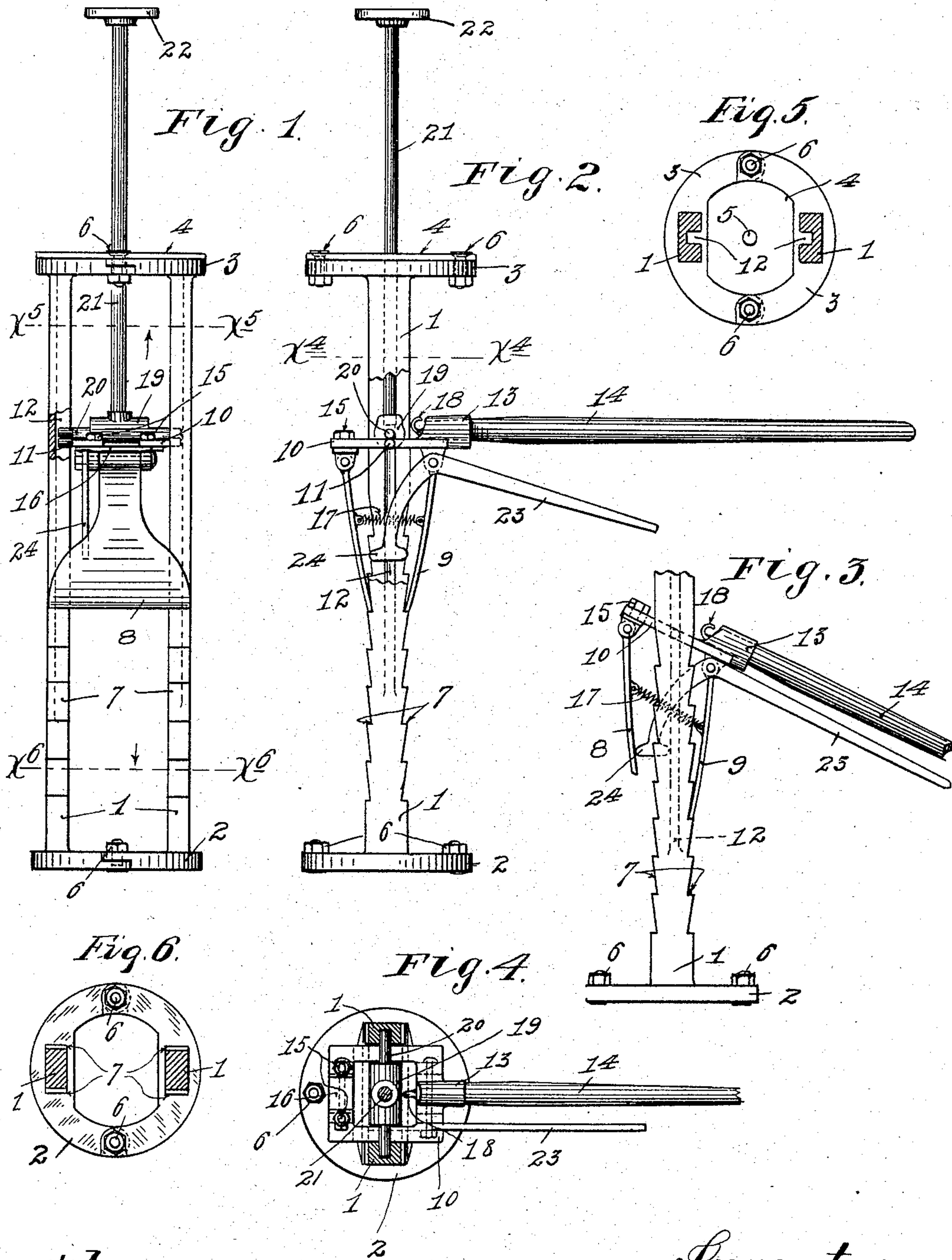


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O. A. DAHL.
LIFTING JACK.

APPLICATION FILED JULY 19, 1904.



Witnesses,
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UNITED STATES PATENT OFFICE.

OLAUS A. DAHL, OF NASH, NORTH DAKOTA.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 782,326, dated February 14, 1905.

Application filed July 19, 1904. Serial No. 217,167.

To all whom it may concern:

Be it known that I, OLAUS A. DAHL, a citizen of the United States, residing at Nash, in the county of Walsh and State of North Dakota, have invented certain new and useful Improvements in Lifting-Jacks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention has for its object to provide an improved lifting-jack; and to this end it consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view in rear elevation, showing the improved lifting-jack, some parts being broken away. Fig. 2 is a side elevation of the lifting-jack with some parts broken away. Fig. 3 is a view corresponding to Fig. 2, but illustrating different positions of the parts, some parts being broken away. Fig. 4 is a horizontal section on the line $x^4 x^4$ of Fig. 2. Fig. 5 is a horizontal section on the line $x^5 x^5$ of Fig. 1 looking upward, and Fig. 6 is a horizontal section on the line $x^6 x^6$ of Fig. 1.

The pedestal of the lifting-jack is made up of a pair of laterally-spaced vertically-disposed legs 1, united at their lower ends by an annular base 2 and united at their upper ends by an annular head 3, to which head is detachably secured a guide-plate 4, having a single axial perforation 5. The base 2 and the head 3 are each formed of two sections having overlapping ends that are rigidly but detachably connected by short nutted bolts 6, the upper of which bolts are also passed through the plate 4. The legs 1 are formed both on the front and rear edges with ratchet-teeth 7, that are arranged to resist downward movements of coöperating pawls or dogs 8 and 9, which pawls at their lower extremities are wide enough to span the space between the two legs and to engage with the ratchet-teeth of both legs. These dogs 8 and 9 are pivotally attached at their upper ends to an oscillating lifting-head 10, which has trunnions

11, that work in vertical grooves 12, formed on the inner faces of the legs 1. At its forward edge the lifting-head 10 has a socket 13, into which is inserted one end of a lifting-lever 14. In the construction illustrated the pawl 8 is pivoted to the heads of short nutted bolts 15, which bolts serve to normally hold in place a short tie-bar or detachable section 16 of the oscillating head 10. The two dogs 8 and 9 are yieldingly connected by spring 17, which yieldingly draws the same onto the ratchet-teeth 7 of the pedestal for a purpose which will presently appear. The socket 13 at its inner end is formed or provided with a hook 18. By reference to Fig. 4 it will be seen that the oscillating lifting-head 10 is cut away at its central portion, so as to leave a large passage therethrough.

The numeral 19 indicates a supplemental lifting-head the body of which, as shown, depends into the opening of the primary lifting-head 10 and is provided with trunnions 20, that rest upon the sides of said head 10 and project into the vertical slots 12 of the legs 1. A lifting-rod 21 works loosely through the perforation 5 of a guide-plate 4, and its lower end fits into a socket formed in the central portion of the secondary lifting-head 19. At its upper end the rod 21 is formed with a bearing-cap 22, which is adapted to engage with an article to be lifted.

The numeral 23 indicates a pawl-releasing lever, which is pivoted at its elbow to one end of the lifting-head 10. One end of this lever 23 depends between the pawls 8 and 9 and is provided with an expanded foot 24, which is adapted to engage with the pawl 8 when the outer end of the lever is forced downward and is adapted to engage with the pawl 9 when the outer end of said lever is raised.

When the lifting-jack is to be used to lift an object which may be rested on the cap 22 of the rod 21, the said device is used with the parts arranged as shown in the drawings. It is evident that by moving the lever 14 upward and downward the pawls 8 and 9 one after the other will afford a fulcrum to rock the head 10, and thereby cause the said pawls to successively engage with the ratchet-teeth higher up. Under the above action the pawls are

caused to climb, as it were, up the pedestal-legs 1, and the head 10 and the secondary head 19 and parts supported and carried thereby, together with the load resting on the cap 22, are caused to rise. When it is desired to lower the load, the pawls 8 and 9 by the operation of the releasing-lever 23 may be caused to skip a tooth and engage with a tooth lower down. As is evident, the said pawls must be thus released while they are free from the load, (see Fig. 3,) and it will be remembered that the pawl 8 is released by a downward movement of the lever 23, while the pawl 9 is released by an upward movement of said lever.

When it is desired to lift or to draw upward a tubular or cylindrical body, such as the pipe or tubular casing of a drive-well or similar well, the lifting-jack should be readjusted and applied substantially as follows: The sections of the base 2 and head 3 of the pedestal should be separated, the bearing-plate 4 should be entirely removed, and the section 16 of the oscillating or primary lifting-head 10 should be removed. The secondary head 19 and the rod 21 should also be removed. The sections of the pedestal should then be again connected after placing the sections of the base 2 and the head 3 around the pipe and after placing the pipe within the opening of the lifting-head 10. Then by means of a chain or other suitable grapple applied around the pipe and attached to the hook 18 the pipe may be lifted by moving the lever 14 upward and downward, as before described in connection with the first illustration of the use of the device.

The device described is simple and efficient for the purposes had in view and is capable of a wide range of use. It will of course be understood that the said device is capable of modification within the scope of my invention as herein set forth and claimed.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a lifting-jack, the combination with a pedestal, of an oscillating head, mounted to travel vertically on said pedestal and provided with a lever for oscillating it, a pair of pawls pivoted to said head and engaging, in alternate order, with ratchet-teeth on said pedestal, a spring directly connecting said pawls, and a pawl-releasing lever carried by said head and having a headed portion depending and directly engageable with said two pawls operating on the said pawls to release the same, substantially as described.

2. In a lifting-jack, the combination with a pedestal made up of separable sections, adapted to be placed around a pipe, under lateral movement of its sections, said pedestal having ratchet-teeth, of an oscillating lifting-head mounted to move vertically on said pedestal and provided with a lever for oscillating same, and a pair of spring-pressed pawls carried by said head and engaging with the ratchet-teeth of said pedestal, in alternate order, substantially as described.

3. In a lifting-jack, the combination with a pedestal having vertical legs, formed on the opposite edges with ratchet-teeth, and formed on their inner surfaces with vertical grooves, of a lifting-head mounted to oscillate, and having trunnions working vertically in the grooves of said pedestal-legs, a lever applied to said head for oscillating the same, a pair of spring-pressed pawls engageable, in alternate order, with the ratchet-teeth of said legs, and a secondary lifting-head resting on said oscillating lifting-head, having trunnions engaging with the grooves of said pedestal-legs, and having a vertical rod or projection extending above said pedestal, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

OLAUS A. DAHL.

Witnesses:

OLE OUVERSON,
C. J. W. BREDE.