

No. 711,911.

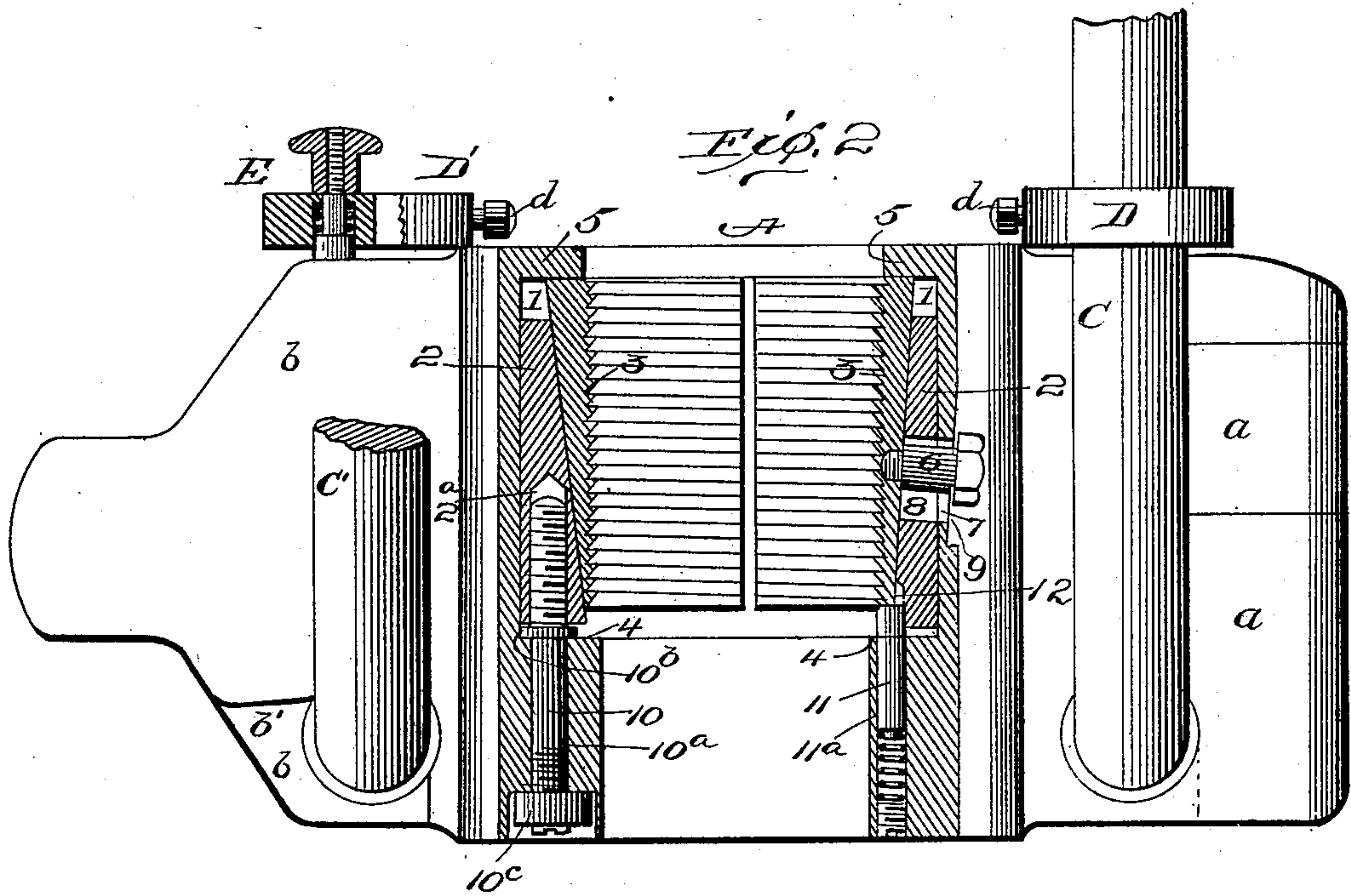
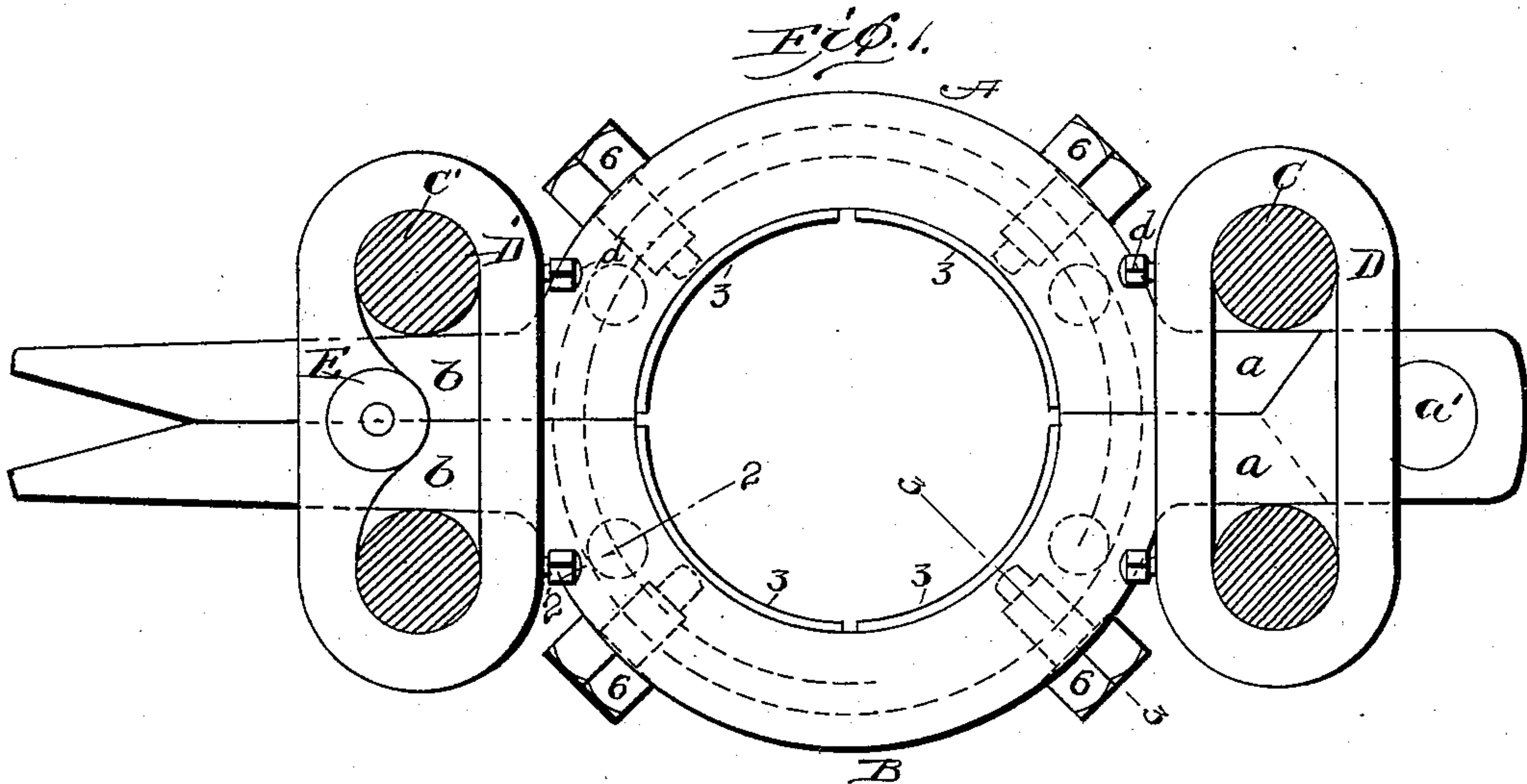
Patented Oct. 21, 1902.

C. L. SMITH.

ADJUSTABLE GRIP ELEVATOR FOR CASING OR TUBING.

(Application filed Feb. 3, 1902.)

(No Model.)



Witnesses:
J. M. Fowler Jr.
L. E. Wilson.

Inventor:
Charles L. Smith
by F. W. Rutter, Jr.

Att'y

UNITED STATES PATENT OFFICE.

CHARLES L. SMITH, OF OIL CITY, PENNSYLVANIA, ASSIGNOR TO OIL WELL SUPPLY COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

ADJUSTABLE-GRIP ELEVATOR FOR CASING OR TUBING.

SPECIFICATION forming part of Letters Patent No. 711,911, dated October 21, 1902.

Application filed February 3, 1902. Serial No. 92,367. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. SMITH, a citizen of the United States, residing at Oil City, in the county of Venango, State of Pennsylvania, have invented certain new and useful Improvements in Adjustable-Grip Elevators for Casing or Tubing; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan or top view of a casing or tubing elevator embodying my invention, the bail-links being in section; and Fig. 2 is a side elevation, in vertical section, on the lines 2 2 and 3 3, respectively, to show the means of adjusting the inclines and the means of yieldingly supporting the slips or wickers.

Like symbols refer to like parts wherever they occur.

My invention relates in general to that class of devices employed for raising, lowering, and drawing well casing or tubing comprising clamp-jaws, bail-links for suspending the same, included slips or wickers for gripping the tube, and means for locking the clamp-jaws upon the included casing or tubing, and has been especially devised with reference to use on "flush-joint" tubing or casing of different diameters.

To this end the main feature of my invention, broadly stated, embraces the combination, in a casing or tubing elevator, of an including element, vertically-adjustable inclines, and included slips or wickers, whereby the slips or wickers may be adjusted to or from the axis of the clamp to accommodate casing or tubing of varying diameter.

A secondary feature of my invention embraces the combination, in an elevator for casing or tubing, of vertically-adjustable inclines and yieldingly-supported included slips or wickers having a movement relative to the inclines, whereby the grip of the slips or wickers is caused to increase proportionately to the load thereon.

There are other minor features of invention relating to certain particular features of construction, all as will hereinafter more fully appear.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A B indicate suitable pivoted jaws constituting a clamp, or an equivalent including element to contain the inclines and slips or wickers and receive the bail-links may be used at the will of the constructor. In the present instance the said jaws A and B are provided with the pivot-lugs *a a* for the reception of the pivot *a'* and the locking-lugs or locking-arms *b b*, which latter may be slightly tapered (see Fig. 1) to coact with the bail-link in forming the lock for the clamp-jaws.

C C' are bail-links pivoted on the pivot-lugs *a* and the locking-lugs *b*, one of said locking-lugs being cut away or recessed, as at *b'*, to permit the bail-link to clear said locking-lug, so that the jaws A B may be separated to introduce the tubing or casing.

D D' indicate tie-links fixed to the bail-links by set-screws *d* and on one of which, D', a limit-latch E may be mounted, so as to accommodate the swaying of the elevator without releasing the locking-lugs or locking-arms *b*.

The interior of the jaws or clamp-sections A and B are countersunk or recessed, as at 1, for the reception of the inclines 2 and slips or wickers 3, so as to form the seat or shoulder 4 below and the flange 5 above, between which the said inclines and slips or wickers are confined, being held from dropping out when the jaws A B are open by means of headed pins or threaded bolts 6, which pass through elongated slots 7 and 8 in the jaws and inclines and into the slips or wickers, the outer wall of the jaw, as at 9, being parallel with the inner face of the incline to prevent binding between the slips and inclines.

2 2 indicate a plurality of inclines, each provided with an elongated slot 8 for the passage of the pin or bolt 6, so as to permit the vertical movement of the incline, and said inclines are each provided below with a tapped hole or cavity 2^a for the reception of the threaded end of a bolt 10, by means of which the said inclines may be adjusted vertically to increase or reduce the interior diameter of

the elevator. The threaded bolts 10, by means of which the inclines are adjusted, are journaled (or rotate loosely) in vertical holes or bores 10^a in the lower part of the clamp, which holes open through the seat or shoulder 4, and said bolts are provided with collars 10^b, which rest on the seat or shoulder 4, and nuts 10^c, which confine the bolts in the bores or holes 10^a, and in addition are provided on the free ends with grooves or other means for rotating the bolts when the inclines are to be moved up or down.

3 3 indicate a plurality of slips or wickers of wedge form and having serrated faces, which slips or wickers rest and travel up and down on the inclines 2 2 and are yieldingly supported to permit them to sink with the load and rise when freed from the load. In order to yieldingly support said slips or wickers 3 3, I provide the spring-pressed pins 11 11, arranged in bores or holes 11^a in the seat or shoulder 4 in line with the lower end of the slips or wickers, the lower end of the inclines 2 2 being slightly recessed, as at 12, to accommodate the spring-pins, if necessary.

The construction being substantially such as hereinbefore set forth, the elevator will be adjusted for use by first rotating the adjusting-bolts 10 to raise or lower the inclines 2 2 until the interior diameter of the elevator (between the slips or wickers) corresponds with the exterior diameter of the casing or tubing to be raised or lowered. The clamp is then opened, applied to the tubing or casing, closed and locked, and the power applied to the bail-links in the usual manner. When the tubing or casing has been inserted and the elevator closed and locked, the wickers or slips which are at their upper limit will bite upon or grip the tube or casing, so that when the lifting power is applied and the elevator takes up the load the slips or wickers 3 3 will tend to move down the inclines 2 2 and in toward the axis of the clamp, thus holding the tubing or casing with a grip proportionate to the load. When relieved of the load, the reaction of the spring-pins 11 11 will cause the slips or wickers to travel up the inclines or recede from the axis of the clamp, and thus release the tubing or casing.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a casing or tubing elevator, the combination with an including element, of a plurality of included slips or wickers, and a plurality of vertically-adjustable inclines inter-

mediate of the including element and the slips or wickers, substantially as and for the purposes specified.

2. In a casing or tubing elevator, the combination with an including element, of included yieldingly-supported slips or wickers, and adjustable inclines therefor intermediate of the including element and the slips or wickers, substantially as and for the purposes specified.

3. In a casing or tubing elevator, the combination with an including element, of included slips or wickers, movable inclines intermediate of the including element and the slips or wickers, and means for adjusting the intermediate inclines, substantially as and for the purposes specified.

4. In a casing or tubing elevator, the combination with an including element, of included yieldingly-supported slips or wickers, movable inclines intermediate of the including element and the slips or wickers, and screw-bolts for adjusting the intermediate inclines, substantially as and for the purposes specified.

5. In a casing or tubing elevator, the combination with pivoted jaws recessed on their interior, of a plurality of movable inclines arranged in the recesses of the jaws, and a plurality of slips or wickers disposed within and resting upon the inclines, substantially as and for the purposes specified.

6. In a casing or tubing elevator, the combination with pivoted jaws having seats or shoulders on their interior, of a plurality of included slips or wickers spring-supported above said seats, and vertically-movable inclines interposed between the jaws and the slips or wickers, substantially as and for the purposes specified.

7. In a casing or tubing elevator, the combination with pivoted jaws each having an inwardly-projecting seat below and flange above, of a plurality of movable inclines and slips or wickers located in the recesses formed by said seats and flanges, means in said seats for adjustably supporting the inclines, and means in said seats for yieldingly supporting the slips or wickers, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 1st day of February, 1902.

CHARLES L. SMITH.

Witnesses:

J. H. CHICKERING,
C. J. RHINE.