

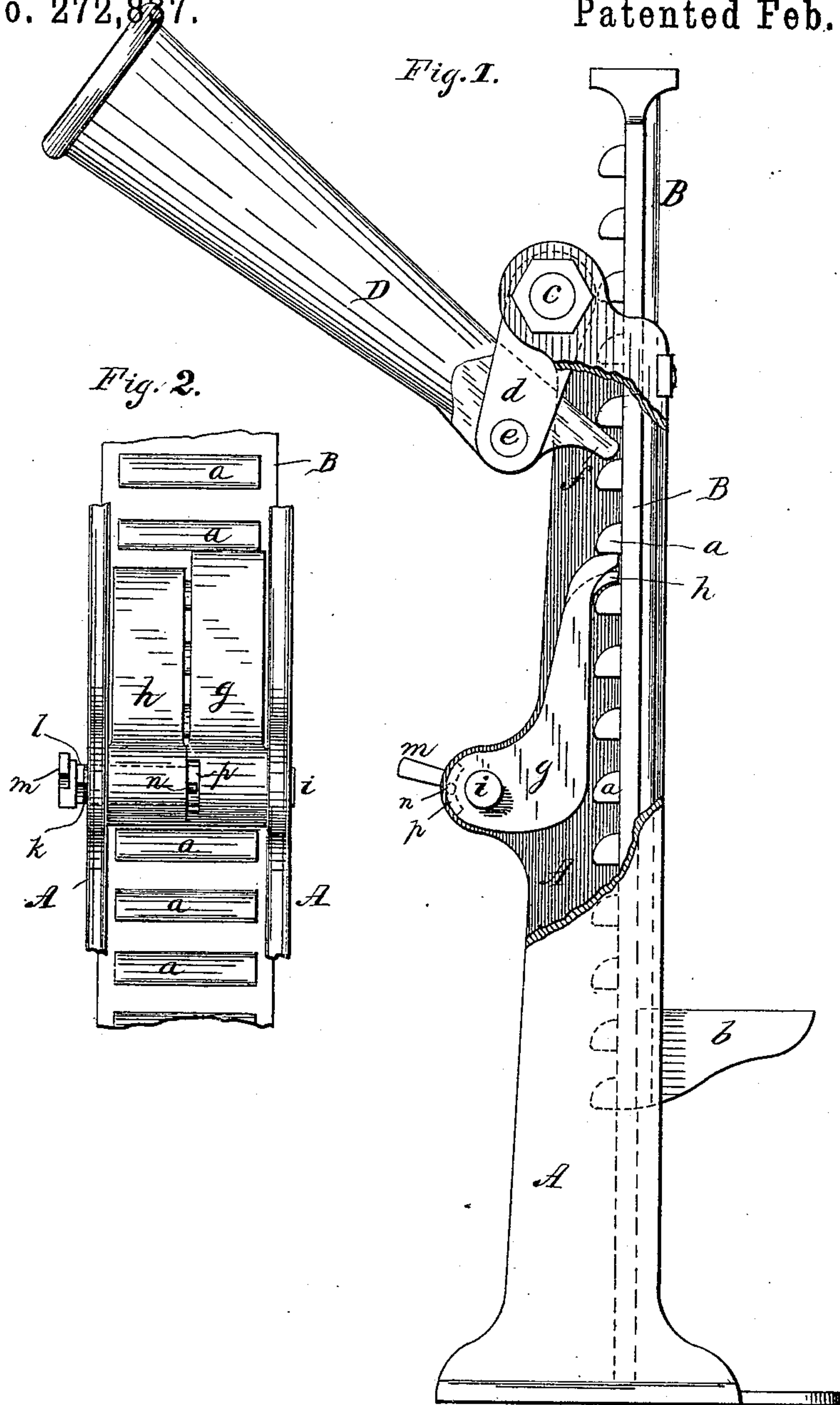
(No Model.)

J. S. KIRKWOOD.

LIFTING JACK.

No. 272,837.

Patented Feb. 20, 1883.



Witnesses:-
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UNITED STATES PATENT OFFICE.

JOSEPH S. KIRKWOOD, OF McKEESPORT, PENNSYLVANIA.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 272,837, dated February 20, 1883.

Application filed September 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH S. KIRKWOOD, of McKeesport, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Lifting-Jacks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a partly sectional elevation of my improved lifting-jack. Fig. 2 is a front view of the same at the pawls.

This invention relates to lifting-jacks; and it consists in the construction and combination of parts, substantially as hereinafter fully described and claimed.

In the drawings, A A are the two side bars, grooved to receive the lifting or rack bar B, which is provided with the teeth *a*, and, if desired, the foot *b*. A heavy bolt or pin, *c*, passes across the jack and through the sides A, and on this is suspended a bifurcated link, *d*, the pivotal part of the link to the pin *c* being in the shape of a solid barrel bored to receive the pin *c*. At the lower ends of the two forks of link *d* the socket D of the lever is pivoted by the pin *e*, and the metal of the socket D is extended to form the nose *f*, as shown. By this construction the lever is hung on a movable or pivotally suspended fulcrum, so that it may be disengaged from the teeth of the bar B and lowered for a fresh hold on the bar. At the same time the suspension is such that the normal tendency of the fulcrum *e* is to gravitate to such position that the lever-nose *f* will engage one of the teeth *a*.

At a point in sides A below the lever and fulcrum I pivot two pawls, *g* and *h*, respectively—one shorter than the other—each about half the width of the rack-teeth *a*. While these may be pivoted on a simple pin, I prefer the form shown. Pawl *g* has a short trunnion, *i*, taking through one of the sides A, and a long trunnion, *k*, reaching over through the opposite side A, and provided with the wrench-square *l*.

Before putting the parts together the short pawl *h*, which is suitably bored out, is slipped

upon the long trunnion *k*, upon which it revolves freely. Pawl *g* is longer than pawl *h* by about a distance equal to half the pitch of the teeth *a* in bar B. Both pawls are so weighted as to gravitate toward bar B when on that side of a vertical line through trunnions *i k*. Fig. 1 shows the parts in such position that the lever is elevated, ready to be depressed for lifting the load. On depressing the lever the bar B is elevated, and the fulcrum *e* swings inwardly as the nose *f* moves upwardly with the bar B. When the lever D has accomplished half its stroke the short pawl *h* falls in under the tooth *a* of the bar B, and at the end of the stroke pawl *g* drops in under the same tooth. This enables me to space the teeth *a* much farther apart than is usual, and make them much heavier and stronger for railway and other purposes requiring great strength. The result of the two pawls is, in fact, the same as if there were but one pawl and the rack-teeth were only half as far apart, as one pawl acts alternately with the other.

In order to lower the bar B, it is raised slightly to release the pawls, and then the latter can be thrown out. To effect this most readily I set a handle, *m*, on trunnion *k* at *l*, and on pawl *h*, I set a pin, *n*, which is struck by some abutment or projection on the hub of pawl *g*. In the drawings I show the pin *n* operating in a recess, *p*, on pawl *g* and engaging the ends thereof. By turning the handle *m* pawl *g* is thrown past the center backwardly, and striking the pin *n* throws the pawl *h* also out of engagement, so that, when desired, one movement of the handle *m* suffices to throw both pawls out.

If desired, when the load is light, one of the pawls may be thrown back sufficiently to allow the jack to be operated with only the remaining pawl.

I claim as my invention—

1. In a lifting-jack, in combination with the sides A and sliding rack-bar B *a*, a lever, D, pivoted on a fulcrum, *d e*, swinging on an axis above the axis of the fulcrum *e*, and adapted to engage the rack-bar, substantially as described.

2. In a lifting-jack, the combination of the sides A, bar B *a*, pin *c*, bifurcated link *d*, pin *e*, and lever D, having nose *f*, substantially as described.

3. In a lifting-jack, the combination of toothed bar B and two gravitating pawls, *gh*, one of said pawls being shorter than the other, substantially as described.

5 4. In a lifting-jack, the combination of pawl *g*, having recess *p* and trunnion *k*, with pawl *h*, having pin *n*, and means for rotating said pawl *g*, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOSEPH S. KIRKWOOD.

Witnesses:

LEWIS HANEY,
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