E. F. EDWARDS.

SAW FILING DEVICE.

APPLICATION FILED MAY 23, 1908.

934,510. Patented Sept. 21, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

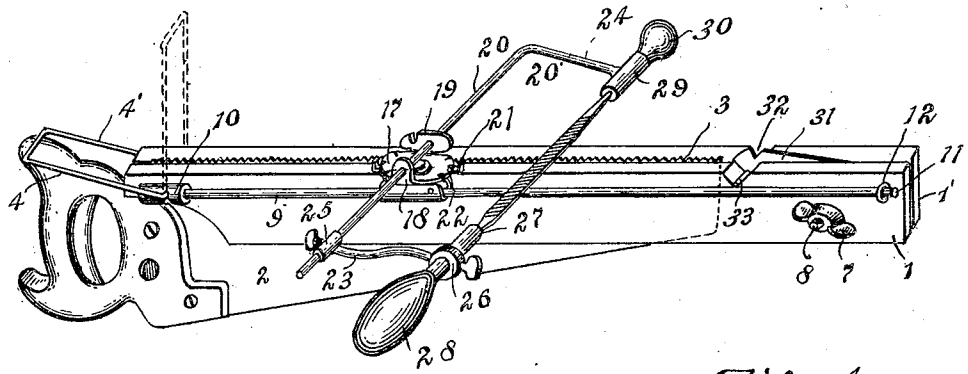


Fig. 4.

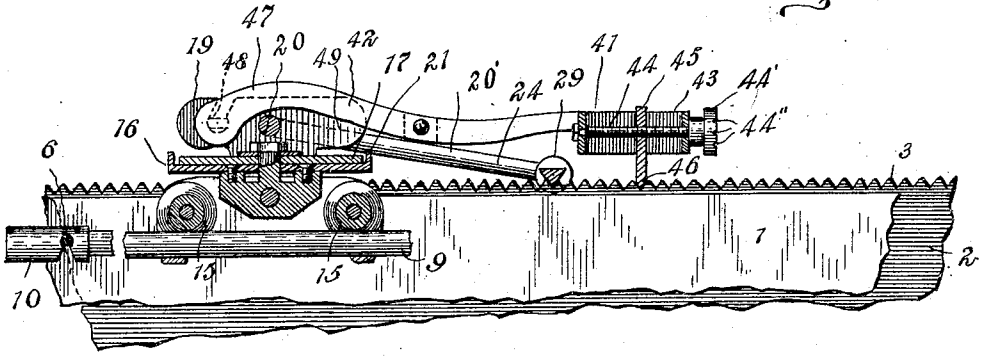
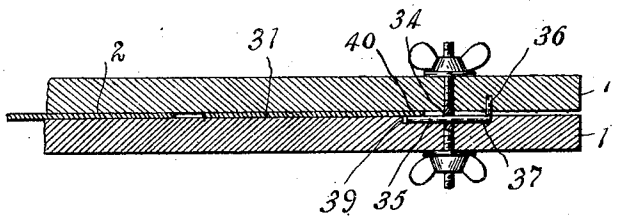


Fig. 9.



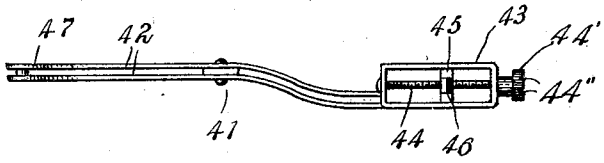


Fig. 7.

Witnesses:

A. A. Olson

W. C. Smith

Inventor:

Edward F. Edwards,

By Joshua R. H. Potts

Atty.

E. F. EDWARDS.

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2 SHEETS—SHEET 2.

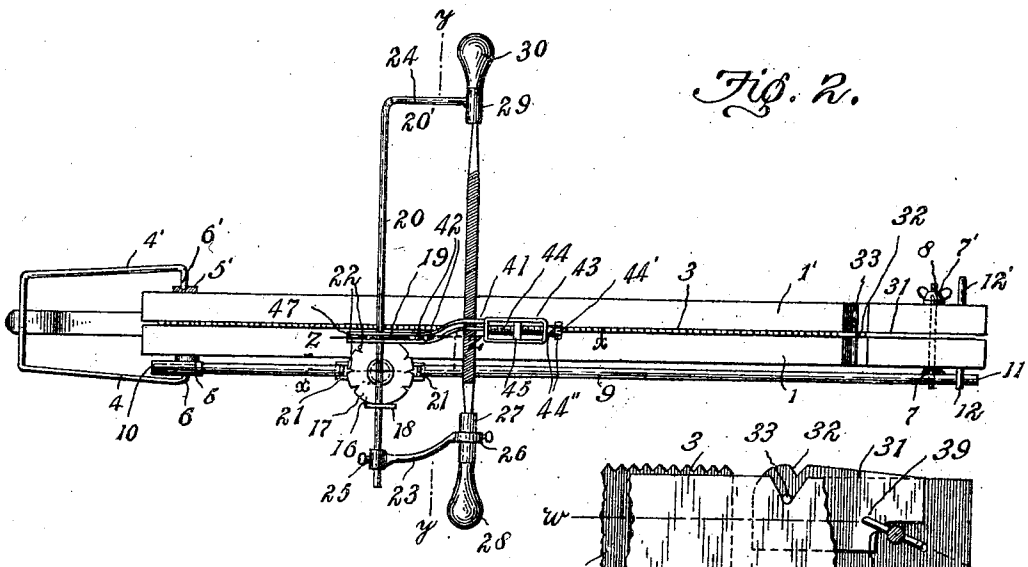


Fig. 2.

Fig. 8.

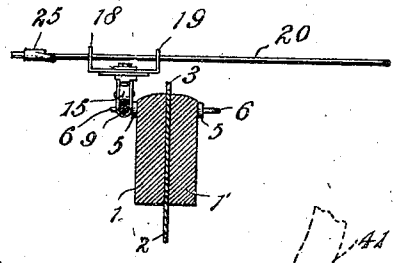


Fig. 3.

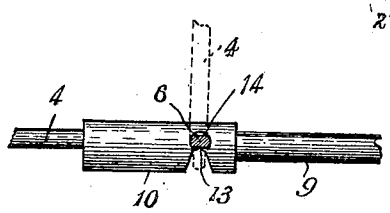


Fig. 5.

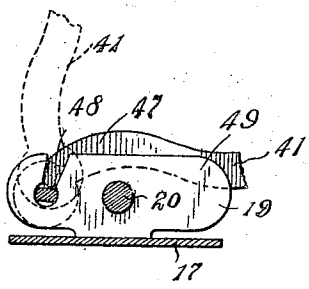
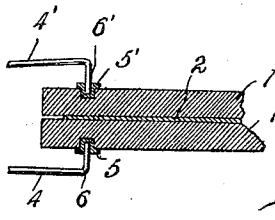


Fig. 6.

Fig. 10.



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Inventor:

Edward F. Edwards

By Joshua R. V. Potts,

Atty.

UNITED STATES PATENT OFFICE.

EDWARD F. EDWARDS, OF CHICAGO, ILLINOIS.

SAW-FILING DEVICE.

934,510. Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed May 23, 1908. Serial No. 434,576.

To all whom it may concern:

Be it known that I, EDWARD F. EDWARDS, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Saw-Filing Devices, of which the following is a specification.

My invention relates to saw-filing devices and particularly to that class of devices used in filing saws other than circular.

The object of my invention is to provide a saw-filing device as mentioned, which may be accurately set and readily adjusted.

A further object is to provide a device as mentioned, adapted to accurately sharpen the teeth of a saw-blade, and also to readily and accurately cut new teeth in a saw-blade without removing the saw-blade from the clamp-jaws for turning after half the teeth have been cut or sharpened.

A further object is to provide a saw-filing device in which the newly sharpened or cut saw-blade, may be removed from the device and another clamped in its place without disturbing the pitch gage thus making it possible to cut or file teeth of the same pitch in any number of saws.

Other objects will appear hereinafter.

With these objects in view, my invention consists generally in a novel saw-clamp adapted to securely hold the saw-blade, in a rod adapted to be secured to either side of said clamp below the level of the saw-teeth.

It further consists in a carriage mounted on said rod in which is slidably mounted the file-holder, in a plate adapted to be secured between said clamp jaws and adapted to be used in setting the pitch of the file.

It further consists in ears on said carriage adapted to hold a member which will accurately gage the teeth in cutting the saw.

My invention further consists in various details of construction and arrangements of parts, all as will be hereinafter fully described, and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which:

Figure 1 is a perspective view of my device in its preferred form, the gage device used in re-cutting teeth being removed, Fig. 2 is a top plan view of the complete device, Fig. 3 is a vertical transverse section taken on the line *y—y* of Fig. 2, the gage device being removed, Fig. 4 is a detail vertical longitudinal section taken substantially on the line *x—x* of Fig. 2, Fig. 5 is an enlarged detail of one end of the rod upon which the carriage is mounted, illustrating means of detachably securing it to the clamp member, Fig. 6 is an enlarged detail taken on substantially the line *z—z* of Fig. 2 illustrating means of detachably securing the blade device to the carriage, Fig. 7 is a bottom plan view of the gage device detached, Fig. 8 is a detail side elevation of one end of the clamp jaws, a portion being broken away so as to show the pitch gage, Fig. 9 is a detail section taken substantially on the line *w—w* of Fig. 8, and Fig. 10 is a detail section of the opposite end of the clamp jaws to that shown in Figs. 8 and 9.

Referring now to the drawings, 1—1′ indicate the usual jaws of the clamp, and 2 the blade of a saw with its serrated or toothed edge 3 projecting just above the clamp-jaws. The clamp-jaws 1—1′ are held together at one end by a yoke comprising the spring arms 4—4′, said clamp-jaws being provided with metal sockets 5—5′ to receive the inwardly extending ends 6—6′ of the spring arms 4—4′. The jaws 1—1′ are clamped at the other end by the thumb nuts 7—7′ threaded on either end of the bolt 8.

Detachably secured below the level of the saw-teeth to the inwardly extending portion 6 of the spring-arm 4, is the end 10 of the rod 9, the other end 11 of the rod 9 resting in an eyelet 12. The end 10 of the rod 9 is recessed as at 13 shown in Fig. 5, the portion 6 of the spring arm 4 being of such construction that when the arm 4 is in vertical position it will slide into the circular portion 14 of the recess 13, and when the arm 4 is turned in any position other than vertical, it will lock the rod 9 to it, as clearly shown in Fig. 5. The other clamp jaw 1′ being provided with members 6′—12′ similar to the portions 6 and 12 respectively, of the clamp-jaw 1, it is obvious that the rod 9 may be readily attached to either side.

Suitably mounted on rollers 15 which travel on the rod 9 is a carriage 16. Swiveled to the carriage is a horizontal disk or plate 17. The plate 17 is provided with ears 18 and 19, in which is slidably mounted a rod 20 of the file-holder 20′.

21 are pointers on the carriage 16 which register with graduations 22 on the edge of the disk 17 for maintaining the proper angle

of the file to the saw-blade. The file-holder 20′ consists of the rod 20 and the arms 23 and 24. The arm 23 is provided with a sleeve 25 by which it is adjustably mounted on the rod 20, and the outer end of the arm is provided with an integrally formed collar 26 in which is adjustably mounted the file-holding member proper 27, the outer end of said member 27 being formed into a handle portion 28, and the inner end being formed to receive the tang of the file. The arm 24 is preferably formed integrally with the rod 20. To the end of said arm is suitably secured preferably by soldering, a member 29 and a handle 30 similar to the members 27 and 28 respectively, of the arm 23 and adapted to receive and securely hold the other end of the file. Suitably mounted preferably on trunnions as at 33, between the clamp-jaws 1—1′ is a plate 31 which is suitably shaped and provided with a notch 32 in its upper edge, said notch acting as a pitch gage or pitch-setter when using the device. The bolt 8 is transversely drilled as at 34 to receive the member or pin 35, the end 36 of said member extending into one of the clamp jaws preferably 1′, thus locking the bolt against rotation. The other member 1 of said clamp-jaws is slotted as at 37, in which slot the member 35 rests. The plate 31 is suitably secured between the member 35 and the inner wall of the member 1′, as shown in the drawing, the lower corner 38 of the plate 31, preferably rests between the end 39 of the member 35 and the adjacent wall of the member 1′ as at 40. It is obvious that by tightening or loosening the thumb-nut 7′, the plate 31 may be adjusted so that the notch 32 is of the preferred pitch, the plate 31 being made of thinner metal than the ordinary saw-blade, it is obvious that the plate 31 may be adjusted while the saw-blade is still clamped in the device. It is further obvious that when the teeth of more than one saw are to be filed with the same pitch, the finished blade may be removed and a new one clamped in its place without disturbing the pitch gage.

In re-cutting the saw-blade, that is, filing new teeth in the blade, accurate and exact spacing of the teeth is one of the essentials. To facilitate this accurate gaging, I provide a device 41, said device comprises the parallel arms 42 at the forward end of which is suitably secured or formed integrally with said arms, the frame 43, in which is rotatably mounted a screw 44, said screw being provided with a head 44′ and said head being notched or graduated as at 44″. Threaded on the screw 44 is a dog 45, the lower end 46 of which, is shaped to engage a tooth of a saw-blade. The rear end 47 of the parallel arms 42, is detachably secured in a recess 48 in the ear 19 of the carriage 16, in a manner similar to the attachment of the rod 9 to the spring arm 4, above described, the latter attachment being also clearly shown in Fig. 6 of the accompanying drawings. The car 19 projects forward as at 49, said projection resting snugly between the parallel arms 42 of the gage and acting as a steady for said gage device. In using the latter device, that is, in re-cutting the teeth of a saw, the dog 45 is moved to the limit of its position in the frame 43 and set in one tooth of the blade, a tooth being cut with the file. The screw 44 is then turned until the file is in proper position to cut the next tooth (hence the graduations 44″ on the head 44′) and so on until a number of teeth are filed, when the dog may be screwed up in position to engage a newly filed tooth. The screw 44 is only used in spacing the first few teeth cut. The dog is then moved along one tooth at a time of the newly cut teeth to position the file. It should be noted that the arms 42 overhang the file so that as the file is lifted in passing from tooth to tooth the gage may be lifted by and with the file.

For ordinary filing, the saw-blade is secured in usual position in the clamp-jaws 1—1′, and the clamp-jaws secured in a vise or other suitable support, the file is then loosely secured in the file-holder 20′. The pitch gage 31 is so adjusted that the notch 32 is of the proper pitch whereupon the file is rested or placed in the notch 32 and rigidly fixed in the file-holder. The position of the graduations 22 with reference to the pointers 21 act as a guide for the operator in keeping the file at the same angle during the entire operation.

In saw-filing, half the teeth, that is, every other tooth is filed in one direction, while the other half is filed in the opposite direction; in the present saw-filing devices, the saw-blade has to be removed from the clamp-jaws and turned around in order to facilitate so filing the teeth. In my invention, the saw-filing mechanism proper that is, the rod 9 on which is mounted the carriage 16 and the file-holder 20′, may very readily be removed from one side and attached to the other as before described and clearly shown in Fig. 5, without disturbing the saw-blade, hence, the saw remains in the clamp-jaws until the entire operation of filing the teeth is finished. Further in saw-filing devices now in use, the rod, upon which is mounted the carriage and saw-file holder, is positioned in a plane above the teeth of the blade, and which is obviously in the way of the arm of the operator, but in my device, the rod is positioned below the teeth of the saw-blade, hence out of the way of the operator's arm.

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

1. In a device of the class described, clamp

jaws adapted to hold the blade of a saw, a rod, means at one end of each of said jaws for receiving one end of said rod, a yoke connecting said jaws at the opposite end and having inturned ends swiveled in the respective jaws, coöperating means on the inturned ends of said yoke and the adjacent end of the rod for locking said rod upon either jaw when said yoke is in one position and for unlocking said rod when in another position, said yoke when in position to release said rod upon one side being also in position to receive the same when placed on the opposite side, substantially as described.

2. In a saw filing device, the clamp-jaws for holding a saw blade, a yoke connecting said jaws at one end and comprising a pair of spring arms having inturned ends swiveled in the respective jaws, a rod having a notched head, the inturned ends of said arms being shaped to engage said notched head to lock the same when in one position and to release it when in another and eyes upon the opposite end of each of said jaws to receive the opposite end of the rod, substantially as described.

3. In a saw filing device, the clamp-jaws for holding the blade of a saw, in combination with a bolt extending through said jaws, thumb nuts threaded upon said bolt, a plate trunnioned between said jaws adjacent to said bolt and having a notched upper edge, and a pin extending transversely through said bolt, one edge of said plate being arranged between said pin and one of the jaws, substantially as described.

4. In a saw filing device, the clamp-jaws for holding a saw blade in combination with a track arranged substantially parallel therewith, in combination with a carriage slidably mounted on said track, a file holder pivotally mounted on said carriage, a file in said file holder, an arm pivotally mounted on said carriage and overhanging said file and means on the end of said arm for engaging the teeth of the saw, to position said file, said arm being adapted to be raised by the file as the latter is raised in passing from one tooth to another, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD F. EDWARDS.

Witnesses:

ANNA L. EKVALL,

JANET E. HOGAN.