

W. B. TEMPLETON.

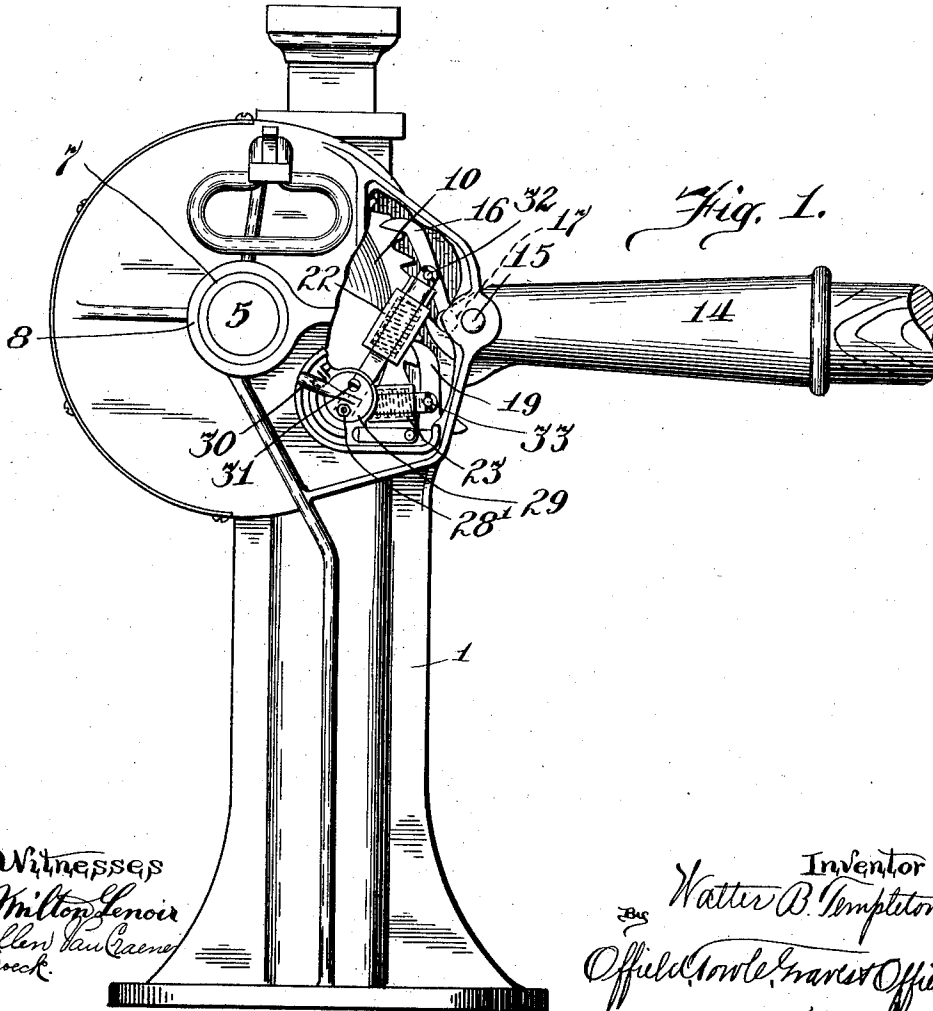
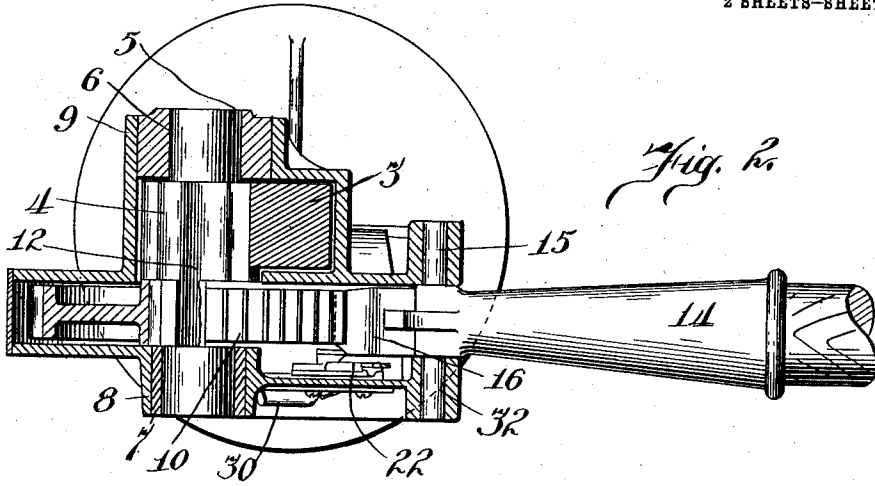
LIFTING JACK.

APPLICATION FILED AUG. 22, 1910.

1,025,218.

Patented May 7, 1912.

2 SHEETS—SHEET 1.



Witnesses
 Milton Lenoir
 Allen Van Curen
 W. B. Templeton

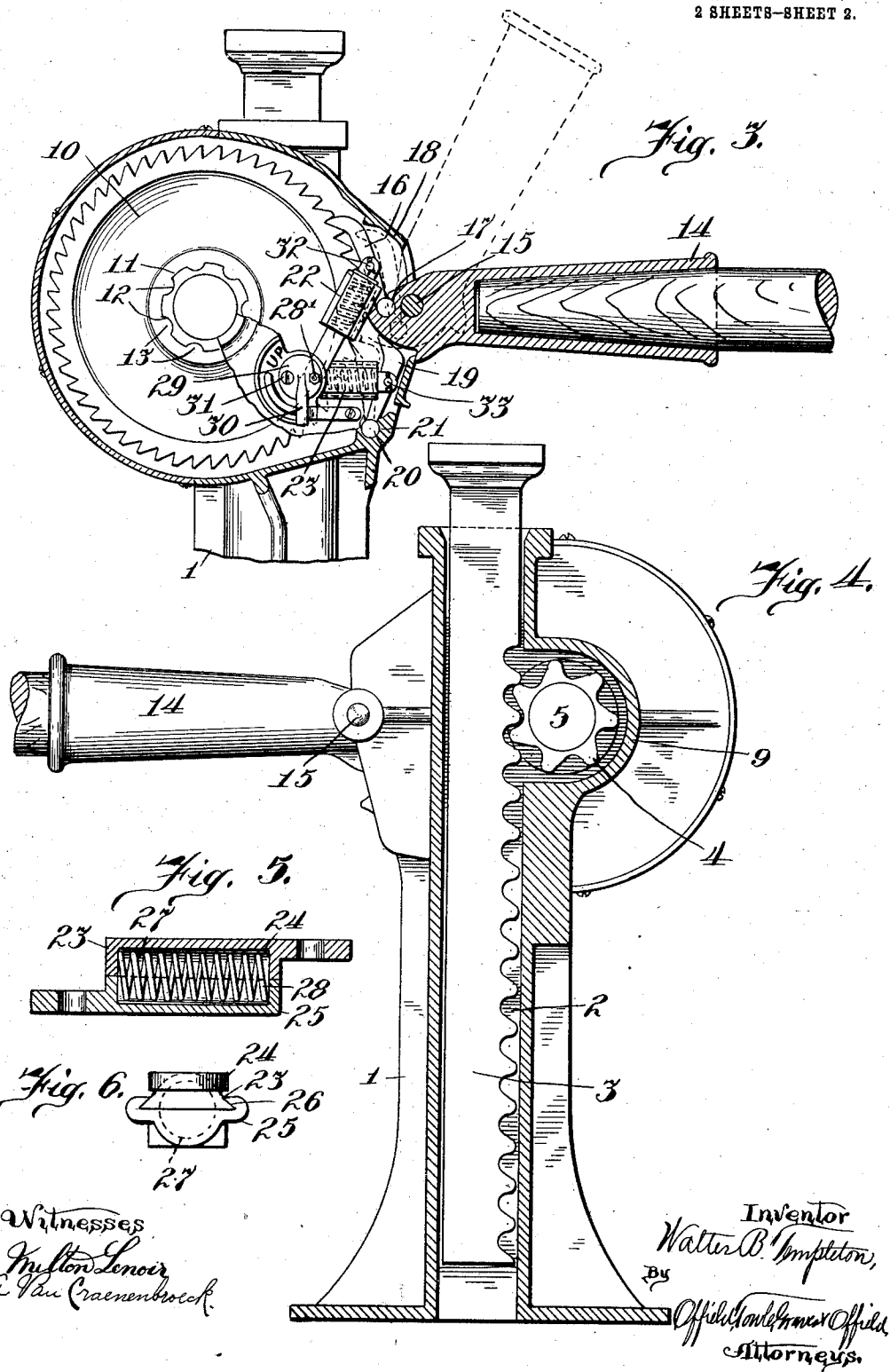
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UNITED STATES PATENT OFFICE.

WALTER B. TEMPLETON, OF CHICAGO, ILLINOIS.

LIFTING-JACK.

1,025,218.

Specification of Letters Patent.

Patented May 7, 1912.

Original application filed October 11, 1909, Serial No. 522,061. Divided and this application filed August 22, 1910. Serial No. 578,312.

To all whom it may concern:

Be it known that I, WALTER B. TEMPLETON, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

This application is a division of an original application filed October 11, 1909, Serial No. 522,061.

This invention relates to improvements in lifting jacks and refers more particularly to lifting jacks of the so-called double acting ratchet type.

Among the salient objects of the invention are to provide in a construction of the above character improved means for actuating the two ratchet pawls; to provide an improved spring actuating mechanism whereby the pawls may be shifted into the proper relation to the ratchet wheel for either raising or lowering of the load and there automatically held in the desired position; to provide a mechanism of the character last referred to which is extremely simple and has all of its spring parts housed against injury, and in general to provide improvements in the details of construction and arrangement in devices of the character referred to.

The invention consists in the matters hereinafter described and more particularly pointed out in the appended claims.

In the accompanying drawings—Figure 1 is a view showing the lifting jack chiefly in side elevation, but with parts of the side casing broken out to show the arrangement of the pawl mechanism, and with the handle broken off; Fig. 2 is a view taken horizontally and axially through the main shaft, parts of the ratchet wheel and the driving gear being shown in plan; Fig. 3 is a view similar to Fig. 1, but with the main side casing removed and with the pawl-controlling mechanism shifted into the position occupied when the jack is used for lowering a load; Fig. 4 is a view in vertical section taken through the hollow standard and showing the lifting bar and its actuating gear in elevation; Fig. 5 is a sectional view through one of the pawl-controlling links; Fig. 6 is an end elevation of the link shown in Fig. 5.

In the drawings—1 designates as a whole the main standard frame provided with a hollow vertical way 2 in which operates a lifting bar 3. The latter is actuated by means of a gear or pinion 4 which engages the teeth of the lifting bar. This gear is formed rigidly with the main shaft 5 which extends entirely through the jack frame and has its two ends seated in suitable bearings in the latter. These bearings take the form of bushings 6 and 7 seated in hub like extensions 8 and 9 respectively of the main frame, and the internal diameter of the hub which receives the bushing 6 is slightly larger than the full diameter of the gear 4 so that the shaft may be inserted endwise into place.

In lifting jacks of this character when tested to destruction, it is found that one of the first parts to fail and give way as they have been heretofore made, has been the connection between the main shaft and ratchet wheel or between the main shaft and the gear or pinion which actuates the lifting bar. The main ratchet wheel 10 is fixed upon the main shaft 5 so as to avoid this difficulty. Broadly speaking, however, this feature of my invention is protected in a separate application of which the present application is a division. As hereinbefore stated, I forge, or otherwise form, the gear 4 integral with the main shaft 5, and I also forge, or otherwise form, integral with said shaft, the enlarged seat 11 which carries the ratchet wheel. The maximum diameter of the part 11 is approximately that of the pitch line diameter of the gear 4 and in milling out the gear teeth the milling cutter is carried on through the seat member 11 in such manner as to produce grooves 12 which are exact counterparts of the similar portions of the gear teeth. I also form the perimeter of the axial aperture of the rigid wheel with projections 13 adapted to fit exactly the several grooves 12, and when the parts thus formed are assembled the multiple key effect serves to lock the ratchet wheel to the main shaft practically as reliably as though it were integral therewith. These parts will, of course, be formed so as to fit very tightly together. By thus forming the key ways 12 they may be made by

the same operation which mills the gear teeth and at an insignificant cost. Inasmuch as they are made upon a gear cutting machine they will be formed with great accuracy.

Describing now the manner of actuating the ratchet wheels which forms an important feature of the present invention the usual lever 14 is provided, pivotally mounted upon a pivot shaft 15 extending through suitable bearings in the main frame. The toe of the lever 14 carries the actuating pawl 16, the latter having its base end 17 pivotally seated in a suitable socket in the lever as usual. The upper end of this pawl is, during the lowering operation of the jack, guided by a curved over-hanging surface 18 on the inner wall of the main frame. The cooperating detent or retaining pawl 19 is mounted below the main lever; its base end 20 being pivotally seated in a suitable transverse socket 21 of the main frame. The two pawls 16 and 19 are controlled by a corresponding pair of spring links designated as a whole 22 and 23 respectively. The general construction of these links are alike and as shown in the drawings each comprises two main members or castings 24 and 25 adapted to fit together side by side; one of the members 25 being provided in its meeting face with a dovetailed way 26, and the opposed member 24 correspondingly shaped to engage said way. The two members are provided with semi-cylindric recesses which together form a cylindric chamber 27 in which is arranged a coiled expansion spring 28. It will be seen that when either member is moved longitudinally upon the other the spring 27 will be compressed. The ends of the castings 24 and 25 are provided with pivot eyes whereby they may be attached to the parts which they control. Both links 22 and 23 are connected by the wrist-bolt 28' carried by an escutcheon-plate 29 rotatably mounted in the jack. This escutcheon plate is provided with a radially extending rib or handle 30 whereby it may be rotated. The escutcheon plate is of two-part construction, being composed of inner and outer circular plates united by means of the wrist bolt 28' and a screw 31. The end of the link 22 is connected with a stud 32 upon the pawl 16 at a point mid-length of the latter, while the link 23 is similarly connected with a stud 33 on the pawl 19. The length of the links 22 and 23 are such that when the escutcheon-plate is adjusted to bring the wrist bolt at the side nearest the pawls, the links will be placed under compression and their springs will therefore automatically tend to throw both of the pawls away from the ratchet wheel; but when the escutcheon-plate is adjusted to bring the wrist bolt at that side remote from the pawls, the links will be

under extended tension and will tend to draw the pawls into engagement with the ratchet wheel. The operation of the jack is therefore reversed by simply turning the escutcheon-plate into its so-called "up" or "down" position as indicated in Figs. 1 and 3 respectively. The operation of the jack is similar to ordinary jacks of this type and need not be described.

It will be noted that the spring links are so constructed that their springs are at all times fully housed and protected against dirt, dust, etc. Moreover these links are so constructed that coiled springs of relatively great length may be used, thus greatly minimizing the danger of the springs becoming broken and the liability of the jack impaired. The mechanism as a whole is so organized as to be extremely compact while all of the parts except the upper end of the lifting bar and the protruding part of the lever are fully housed.

The invention is not confined to the details of construction shown except as set forth in the appended claims.

I claim as my invention:

1. In a lifting jack, the combination with a ratchet lifting member, and a lever actuated pawl cooperating therewith, of a pawl actuating link comprising two recessed overlapping link members interconnected to slide endwise upon each other, and a coiled spring interposed between said members and acting upon each.

2. In a lifting jack, the combination with a ratchet member and a lever-actuated pawl cooperating therewith, of a pawl-actuating link comprising two recessed overlapping link-members interconnected to slide endwise upon each other, and a coiled spring interposed between said members and lying partly in each, an oscillatory member mounted in the frame of the jack, and an eccentric connection between said oscillatory member and one end of said link, whereby the link, as a whole, may be placed under compressive or expansive tension, at will.

3. In a lifting-jack, the combination with the main frame and lifting bar arranged to slide therein, of a ratchet member operatively connected with the lifting bar, a hand lever, a pawl operatively connected with said hand lever, a detent pawl mounted in the main frame in cooperative relation with the ratchet, a pair of pawl-actuating links, one for each of the respective pawls, each link comprising two recessed overlapping link members connected to slide endwise upon each other, and a coiled spring interposed between said members within the recesses thereof, an oscillatory escutcheon-plate in the frame of the jack, and an eccentric connection common to both links and uniting the latter with said escutcheon-plate

whereby said links may be simultaneously placed in contractile or expansive tension, at will.

4. In a lifting jack, the combination with
5 a main frame, of a ratchet lifting member
carried thereby, a hand lever, a pawl opera-
tively connected with said hand lever, a
detent pawl cooperating with the ratchet, a
10 pair of pawl actuating links one for each
of the respective pawls, each link compris-

ing two over-lapping link members connect-
ed to slide endwise upon each other, a coiled
spring carried thereby and an eccentric con-
nection common to both links whereby said
links may be simultaneously placed in con- 15
tractile or expansive tension, at will.

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