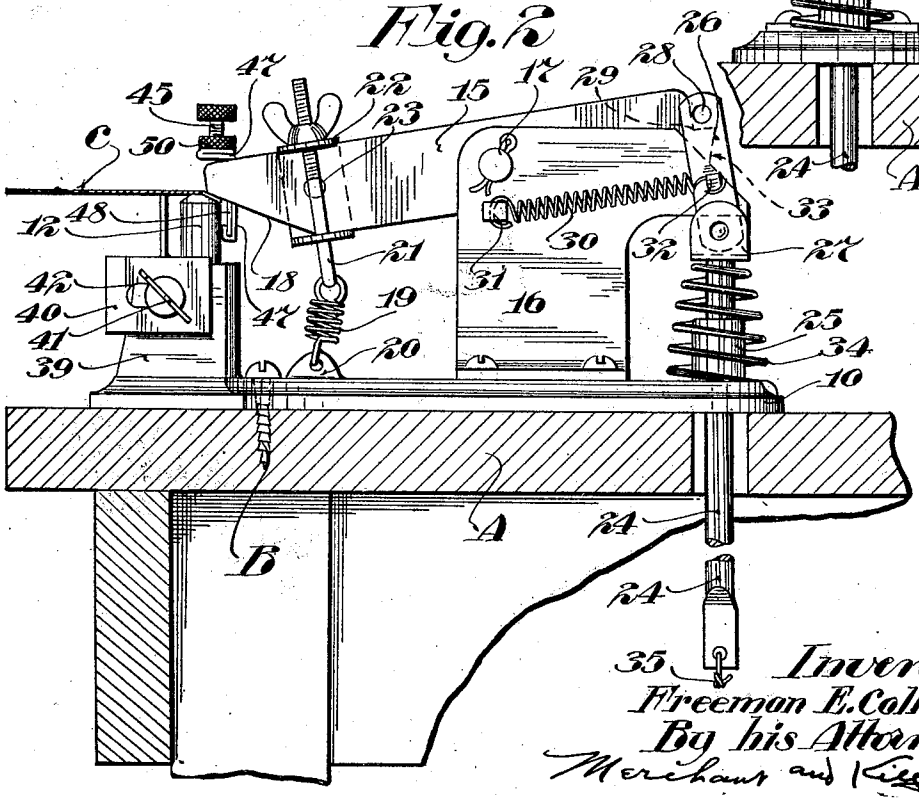

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Fig. 4

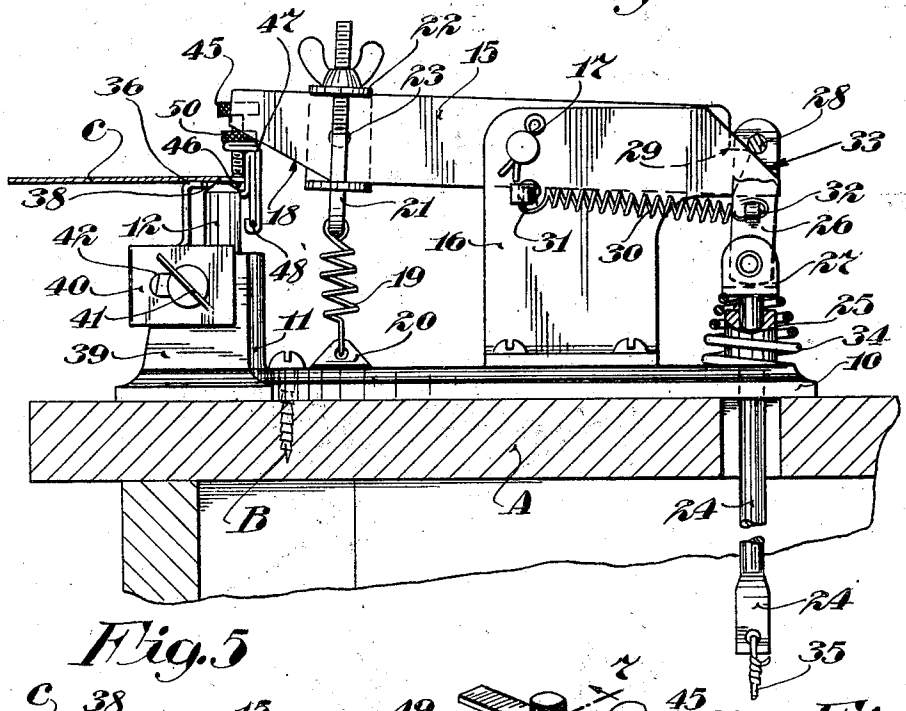


Fig. 5

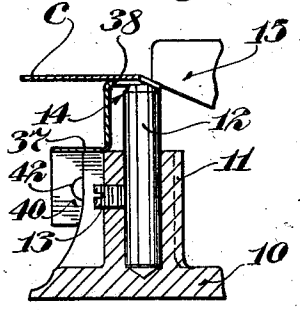


Fig. 6

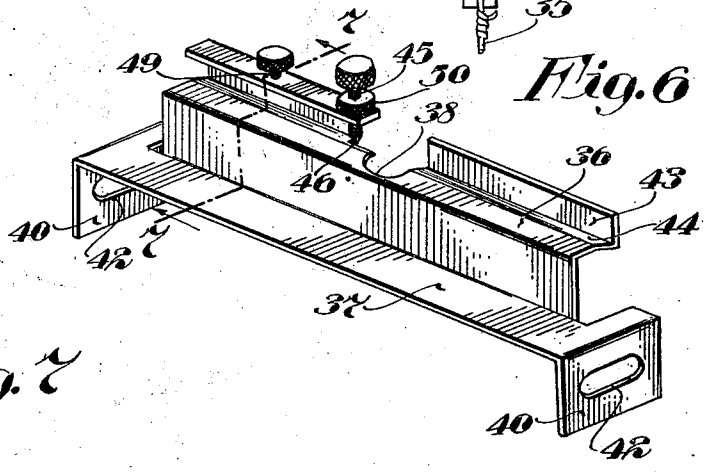
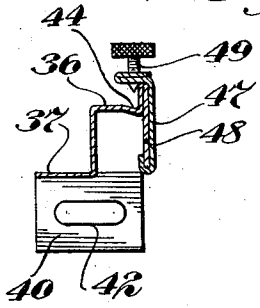


Fig. 7



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Patented June 17, 1930 1,763,760

UNITED STATES PATENT OFFICE

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SAW SET

Application filed June 20, 1928. Serial No. 286,861.

My present invention has for its object to provide an extremely simple and highly efficient saw set, and to this end it consists of the novel devices and combinations of devices hereinafer described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a plan view of the saw set with some parts broken away and other parts sectioned and further illustrating a fragment of a saw supported in a tooth-setting position;

Fig. 2 is a view principally in side elevation with some parts broken away and sectioned;

Fig. 3 is an elevation of the rear end of the saw set;

Fig. 4 is a view corresponding to Fig. 2 with some parts broken away and sectioned;

Fig. 5 is a fragmentary detail view with some parts sectioned on the line 5—5 of Fig. 1;

Fig. 6 is a perspective view of the saw support and positioning devices; and

Fig. 7 is a detail view in section taken substantially on the line 7—7 of Fig. 6.

The numeral 10 indicates a cast base frame mounted on a bench A and rigidly secured thereto by screws B. This base frame 10 is provided at its front with an intermediate upstanding bossed seat 11 in which an anvil 12 is removably mounted but rigidly held by a set screw 13. The periphery of the anvil 12 is beveled to afford a tooth-setting surface 14.

Co-operating with the tooth-setting surface 14 is a trip hammer 15 which extends radially rearward from the anvil 12. This hammer 15 is in the form of a flat bar set vertically edgewise and mounted in a bifurcated bearing 16 on the base frame 10 and intermediately pivoted thereto at 17 for vertical movement. It will be noted that the bearing 16 extends rearward substantially to the respective end of the hammer 15, closely engages the sides thereof and holds said hammer against lateral angular movements. The head of the hammer 15 at its under longitudinal edge is beveled to afford a striking surface 18 and which surface is parallel to the tooth-setting surface 14.

A propelling device for the hammer 15 in the form of a coiled spring 19 is anchored to a lug 20 on the base frame 10 below the head end of the hammer 15 and attached to a thumb-nut-equipped bolt 21 attached to the hammer 15 by a clip 22. This clip 22 is U-shaped with its intermediate portion engaging one side of the hammer 15 and with said hammer closely fitting between the ears of said clip. The bolt 21 extending through aligned bores in the ears of the clip 22 on the opposite side of the hammer 15 from the intermediate portion of the clip 22 holds said clip against lateral movement from the hammer 15. A stud 23 in the intermediate portion of the clip 22 extends into a hole in the hammer 15 and holds said clip against longitudinal shifting movement on said hammer. Obviously, by adjusting the thumb nut on the bolt 21 the tension of the propelling spring 19 may be varied, at will, depending on the force of the blow to be delivered onto the anvil 12.

For retracting the hammer 15 to place the propelling spring 19 under tension and then releasing the hammer to said propelling spring to cause the hammer 15 to produce a blow on the anvil 12, there is provided a vertically extended operating rod 24 which extends through a relatively large opening in the top of the bench A and is mounted in a bossed bearing 25 on the rear end of the base frame 10. The upper end of the operating rod 24 is releasably connected to the rear end of the hammer 15 by a latch comprising a pair of laterally spaced arms 26, the lower ends of which are pivoted to a bifurcated head 27 on the upper end of the rod 24 for vertical swinging movement longitudinally of the hammer 15. These arms 26 embrace the rear end portions of the sides of the bearing 16 and their upper ends are connected by a pin 28 which overlies a lock shoulder 29 on the rear end of the hammer 15.

A pair of coiled springs 30 are anchored at 31 to the sides of the bearing 16 and attached at 32 to the outer faces of the arms

26. These coiled springs 30 hold the arms 26 with the pin 28 engaging the rear end of the hammer 15 above the lock shoulder 29 as a stop and normally out of engagement with said shoulder. On the rear edges of the sides of the bearing 16 are cam surfaces 33, for a purpose that will presently appear. A helical spring 34 encircles the bearing 25 and rod 24, is compressed between the base frame 10 and bifurcated head 27 and normally and yieldingly holds the rod 24 and latch raised or in normal positions.

A cable 35 connects the lower end of the operating rod 24 to a foot treadle, not shown. Obivously, a downward movement of the opeating rod 24 by the foot treadle, heretofore referred to, will cause the latch pin 28 to engage the lock shoulder 29, retract the hammer 15 against the action of its propelling spring 19 and at the same time compress the spring 34.

During the retracting movement of the hammer 15 by the operating rod 24, the latch pin 28 is brought into contact with the cam surface 33 which swings the latch rearward and moves its latch pin 28 out of contact with the lock shoulder 29 and thus releases the hammer 15 to its propelling spring 19 to produce a blow on the anvil 12. When the foot treadle is released the spring 34 will lift the operating rod 24 and latch 26 and the springs 30 will swing said latch forward until stopped by the engagement of its pin 28 with the rear end of the hammer 15 below the lock shoulder 29. During this lifting movement of the operating rod 24 the latch pin 28 by its engagement with the rear end of the hammer 15 will be directed above the lock shoulder 29 and at which time the springs 30 will swing said latch forward and position its pin 28 over the lock shoulder 29.

Co-operating with the anvil 12 is a combined saw support and positioning device, the former of which is in the form of a horizontal shelf 36 which extends transversely of the hammer 15 and is integrally formed with a bed plate 37. In the rear longitudinal edge portion of the saw support 36 is a segmental notch 38 which affords clearance for the anvil 12. The bed plate 37 rests on a pair of short posts 39 integrally formed with the base frame 10 for forward or rearward sliding movements in respect to the anvil 12 and longitudinally in respect to the hammer 15. Formed with the ends of the bed plate 37 are depending flanges 40 that closely engage the outer faces of the relatively wide posts 39 and hold said bed plate against endwise movement transversely of the hammer 15.

For securing the bed plate 37 to the posts 39 in different adjustments, there is provided a pair of thumb screws 41 which extend through horizontal slots 42 in the flanges 40 and have screw-threaded engagement with the posts 39. By tightening the screws 41, the flanges 40 may be frictionally clamped against the posts 39 and securely held.

On the rear longitudinal edge of the saw support 36 is an upstanding saw positioning flange 43 with a gap in its intermediate portion at the notch 38 to afford clearance for the hammer 15. This positioning flange 43 is adapted to be engaged by the points of the teeth of a saw C resting in a horizontal position on the saw support 36 to position said saw for longitudinal movement transversely of said hammer.

Obviously, by adjusting the bed plate 37 in respect to the anvil 12, one of the teeth of the saw may be positioned longitudinally under the hammer 15 and over the saw-setting surface 14 to vary the depth to which the tooth may be set. By longitudinally adjusting the saw on the saw support 36 with the points of its teeth in contact with the saw-positioning flange 43, alternate teeth of the saw C may be positioned under the hammer 15 and over the saw-setting surface 14. With the saw thus held, the teeth are all set exactly to the same depth.

The rear longitudinal edge portion of the saw support 36 is downwardly and rearwardly inclined to the saw-positioning flange 43, as indicated at 44, to afford clearance for the teeth of the saw C so that the body of the saw may be held flat on said support. For positioning the saw longitudinally on the saw support 36 or in other words, transversely of the hammer 15 so that the teeth are automatically positioned directly under the hammer 15 by endwise movements of the saw C, there is provided a screw 45 that extends perpendicular to the saw support 36 and has on its lower end a conical point 46 arranged to be engaged by any two adjacent teeth of said saw.

The screw 45 has screw-threaded engagement with a channel slide 47 mounted on a wide rail 48 at the back of one section of the saw-positioning flange 43 and integrally formed therewith, as shown in Fig. 7. This slide 47 extends horizontally with its flanges extending the one above the other. The lower flange of the slide 47 is folded around the lower edge portion of the rail 48 to hold said slide against lateral movement therefrom and a needle point thumb screw 49 having screw-threaded engagement with the upper flange of said slide is so arranged that its conical point engages the saw-positioning flange 43 and holds the slide 47 against lateral movement therefrom but with freedom for endwise sliding movement on the rail 48. A lock nut 50 on the screw 45 is arranged to impinge against the upper flange of the slide 47 and hold said screw where set. The conical point 46 on the screw 45 is closely positioned over the surface 44 of the saw support 36

so as to extend between any two of the teeth of the saw C when resting on the saw support 36.

Obviously, by moving the saw C edgewise forward away from the saw-positioning flange 43 to release the engaged teeth thereof from the screw point 46 and then moving the saw C first longitudinally and then rearward until the points of the teeth again engage the saw-positioning flange 43, every other tooth of said saw may be successively positioned over the saw-setting surface 14 and under the hammer 15. After every other tooth has been set in saw C, said saw is reversed and the intervening teeth set. Obviously the saw-positioning flange 43 and screw point 46 will position a saw tooth directly over the saw-setting surface 14 and directly under the hammer 15. By vertically adjusting the screw 45 its conical point 46 may be set to be engaged by two adjacent teeth of a saw having their points in contact with the saw-positioning flange 43 irrespective of the number of teeth in the saw per inch.

After a tooth is properly positioned over the saw-setting surface 14 and under the hammer 15, the operator, by manipulating the pedal, draws the operating rod 24 downward and thereby retracts the hammer 15 through its latch connection and at which time the hammer-propelling spring 19 is placed under tension. This latch releases the hammer 15 as previously described, and the propelling spring 19 causes said hammer to deliver a blow on the tooth positioned thereunder with sufficient force to put the desired set therein. By varying the tension of the propelling spring 19, the set of the teeth may be varied.

What I claim is:

1. A saw set comprising a base frame, an anvil, and a bearing on the base frame, a hammer intermediately pivoted on the bearing for co-operation with the anvil and having a lock shoulder on its rear end, a propelling spring for the hammer, operating connections for retracting the hammer and tensioning its propelling spring, a latch co-operating with the lock shoulder for connecting the operating connections to the hammer, said hammer having a surface for directing the latch into a position to be engaged by the lock shoulder during the resetting of said connections and latch, said bearing having a cam surface for releasing the latch from the lock shoulder during the retracting movement of the hammer, and means for resetting the operating connections and latch.

2. A saw set comprising a base frame, an anvil, and a bearing on the base frame, a hammer intermediately pivoted on the bearing for co-operation with the the anvil and having a lock shoulder on its rear end, a propelling spring for the hammer, operating connections for retracting the hammer and tensioning its propelling spring, a latch for connecting the operating connections to the hammer and comprising a swingable member on the connections and having a pin co-operating with the lock shoulder, said hammer having a surface for directing the pin into a position to be engaged by the lock shoulder during the resetting of said connections and latch, said bearing having a cam surface for releasing the pin from the lock shoulder during the retracting movement of the hammer, and yielding means for resetting the operating connections.

3. The structure defined in claim 2 in which the latch is yieldingly held in an operative position.

4. A saw set comprising a base frame, an anvil and a bifurcated bearing on the base frame, a hammer mounted between the sides of the bearing and intermediately pivoted thereto for co-operation with the anvil and having a lock shoulder on its rear end, a propelling spring for the hammer, operating connections for retracting the hammer and tensioning its propelling spring, and a latch for connecting the operating connections to the hammer and comprising a pair of swingable arms on said connections, embracing the bearing and having a pin connecting their free ends, said hammer having a cam surface for directing the pin into a position to be engaged by the lock shoulder during the resetting of the operating connections and latch, said bearings having on its edges cam surfaces for releasing the latch from the lock shoulder during the retracting movement of the hammer, a spring for resetting the operating connections, and a second spring yieldingly holding the latch in an operative position.

5. A saw set comprising a base frame, an anvil and a bifurcated bearing on the base frame, said anvil having a tooth-setting surface, a hammer comprising a flat bar set vertically edgewise, mounted between the sides of the bearing and intermediately pivoted thereto, the head of the hammer at its under longitudinal edge being beveled to afford a striking surface co-operating with the tooth-setting surface of the anvil and having a lock shoulder on its rear end, a propelling spring for the hammer, operating connections for retracting the hammer and tensioning its propelling spring, a latch co-operating with the lock shoulder for connecting the operating connections to the hammer, and means for releasing the latch during the retracting of the hammer.

6. The structure defined in claim 5 in further combination with a U-shaped clip straddling the hammer held thereon against longitudinal movement, of an adjusting screw mounted in aligned bores in the ears of the clip outward of the hammer for holding the clip on the hammer and to which screw the propelling spring is attached.

7. A saw set comprising a base frame, an anvil and a co-operating hammer mounted on the base frame, and a bed having a saw-supporting shelf provided with a saw-positioning flange, said shelf and flange having an intermediate opening for the anvil and arranged to support a saw for movement transversely of the hammer with the points of its teeth engaging the flange to guide the saw for longitudinal adjustment in which its teeth are successively positioned over the anvil by sliding the saw longitudinally on the shelf, said bed being mounted on the base frame for adjustment toward and from the anvil, said shelf adjacent to a flange being downwardly offset to afford clearance for the teeth of the saw resting on the shelf.

8. The structure defined in claim 7 in further combination with an adjustbale stop device on the flange adapted to be engaged by certain of the teeth of the saw to longitudinally position said saw with one of its teeth on the anvil.

9. A saw set comprising a base frame, an anvil and a co-operating hammer mounted on the base frame, a saw-support mounted on the base frame and having saw-positioning means arranged to be engaged by the points of the teeth of a saw on said support to guide the saw for longitudinal adjustment, a slide mounted on the saw-support for adjustment longitudinally thereof, a screw perpendicular to the saw-support having screw-threaded engagement with the slide and provided with a tapered point arranged to be engaged by two of the teeth of the saw to longitudinally position the saw with one of its teeth between the anvil and the hammer.

In testimony whereof I affix my signature.

FREEMAN E. COLLIER.