

F. E. PLACE & G. P. S. CROSS.

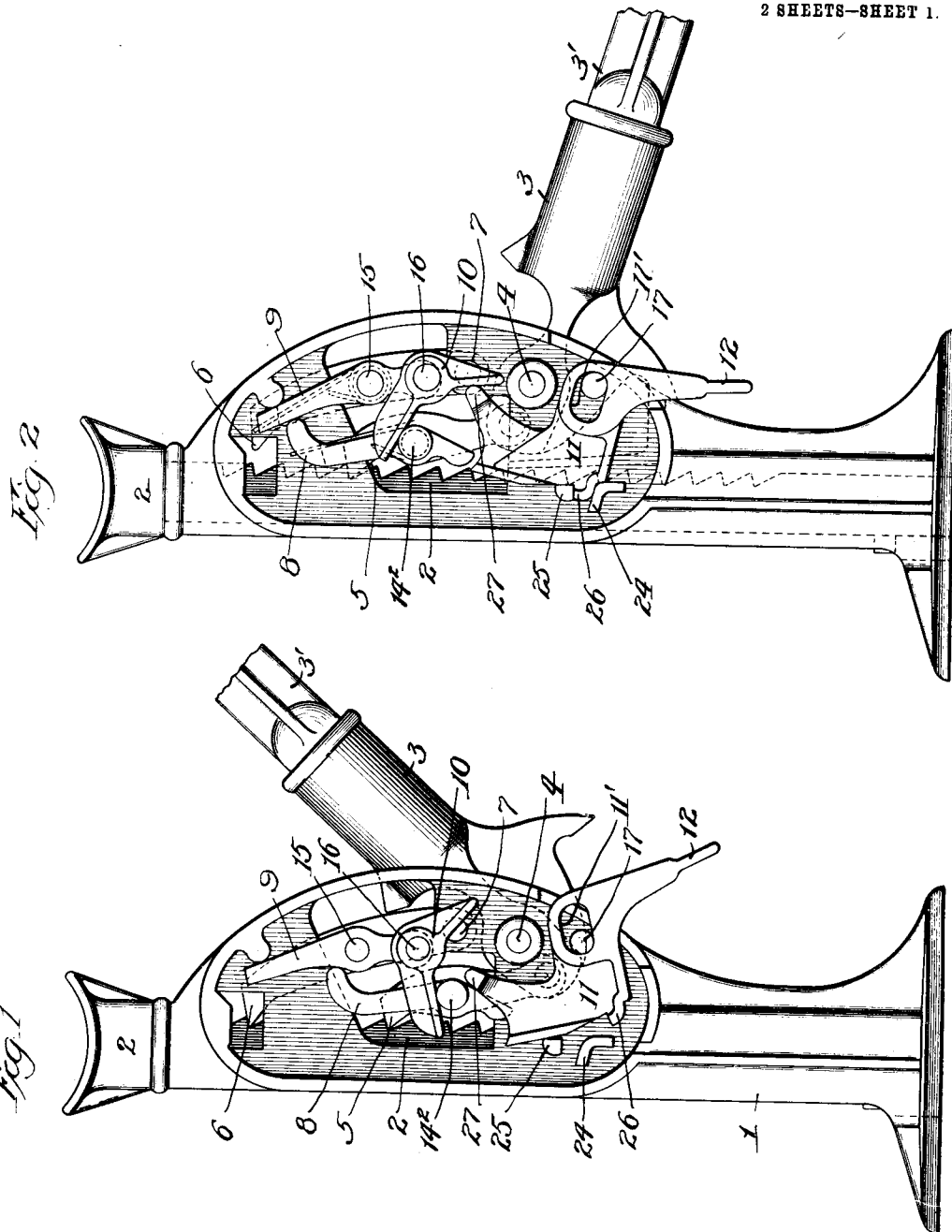
LIFTING JACK.

APPLICATION FILED FEB. 8, 1909.

1,039,438.

Patented Sept. 24, 1912.

2 SHEETS—SHEET 1.



WITNESSES

Ed. C. Davison
Donald C. Williams

INVENTORS

Frederick E. Place
Garrett P. S. Cross
 By *Symmes & Carpenter*
their attorneys

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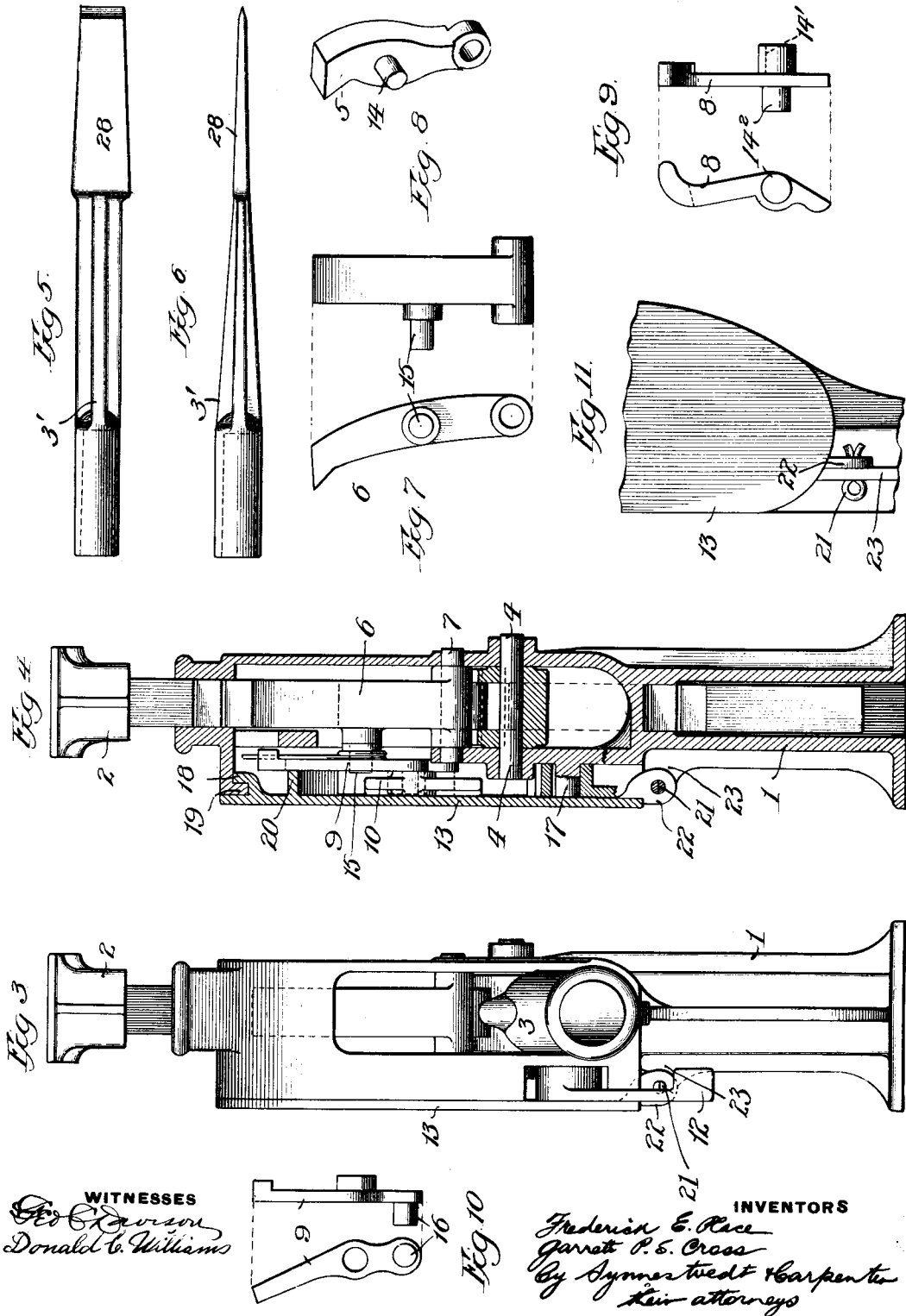
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their attorneys

UNITED STATES PATENT OFFICE.

FREDERICK E. PLACE, OF CHICAGO, AND GARRETT P. S. CROSS, OF HARVEY, ILLINOIS,
ASSIGNORS TO BUDA FOUNDRY & MANUFACTURING COMPANY, OF CHICAGO,
ILLINOIS, A CORPORATION OF ILLINOIS.

LIFTING-JACK.

1,039,438.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed February 8, 1909. Serial No. 476,834.

To all whom it may concern:

Be it known that we, FREDERICK E. PLACE and GARRETT P. S. CROSS, citizens of the United States, residing at Chicago and Harvey, respectively, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

The invention relates to lifting jacks of the pawl and ratchet type, and has for its objects: the provision of simplified means for holding the pawls and dogs employed in position; the provision of a jack construction in which the parts may be rapidly assembled or disassembled, and in which no screw fastening means need be employed; the provision of a mechanism so arranged that the cover plate of the jack serves as a securing means for the various movable parts adjacent thereto; the provision of an improved and simplified form of reversing means; and the provision of a handle which may be employed as a tool. One embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevation of the jack with the cover plate removed, the parts being adjusted for raising a load, and the operating handle being in its upper position,

Figure 2 is a similar view to that of Figure 1, but with the reversing device moved so that the parts occupy the position necessary for lowering a load,

Figure 3 is a front elevation of the jack with the cover plate in position,

Figure 4 is a longitudinal section through the jack,

Figures 5 and 6 are views of the handle employed,

Figure 7 shows a front and side view of the holding pawl,

Figure 8 is a perspective view of the lifting pawl,

Figure 9 shows a front and side view of the dog on the lifting pawl,

Figure 10 shows a front and side view of the dog on the holding pawl, and

Figure 11 is a detail view of the holding means at the lower end of the cover plate.

Referring to the drawings, the principal parts of the jack may be enumerated as follows: 1 is the jack casing provided with the open side as illustrated in Figures 1 and 2,

which open side is adapted to be covered by a cover plate; 2 is the lifting rack bar provided on its front side with the series of teeth shown; 3 is the operating lever which is pivoted at 4; 3' is the handle of the operating lever; 5 is the lifting pawl carried by the lever 3; 6 is the holding pawl pivoted to the jack casing at 7; 8 and 9 are dogs carried respectively by the lifting and holding pawls, and having spring connection thereto in the usual manner; 10 is an operating dog adapted to cooperate with the dogs 8 and 9; 11 is a reversing plate operated by the handle 12; and 13 is the cover plate (Fig. 4). When the parts are in the position illustrated in Figure 1, the jack is adapted to raise its load, both the lifting pawl 5 and the holding pawl 6 being held continually in yielding engagement with the rack on the rack-bar by reason of the dogs 8 and 9 and their yielding connection with their respective pawls. When the reversing plate 11 is moved to the position indicated in Figure 2, the nose at the upper side of the plate is forced forward so that it engages the end of the dog 10, and the tension on the springs between the pawls 5 and 6 and their dogs is alternately reversed and upon the reciprocation of the operating lever 3 the load carried by the rack-bar is lowered step-by-step. This general pawl and dog construction and mode of operation just described is not new with the applicant, but comprises the well known Barrett jack construction, illustrated in its essential details in the Barrett Patent No. 399,470. It is therefore unnecessary to go into the details of this general construction, as it is well known in the art and the foregoing brief description will be sufficient to an understanding of the applicant's departures, which will now be more particularly described.

Hitherto in the art it has been the practice to secure the various movable parts of the jack operating mechanism, including the various dogs, and the reversing plate in position by means of screw threaded studs, which method of fastening required considerable machine work in tapping and threading. There was also with such fastening more or less tendency to become unscrewed, due to the vibration of the jack in operation, and the labor of assembling and disassembling these numerous screw parts was very

considerable. One of the primary purposes of our invention is to do away with these screw-threaded fastenings, by utilizing smooth studs or bearings in place thereof, and utilizing the cover plate to maintain the various parts against lateral movement, when once assembled. The manner in which this is accomplished will be readily seen by reference to the drawing and particularly to the detail views 7, 8 and 9. By reference to these figures it will be noted that the lifting pawl 5 is provided with a stud 14, and that the dog 8 is provided with a recess 14' (Figures 8 and 9) for engaging such recess 14, and when the cover plate 13 is placed in position its inner side approaches very nearly to the end of the stud 14² on the opposite side of the dog 8, and prevents the dog from moving laterally. Similarly by reference to Fig. 7, it will be noted that the holding pawl 6 is provided with a laterally projecting stud or journal 15 upon which the dog 9 is mounted. The dog 9 (Figure 10) is also provided in turn with a stud or journal 16 upon which the dog 10 is pivoted. The reversing plate 11 is provided with a slot 11' which fits upon a stud 17 (Figure 1) integral with the framework of the jack. The various studs are all of such a length that the outer ends approach the inner surface of the cover plate 13, so that all of the parts are securely held against lateral movement upon the studs. It will be seen that by this construction all capping or threading is avoided, thus rendering the construction much cheaper, and furthermore the parts may be much more easily assembled, as it is only necessary to fit the parts in position over their various supporting studs and then apply the cover plate 13. The cover plate 13 (Figure 4) is provided upon its inner edge with a hook portion 18 for engaging the edge 19, and a transverse lug upon the plate which engages the frame 1 at the opposite edges of the opening assists in maintaining the plate in position. The plate is held against downward movement by means of a cotter pin 21 (Figure 11), which fits through an opening in the lug 22 carried by the lower edge of the face plate and through a rib 23 on the frame. The face plate is thus securely held against movement in all directions without the use of screws, the hook 18 and the cotter 21 preventing vertical movement of the plate, and also movement away from the frame, and the transverse lug 20 preventing any horizontal movement of the plate in its own plane. By the foregoing construction, not only is a very cheap jack provided, but one which can be easily assembled and disassembled without the use of any tools whatever.

The reversing plate constitutes another feature of invention. Heretofore the reversing plates in Barrett jacks of this general

type have been made separate from the operating or locking members carrying the handles. In our device this construction is simplified by making the plate and locking member one piece as shown in Figure 1. The casing is provided with a seat 24 and stop 25 with which the projection 26 engages when the plate is moved to the position of Fig. 2. When in this position yielding pressure from the dog 10 is applied to the nose 27 of the plate, but the shape of the seat 24 prevents the plate from slipping therefrom and the pin 17 prevents upward movement of the handle portion of the plate. The plate is thus locked in position without the necessity of an additional locking part. It will be seen that this self locking is possible by means of the lost motion connection between the pin 17 and the plate.

Still another feature of invention resides in the provision of the handle shown in Figs. 5 and 6. This handle is constructed of a single piece of metal, flattened and pointed at its outer end 28 to constitute a tire removing tool. As the jack is designed primarily for automobile work, this constitutes a desirable arrangement, and reduces the number of necessary tools in the equipment of the machine. The flattened portion 28 also constitutes a convenient grasping portion for the hand when the member is used as a jack handle.

Having thus described our invention and illustrated its use, what we claim as new and desire to secure by Letters Patent is the following:—

1. The combination with a lifting jack comprising a rack, an operating handle, and spring held lifting and holding pawls, of a reversing member having a lost motion pivotal support and adapted in one position to secure the alternate retraction of the pawls, and a seat with which the reversing member coöperates and whereby it is maintained in such position.

2. The combination with a lifting jack comprising a rack, an operating handle, and spring held lifting and holding pawls, of a reversing member having a slot 11' and an engaging portion 26, a pivot 17 engaging the slot, and an abutment 24 for engaging the said portion 26 and maintaining the reversing member in position to secure the alternate retraction of the pawls.

3. The combination with a lifting jack comprising a rack, an operating handle, and spring held lifting and holding pawls, of a reversing member having a lost motion pivotal support and provided with a handle adapted on depression to one position to secure the alternate retraction of the pawls, and fixed means coöperating with the lost motion pivotal support for maintaining the reversing member in such position.

4. The combination with a lifting jack

comprising a rack, an operating handle, and
spring held lifting and holding pawls, of a
reversing member having a slot, a pivot
adapted to engage the said slot affording a
5 lost motion pivotal support for the reversing
member, a cover plate abutting the said
pivot and holding the reversing member
against lateral movement, and fixed means
coöperating with the lost motion pivotal sup-
10 port for maintaining the reversing member

in position to secure the alternate retraction
of the pawls.

In testimony whereof we have hereunto
signed our names in the presence of the two
subscribed witnesses.

FREDERICK E. PLACE.

GARRETT P. S. CROSS.

Witnesses:

W. G. ROY,

W. H. DAVIS.
