No. 667,681. Patented Feb. 12, 1901.

L. C. CROWELL.

CASTING BOX.

(Application filed Mar. 17, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

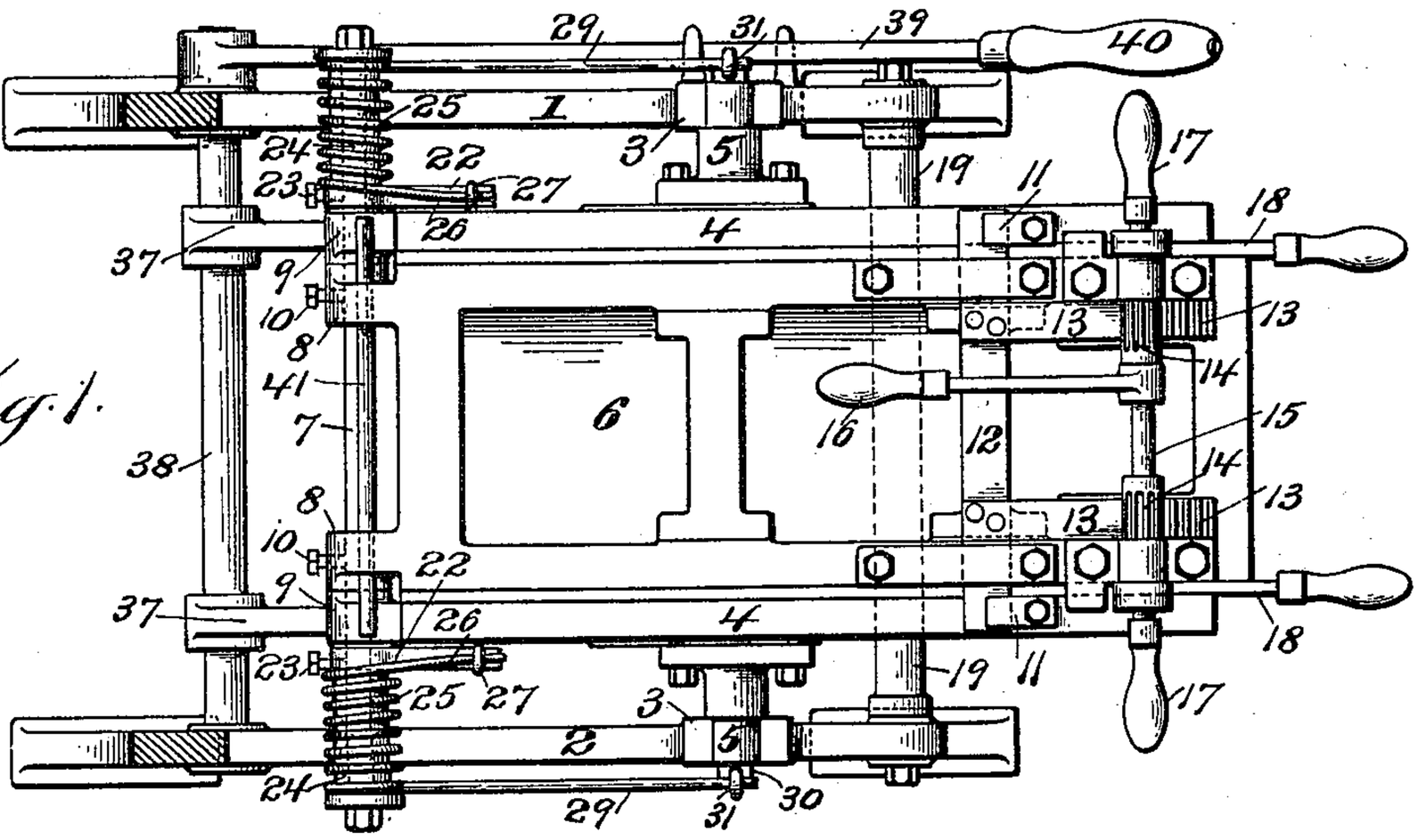


Fig. 2.

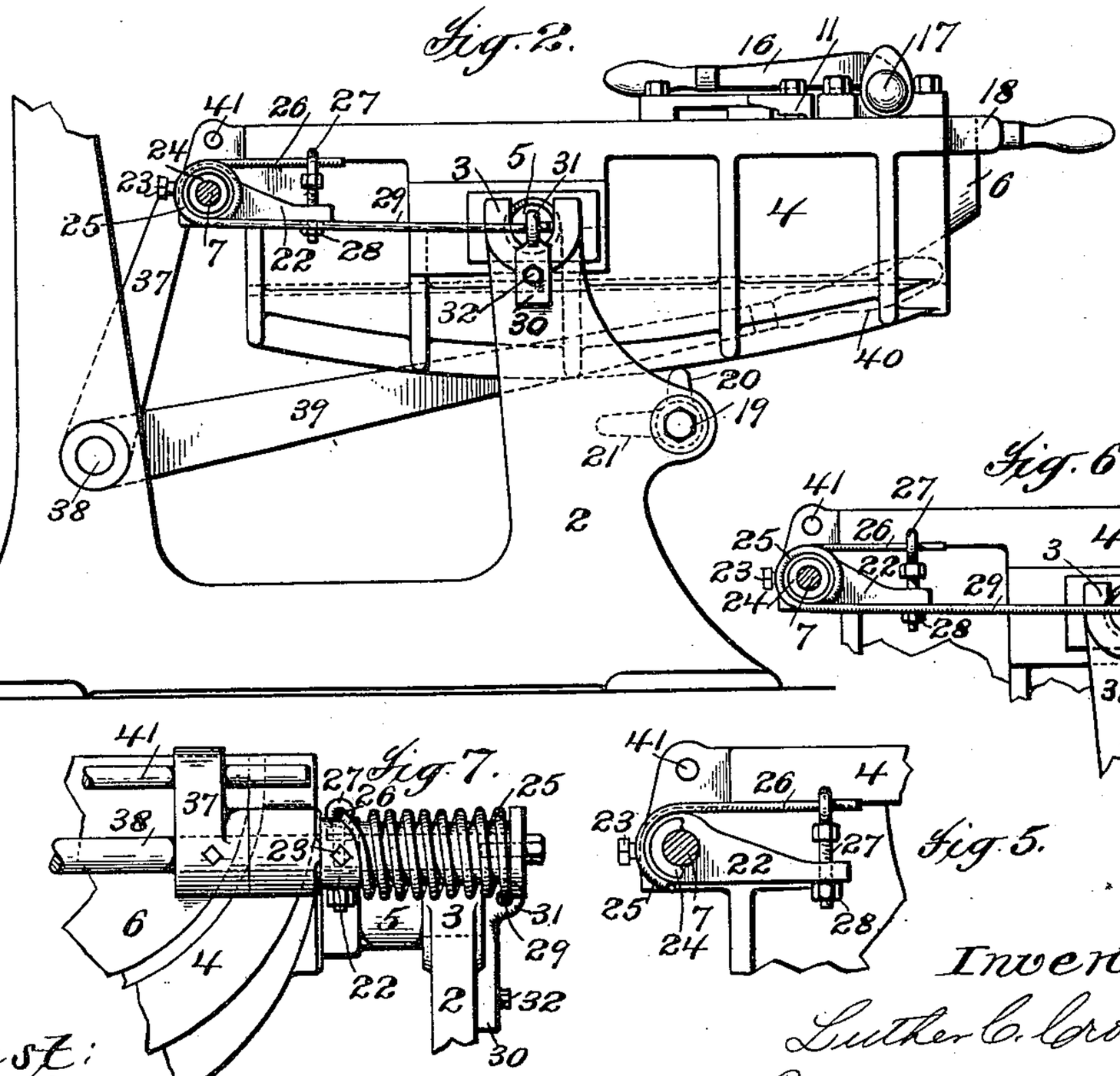


Fig. 6.

Fig. 7.

Fig. 5.

Attest:
J. D. Kehoe
J. A. Evans.

Inventor:
Luther C. Crowell
By Philipp Philipp & Sawyer
Attys

No. 667,681. Patented Feb. 12, 1901.

L. C. CROWELL.

CASTING BOX.

(Application filed Mar. 17, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 3.

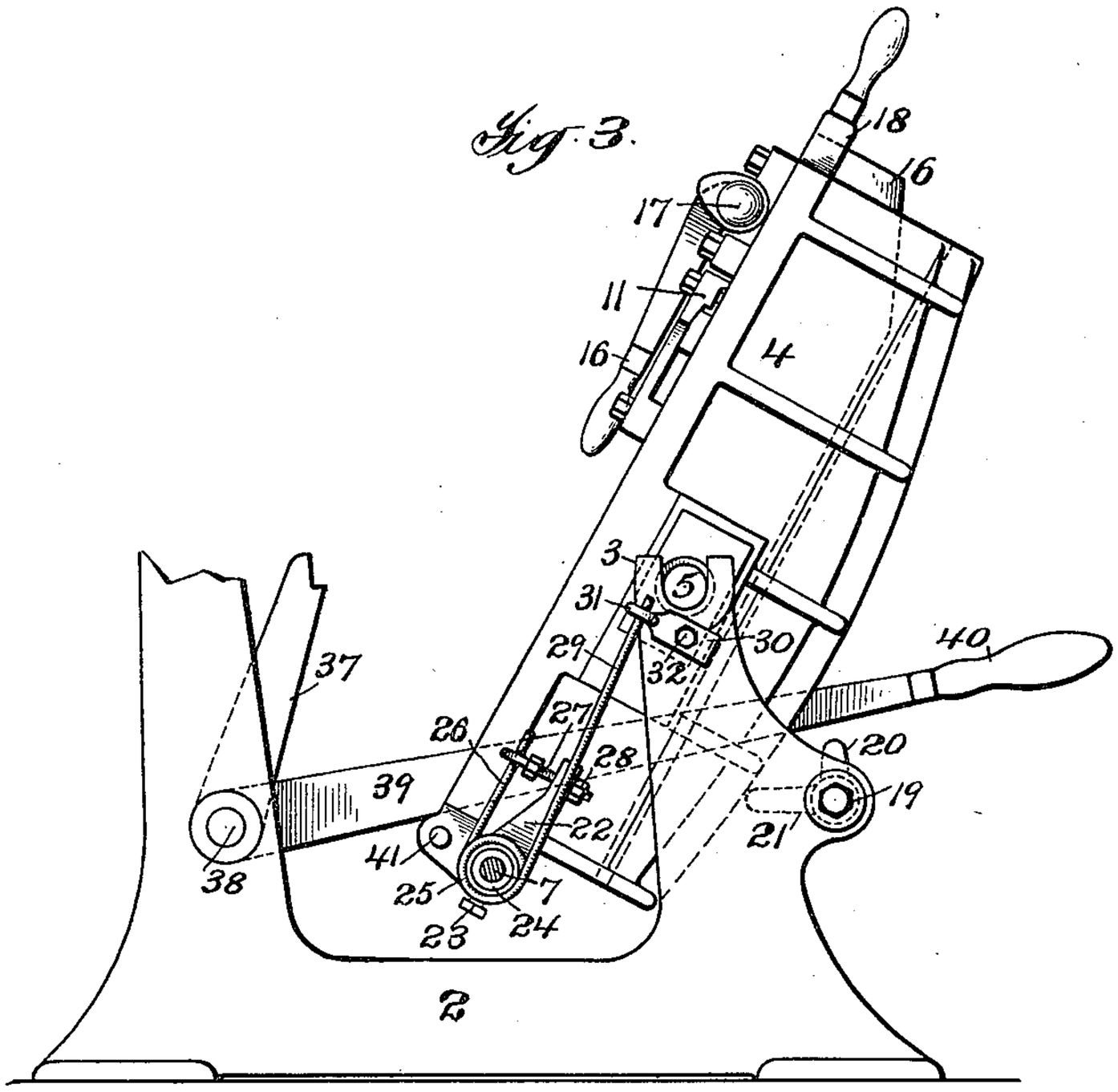
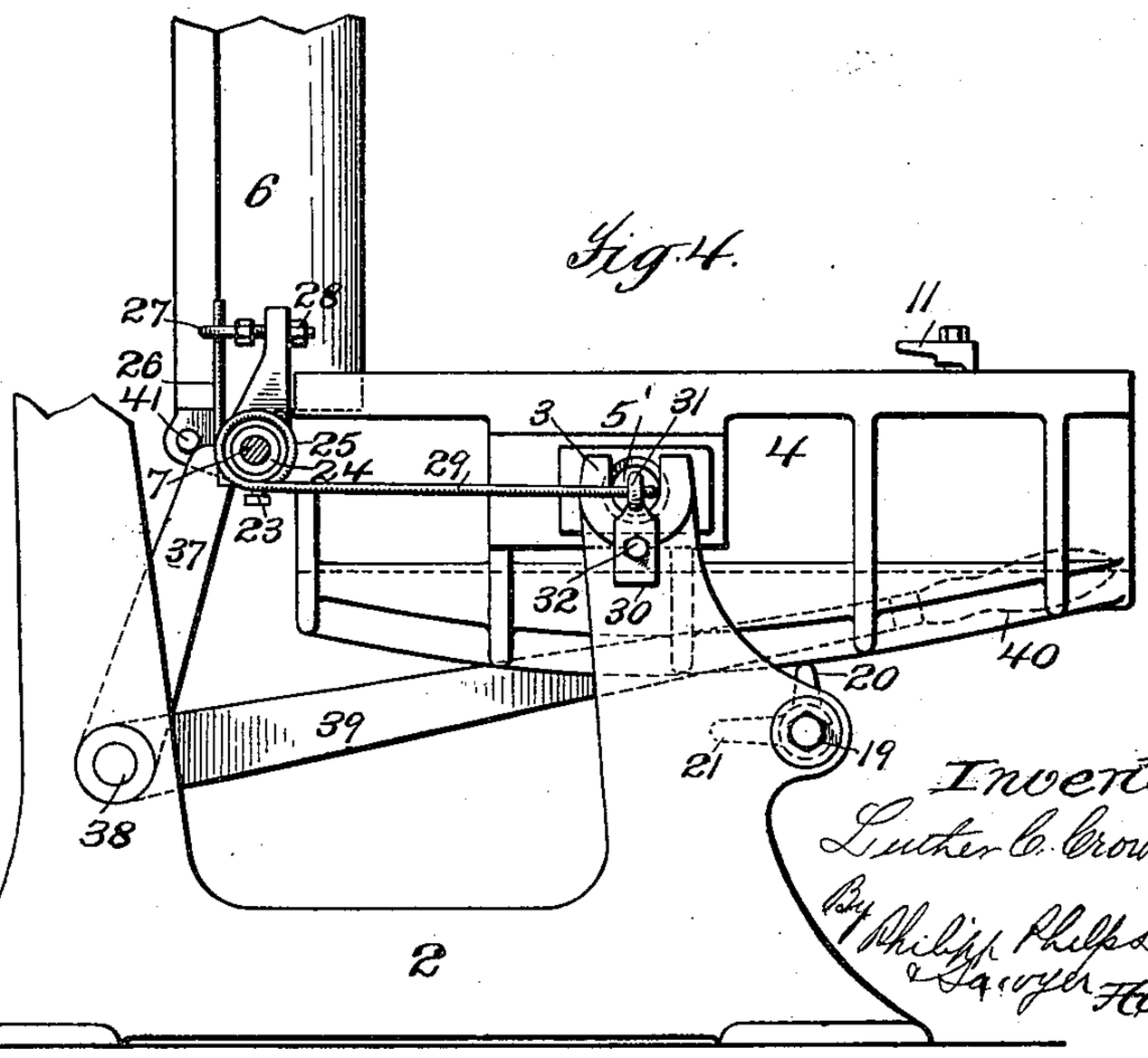


Fig. 4.



Attest:
T. G. Hoe.
J. A. Graves.

Inventor
Luther C. Crowell
By Philip Phelps
& Lawyer Attys

UNITED STATES PATENT OFFICE.

LUTHER C. CROWELL, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO ROBERT HOE AND CHARLES W. CARPENTER, OF SAME PLACE.

CASTING-BOX.

SPECIFICATION forming part of Letters Patent No. 667,681, dated February 12, 1901.

Application filed March 17, 1899. Serial No. 709,450. (No model.)

To all whom it may concern:

Be it known that I, LUTHER C. CROWELL, a citizen of the United States, residing at New York city, county of Kings, and State of New York, have invented certain new and useful Improvements in Casting-Boxes, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in casting-boxes, and more particularly to casting-boxes which are used for casting stereotype-plates.

Stereotype-plate-casting boxes as ordinarily constructed consist of a body portion and a cover which fits into the body portion, a space being left between the two to form a mold-cavity, in which the matrix is secured and into which the molten metal is poured to make the cast, the mold-cavity being usually curved. The body and cover consist of heavy castings, so that the whole structure is of very considerable weight. The body and cover are usually hinged together, and the box as a whole is mounted on trunnions in a suitable frame, so that it can be swung into a vertical position, or nearly so, in order that the molten metal may be poured into it. After the metal has been poured into the box the box is swung into a horizontal position, so that the cast plate may be removed.

As is well understood, the stereotype-plate-casting operation occurs between the final closing of the forms in the composing-room and the starting of the press. In all newspaper-offices the closing of the forms is delayed as long as possible before the issuance of the edition of the paper in order that the paper may be sure of containing the latest news. It is very desirable, therefore, to save all the time possible in the stereotyping and casting operations, and in large newspaper-offices the saving of even a single minute in these processes is regarded as of great importance. On account of this necessity for saving time it is desirable to so construct the casting-boxes that they may be manipulated as expeditiously as possible. While the entire box can be so nicely balanced upon its trunnions that the operation of swinging it from a horizontal to a vertical position, or vice versa, can be accomplished with but little exertion and with great speed, the lifting of the heavy cover when the box is in its horizontal position is a matter which requires considerable strength and which is not as boxes are now usually constructed easy to accomplish.

It is the object of this invention to construct an improved casting-box in which springs shall be used to assist in raising the cover of the box, the springs being so disposed as to be exceedingly effective and the arrangement being such that the expense of constructing the box is not largely increased and that the springs do not interfere with the necessary manipulation of the box.

With this object in view the invention consists in certain parts, improvements, and combinations, as will be hereinafter described, and fully pointed out in the claims hereunto appended.

In the accompanying drawings, in which the same reference characters indicate the same parts, Figure 1 is a plan view of the casting-box constructed in accordance with the invention, the box being shown in its horizontal position. Fig. 2 is a side view of the construction shown in Fig. 1. Fig. 3 is a side view of the box raised into the position it occupies when the molten metal is to be poured therein. Fig. 4 is a side view showing the box in its horizontal position, but with its cover raised, the cover being partly broken away. Figs. 5 to 7, inclusive, illustrate various details of construction.

Referring to the drawings, which illustrate one embodiment of the invention, 1 and 2 indicate the side portions of a frame, in which a casting-box is mounted. These parts of the frame are tied together in any usual or desired manner, either by parts of the construction to be hereinafter described or by ordinary tie-rods, or by both.

The parts 1 and 2 are provided with suitable bearings 3. In these bearings 3 is mounted the body portion 4 of the casting-box, this portion being provided with trunnions 5. The box-body has its interior of the usual curved form, and the cover 6 fits between the sides of

the body, the said cover being hinged to the body by a hinge-rod 7, which passes through ears 8 on the cover and ears 9 on the box. The cover 6 is secured to the hinge-rod 7 by means of set-screws 10 or in any other suitable manner. The body portion of the box is provided with lugs 11, which are engaged by a sliding bar 12, carried on the cover, the cover being locked to and unlocked from the body portion by sliding the said bar 12. The bar 12 may be moved in any usual or desired manner. In the present structure it is shown as provided with racks 13, which engage pinions 14 on a shaft 15, suitably mounted in bearings on the cover of the box. The shaft 15 is provided with a handle 16, by which the shaft is rocked to slide the bar 12, and is also provided with handles 17, by which the cover and box may be swung from vertical to horizontal position, or vice versa. The box is also shown as provided with the usual side bars 18, by which the position of the matrix is controlled.

Extending across the frame from side to side is a rod 19, which carries stop-lugs 20 and 21, the stop-lug 20 serving to limit the movement of the box when it is swung into a horizontal position and the stop-lug 21 serving to limit the movement of the box when it is swung into a vertical position, as will be apparent by comparing Figs. 2 and 3.

As has been stated, springs are applied to the cover of the box in order to assist in raising the same.

In the preferred form of the construction the hinge-rod is extended on each side of the box. Mounted on the extensions of the hinge-rod are arms 22, which are secured to the hinge-rod in any suitable manner, as by set-screws 23. The arms 22 preferably have integral with them collars 24, which extend along the extensions of the hinge-rod. The purpose of these collars is to increase the size of the rod, so that the central coil of the spring, to be hereinafter described, may be of larger size, and therefore more effective. It is obvious that the collars may be independent of the rods or in some cases omitted altogether.

Coiled about the collars 24 are springs 25, said springs having their operating ends 26 connected to the arms 22 in any suitable or desired manner. In the construction shown the arms 22 are provided with screw-eyes 27, said eyes being adjustably secured in the arms 22, so that the tension of the spring may be readily adjusted. The adjustment of the screw-eyes may be effected in any suitable or desired manner. In the construction shown the adjustment is effected by nuts 28. The other arm 29 of the spring may be secured in any suitable or desired manner. Preferably, however, it will be secured to the frame.

Various means may be used for effecting the connection between the frame and the spring. In the preferred form a plate 30, having a closed eye 31, will be secured to the frame by means of a pivot-bolt 32, which passes through the eye in the frame. By pivoting the plate 30 to the frame it will be seen that as the box swings from the horizontal to the vertical position the plate is free to follow the box and any bending or cramping of the arm 29 of the spring is avoided. The plates are preferably located so that the bearing-points of the arms 29 of the springs are opposite the centers of the trunnions on which the box is pivoted, as when the springs bear at these points they do not affect the balancing of the box. If desired, however, the plates 30 may be pivoted off the centers of the trunnions, as indicated in Fig. 7. When so arranged, the arms 29 of the springs will have a slight tendency to cause the box to swing from its vertical to its horizontal position, or, in other words, will aid in swinging the box into its horizontal position after the casting has been made. Inasmuch, however, as the balancing of the box can be effected with extreme nicety through the trunnions alone, it is preferable to locate the pivot-plates as shown in the figures before referred to.

While it is preferred to secure the arms of the springs to the frame, as has been before described, they may under some circumstances be otherwise secured.

While the arrangement of the spring, which has been heretofore described, is an efficient one, it is to be understood that there are other arrangements and locations of the spring which are possible. The invention is not, therefore, to be limited to the particular construction which has been heretofore described, but embraces such other arrangements as have been referred to. The box is shown as provided with locking-arms 37, which are mounted on a shaft 38, the position of the shaft being controlled by a lever 39, having a handle 40. When the box is in its horizontal position, the end of the lever takes under a safety-rod 41 and prevents the box from being turned upon its trunnions when the cover is swung up.

What I claim is—

1. In a casting-box, the combination with the body portion and cover, of a frame in which said parts are mounted to swing, a hinged rod connecting the cover and body portion and to which the cover is rigidly secured, said rod extending beyond the side of the box, a spring coiled around the rod, an arm rigidly secured to the rod and to which the operating end of the spring is secured, and means for connecting the other end of the spring to the frame.

2. In a casting-box, the combination of a body portion and cover, of a frame in which said parts are mounted to swing, a hinged rod connecting the body portion and cover and to which the cover is rigidly secured, said rod extending beyond the sides of the box, arms rigidly connected to the extending ends of the rods, springs coiled around the rod and having

their operating ends connected to the arms and means for connecting the other ends of the springs to the frame.

3. In a casting-box, the combination with a body portion, of a cover pivoted thereto, a hinge-rod connecting the cover to the body portion, the cover being rigidly secured to the hinge-rod, an arm rigidly secured to the hinge-rod, a collar extending from the arm, a spring coiled about the collar and having its operating end connected to the arm, and means for connecting the other end of the spring to the frame, substantially as described.

4. In a casting-box, the combination with a body portion, of a cover connected thereto, a frame in which said parts are movably supported, a spring having its operating end arranged to exert a lifting moment on the cover and a swinging connection between the other end of the spring and the frame.

5. In a casting-box, the combination with a body portion, of a cover, a frame in which said parts are movably supported, a hinged rod connecting the body portion and the cover, the cover being rigidly secured to said rod, an arm rigidly connected to the rod, a spring coiled around the rod and having its operating end connected to the rod and a swinging connection between the other end of the spring and the frame.

6. In a casting-box, the combination with the body portion, of a cover, a hinged rod connecting the cover and the body portion, the cover being rigidly secured to the rod an arm rigidly secured to the rod, a spring coiled around the rod and means for adjustably connecting the operating end of the spring to the arm.

7. In a casting-box, the combination with the body portion and a cover, of a frame in which said parts are mounted to swing, a hinged rod connecting the cover and the body portion and to which the cover is rigidly connected, an arm rigidly connected to the arm, a spring coiled around the rod, means for adjustably connecting the operating end of the spring to the arm and the swinging connection between the other end of the spring and the frame.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LUTHER C. CROWELL.

Witnesses:
F. W. H. CRANE,
L. ROEHM.