March 31, 1942. F. E. DAVIS 2,278,102

TOOL FOR HANDLING RAILS AND THE LIKE

Filed Feb. 24, 1941

FIG. 1.

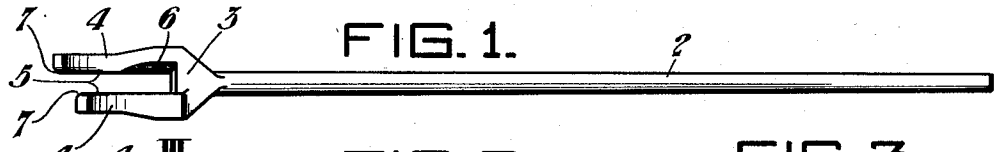


FIG. 2.

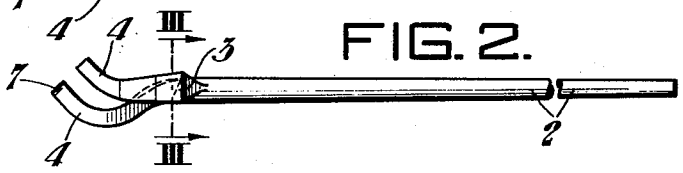


FIG. 3.



FIG. 4.

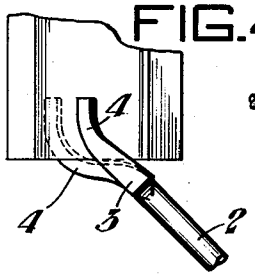


FIG. 12.

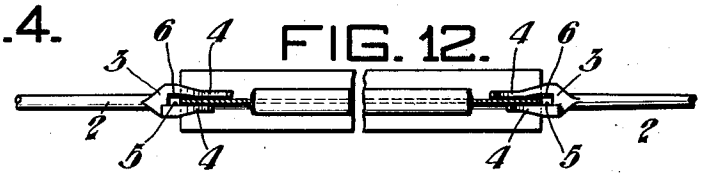


FIG. 5.

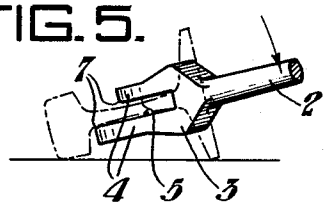


FIG. 6.

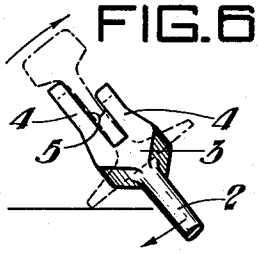


FIG. 7.

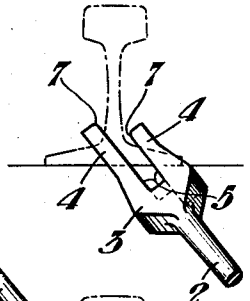
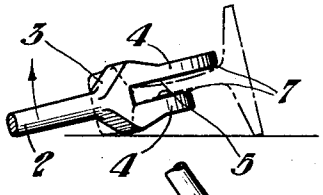


FIG. 8.



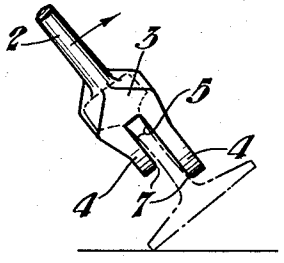


FIG. 9.

FIG. 10.

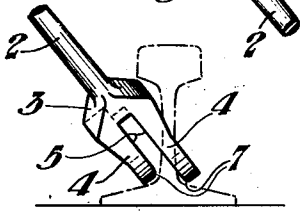
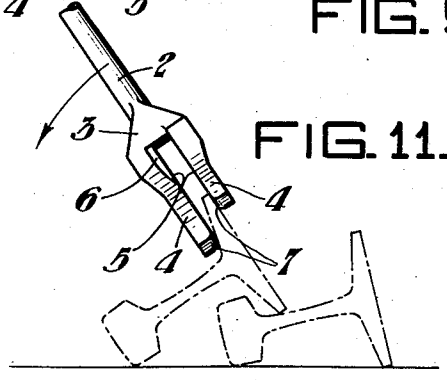


FIG. 11.



Inventor:
FLOYD E. DAVIS,
by: John E. Jackson
his Attorney.

Patented Mar. 31, 1942 2,278,102

UNITED STATES PATENT OFFICE

2,278,102

TOOL FOR HANDLING RAILS AND THE LIKE

Floyd E. Davis, Gary, Ind.

Application February 24, 1941, Serial No. 380,359

6 Claims. (Cl. 294—15)

This invention relates to a tool, and particularly to an improved tool for handling rails, structural shapes, such as I-beams, and the like.

Heretofore, it has been the general practice to turn or move rails, structural shapes, such as I-beams, and other heavy metallic articles by means of a tool consisting of a handle portion having a straight bifurcated end portion. While such a tool satisfactorily turned or moved the rails, it was difficult and dangerous to use, in that an excessive amount of strength had to be exerted to turn or move the particular rail or article and it was difficult to obtain the maximum amount of leverage of which the tool was capable. Also, for example, in the turning of a rail, after the center of gravity of the same passes a certain point, the rail tends to roll over, due to the force of gravity, and when such tool was used it tended to jerk or pull the operator or workman forwardly unless he was fortunate enough to swing the tool parallel to the rail or to throw the tool clear of the same at the right moment. This practice oftentimes threw the operator or workman off balance and resulted in serious injury to his arms or legs which, of course, was undesirable.

Accordingly, it is one of the objects of the present invention to provide an improved tool for handling rails and the like by which a maximum amount of leverage can be obtained in its use by the exertion of a minimum amount of strength by the operator.

It is another object of the invention to provide an improved tool for handling rails and the like which is simple and inexpensive in its construction, and yet one which is more efficient and effective in its use than any other tool heretofore proposed or used.

It is a further object of this invention to provide an improved tool for handling rails and the like which can be easily and conveniently used and, at the same time, a tool which is safe in its use, thereby tending to eliminate any hazard to those using the same.

Various other objects and advantages of this invention will be more apparent in the course of the following specification and will be particularly pointed out in the appended claims.

In the accompanying drawing there is shown, for the purpose of illustration, one embodiment which my invention may assume in practice.

In the drawing:

Figure 1 is a plan view of the improved tool of my invention;

Figure 2 is a side view thereof;

Figure 3 is a cross-section on the line III—III of Fig. 2;

Figures 4 to 7, inclusive, are perspective views of my tool showing the successive positions assumed thereby in the turning of a rail;

Figures 8 to 10, inclusive, are similar views of my tool showing the successive positions assumed thereby in using the tool to turn a rail in another manner;

Figure 11 is a view showing the use of my tool for another purpose; and

Figure 12 is a plan view of a rail partly in section showing the use of a pair of tools of my invention—namely, a right-hand tool, and a left-hand tool for use in turning a rail.

Referring more particularly to the drawing, the improved tool of my invention for handling rails and the like comprises a longitudinally extending handle portion 2 which is preferably cylindrical in shape. There is arranged on one end of the handle portion 2, preferably integral therewith, a bifurcated portion 3 so as to provide a pair of outwardly extending substantially parallel spaced apart prongs or fork portions 4 with a rectangular-shaped space or opening 5 arranged therebetween. One of the prongs 4 is preferably longer than the other, and both of the prongs are preferably arcuated in a plane substantially parallel to the axis of the handle portion 2. The prongs are positioned preferably out of alignment relative to each other, that is, they are not disposed in the same plane but are staggered relative to one another, as is clearly shown in Figure 2 of the drawing. There is arranged on the upper inner edge of the longer prong, adjacent the inner end of the opening 5 between the prongs 4, preferably a beveled surface 6 for a purpose hereinafter to be described. The inner edge of both of the prongs 4 is preferably rounded as at 7 at the extreme outer ends thereof.

The construction of my improved tool having thus been described, several uses to which it is adapted in practice will now be set forth. In Figures 4 through 7, there is shown the use of the tool of the present invention for turning a rail from a position on its side to a position on its base. It will be understood that the tool may be used in the same manner for turning I-beams or any other similar structural shapes. In such use the tool is first placed in position over the web portion of the rail with the longer prong of the tool positioned on the lower side of the web and the shorter prong positioned on the top side thereof, as shown in Figure 4 of the drawing. The tool is then moved downwardly

by exerting downward pressure on the handle portion thereof as shown in Figure 5. As the downward pressure on the handle turns the rail, as shown in Figure 6, the center of gravity of the rail will eventually pass a vertical line coinciding with the point of support of the base of the rail or the fulcrum about which the rail is turning. When the center of gravity of the rail passes this vertical line, it will be seen that the rail will tend to turn of its own accord, due to the force of gravity. Therefore, at this point, any further pressure on the handle is, of course, unnecessary and is released.

As the downward pressure is initially exerted on the tool, as shown in Figure 5, it will be understood that the web of the rail contacts the inner side of the shorter prong at a point adjacent the inner side of the opening 5 between the prongs and contacts the longer prong at the extreme outer end thereof. However, when the center of gravity of the rail passes the vertical line of support, the web of the rail will shift from its initial position in the opening 5 between the prongs to such a position therebetween that it will contact the beveled surface 6 on the upper inner edge of the longer prong and the extreme outer end of the shorter prong. Thus, it will be seen that the tool in such a position relative to the web will tend to be forced off the end of the same due to the shifting of the center of gravity of the rail and the consequent action of the end of the web upon the beveled surface 6 of the longer prong and the end of the shorter prong. Therefore, due to this tendency of the web to force the tool off the end of the web, the bifurcated end 3 of the tool will fall and drop freely to a resting position upon the base or flange of the rail, after the force of gravity has brought the rail to rest on its base, as shown in Figure 7 of the drawing.

In order to execute the above operation with tools or wrenches now in use, the operator must throw the handle of the wrench out in a horizontal position parallel with the rail or quickly pull the tool off of the end of the rail to avoid being jerked, which, of course, is dangerous and places unnecessary strain and work on the operator, as it causes him to be in a stooped or unnatural position while turning the rail. With the use of the present tool, it will be seen that the operator can assume almost an erect position for any operation for which the tool is to be used. It will also be seen that the tool of the present invention makes the work much easier for the operator, due to the greater leverage obtained by reason of its construction and the position it assumes on the rail or structural shape.

In Figures 8 through 10, there is shown the use of the tool of the present invention for turning a rail by exerting a lifting force on the tool. The tool is placed on the end of the web portion of the rail as shown in Figure 8 of the drawing, that is, in a reverse position from that shown in Figure 4, for turning a rail by forcing the tool downwardly. In this position, the longer prong is arranged above the web of the rail and the shorter prong is positioned below the same. As the handle of the tool is lifted and the rail turned thereby, as before, the center of gravity will eventually pass a vertical line coinciding with the point of support of the base of the rail or the fulcrum. When this occurs, it will again be seen that the position of the web in space 5 between the prongs will shift so that the web will contact the beveled surface 6 of the longer prong and the extreme outer end of the shorter prong, thereby tending to force the tool outwardly from the end of the web. The tool will then fall free of the web and come to rest on the flange or the base of the rail after the force of gravity brings the rail to position on its base, as shown in Figure 10.

In Figure 11, there is shown the use of my tool for raising the base of a rail by gripping the flange or base with the tool so as to free the head of an adjacent rail positioned thereunder. It will be understood that the same position of the tool will turn a rail positioned on its base to a position on its side when the flange or base is gripped by the tool and the handle is lifted. It will be seen that in either case, if the rail should continue to roll, the tool would fall free of the rail due to the fact that the shorter prong is positioned on the side from which the force is exerted. The tool can also be used for sliding a rail sidewise on its base by gripping the end of the web portion of the rail with the tool in a manner similar to that shown in Figure 8 of the drawing.

It will be understood that two workmen are usually employed for turning or otherwise handling rails—that is, one at each end of the rail—and therefore a tool is required for each workman. In such a case, a right-hand tool is employed by one of the workmen, and a left-hand tool is used by the other workman, as shown in Figure 12 of the drawing. The left-hand and right-hand tools are identical except that the longer and shorter prongs are arranged on opposite sides of the respective tools.

While I have shown and described one specific embodiment of my invention, it will be understood that this embodiment is merely for the purpose of illustration and description and that various other forms may be devised within the scope of my invention, as defined in the appended claims.

I claim:

1. A tool of the class described consisting of a longitudinally extending handle portion, one end of said handle portion being bifurcated so as to provide a pair of outwardly extending spaced apart prongs with one of said prongs being longer than the other and out of alignment relative thereto.

2. A tool of the class described consisting of a longitudinally extending handle portion, one end of said handle portion being bifurcated so as to provide a pair of outwardly extending spaced apart prongs, both of said prongs being arcuated in a plane substantially parallel to the axis of said handle portion with said prongs being positioned out of alignment relative to each other.

3. A tool of the class described comprising a longitudinally extending handle portion, one end of said handle portion being bifurcated so as to form a pair of outwardly extending spaced apart prongs with one of said prongs being longer than the other, both of said prongs being arcuated in a plane substantially parallel to the axis of said handle portion with said prongs being positioned out of alignment relative to each other.

4. A tool of the class described comprising a longitudinally extending handle portion, one end of said handle portion being bifurcated so as to provide a pair of outwardly extending spaced apart prongs with one of said prongs being longer than the other and having a beveled surface arranged on the upper inner edge thereof adjacent the inner end of the opening between the prongs.

5. A tool of the class described comprising a longitudinally extending handle portion, one end of said handle portion being bifurcated so as to provide a pair of outwardly extending spaced apart prongs with one of said prongs being longer than the other and having a beveled surface arranged on the upper inner edge thereof adjacent the inner end of the opening between the prongs, both of said prongs being arcuated in a plane substantially parallel to the axis of said handle portion with said prongs being positioned out of alignment relative to each other.

6. A tool of the class described comprising a longitudinally extending handle portion, one end of said handle portion being bifurcated so as to provide a pair of outwardly extending spaced apart prongs, at least one of said prongs having a beveled surface arranged on the upper inner edge thereof adjacent the inner end of the opening between the prongs, both of said prongs being arcuated in a plane substantially parallel to the axis of said handle portion with said prongs being positioned out of alignment relative to each other.

FLOYD E. DAVIS.