

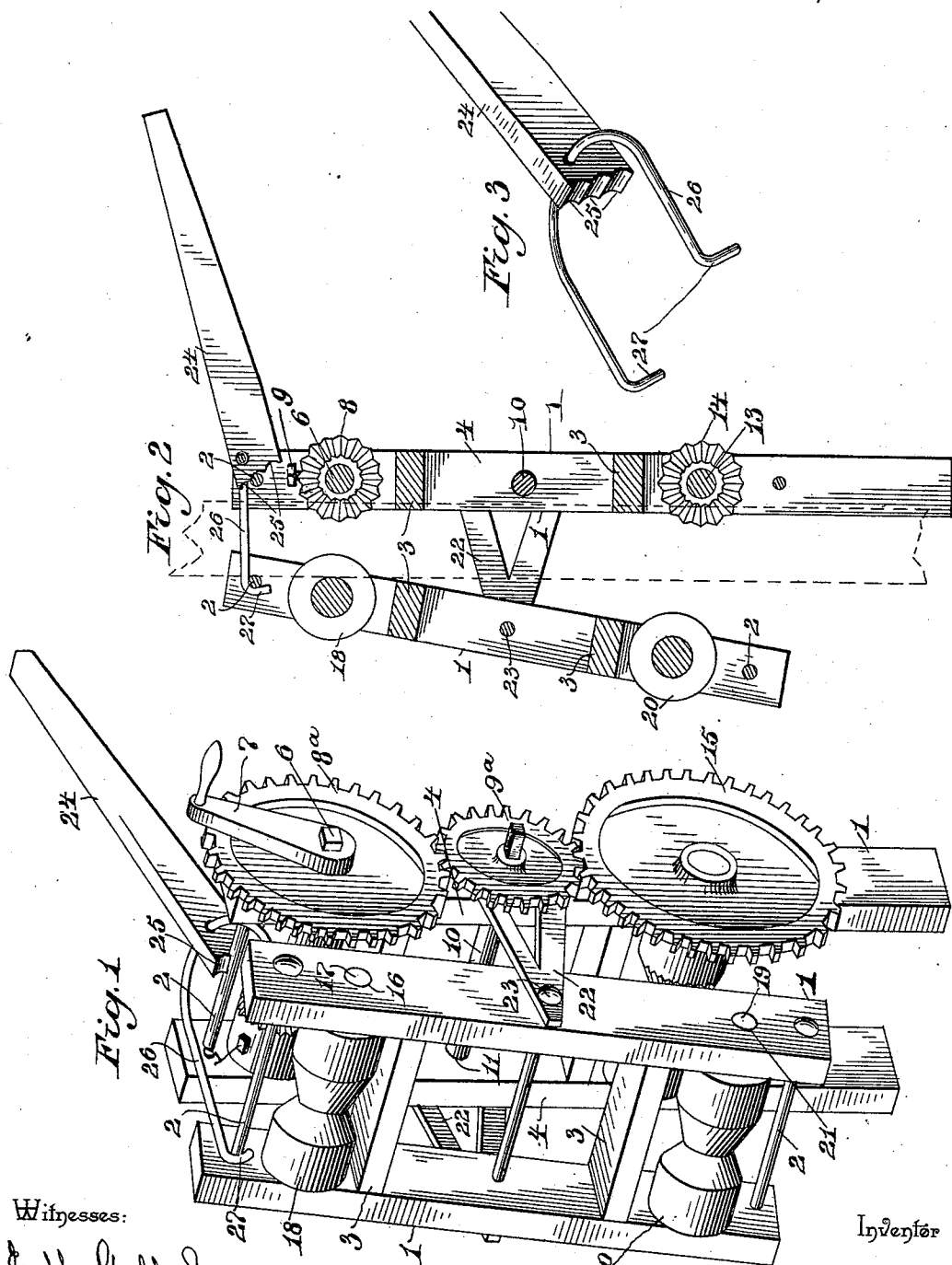
(No Model.)

R. C. LIVINGSTON.

DEVICE FOR LOWERING AND ELEVATING PIPES, &c.

No. 461,351.

Patented Oct. 13, 1891.



Witnesses:

E. H. Gallaher

Wm. S. Durall

Inventor

By his Attorneys,

Reuben C. Livingston

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

REASON C. LIVINGSTON, OF SPRING VALLEY, MINNESOTA.

DEVICE FOR LOWERING AND ELEVATING PIPES, &c.

SPECIFICATION forming part of Letters Patent No. 461,351, dated October 13, 1891.

Application filed March 27, 1891. Serial No. 386,611. (No model.)

To all whom it may concern:

Be it known that I, REASON C. LIVINGSTON, a citizen of the United States, residing at Spring Valley, in the county of Fillmore and State of Minnesota, have invented a new and useful Device for Lowering and Elevating Pipes, &c., of which the following is a specification.

This invention relates to a device for elevating or lowering pipes, tubes, and rods from excavations such as wells, &c., for the purpose of repairing or renewing the same; and the objects in view are to provide a cheap and simple machine designed to be located above the excavation and capable of being operated so as to gradually feed the pipe, tube, or rod into said excavation or withdraw the same therefrom; furthermore, to be capable of adjustment to fit various sizes of pipes, rods, or tubes, and to pass over or permit of the passage of any joints that connect the sections composing the same.

With the above objects in view the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of an apparatus constructed in accordance with my invention, the same being in position. Fig. 2 is a vertical longitudinal section of said apparatus. Fig. 3 is a detail in perspective of the adjusting-lever.

Like numerals of reference indicate like parts in all the figures of the drawings.

In practice I employ two opposite frames, each vertically disposed and comprising the opposite side bars or standards 1, connected near their upper and lower ends by tie-bolts 2 and cross-bars 3.

The main frame 4 is provided near its upper end with bearings, in which rest the ends of a shaft 6, one end of which extends beyond its bearing, is squared, and there provided with a removable operating-crank 7. Between its bearings this shaft carries a longitudinally-toothed and concaved feed-roll 8, through which pass set-screws 9, which terminate upon the shaft and are thus made rigid. The shaft 6 also carries a large cog-wheel 8^a, which engages with and operates a smaller cog-wheel 9^a, mounted upon a shaft 10,

journaled in bearings 11 in the side bars 1 of the main frame 4. This shaft is also provided with one square end and, as will hereinafter appear, may receive the crank 7, and thus impart motion to the cog-wheel 8^a, its shaft and roll.

Near the lower end of the frame 4, in suitable bearings, is journaled a shaft 13, having a concaved toothed roll 14, and having a shaft extended at one side and provided with a large cog-wheel 15, corresponding with the cog-wheel 8, and also engaged and driven by the gear 9.

In the side bars 1, near the upper end of the second frame, are formed bearings 16, in which is mounted for rotation a shaft 17, said shaft carrying a concaved roll 18. A similar shaft 19, carrying a similar roll 20, is mounted in bearings 21, located near the lower ends of the second frame. Opposite pairs of triangular braces 22 are connected to the main frame and have their converging ends pivoted by a bolt 23 to the opposite side bars of the second or shorter frame.

The concaved rolls of the main frame occur opposite the concaved rolls of the supplemental frame, so that by tilting the supplemental frame either one of its end rolls may be thrown into contact with the corresponding roll of the main frame 4. The tilting of this frame is accomplished by means of the lever 24, terminating at its inner end in a series of teeth 25 and having loosely pivoted slightly in rear of its teeth a bail 26, terminating in hooks 27. By engaging the hooks of the bail with one of the upper tie bars or bolts of one frame and fulcruming the lever upon the opposite or corresponding bolt of the other frame, the teeth of said lever engaging with said bolt, it will be obvious that the upper ends of the two frames may be drawn together and thus grip between them a pipe, rod, or tube. Now by operating the crank 7, which is ordinarily applied to the shaft 6 when in the act of elevating, the teeth of the concaved roll 8 serve to feed the pipe in whichever direction the crank is turned. Motion is also imparted to the small gear 9 and the large cog or gear 15, and from the latter to the shaft 13 and its roll 14. If the pipe be extra heavy, the crank 7 is transferred to the shaft

10, so that the power is increased and speed reduced.

When a pipe joint or coupling is met with by the rolls 18 and 8, an ordinary pipe-dog 5 serves to support the pipe while the lever is removed and applied to the two lower tie-bars 2, so that the lower rolls 14 and 20 serve to clamp the pipe and feed the same upward. Of course the bringing together of the two lower 10 rolls opens the upper rolls and permits of the passage of the pipe joint or coupling there-through. After such passage the lever may be returned to the upper pair of tie-bars. When lowering a pipe, the crank is operated 15 reversely to that direction indicated by the arrow, and when a joint is met with the lever is shifted in a similar manner and for a similar purpose.

Having described my invention, what I 20 claim is—

1. In a machine of the class described, the combination, with the main frame and the secondary frame pivoted near its center thereon, of means for tilting said secondary frame, 25 pairs of opposite clamping-rolls journaled in the frames above and below the pivot, and means for operating said rolls, substantially as specified.

2. In a machine of the class described, the 30 combination, with the main frame and the secondary frame fulcrumed near its center thereon, of upper and lower pairs of opposite concaved rollers, one of each pair being toothed, and means for binding the rollers

and for operating the same, substantially as 35 specified.

3. In a machine of the class described, the combination, with the opposite frames pivotally connected between and provided at their upper and lower ends with transverse tie-bars, of pairs of opposite concaved rolls located 40 at the upper and lower ends of the frames, means for operating the rolls, and a lever fulcrumed on one tie-bar and provided with a bail terminating in hooks for engaging the opposite tie-bar, substantially as specified. 45

4. In a machine of the class described, the combination, with the opposite oblong frames, each comprising vertical longitudinal bars and tie-bars, the standards 22, secured to one 50 of the frames and serving as a fulcrum for the opposite frame, and the upper and lower pairs of tie-bolts passing through the frames, of the upper and lower pairs of concaved rollers journaled in the frames, one roll of each 55 pair being toothed, the lever notched at its end to engage with a tie-bar, and the U-shaped bail pivoted in the lever and terminating in hooks for engaging the opposite tie-bar of the opposite frame, substantially as 60 specified.

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

REASON C. LIVINGSTON.

Witnesses:

DAVID W. SEELY,
L. GRISWOLD.