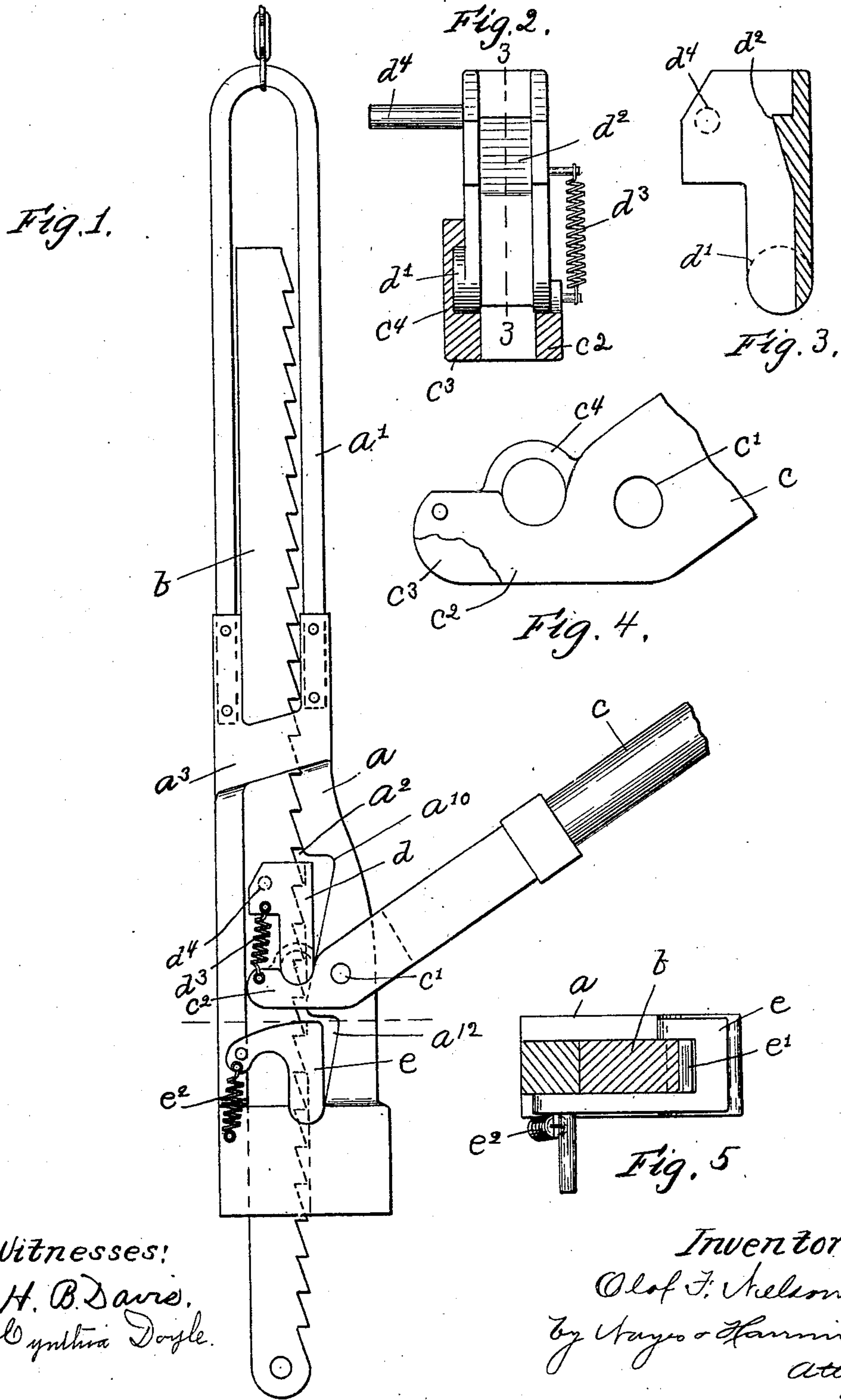


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STUMP PULLING AND STONE LIFTING DEVICE.  
APPLICATION FILED MAY 1, 1908.

910,567.

Patented Jan. 26, 1909.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

OLOF F. NELSON, OF SOUTH SUDBURY, MASSACHUSETTS.

## STUMP-PULLING AND STONE-LIFTING DEVICE.

No. 910,567.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed May 1, 1908. Serial No. 430,260.

*To all whom it may concern:*

Be it known that I, OLOF F. NELSON, of South Sudbury, county of Middlesex, State of Massachusetts, have invented an Improvement in Stump-Pulling and Stone-Lifting Devices, of which the following is a specification.

This invention relates to stump-pulling and stone-lifting devices, and has for its object to improve the construction of the same in several particulars, aiming particularly to augment the strength of the parts and to provide very substantial bearings therefor, in order that a heavy weight may be lifted.

Figure 1 is a side elevation of a stump-pulling and stone lifting device embodying this invention, the usual tripod and grappling chains being omitted. Fig. 2 is an enlarged detail, showing in front elevation the locking-pawl and in section the lifting-lever. Fig. 3 is a vertical section of the locking-pawl shown in Fig. 2, taken on the dotted line 3—3. Fig. 4 is an enlarged detail of the end portion of the lifting-lever. Fig. 5 is a sectional detail of the ratchet toothed bar and locking-pawl in engagement therewith.

The supporting-frame for the operating parts is adapted to be suspended from a tripod or other suitable structure. This frame comprises an elongated body *a* forming the lower part thereof, and an elongated loop *a'* connected to the upper end of said body and forming the upper part thereof. The body has a vertical slot *a<sup>2</sup>* in line with and also in open communication with the opening between the arms of the loop, so that the frame has an elongated opening extending from top to bottom or thereabouts.

The slot is made wide enough to receive a ratchet-toothed bar *b*, to the lower end of which the grappling chains are adapted to be connected. This bar is designed to be moved up and down in the frame. The slot *a<sup>2</sup>* terminates near the lower end of the body *a*, and said body has a vertical hole through it, at its lower end, in continuation of said slot, through which the bar *b* extends. The two upright side portions of the body *a* are joined together near their upper ends by side connections *a<sup>3</sup>* extending across the slot *a<sup>2</sup>* and arranged to provide between them an opening for the bar *b*, and said connections are preferably formed integral with the body *a*. The frame thus construct-

ed is very substantial and is adapted to withstand a severe strain.

*c* represents the lifting-lever which is formed with a yoke at the end which straddles the frame. It is pivotally connected to the body *a* by a pivot-pin *c'* extending through the arms of the yoke and through the body. The extremities of the arms of the yoke are arranged to form bearings for the lower end of a lifting-pawl *d*. The upper side of one of said arms, as *c<sup>2</sup>*, has a curved bearing portion for the lower end of said pawl, and the upper side of the other arm, as *c<sup>3</sup>*, has a similar curved bearing portion for the lower end of said pawl, and also has an ear *c<sup>4</sup>* at the outer side of said bearing portion which is socketed to receive a trunnion *d'* projecting from one side of the pawl, see Fig. 2. By means of the trunnion the pawl is connected with the lifting-lever in such manner that it may be moved up and down by it, yet it may be easily removed or disengaged therefrom whenever desired.

The lifting-pawl *d* consists of a block adapted to be supported in upright position having its lower end formed with curved bearing portions to engage the curved bearing portions on the lifting-lever. It is grooved at one side from top to bottom to receive the ratchet toothed bar, and has a detent *d<sup>2</sup>* at the bottom of the groove to engage the teeth of the bar. The curved bearing portions are formed on the lower ends of the two side portions of the block and also on the lower end of the end wall, the bearing portion on the latter being in continuation of the bearing portions on the former. As the side portions extend over the opposite sides of the bar they assist in guiding said bar. One of its side portions has attached to it a spiral spring *d<sup>3</sup>* which is attached to the extremity of the arm *c<sup>2</sup>* of the lifting-lever, or to some other part, the action of which is to hold the pawl in engagement with the bar. Its opposite side portion has attached to it a handle *d<sup>4</sup>* adapted to be engaged by the operator for the purpose of moving the pawl out of engagement with the bar. By attaching the spring *d<sup>3</sup>* to the lifting-lever it will be bodily lifted with the pawl as the lever is depressed and at the same time will be shortened, and will be extended as the lever is raised thereby avoiding the necessity of lifting the pawl against the action of said spring.

The body of the frame is recessed at a point above and adjacent the pivot of the



lifting-lever, as at  $a^{10}$ , to receive the lifting-pawl and to permit movement thereof in a direction away from the ratchet toothed bar as it passes over the ratchet teeth on its re-  
 5 turn movement, and the top wall of said recess is so disposed as to be engaged by the pawl to limit its upward movement.

$e$  represents the locking-pawl which consists of a block adapted to be held in upright  
 10 position. It has a vertical groove in one side of it to receive the ratchet toothed bar and a detent  $e'$  at the bottom of said groove or upon the inside of its end wall. Its side  
 15 portions extend over the opposite sides of the bar and assist in guiding said bar. To one of its side portions a spiral spring  $e^2$  is attached which is attached to the frame to thereby hold it with its detent in engage-  
 20 ment with the bar, yet said spring is free to yield to permit the bar to be raised by the action of the lifting lever and the detent to slip over the teeth of the bar. The body  $a$  of the frame has a recess  $a^{12}$  to receive said  
 25 pawl and the top wall of said recess is so disposed as to limit upward movement thereof so that it is correctly held in place. The lower ends of the side portions are formed with curved bearing portions, and so also is  
 30 the lower end of its end wall, the bearing portion on the latter being in continuation of the bearing portions on the former. The body  $a$  of the frame is provided at each side of the opening for the bar with curved bear-  
 35 ing portions to receive the bearing portions of the pawl. When the bar is removed from the frame the pawl may be easily removed as it is not connected with the frame, except by the spring, yet the bearing portions provided for it are very substantial.

40 Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a stump-pulling and stone-lifting device, a frame, a ratchet-toothed bar, a lifting-  
 45 pawl consisting of a block grooved from top to bottom, having a detent at the bottom of said groove and having the lower ends of its side portions and also the lower end of its end wall formed with curved bearing portions,  
 50 and a lifting-lever having a yoke pivotally connected with the frame, the arms of which are formed with curved bearing portions to receive the bearing portions of said pawl, substantially as described.

55 2. In a stump-pulling and stone-lifting device, a frame, a ratchet-toothed bar, a block grooved from top to bottom to receive said

bar and having a detent to engage the teeth of said bar, and having curved bearing portions at its lower end, and also having an ear, 60  
 a lifting-lever pivoted to the frame having bearings which support said block, and having a forward extension beyond said bearings, and a spring attached at one end to the ear on said block and at the other end to the 65  
 extension on said lever, which is arranged to hold said block with its detent in engagement with the bar, substantially as described.

3. In a stump-pulling and stone-lifting device, a slotted frame having curved bearing 70  
 portions at opposite sides of the slot for a locking-pawl, a locking-pawl having curved bearing portions at its lower end engaging the bearing portions on the frame and having a vertical groove at one side from top to bot- 75  
 tom, a ratchet-toothed bar engaged by said pawl, a spring connected with said pawl for holding it in engagement with said bar, and means for lifting the bar, substantially as described. 80

4. In a stump-pulling and stone-lifting device, a slotted frame having curved bearing portions at opposite sides of the slot and having a recess adjacent said bearing portions and a locking-pawl contained in said 85  
 recess, upward movement of which is limited by the top wall thereof, having curved bearing portions at its lower end engaging the curved bearing portions on the frame, a ratchet-toothed bar, a spring for holding 90  
 said pawl in engagement with said bar and means for lifting said bar, substantially as described.

5. In a stump-pulling and stone-lifting device, a slotted frame having curved bear- 95  
 ing portions at opposite sides of the slot, a locking-pawl having a vertical groove at one side from top to bottom and having curved bearing portions formed at the lower ends of its side portions and also at the lower end of 100  
 its end wall in continuation of the aforesaid bearing-ports, a ratchet-toothed bar engaged by said pawl, a spring connected with said pawl for holding it in engagement with said bar, and means for lifting the bar, sub- 105  
 stantially as described.

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

OLOF F. NELSON.

Witnesses:

B. J. NOYES,  
 H. B. DAVIS.