G. M. GEALY.

REVERSIBLE RATCHET CAR WRENCH.

APPLICATION FILED OCT. 16, 1916.

1,244,596. Patented Oct. 30, 1917.

Fig. 1.

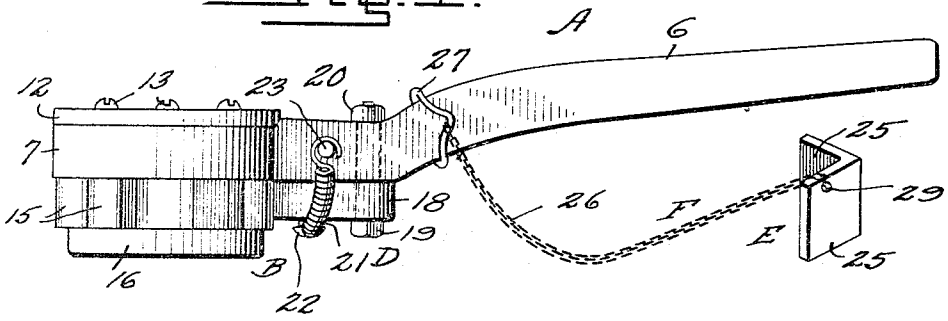


Fig. 2.

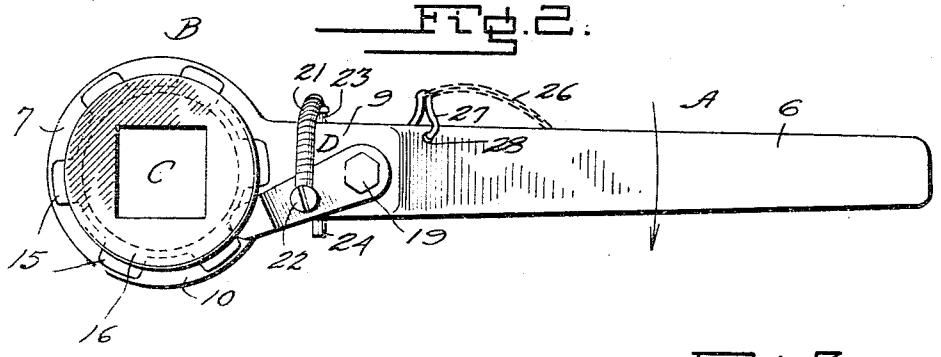


Fig. 4.

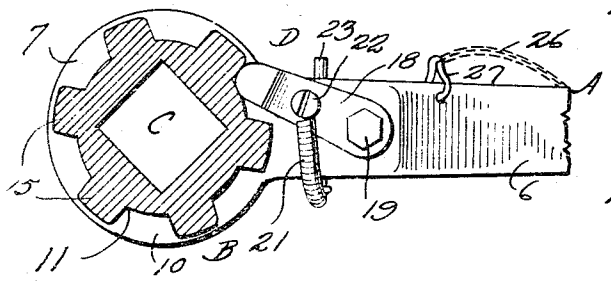


Fig. 3.

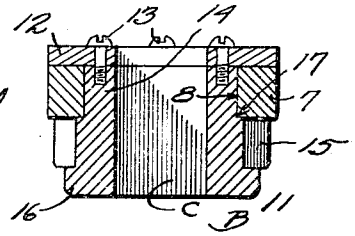
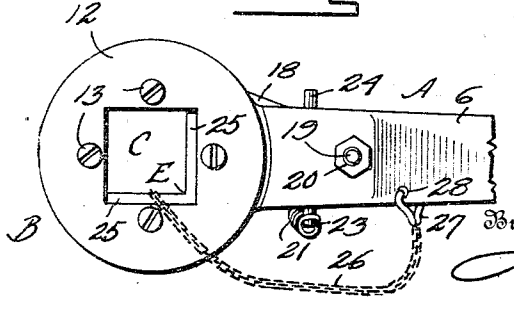


Fig. 5.



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REVERSIBLE RATCHET CAR-WRENCH.

1,244,596. Specification of Letters Patent. Patented Oct. 30, 1917.

Application filed October 16, 1916. Serial No. 125,908.

To all whom it may concern:

Be it known that I, GEORGE M. GEALY, a citizen of the United States, and a resident of Grove City, in the county of Mercer and State of Pennsylvania, have invented a certain new and useful Improvement in Reversible Ratchet Car-Wrenches, of which the following is a specification.

My present invention relates to wrenches well adapted for opening or closing hopper car doors, although susceptible of use for operating mechanism embodying a polygonal or wrench receiving head, where safety is an important consideration, and great leverage is required to move the elements from an inert position.

The principal objects of my invention are to provide wrenches of the character described which are simple in construction, compact, and embodying parts susceptible of resisting the action of strong forces and enabling an operator to open doors, when stuck, without danger, even though the load be gradually or suddenly transmitted through the intermediacy of the wrench head; and, ratchet wrenches which are reversible so as to be susceptible of closing doors.

Another object of my invention is to provide wrenches which may be quickly adapted to serve efficiently for the purpose specified when the way of the wrench for the polygonal head is considerably larger than said head.

Further objects of my invention will appear in the following detailed description, taken in connection with the accompanying drawing, forming a part of this specification, and in which drawing:

Figure 1 is a side elevation of a wrench constructed according to my invention.

Fig. 2 is a face view of the same.

Fig. 3 is a central transverse sectional view through the head of the wrench.

Fig. 4 is a fragmentary view partly in section, in the position as shown in Fig. 2, but with the pawl of the ratchet mechanism reversed.

Fig. 5 is a fragmentary face view of the wrench, the face opposite to that shown in Fig. 2 being disclosed.

In the drawing, where similar characters refer to similar parts throughout the several views, A designates a lever; B a structure or drum revolubly carried by lever A and provided with a head receiving way C; D reversible ratchet mechanism coöperating with said member B whereby it may be progressively advanced either in a clock-wise or counter clock-wise direction, upon oscillation of lever A, and according to the adjustment of the said ratchet mechanism; E a filler adapted to fit in way C to adapt the wrench for successful operation in engagement with smaller polygonal heads than ordinarily fit in said way; and, F a coupling between said filler E and lever A.

Referring first to the lever A, it comprises a handle portion 6 and an enlargement 7 at one end portion of said handle, said enlargement provided with a transverse bore 8. It is preferred to form the lever with a face 9, in the same plane as the face 10 of said enlargement 7 at the juncture of handle portion 6 with said enlargement, the remainder of the handle portion being offset from said plane as is clearly shown in Fig. 1 of the drawing.

As to the structure B, it preferably comprises a drum 11, annulus 12, and devices 13 for securing said annulus to the drum. The drum 11 is preferably provided with a portion 14 journaled in the bore 8 of lever A; peripheral teeth 15 at one face of the enlargement 7; and, an annular facing 16 at its outer end, about the teeth 15. An annular shoulder 17 adjacent the teeth 15 may engage the face 10 of enlargement 7, while the annulus 12 engages the other face of said enlargement, the devices 13, which may be in the form of machine screws, passing transversely through the annulus and into the portion 14 of drum 11, thus holding the structure B in operative relation to be revolubly carried by the lever A.

In order that movement may be imparted to the structure B, either clock-wise or counter clock-wise, by oscillation of the lever A, the reversible ratchet mechanism D is provided, and its preferred embodiment comprises a pawl 18 pivotally carried by lever A as by resting against the face 9 and having a machine bolt 19 extending through one portion of the pawl, and transversely through the lever, with a nut 20 turned upon said bolt; and a device 21 for yieldably urging the pawl 18 toward the plane common to the axes about which the revoluble member B and pawl 18 are moved. The device 21 may consist of a contraction spring having one end pivotally connected with the pawl 18 as by screw 22, and its other end detachably connected to one of two lugs desig-

nated 23 and 24, rigid with the lever A, one lug being at each side of the plane hereinbefore referred to. It is understood that the pawl 18 is for engagement with the teeth 15 of the revoluble structure B, and serves as a strut to prevent either clock-wise or counter clock-wise rotation of said structure. In other words, assuming that the pawl is arranged as shown in Fig. 2 of the drawing, and the lever A is moved in the direction indicated by the arrow, the revoluble structure B will be rotated clock-wise, but will be prevented from revolving counter clock-wise. If the spring 21 is detached from lug 23, and the pawl 18 swung about the axis of bolt 19 toward the end portion of the lever A opposite to its enlargement 7, and forwardly toward the plane common to the axes of movement of revoluble structure B and the pawl 18, to the position shown in Fig. 4 of the drawing, movement of the lever A in a direction counter to that indicated by the arrow in Fig. 2, will move the revoluble structure B in a counter clock-wise direction and prevent rotation clock-wise.

It is to be understood that the way C is polygonal, in cross section to receive the polygonal head of any mechanism to be actuated by the operation of the wrench. Inasmuch as these heads vary in size and in connection with hopper cars, there are two sizes,—one and three-quarters inches, and two inches, the way may be of a size to receive the largest head and the filler may be provided to reduce the size of the way, to accommodate the smaller size head. The filler comprises two plates 25 in angular relation one to another, the angle corresponding to that of the relative position of two adjacent faces of the way C to permit the plates to engage walls thereof with surface contact. In order that the filler may be at all times available, it is preferably connected with the lever A, as by flexible member 26, which may be in the form of a chain, and link 27 which passes through a perforation 28 in the handle portion 6 of lever A, it being understood that one end portion of the flexible member 26 is secured to link 27, while the other end portion of said flexible member is passed through a perforation 29 in one of the plates 25 of filler E. The flexible member 26 is of such a length as to permit of rotation of structure B upon oscillation of the lever A.

Inasmuch as the revoluble structure B is controlled through the intermediacy of the pawl 18 and bolt 19, the former acts as a strut and the shank of bolt 19 must be of sufficient section to withstand the forces coming thereupon. In order to reverse the mechanism D, the operator has merely to detach the one end portion of spring 21 from engagement with the lever A, swing the pawl 18 so as to be disposed in operative relation to the teeth 15 of drum 11 to prevent rotation of said drum in a counter direction, and attach the end portion of spring 21 to the side of lever A opposite to that to which it was attached before adjustment was made.

Changes in details may be made without departing from the spirit or scope of my invention; but,

I claim:—

1. A reversible ratchet car wrench comprising in combination, a lever, a drum revolubly carried by said lever provided with peripheral teeth and a transverse head receiving way, a pawl pivotally carried by said lever and adapted to engage the said teeth of said drum to serve as a strut preventing either clock-wise rotation of said drum, or counter clock-wise rotation of said drum, two lugs carried by said handle, one at each side of the plane common to the axes of rotation of said drum and pawl, and a contraction spring pivotally carried by said pawl and adapted to be coupled with either of the said lugs to yieldably hold said pawl in operative relation to said drum.

2. A reversible ratchet car wrench comprising in combination, a lever, a drum revolubly carried by said lever provided with peripheral teeth and a transverse head receiving way, a pawl pivotally carried by said lever and adapted to engage the said teeth of said drum to serve as a strut preventing either clock-wise or counter clock-wise rotation of said drum, and a contraction spring pivotally carried by said pawl and adapted for connection to either side of the lever and plane common to the axes of rotation of said drum and pawl, to yieldably hold said pawl in operative relation to said drum.

GEORGE M. GEALY.

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