S. J. CAMPBELL.

DEVICE FOR HOLDING ANVILS FOR TRUING.

APPLICATION FILED MAR. 13, 1916.

1,195,440. Patented Aug. 22, 1916.

Fig. 1.

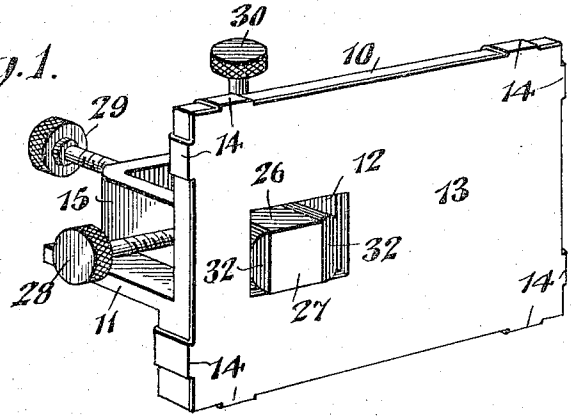


Fig. 7.

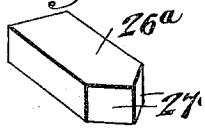


Fig. 8.

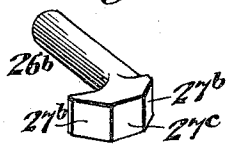


Fig. 2.

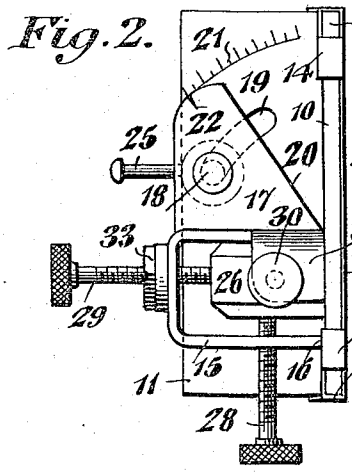


Fig. 4.

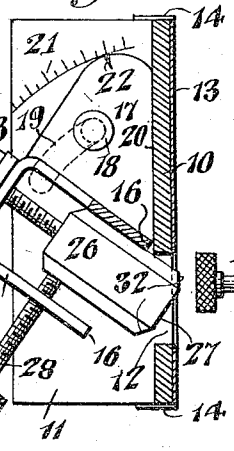


Fig. 3.

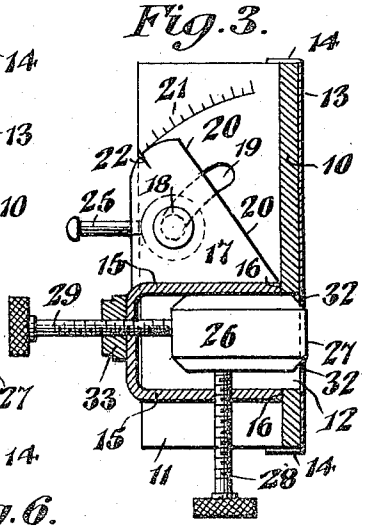


Fig. 6.

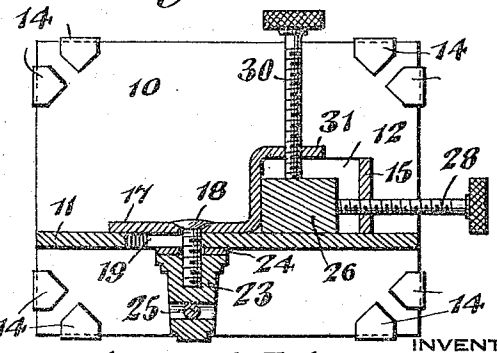
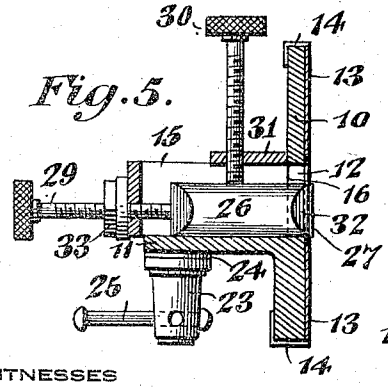


Fig. 5.



WITNESSES

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DEVICE FOR HOLDING ANVILS FOR TRUING.

1,195,440. Specification of Letters Patent. Patented Aug. 22, 1916.

Application filed March 13, 1916. Serial No. 83,902.

To all whom it may concern:

Be it known that I, SAMUEL J. CAMPBELL, a subject of the King of Great Britain and Ireland, residing at Cheboygan, in the county of Cheboygan and State of Michigan, have invented a new and useful Device for Holding Anvils for Truing, of which the following is a specification.

The present invention relates to a novel means for insuring the accurate grinding or working down of the active faces of anvils, and the like, such as are used in saw swaging.

It is well known to those skilled in the art that these anvils have working faces, which are disposed at various angles on the outer ends of the anvils, according to the nature of the work to which the anvils are applied. It is also well known that these anvil faces become indented, nicked, grooved, and the like, which destroys the accuracy of the anvils, and which necessitates the frequent grinding or working down of these active faces to make the same true. This truing of the anvil faces has heretofore been done by hand, and it has been found that it is practically impossible, even with great care and skill, to work down these anvil faces with the uniformity and trueness required for good work in saw swaging.

An object of the present invention is to overcome these inaccurate methods and means of grinding down the active faces of anvils, and for this purpose this invention provides a device with a gage plate, and a holder which rigidly holds an anvil, of any type, or having an active face disposed at practically any angle, in such position that the active face lies in the plane of the gage plate, so that when the active face is ground or worked down, the gage plate will insure the grinding down of the anvil with a positive mechanical trueness not heretofore attained.

Another object of the present invention is to provide a relatively light device, which may be supported in the hand, for holding the gage plate against an emery wheel, or the like, the device being of such structure that, although held in the hand, it insures the accurate grinding or working down of the active faces of the anvils; to provide a device with a base portion having thereon a holder for securely clamping an anvil, and to provide means to admit of the adjustment of the holder into various angles, so as to correctly present the active faces of anvils to the grinding elements; to provide a holder on the device which is easily adjusted, and which has such a form as to correctly and definitely determine the positions of the holder corresponding to anvil faces of various angles; and to provide the abutting or gage face of the device with a detachable wear plate adapted to prevent undue wear on the device, by contact with the grinding element, and to admit the use of a detachable wear plate renewable from time to time.

Other objects and advantages of the invention will be fully brought out in the following specific disclosure of the present preferred embodiment of this invention, the same being illustrated in the accompanying drawing, wherein—

Figure 1 is a perspective view of the improved device, showing the outer face of the gage plate or portion of the device which is adapted to be held against a grinding element, the view showing the active face of an anvil adjusted into proper position in the plane of the gage face. Fig. 2 is a top plan view of the same. Fig. 3 is a horizontal sectional view, taken through the device, through the top of the holder immediately above the anvil clamped therein. Fig. 4 is a similar view, showing the holder adjusted into a different angular position than that shown in Fig. 3, and showing the corresponding adjustment of the anvil in the holder to project the angular face of the anvil through the gage plate. Fig. 5 is a transverse section, taken through the device on a line through the holder, showing the parts adjusted in the position of Fig. 1. Fig. 6 is a longitudinal vertical section, taken centrally through the device, looking forwardly toward the inner side of the gage plate. Figs. 7 and 8 are detail perspective views of two of many various types of anvils which are used, and which may be easily adjusted and clamped in the device of this invention.

Referring to this drawing, wherein like parts are designated by similar numerals of reference throughout the several views, the device comprises, broadly, a base member to be held in the hand, and pressed against a grinding element, such as an emery wheel; and a holder, which is mounted for adjustment on this base member, and which carries, securely clamped therein, anvils of various types, the holder being adjustable,

so as to present the active faces of various types of anvils to the gage plate of the base member.

The base member comprises a flat plate 10 having, in upwardly spaced relation to the lower edge of the plate 10, a rearwardly extending base flange 11, and having above the flange 11, an opening 12 extending through the plate 10. The plate 10 constitutes a gage plate, and has a true, flat uninterrupted outer face. The opening 12, which extends through the gage plate 10 has its lower marginal edge in the plane of the upper face of the base flange 11, so that the opening 12 rises practically from the upper face of the base flange 11. The opening 12 is of substantial length, as shown in Figs. 1 and 6. To protect the outer face of the gage plate 10, it may be found desirable to use a wear or face plate 13. This wear plate 13 is relatively thin and is held to the gage plate 10 by means of tongues 14 integral with the marginal edges of the wear plate 13, and which are overturned adjacent the marginal edges of the gage plate 10. By lifting the tongues 14, the wear plate 13 may be easily removed from the gage plate.

The base member carries the holder. The holder is in the form of a substantially U-shaped frame 15 lying horizontally upon the upper face of the base flange 11, so that the base flange 11 closes the bottom or lower end of the frame 15 of the holder. The extremities of the U-shaped frame 15 terminate in vertical flat edges 16, which are spaced apart a distance equal to at least the length of the opening 12 in the gage plate 10, and are adapted to abut flat against the inner face of the gage plate 10, at the opposite sides of the opening 12, as shown in Figs. 1, 2, 3, 5 and 6. The holder frame 15 is held in position by an anchoring ear 17 which projects from one side of the frame 15 and the lower edge thereof, the ear constituting an integral portion of the side of the frame, which is bent at right angles to the side, and has its lower face in the plane of the lower edge of the frame 15, so that the holder with its anchoring ear 17 lies flat upon the upper face of the base flange 11. This anchoring ear 17 carries a depending threaded stem 18. The stem 18 is preferably welded and headed, or otherwise suitably secured to the ear 17. The threaded lower end of the stem 18 projects downwardly through an arcuate slot 19 formed in the base plate 11 on the arc of a circle, the geometric center of which is substantially in the central portion of the opening 12, so that when the ear 17 is moved over the base plate 11, it is guided by the stem 18 in the slot 19 to swing the holder 15 into various angular positions at the inner side of the opening 12. It will be noted that the inner edge of the ear 17 is beveled longitudinally as at 20. This edge 20 is a straight edge, which lies substantially at 45 degrees to the adjacent side of the holder 15. The edge 20 is adapted to abut against the inner face of the gage plate 10, as shown in Fig. 4, whereby to correctly determine the positioning of the holder 15 in a predetermined angle with respect to the plane of the gage plate 10.

The base flange 11 is provided with a graduated scale 21, which is curved concentric with the slot 19, so as to coöperate with an index point 22, upon the outer end of the anchoring ear 17 adapted to traverse the scale 21, and determine the various angular adjustments of the holder 15. The cap nut 23 is threaded upon the lower end of the stem 18, and is of such diameter as to bind against the lower face of the base flange 11 upon the opposite sides of the slot 19 to firmly bind the anchoring ear 17 in adjusted position. Preferably a washer 24 is interposed between the base flange and the cap nut 23 to insure a firm binding action. The cap nut 23 is provided with a bar 25 slidably and diametrically engaging through the outer end thereof to serve as a handle to admit of the easy turning of the cap nut 23 without interference from the depending lower end of the gage plate 10.

The U-shaped holder 15 is adapted to retain an anvil 26 therein. These anvils are made in very many different shapes and forms, and have faces which are disposed in many different angles. As shown in Figs. 1 to 6, the anvil 26 comprises a bar beveled at its longitudinal edges and being vertically beveled at its corners to thus provide flat opposite end working or active faces, lying at right angles to the axis of the body of the anvil. To grind these active faces, indicated at 27, it is necessary to rigidly hold the anvil 26 in true rectangular relation to the plane of the gage plate 10, as clearly shown by determining the position of the holder frame 15, and clamping it by tightening the cap nut 23. In Fig. 3 of the drawing, the ends of the frame 15 are shown as abutting the inner face of the gage plate 10. This holds the frame in right angular relation with respect to the gage plate 10. The anvil 26 is placed in the holder 15 with its lower side resting flat upon the base flange 11. A lateral binding thumb screw 28 is threaded through the outer side of the holder 15, and engages the adjacent side of the anvil 26 to force and clamp the same over against the opposite side of the holder 15. The anvil 26, therefore, lies in one side of the holder against the side thereof, so that the same is held in true rectangular relation with the gage plate 10. A combined thrust and retaining thumb screw 29 is threaded through the inner end of the frame 15, toward the inner side thereof, and is adapted to engage

the inner end of the anvil 26 to force the anvil outwardly so as to dispose the active face 27 thereof substantially in the plane of the gage plate 10, although advanced sufficiently to grind or smooth down the working face 27, the gage plate 20 serving to guide and hold the anvil against the grinding element. The anvil 26 is held from springing up out of the holder 15 by means of a top binding thumb screw 30. This thumb screw 30 is threaded outwardly through an inturned lug 31, which overhangs the outer end of the frame 15. The lug 31 is a continuation of the inner side of the U-shaped frame, and is merely turned over from the upper edge thereof, as clearly shown in Fig. 6. Thus, the anvil 26 is held down against the upper face of the base flange 11 to lie in substantially a horizontal plane. The anvil 26 is also held flat against the inner side of the holder to insure the correct angular adjustment of the anvil with the holder and with the gage plate 10. The thumb screw 29 admits of the gradual advancement of the working face 27 of the anvil against the grinding element.

From Fig. 4, it will be noted that the frame 15 may be swung into an angle of substantially 45 degrees. In this instance, the thrust screw 29 is turned up into the holder to project the anvil 26 considerably beyond the same, so as to extend the beveled edge 32 beyond the gage plate 10. It is thus understood from the adjustments shown in Figs. 3 and 4, the slot 19, and the graduated scale 21 that the holder 15 may be correctly positioned in any desired angle, and may be secured at that angle, so as to accommodate anvils having active faces of various angular formations. The thrust screw 29 is provided with a lock nut 33, threaded upon the outer end of the screw 29 and adapted to be turned up against the inner end of the frame 15 to bind the screw 29 in the frame. When the anvil 26 is adjusted into the required position, the base member may be picked up in the hand and pressed against an emery wheel, abrading belt, or any other device or mechanism for grinding or working down the active faces of the anvils. The gage plate 10 positively and mechanically insures the accurate and true grinding of the face of the anvil, for the anvil is projected beyond the gage plate sufficient only to contact at all points with the grinding element, when the latter lies flat against the outer side of the gage plate 10, or the outer face of the protecting plate 13, if the same be employed.

In Fig. 7, an anvil 26^a is disclosed, which has a pair of working faces 27^a arranged at angles to each other of substantially 45 degrees. It is understood that these working faces 27^a may be of any desired angle and that by grinding down one of the faces 27^a, and then overturning the anvil 26^a in the holder 16, the opposite face 27^a may be readily ground.

Fig. 8 shows an anvil 26^b, the same having a substantially cylindrical shank or stem and having an angular head provided with the lateral working faces 27^b and the end or flat working face 27^c. The shank 26 is relatively small as compared with the shanks of the anvils 26 and 26^a. Therefore, the lateral and the top thumb screws 28 and 30 will accordingly be turned in to a greater extent. It will be noted from Fig. 8, however, that the inner side of the anvil 26^b is flush with the inner side of the head of the anvil, so that the anvil 26^b may lie flat against the inner side of the holder 15. It is thus seen that the device of this invention may be used with practically any type of anvil which may be constructed or used in saw swaging, or other closely allied arts.

The holder 15 extends longitudinally backward from the opening 12 in the gage plate 10, and presents an inner flat face along the inner side of the holder 15 which is held, by the depending stem 18 and the sides of the slot 19, from inward displacement with respect to the inner marginal edge of the opening 12. Thus, the clamping screws are free to bind any type of anvil against the inner guiding face of the holder without forcing the anvil out of alinement with the opening 12. This inner flat face of the holder determines the correct position of the anvil in the holder after the latter has been adjusted upon the base member. The thumb screw 29 may be turned inwardly to advance the anvil 26 along the guiding face or side of the holder, so as to project the working face 27 of the anvil the desired distance outwardly through the opening 12.

It is, of course, understood that it is within the scope of the present invention to modify and change the above specifically described device, within the scope of the claims, to adapt the device to various designs and forms found practical and desirable in the different uses of the same.

What is claimed is:—

1. A device for holding anvils while truing the same, comprising a base member having a flat gage plate thereon with an anvil receiving opening therethrough, and an anvil holder adjustably mounted on the base member at the inner side of the gage plate and at the side of the opening to project variously formed active anvil faces at the desired angle through said opening.

2. A device for holding anvils while truing the same comprising a base member having a gage plate provided with an opening therethrough, a holder on the base member to receive an anvil, gripping means in the holder to secure the anvil therein, said holder being adjustable on the base member

into various angles against the gage plate and said gripping means being adjustable, whereby the anvil may be held at the required angle, and may be projected through said opening to dispose the active face of the anvil substantially in the plane of the outer face of the gage plate.

3. A device for holding anvils while truing the same comprising a base member with a gage plate, an anvil holder on the base member, and advancing means for engagement with the anvil in the holder to project the same from the holder into the plane of the gage plate.

4. A device for holding anvils while truing the same comprising a base member having a gage plate, a holder adjustably mounted on the base member and having a longitudinal guiding inner face, means to hold the anvil against the guiding face, and means for advancing the anvil along the guiding face to project the same beyond the gage plate.

5. A device for holding anvils while truing the same, comprising a base member provided with a gage plate having an anvil receiving opening therein, a holder adjustably mounted on the base member, a clamp engaging the holder and the base member to secure the holder to the base member when the holder is adjusted, and means in the holder for rigidly binding an anvil therein, said means being adjustable to accommodate anvils of different sizes and to project the anvil therein into said opening to retain the active face of the anvil substantially in the outer face of the gage plate.

6. A device for holding anvils while truing the same comprising a base member having a base flange and a gage plate rising from one edge of the flange, a holder slidable upon the upper face of the base flange and having a laterally extending ear at its lower edge adapted to lie flat upon the upper face of the base flange, gripping means in the holder for engaging and securing an anvil therein, and a clamp engaging said ear and said base flange to bind the ear to the latter when said holder is adjusted into the desired position against the gage plate.

7. A device for holding anvils while truing the same, comprising a base member having a base flange and an upstanding gage plate at one edge of the flange, a holder adjustable upon said base flange, top and lateral clamping screws carried by the holder for engagement with the top and side of an anvil placed in the holder, and feeding means carried by the holder for engagement with the anvil to advance the same outwardly from the holder in the direction of the gage plate.

8. A device for holding anvils while truing the same comprising a base member having a base flange and a gage plate extending along one edge of said flange, an anvil holder carried by the base flange, a protecting plate lying against the outer surface of the gage plate, and means for detachably holding the protecting plate against the gage plate.

9. In combination with the base member having a base flange and a gage plate arranged at right angles to each other, and said plate having an opening, a holder for the anvil slidable upon the said flange at one side of said opening to project the anvil therethrough, an ear projecting from the holder, an arcuate slot provided in the flange, a clamping device passed through the slot and engaging the ear, and means provided in and carried by the holder for gripping the anvil.

10. In combination with the base member having a gage plate provided with an opening, a holder for the anvil composed of a substantially U-shaped frame, said frame being arranged at one side of the said opening, so as to project the anvil therethrough, a lateral binding screw, a top binding screw and a combined thrust and retaining screw for the anvil in the holder, and means for mounting the said holder in the base member either in line with said opening or at an angle thereto.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

SAMUEL J. CAMPBELL.

Witnesses:
ANNIE CAMPBELL,
WARD I. WALLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."