No. 808,041. PATENTED DEC. 19, 1905.

F. L. GORMLEY.

LIFTING JACK.

APPLICATION FILED APR. 24, 1905.

2 SHEETS—SHEET 1.

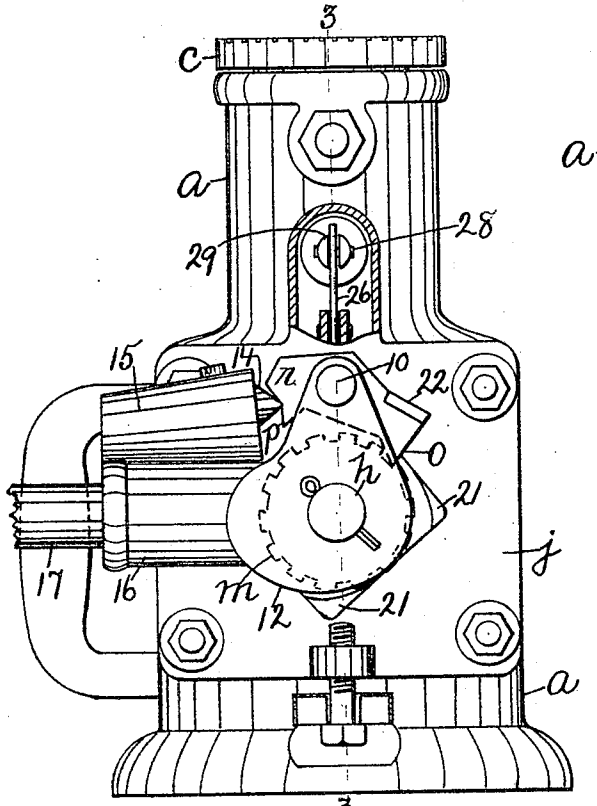


Fig. 1.

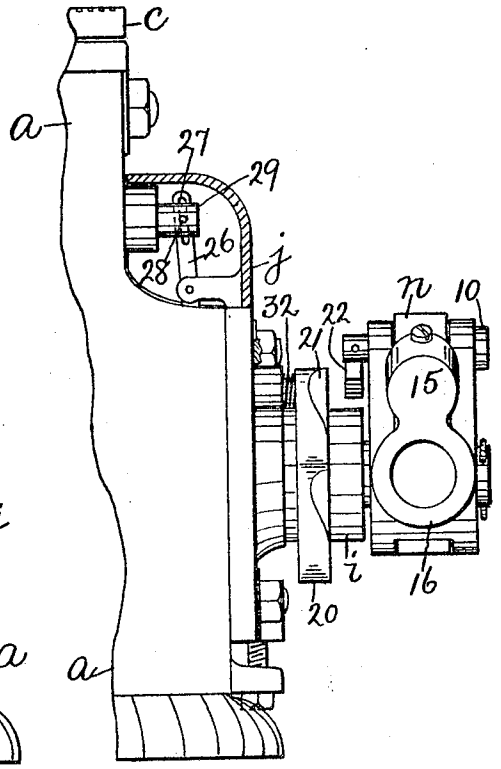


Fig. 2.

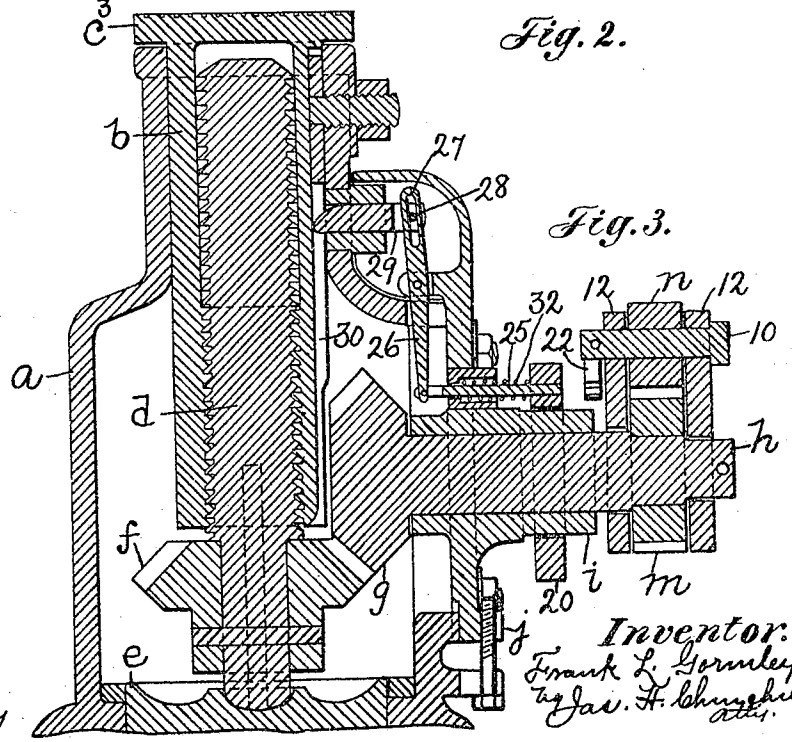


Fig. 3.

Witnesses.
C. H. Emmett
J. Murphy

Inventor:
Frank L. Gormley
by Jas. H. Churchill
Atty.

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2 SHEETS—SHEET 2.

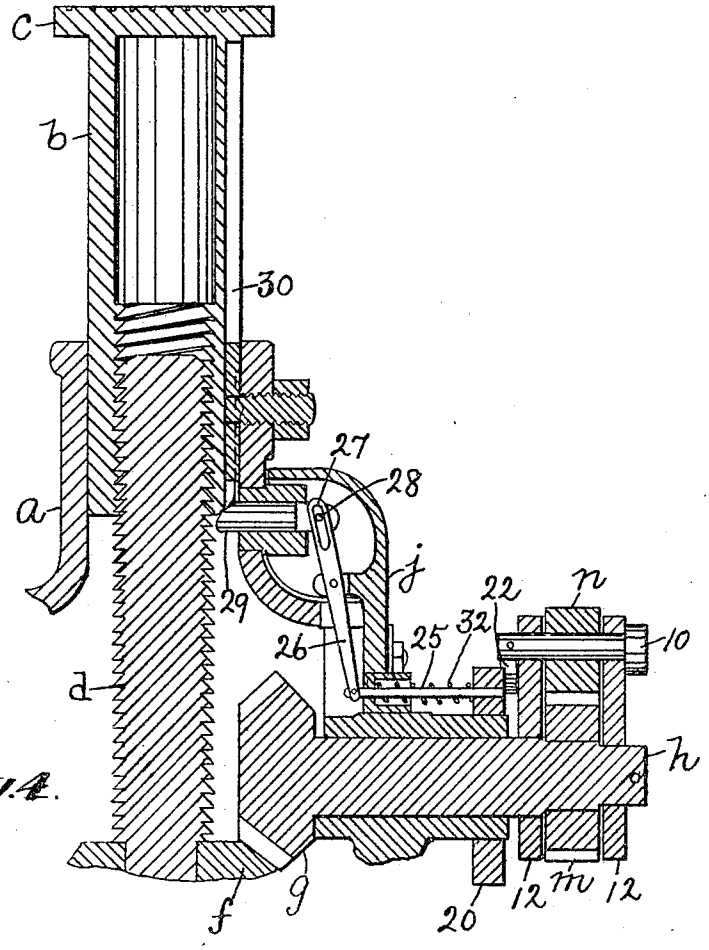


Fig. 4.

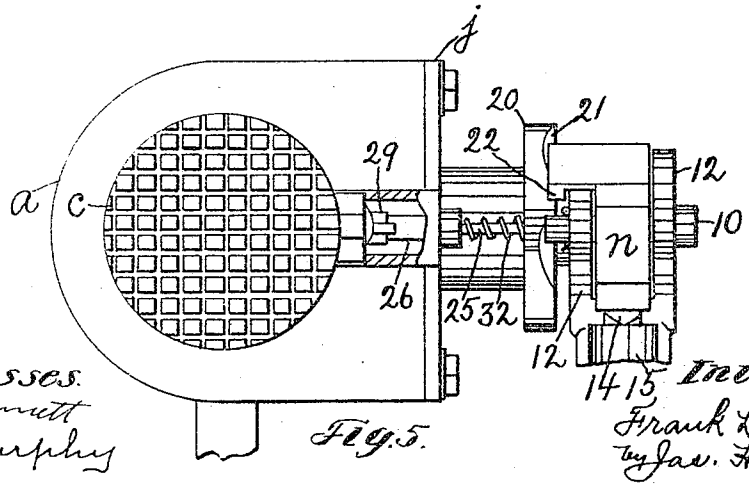


Fig. 5.

Witnesses.
C. H. Garnett
J. Murphy

Inventor.
Frank L. Gormley
by Jas. H. Lahey
Atty.

UNITED STATES PATENT OFFICE.

FRANK L. GORMLEY, OF COATICOOK, CANADA, ASSIGNOR TO ARTHUR O. NORTON, OF COATICOOK, CANADA.

LIFTING-JACK.

No. 808,041. Specification of Letters Patent. Patented Dec. 19, 1905.

Application filed April 24, 1905. Serial No. 257,103.

To all whom it may concern:

Be it known that I, FRANK L. GORMLEY, a subject of the King of Great Britain, residing in Coaticook, in the Province of Quebec, Canada, have invented an Improvement in Lifting-Jacks, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a lifting-jack, and has for its object to provide a jack in which the actuating mechanism is automatically rendered inoperative for elevating the movable member of the jack when the said member reaches a predetermined elevation, thereby avoiding accidents from this source and injury to the jack.

Figure 1 is an elevation, with parts broken away, of a lifting-jack embodying this invention; Fig. 2, a detail in front elevation of a portion of the jack shown in Fig. 1; Fig. 3, a vertical section taken on the line 3 3, Fig. 1; Fig. 4, a similar section showing the parts in the position they occupy when the actuating mechanism is about to be rendered inoperative, and Fig. 5 a detail in plan to be referred to.

The lifting-jack herein shown as embodying this invention comprises a hollow stationary member or standard *a* and a movable member *b*, which is made as a cylinder or sleeve extended into the hollow standard and provided with a cap or head *c*. The movable member *b* is provided with screw-threads on its interior to engage a threaded spindle or shaft *d*, supported at its lower end in a socket in the bottom *e* of said standard. The shaft or spindle *d* has fast on it a bevel-gear *f*, which is rotated by a bevel-gear *g* on the end of a shaft *h*, extended through and supported by a bearing-hub *i*, carried by the removable side *j* of the casing. The shaft *h* has fast on it a ratchet-wheel *m*, with which coöperates a pallet-bar *n*, provided with pawls *o p* at its opposite ends, which may be designated the "elevating" and "lowering" pawls, respectively. The pallet-bar *n* is mounted on a pivot-pin 10, carried by disks 12, loose on the shaft *h*. The pallet-bar *n* has coöperating with it a spring-pressed holding-dog 14, (see Fig. 1,) carried by a boss 15 on a socket-piece 16 for the handle 17, said socket-piece being attached to the disks 12. The jack as thus far described may be used in the ordinary manner to raise and lower a load supported by the movable member *b*, the pawl *o* being engaged with the ratchet-wheel *m* when it is desired to elevate the movable member and its load and the pawl *p* being engaged with said ratchet-wheel when the movable member is to be lowered.

As represented in Fig. 1, the movable member is in its lowered position and the pawl *o* is in engagement with the ratchet-wheel. The movable member is elevated by moving the handle 17 up and down, which causes the pawl *o* to rotate the ratchet-wheel *m* on one stroke of the handle and to slip over the ratchet-wheel on the other stroke in a manner well understood.

The present invention has for its object to provide for automatically rendering the actuating mechanism inoperative to elevate the movable member when the latter has been elevated a predetermined distance, and in the present instance one construction of mechanism for accomplishing this result is shown; but it is not desired to limit the invention in in this respect.

The mechanism herein shown consists of a disk 20, provided with one or more cut-away portions 21, constituting cams, which coöperate with an arm 22, projecting from the pallet-bar *n* near the pawl *o*. The disk 20 is loose on the hub *i* and is free to slide thereon and has attached to it a pin or rod 25, which extends through the removable side *j* and is attached to the lower end of a lever 26, loosely connected at its upper end by the slot 27 and pin 28 with a sliding dog 29, having, as shown, a rounded inner end which projects into a slot 30, extended longitudinally of the movable member *b*.

The slot 30 for substantially the length of the movable member is of such depth that the cam-disk 20 is withdrawn from the path of movement of the arm 22, as represented in Figs. 2 and 3; but at the lower end of the movable member said slot is made deeper and its rear wall is preferably made rounding, so that when the movable member has reached an elevation sufficient to bring its lower end opposite the sliding dog 29 the latter is permitted to be moved inward by the spring 32, encircling the rod 25, which spring also moves the cam disk or plate outward into the path of movement of the arm 22, whereby on the backward or return stroke of the pallet-bar *n* the arm 22 rides over the high

part of one of the cams and turns the pallet-bar on its pivot, so as to disengage the forward or elevating pawl *o* from the ratchet-wheel and engage the lowering-pawl *p* therewith, so that if the workman should continue to operate the handle the ratchet-wheel will be rotated in the reverse direction and the movable member lowered, thereby avoiding serious accidents, which might arise from elevating the movable member too far, and preventing injury to the jack, and especially to the screw-threads of the movable member and its coöperating shaft or spindle.

In the present instance the movable member is shown as provided with a longitudinally-extended slot, into which the dog 29 projects; but it is not desired to limit the invention in this respect, as said slot may be omitted, it only being necessary to provide for permitting the dog to move when the movable member has reached a predetermined position.

I claim—

1. In a lifting-jack, in combination, a hollow movable member provided with a longitudinally-extended slot on its exterior and with screw-threads on its interior, a threaded shaft coöperating therewith, a driving-shaft for said threaded shaft, gearing connecting said shafts, a ratchet-wheel fast on said driving-shaft, a pallet-bar provided with pawls cooperating with said ratchet-wheel, an arm extended from said pallet-bar, a cam-disk coöperating with said arm and normally out of the path of movement thereof, a rod attached to said cam-disk, a lever connected to said rod, and a sliding dog connected with said lever and extended into the longitudinal slot of said movable member, substantially as described.

2. In a lifting-jack, in combination, a movable member, mechanism for effecting movement of said member, said mechanism including a ratchet-wheel and a pawl coöperating therewith, a cam to effect disengagement of said pawl from said ratchet-wheel, and mechanism under control of the said movable member for operatively positioning said cam, substantially as described.

3. In a lifting-jack, in combination, a stationary member, a movable member, actuating mechanism to move said movable member with relation to said stationary member including a ratchet-wheel and a pawl coöperating therewith, and means rendered effective by said movable member for automatically disconnecting said pawl from said ratchet-wheel when said movable member has reached a predetermined position with relation to said stationary member, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK L. GORMLEY.

Witnesses:
CHARLES E. BALDWIN,
WILLIAM H. BLEAY.