May 3, 1932. M. D. HOLCOMB 1,856,706

MEANS FOR ATTACHING TOOLS TO HOLDERS

Filed June 23, 1931 2 Sheets-Sheet 1

Fig. 1.

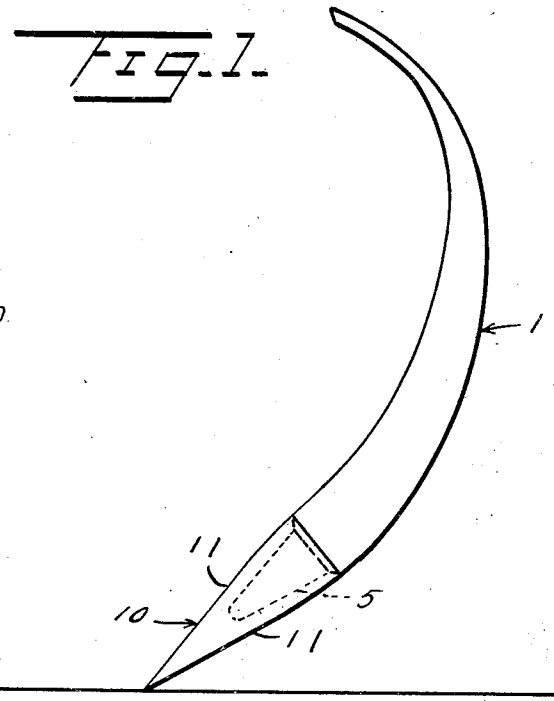
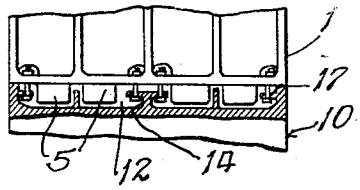


Fig. 6.



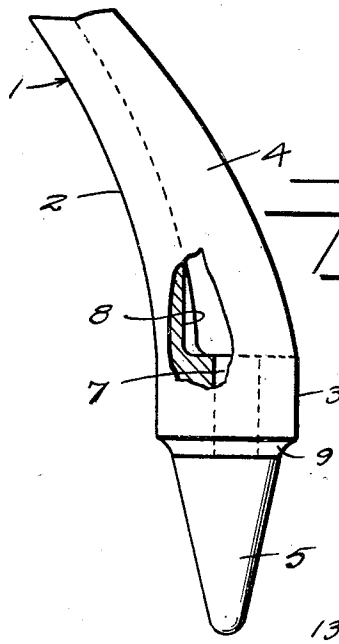


Fig. 5.

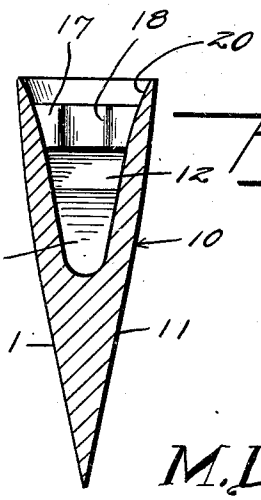


Fig. 4.

Inventor
M. D. Holcomb

By Watson E. Coleman
Attorney

May 3, 1932. M. D. HOLCOMB 1,856,706

MEANS FOR ATTACHING TOOLS TO HOLDERS

Filed June 23, 1931 2 Sheets-Sheet 2

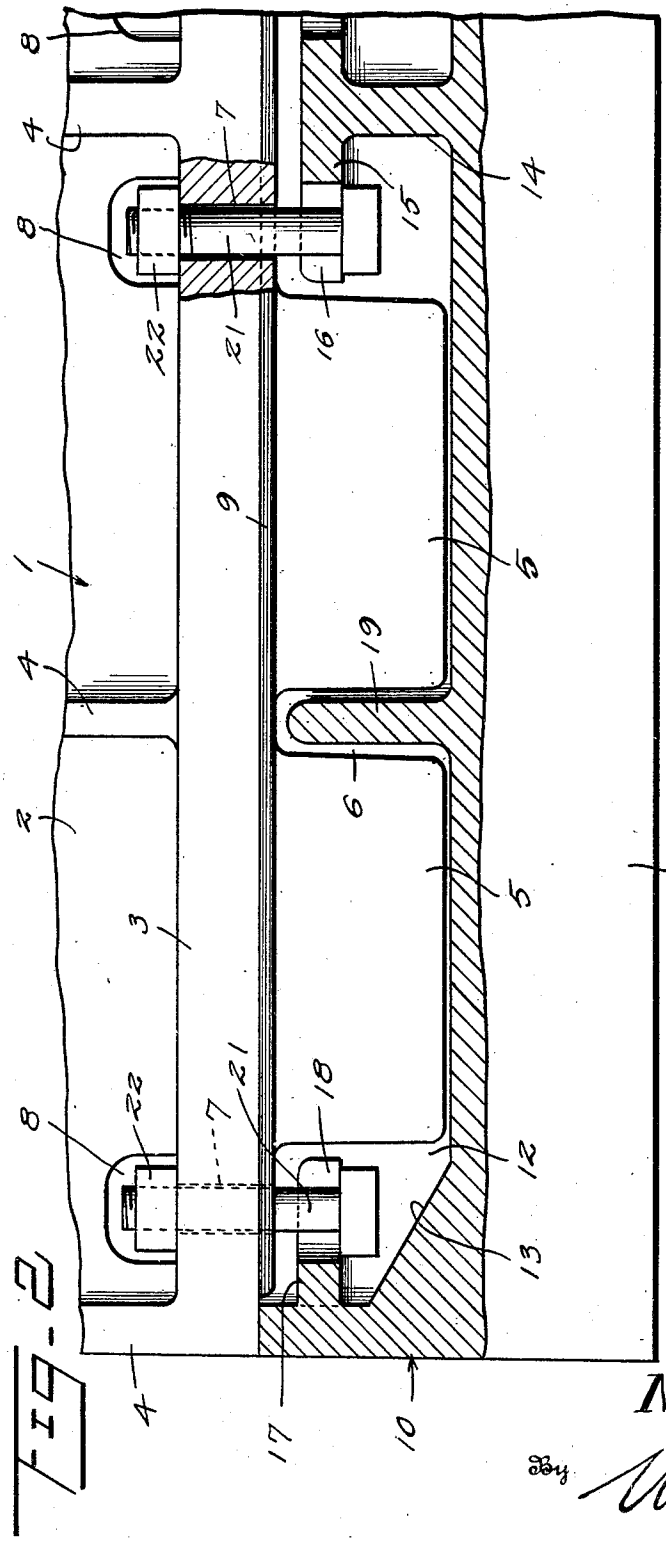


FIG. 2.

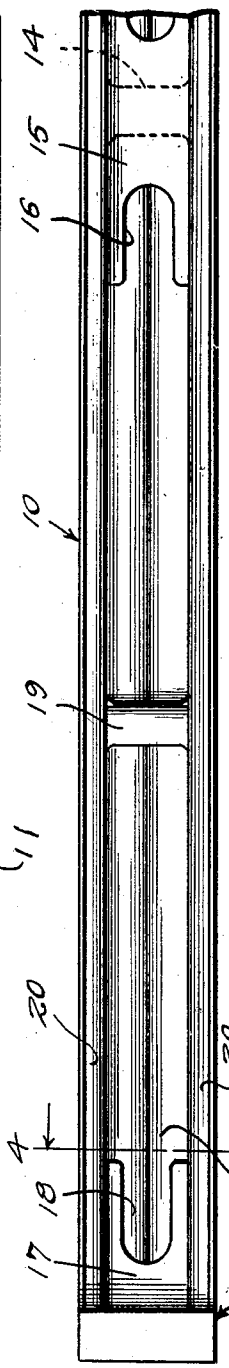


FIG. 3.

Inventor

M. D. Holcomb

By Watson E. Coleman

Attorney

Patented May 3, 1932 1,856,706

UNITED STATES PATENT OFFICE

MYRON D. HOLCOMB, OF HURLEY, WISCONSIN

MEANS FOR ATTACHING TOOLS TO HOLDERS

Application filed June 23, 1931. Serial No. 546,318.

This invention relates to improvements in means of attaching a tool to a carrying body.

The primary object of the present invention is to provide an improved means for attaching a cutter blade to the back plate of a scraper, the invention being primarily intended for use in connection with scrapers of the character employed under ground in iron ore and other mines in connection with a cable attached to a hoist, although it is to be understood that the invention is not to be confined to such use.

Another object of the invention is to provide an improved means for coupling an edged tool to a carrier body so that the tool will be rigidly secured in position and the element employed for securing it in such position will be hidden and thus protected from damage and thereby facilitating the convenient disengagement of the tool for removal, when necessary.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 illustrates in side elevation the back portion of a scraper to which is attached a blade, in accordance with the present invention.

Figure 2 is an enlarged view partly in section of one end of the scraper back shown in Figure 1, looking at the same from the rear face thereof, showing the present improved method of attaching the blade thereto.

Figure 3 is a view of the top edge of the blade per se.

Figure 4 is a sectional view taken substantially upon the line 4—4 of Figure 3.

Figure 5 is a detailed view in end elevation of the lower part of the body to which the blade is attached, a portion thereof being broken away.

Figure 6 is a view on a reduced scale of the rear elevation of the adjoining portions of the tool and carrier, a portion of the tool being in section.

In the accompanying drawings, wherein like numerals of reference indicate corresponding parts throughout the several views, there is illustrated one application of the present invention, this being to the back of a scraper of the type commonly employed in iron ore and other mines, but this application of the invention is for the purpose of disclosure only and it is to be understood that the invention may be employed for securing blades or teeth to other implements and machines in connection with which the same may be used.

The numeral 1 indicates generally a scraper back which, when in use, has suitable harness beams attached thereto for facilitating its use. This back comprises a plate 2 along one edge of which is formed a relatively thick flange 3 which projects from one face thereof. Ribs 4 extend transversely of the rear face of the plate and merge with the flange 3 to reinforce the plate.

The lower face of the flange 3 has formed integral therewith the heavy tongues 5 which, in the present case, are shown as being in pairs, each pair being at one side of the plate. Each pair of tongues 5 is separated by the slot 6 and at each side of each pair the flange 3 has a bolt aperture 7 formed therethrough. The rear face of the back 2 at the upper end of each bolt aperture is recessed, as at 8, for the reception of a nut as will be hereinafter described.

At each side of the tongues 5 a shoulder 9 is formed along the underface of the flange 3 and these shoulders extend beyond the tongue nearest the end of the back but do not extend entirely to the adjacent end thereof.

Secured to the lower edge of the back 2 against the underside of the flange 3 is a blade, which is indicated generally by the numeral 10. This blade has its two faces 11 disposed at the same angle with respect to the plane of the longitudinal center thereof,

as is clearly shown in Figures 1 and 4. As shown in these figures and also in Figure 3, the back edge of the blade 10 is relatively broad, it being, in fact, of a thickness equal to the width of the flange 3 against which it abuts.

In the back edge of the blade there is formed the tapered recess 12, the bottom corner, at each end, being disposed at an inclination, as indicated at 13. Intermediate the ends of this recess 12 is a web 14 which terminates short of the top of the recess and from each side of this web there extends longitudinally of the recess a lug 15 in which is formed a longitudinal slot 16.

In each end of the recess 12 there is formed between the side walls, the same as the lugs 15 and a short distance below the top of the recess, the longitudinally extending lug 17 in which is formed a longitudinal slot 18. Substantially midway between an end lug 17 and a central lug 15 is disposed a vertical web 19.

While the walls of the recess 12 are tapered inwardly, as previously described, this taper is sharply increased along the top of each wall, as shown in Figure 4 and indicated by the numeral 20, the inclination of the portion 20 of each wall being the same as the inclination of the faces of the shoulders 9.

In attaching the blade 10 to the back body 2, bolts 21 are employed, the shanks of which are inserted in the slots 16 and 18 with the heads beneath the lugs in which these slots are formed. These bolts will rest with their heads against the inclined walls of the recess 12 and those at the ends of the recess will rest against the inclined face of the bottom portion 13 so that they will be retained in the proper upright position for extension into the bores 7 formed in the flanges 3.

The blade then has the tongues 5 of the back inserted into the recess thereof, into which the tongues will snugly fit as they have their side faces formed at the same taper as the walls of the recess, as is clearly shown in Figure 4, and as will also be readily seen from this view the shoulders 9 will rest against the portions 20 of the recess walls thereby forming a tight connection between the two bodies. After the blade has been attached in the manner described, the bolts 21, which will project above the flange 3, will receive the nuts 22 by which the blade may be tightly drawn into position by the nuts being tightened up against the flange 3.

From the construction described it will be apparent that in addition to the fact that the blade may be readily removed or applied, as desired, it may also be reversed if necessary, since the tongues have their tapered side faces at exactly the same angles to the vertical longitudinal central plane thereof.

Having thus described the invention, what is claimed is:

1. In a coupling between a tool and carrier therefor, a tongue integral with the carrier, the tool having a recess in one edge to receive said tongue, the carrier having a passage adjacent the tongue to receive a headed bolt, and a lug in the recess formed to receive the headed end of the bolt to facilitate the drawing of the tool onto the tongue.

2. In a structure of the character described, a plate body having a flange along one edge, a tongue formed integral with said flange along one face thereof, a tool having a back edge designed to position against said flange and provided with a recess for the reception of said tongue, said flange having a passage therethrough at each end of the tongue for the reception of a headed bolt, and means within each recess for securing the headed bolt in position therein.

3. In a structure of the character described, a body having an integral tongue projecting from one face thereof and further having a bolt hole therein at each end of the tongue, a blade tool having a cutting edge and adapted to have the edge opposite the cutting edge abut the face of the body along which said tongue is formed, said opposite edge having a recess therein for the reception of said tongue, and means for securing the head ends of headed bolts in said recess for extension through said bolt passages, said tongue and recess being so formed as to facilitate the reversal of the tool on the body.

4. In a structure of the character described, a plate having a laterally projecting flange along one edge, a tapered tongue formed integral with and extending along one face of said flange, said flange having a recess formed therethrough at each end of the tongue for the reception of a threaded end of a headed bolt, a tool designed to be secured against the face of the flange along which the tongue is formed and having a flat back edge provided with a tapered recess for the reception of said tongue, and slotted lugs formed between the walls of and in said recess for the reception of the headed ends of said bolts.

5. In a structure of the character described, a plate having a flange formed along one edge and extending laterally therefrom, a pair of tongue members extending longitudinally along one face of said flange and arranged in spaced aligned relation, said flange having a bolt hole at each end of the pair of tongues for the reception of the threaded end of a headed bolt, an elongated blade body having a relatively broad back edge adapted to position against said flange and having a recess formed therein for the reception of said tongues, a reinforcing web formed transversely of said recess for entrance between said tongues, and a pair of lugs formed between the walls of and in the recess each having a slot therein for the reception of the

headed end of a bolt which is adapted to extend through one of said passages.

6. In a structure of the character described, a plate having a flange formed along one edge and extending laterally therefrom, a pair of tongue members extending longitudinally along one face of said flange and arranged in spaced aligned relation, said flange having a bolt hole at each end of the pair of tongues for the reception of the threaded end of a headed bolt, an elongated blade body having a relatively broad back edge adapted to position against said flange and having a recess formed therein for the reception of said tongues, a reinforcing web formed transversely of said recess for entrance between said tongues, and a pair of lugs formed between the walls of and in the recess each having a slot therein for the reception of the headed end of a bolt which is adapted to extend through one of said passages, said recess at one end having an inclined shoulder disposed beneath the adjacent lug to maintain the adjacent bolt in position.

7. In a structure of the character described, an elongated body having a back edge, a carrier body having a long edge against which said back edge abuts, an elongated tongue carried by and extending along one of said edges, the other of the edges having a recess therein to receive said tongue, a pair of bolts carried by one of the bodies and separated a distance greater than the length of said tongue and each having an end extended into the adjoining body, and lugs carried by the said adjoining body and each having the said extended end of the adjacent bolt detachably connected therewith, said tongue being disposed between the bolts.

8. In a structure of the character described, a plate body having a broad edge, an elongated tongue formed integral with said edge and terminating at its ends short of the ends of the edge, a tool having a back edge formed to position against said broad edge and provided with a recess to receive the tongue, a pair of bolts each secured at one end in and projecting from said broad edge at one end of the tongue to project at its other end into the recess, and means in the recess for securing the said other end of each bolt therein.

9. In a structure of the character described, a plate body having a bottom edge, a pair of elongated tongues formed integral with and projecting from said edge and extending longitudinally therealong and in spaced relation, the remote ends of the tongues terminating short of the adjacent ends of the said edge, a tool having a back edge formed to abut said bottom edge and having a recess therein to receive said tongues, a reinforcing web in the recess arranged to locate between the tongues, a bolt member carried by the plate adjacent each of the remote ends of the tongues and projecting from the said bottom edge to extend into the recess, means in each end of the recess for attaching the adjacent bolt therein, a bolt projecting from said bottom edge between the tongues for extension into the recess, and means for securing the last bolt in the recess to said web.

10. In a structure of the character described, a plate body having a bottom edge, a pair of elongated tongues formed integral with and projecting from said edge and extending longitudinally therealong and in spaced relation, the remote ends of the tongues terminating short of the adjacent ends of the said edge, a tool having a back edge formed to abut said bottom edge and having a recess therein to receive said tongues, a reinforcing web in the recess arranged to locate between the tongues, a bolt member carried by the plate adjacent each of the remote ends of the tongues and projecting from the said bottom edge to extend into the recess, a lug member in each end of said recess, means for facilitating the connection of each of said bolts to an adjacent lug member, a pair of lug members formed integral with said web, a pair of bolts projecting from said bottom edges between the tongues for extension into the recess, and means for attaching each of said last mentioned bolts to one of said web carried lugs.

In testimony whereof I hereunto affix my signature.

MYRON D. HOLCOMB.