Nov. 23, 1948. E. W. DAVIS 2,454,309

BOLT HOLDING TOOL

Filed April 16, 1945

Fig. 1

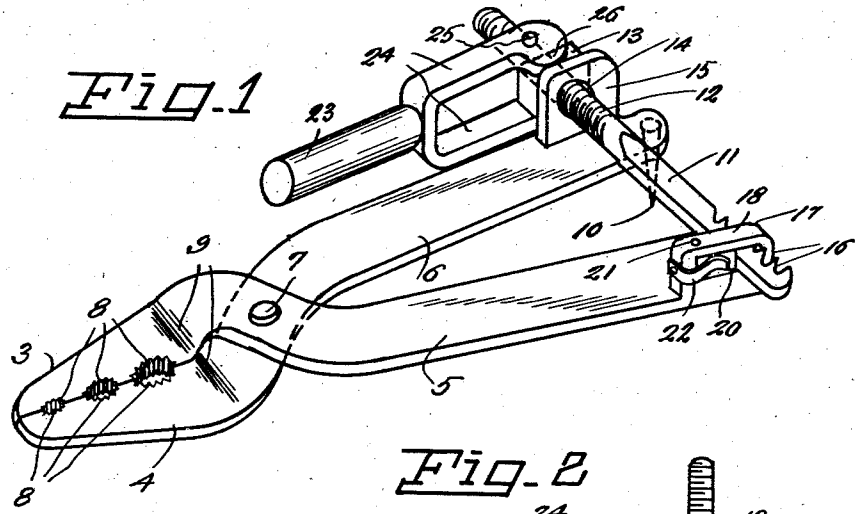


Fig. 2

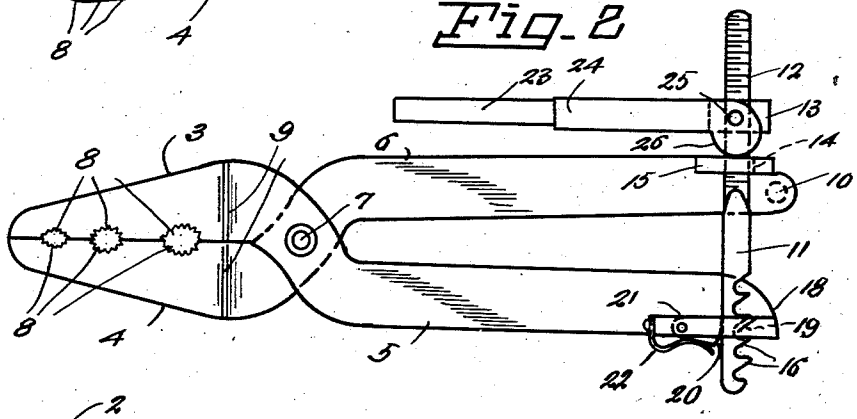
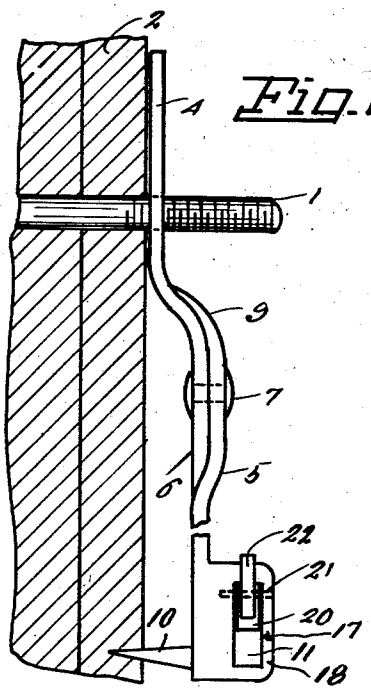


Fig. 3



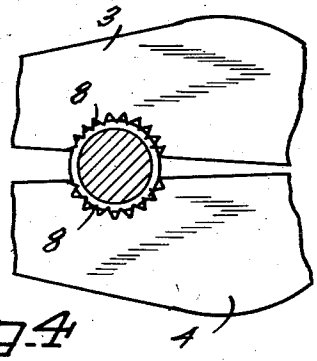


Fig. 4

INVENTOR

Evan W. Davis

BY Glenn L. Fish

ATTORNEY

Patented Nov. 23, 1948

2,454,309

UNITED STATES PATENT OFFICE

2,454,309

BOLT HOLDING TOOL

Evan W. Davis, Spokane, Wash.

Application April 16, 1945, Serial No. 588,678

2 Claims. (Cl. 81—13)

1

This invention relates to tools and more particularly to a tool for holding a bolt while the bolt is being rethreaded.

In railroad cars, and particularly refrigerating cars, the bolts which hold steps in place become worn and loose due to constant use. These bolts extend from inside and are put in place during the framing of the car. After the framing has been erected the lining is applied inside and covers heads of the bolts and it is then impossible to hold the bolts by their heads in order to rethread them when necessary and also impossible to remove the bolts and put new ones in place without tearing out the lining. Therefore the bolts must be held against turning when rethreading by a tool applied externally of the car and it is one object of the invention to provide a tool which may be easily disposed in gripping engagement with a protruding end portion of a bolt and the bolt firmly held while being rethreaded.

Another object of the invention is to provide a tool resembling a pair of plyers and having its jaws in offset relation to its handles so that while the jaws may be disposed close against the outer surface of a car wall the handles will be spaced from the car and may be readily gripped for applying pressure and forcing the jaws into tight gripping engagement with the bolt.

Another object of the invention is to provide a tool of this character having its handles provided with a cross bar so associated with the handles that the jaws may be held in gripping engagement with a bolt and additional pressure then applied to the bar to cause teeth of the jaws to bite into the bolt and very effectively prevent turning of the bolt during a rethreading operation.

Another object of the invention is to provide a tool wherein one handle carries a spur projecting from its inner side and adapted to be embedded in the outer surface of the car wall to hold the tool against movement when turning strain is applied to a bolt during rethreading of the bolt.

Another object of the invention is to provide a tool which is simple in construction, efficient in operation, and cheap to manufacture.

The invention is illustrated in the accompanying drawings wherein:

Figure 1 is a perspective view of the improved bolt holding tool.

Figure 2 is a view looking at the outer face thereof.

2

Figure 3 is a view showing the tool applied to a bolt.

Figure 4 is a fragmentary view showing the manner in which a bolt is gripped between jaws of the tool.

This improved tool is used for grasping a bolt 1 protruding from a wall 2 of a railroad car and holding the bolt against turning while the protruding end portion of the bolt is rethreaded. The head at the inner end of such a bolt is not accessible since it is covered by the lining of the car and when a nut upon the outer end portion of the bolt works loose and the threads of the bolt become worn it is necessary to cut the nut from the bolt, rethread the bolt, and apply another nut.

The improved tool is especially adapted for holding the protruding end portion of the bolt and has jaws 2 and 4 provided with handles 5 and 6 which are pivoted in crossed relation to each other by a pin 7. Confronting inner edge faces of the jaws are formed with a number of recesses 8 which receive the bolt and these recesses have their walls formed with teeth so that when a bolt is grasped between the jaws and pressure applied the teeth will bite into the bolt and firmly grip it to prevent the bolt from turning during rethreading of the bolt. The jaws are bent near their rear or inner ends, as shown at 9, so that the jaws and the handles will be offset with respect to each other and the handles disposed in outward spaced relation to the wall of the car, as shown in Figure 3, when the bolt is gripped. It will thus be seen that the bolt may be gripped very close to the wall of the car and held without fingers of the hand grasping the handles making contact with the car wall and interfering with application of the tool to the bolt. A spur or spike 10 extends from the inner side face of one handle at the rear end thereof and when this spur is embedded in the car wall the tool will be braced against turning with the bolt.

The jaws are to be held in gripping engagement with the bolt and in order to do so there has been provided a bar 11 which is rectangular in cross section for a portion of its length and circular in cross section for the remainder of its length to provide a stem 12 which is threaded to receive a nut 13. The threaded stem of the bar 11 slidably passes through an opening 14 formed through an ear or plate 15 projecting from the outer side edge portion of the handle 6 near the rear end thereof and the opposite end portion of the bar is formed with teeth 16 so that when this

end portion of the bar is passed through the opening or slot 17 in the frame 18 carried by the handle 5 along the outer side edge of its rear end portion one of the teeth 16 may be engaged with a tooth at the rear end of the slot 17 and hold the handles against movement away from each other with the jaws in gripping engagement with the bolt. A dog or pawl 20 extends longitudinally in the slot 17 and is pivotally mounted by a pin 21 carried by the frame and passing through the front end of the dog. This dog is pressed to an operative position by a leaf spring 22 and since the dog is yieldably held against outward swinging movement the bar may slide outwardly through the slot 17 and the dog then be pressed against the confronting front edge face of the bar and urge the bar rearwardly to retain one of the teeth 16 in engagement with the tooth 19 of the frame. The nut 13 will then be tightened by turning it through the medium of a handle 23 having forks 24 pivoted to the nut in straddling relation thereto by a pin 25. Each of the forks or arms 24 has its pivoted end formed with an extension constituting a cam 26 for engaging the ear or plate 15 when the handle is in its forwardly extending position but when the handle is turned to extend rearwardly the cams will project outwardly from the nut and the handle may be used for turning the nut and applying force to the ear 15 and exerting pressure longitudinally of the bar to force the jaws into tight gripping engagement with the bolt. The handle 23 is then turned to its forwardly extending position and during this movement the cams 26 will exert additional pressure upon the ear and such force will be applied to the handle 5 of the tool that the teeth of the recesses 8 will bite into the bolt and very effectively prevent turning of the bolt during rethreading of the bolt. The handle 6 projects rearwardly from the ear 15 to such an extent that it may be struck with a hammer and the prong 10 driven into the car wall and so hold the tool that it cannot swing in a circular path about the bolt and allow turning of the bolt in the opening in the car wall through which it passes. After the bolt has been rethreaded the handle 23 is swung rearwardly to move the cams out of pressure applying contact with the ear or plate 15 and the nut 13 loosened so that the jaws may be moved apart to release the bolt 1. A new nut may then be applied to bolt 1 and tightened.

Having thus described the invention, what is claimed is:

1. A bolt holding tool comprising jaws having handles extending rearwardly therefrom and pivoted in crossed relation to each other, said jaws being bent adjacent their rear ends and disposed in offset relation to the handles, a prong carried by one handle adjacent the rear end thereof for penetrating a wall through which a bolt gripped between the jaws passes and holding the tool and the bolt against turning movement, a bar extending between rear end portions of said handles,

said bar being adjustably connected with one handle and slidably engaged with the other handle, a nut threaded upon said bar for engaging the last mentioned jaw and forcing the handles towards each other to move the jaws into gripping engagement with a bolt disposed between the jaws, and a handle for turning the nut pivoted to the nut and having cams for engaging the last mentioned jaw and exerting stress longitudinally of the bar to apply additional gripping force to the handles and the jaws.

2. A bolt holding tool comprising jaws having handles pivotally connected and when moved towards each other moving the jaws towards each other for gripping engagement with a bolt to be held, a frame carried by the rear end portion of one handle and formed with a longitudinally extending slot, an ear extending from the outer side edge of the rear end portion of the other handle in opposed relation to the frame and formed with an opening disposed opposite the slot, a bar extending between said handles and having one end portion passing through the slot of said frame and formed with a portion of teeth for selective engagement with the frame at the rear end of the slot, the other end portion of said bar being threaded and slidably passing through the opening of said ear, a dog pivotally mounted in said slot and extending longitudinally therein forwardly of said bar, a spring carried by the frame and engaging a side of the dog to urge said dog inwardly into engagement with the bar at the front thereof for holding the bar in adjusted engagement with the frame, a nut screwed upon the threaded end portion of the bar and engaging the outer side face of said ear for moving the jaws into gripping engagement with a bolt disposed between the jaws, and a handle for turning the nut having forks straddling the nut and pivoted thereto, said forks having extensions constituting cams for engaging the outer surface of the ear and applying pressure to said ear for forcing the handles towards each other and increasing gripping action of the jaws.

EVAN W. DAVIS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
299,889	Whiting	June 3, 1884
396,819	Hubbell	Jan. 29, 1889
455,721	Milburn	July 7, 1891
566,249	Tinsman	Aug. 18, 1896
612,982	Whitman	Oct. 25, 1898
915,184	Keirn	Mar. 16, 1909
1,180,301	Klein	Apr. 25, 1916
1,412,965	Pridemore	Apr. 18, 1922
1,506,675	Seppmann	Aug. 26, 1924
1,540,745	Bain	June 9, 1925