

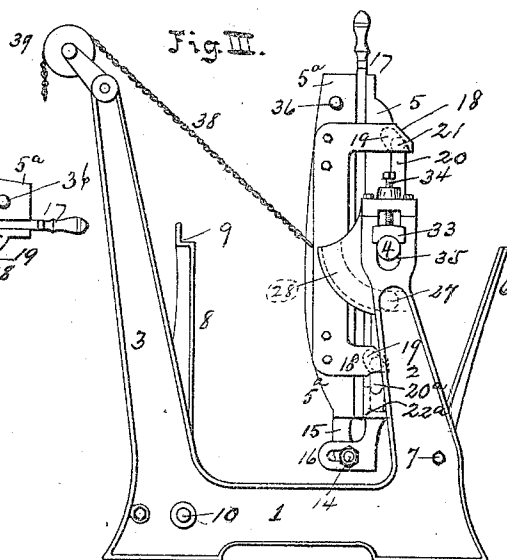
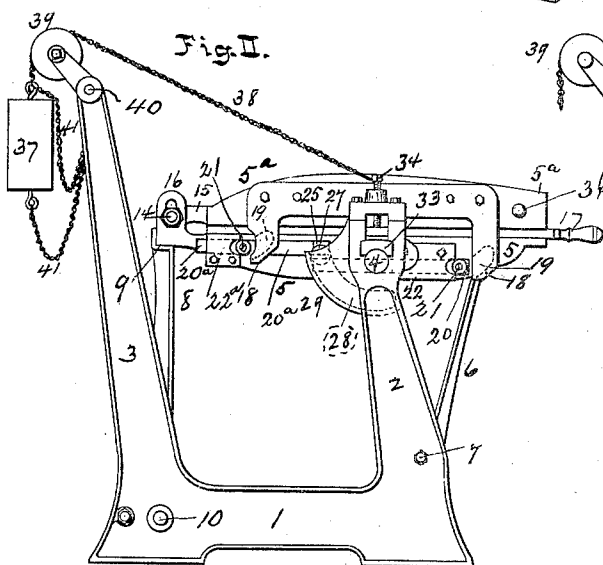
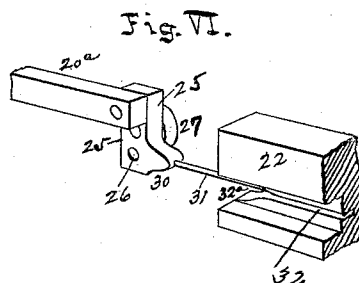
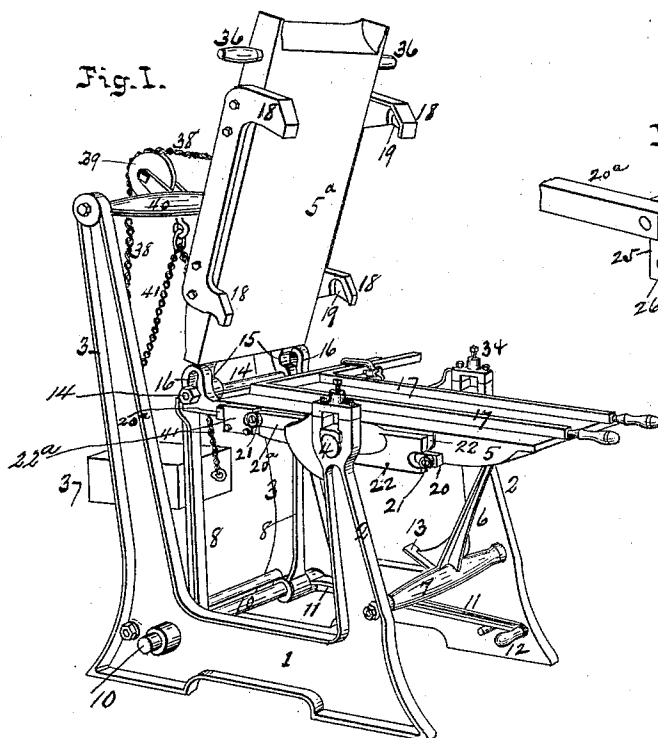
(No Model.)

2 Sheets—Sheet 1.

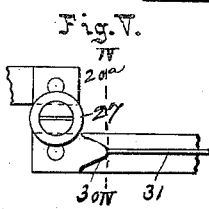
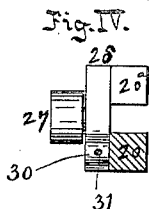
C. SCHRAUBSTADTER, Jr. & C. R. SCHILLING.
CASTING BOX.

No. 465,541.

Patented Dec. 22, 1891.



Attest:
E. H. Knight
Harry D. Polner



Inventors:
Carl Schraubstadter Jr
Chas. R. Schilling
By Knight Bros
Atty

(No Model.)

2 Sheets—Sheet 2.

C. SCHRAUBSTADTER, Jr. & C. R. SCHILLING.
CASTING BOX.

No. 465,541.

Patented Dec. 22, 1891.

Fig. VII.

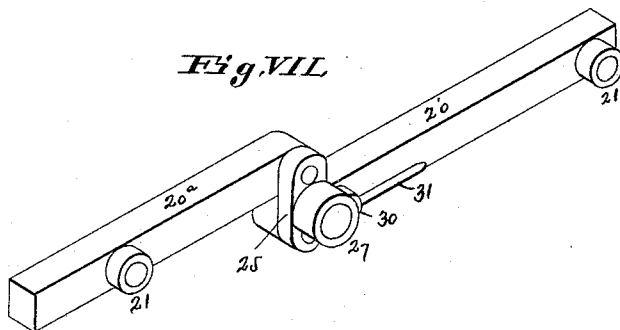
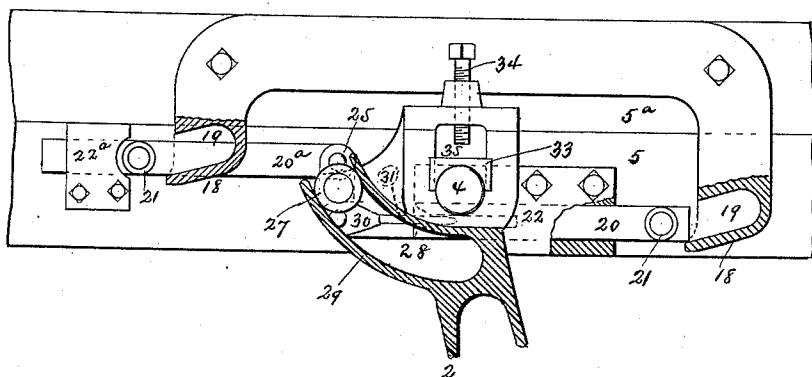


Fig. VIII.



Attest;

William E. Knight
George E. Chase

Inventors:

Carl Schraubstadter Jr.
Chas. R. Schilling
By *Wm. H. Knight*
Attys

UNITED STATES PATENT OFFICE.

CARL SCHRAUBSTADTER, JR., AND CHARLES R. SCHILLING, OF ST. LOUIS,
MISSOURI; SAID SCHILLING ASSIGNOR TO SAID SCHRAUBSTADTER, JR.

CASTING-BOX.

SPECIFICATION forming part of Letters Patent No. 465,541, dated December 22, 1891.

Application filed February 12, 1891. Serial No. 381,220. (No model.)

To all whom it may concern:

Be it known that we, CARL SCHRAUBSTADTER, Jr., and CHARLES R. SCHILLING, both of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Casting-Boxes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to certain improvements in boxes for making stereotype-casts; and our invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a perspective view of the box, showing it open ready to receive the matrix. Fig. II is a side view of the box, showing it closed. Fig. III is a side view of the box, showing it in its upright or vertical position ready for casting. Fig. IV is a detail sectional view of part of the left-hand clamping device on the line IV-IV, Fig. V, looking rearward. Fig. V is a detail side view of part of the left-hand clamping device. Fig. VI is a detail perspective view of part of the right-hand clamping device. Fig. VII is an enlarged detail perspective view showing more especially the slides or bars of the locking device. Fig. VIII is an enlarged detail partly side and partly sectional view of the said locking device and adjunctive parts.

Referring to the drawings, 1 represents a frame having front standards 2 and rear standards 3. The upper ends of the standards 2 are notched out to receive the journals 4, formed upon or secured to the lower half 5 of the casting-box. When in its horizontal position, the box is supported by the journals 4 at the center, and at the front ends by means of an arm 6, projecting upwardly from a tie-rod 7, which serves to hold the frame together. The box is further held in its horizontal position by arms 8, engaging its inner end, as shown clearly at 9, Fig. II, the arms being secured to a rock-shaft 10, journaled in the frame 1, and to the shaft is secured a lever 11, having a handle 12, by which the shaft may be rocked to move the arms 8 out of engagement with the box. By an upward movement on the outer end of the lever 11 the arms

8 would be disengaged from the box, which will or can then assume the vertical position shown in Fig. III, and the box is prevented from swinging beyond a vertical position by its lower end coming against a projection 13 on the tie-rod 7.

The upper half 5^a of the casting-box is pivoted to the lower half 5 by means of a rod 14, passing through perforated lugs 15 in the part 5^a of the box and through slotted lugs 16 on the part 5 of the box. This form of hinge between the two parts of the box admits of variation in the thickness of the mold or bearers 17, and consequently a variation in the thicknesses of the casts.

On the upper half 5^a of the box are projections 18, having inclined notches or grooves 19 upon their inner faces, as shown clearly in Fig. I and by dotted lines in Figs. II and III. On the lower half of the box are sliding plates 20 20^a, carrying projections 21, which are preferably in the form of rollers. The sliding plates are held in position by suitable guides 22 22^a, the plate 20 sliding in the guide 22 and the plate 20^a sliding in the guide 22^a. There are preferably sliding plates 20 20^a at each side of the machine, and these plates are preferably joined by a link 25, as shown in Figs. IV, V, and VI. One 20 of the plates is omitted in Fig. VI; but 26 represents the perforation in the link for receiving the pivot-pin of the missing plate. On the links 25 are projections 27, preferably in the form of rollers. These projections 27 fit in grooves 28 on the inner faces of projections 29, formed upon or secured to the standards 2. The covers or guides 22 and 22^a simply keep the bars or slides in their proper positions. Were it not for the projection or roller 27 engaging in the track or groove 28 they would be free to move forward and backward as far as the rollers or projections 21 would allow them. The grooves 28 are eccentric to the journals 4, their inner ends being nearer the journals than their outer ends. As the box is swung from a horizontal to a vertical position, the projections 27 move in the grooves 28 and force the sliding plates 20 20^a, with their projections 21, toward the outer end of the box, thus causing the projections 21 to engage the notches or grooves 19 in the projections 18, and thus firmly hold-

ing the part 5^a of the box against the part 5 of the box, any deviation of the link 25 from its normal position—that shown in Fig. VIII—being resisted by the spring 31, which is a part of the lug 30, rigidly attached to the link, and as the box is swung to a horizontal position again the plates, with their projections, are moved in the opposite direction, which causes the projections to be disengaged from the notches or grooves 19, and permitting the part 5^a of the box to be swung free of the part 5 of the box. Thus each time the box is moved into the vertical position (shown in Fig. III) the two parts are automatically connected together, and as it moves to its horizontal position (shown in Fig. II) the two parts are disconnected, so that the upper part may be raised to open the box, as shown in Fig. I. Were the track or groove 28 made with the center of the trunnion at its center the relative position of the roller 27 to the trunnion 4 would remain the same when the box was tilted from its vertical position in Fig. II to the upright position in Fig. III. As will be seen by the drawings, this is not the case; but the track or groove 28 is eccentric, so that when the box is swung into the position shown in Fig. III the roller is brought upward or toward the handle 17. This of course pushes the entire slides or bars forward in the same direction, so that the projections or rollers 21 push forward against the notches or grooves 19 in the projections 18. The faces of these projections are made slanting, so that when the rollers push forward they tend to force the two halves of the box together.

By making the sliding plates 20 20^a on each side of the machine in two parts and connecting them by the link 25 a slight variation in the thickness of the matter between the two parts of the box is compensated for, as one of the sliding plates may be moved slightly farther than the other plate by the turning of the link at its pivot-points with the plates, and this also permits of an equal pressure in the clamping of the box at both ends. When the connecting-link is used, either plate is liable to be pushed forward by the looseness of its connection more than the other, which might cause one or the other of them not to be moved sufficiently far to disengage its projection 21 from the groove or notch 19. To obviate this we provide the link 25 with a projecting lug 30, which moves and fits in the recess 32^a of the guide 22, preventing too much movement on the part of either one of the plates and insuring the proper position of the projections 21, and as a further aid to this we prefer to have this lug end in a piece of spring metal 31, fitting in a groove 32 in the guide 22, so that when pressure is brought against it it will spring and allow of considerable variation.

It is evident that if in place of being made in two pieces the bars or slides 20 20^a were of one, in case any small imperfection in the bearers or any foreign substance came be-

tween the two halves of the box, one end of the box would have a wider opening or a greater distance between its halves than the other, in which case, when the slide was pushed forward by the projection 27, but one of the projections or rollers 21 would engage with its corresponding notch in the projection 18, bringing the pressure against this, while a projection or roller at the other end would not touch the slide, leaving this end of the box unclamped. In our construction, when such is the case, the roller on one end pushes against the projection, and as soon as there is sufficient pressure the slide is pushed back against the link 25, which in turn pushes or pulls forward the other half of the slide, bringing it against its projection 18, and thus equalizing the pressure.

The guides 22 and 22^a prevent any motion, except it is parallel with the plates and casting-surface of the box. In other words, these plates are simply laid on the sides of the box. The guides or covers 22 and 22^a extend over them and are held in position by bolts, as shown in Figs. I and II, so that they shall not move except in the right direction. The rollers 21 and 27 prevent the bars from moving out of their proper position, though of course 27 is the principal guide, and it is assisted somewhat by the projection 30 and 31.

In order to give a strong and positive pressure when various thicknesses of molds or gages 17 are used, we prefer to employ sliding or adjustable boxes 33, held by screws 34 against the journals 4, which permit the journals to move relatively to the point of bearing between the projections 27 and the lugs 29 and leave a space, as shown at 35, Fig. III.

When the box is lowered in a casting position, as in Fig. III, the roller 27 is moving in the eccentric. Track 28 pushes the slides forward, so that the rollers 21 bear against the inclined planes in the projections 18. This brings the two halves of the box together. If, as we contemplate it, the slides are so set as to continue pushing forward after the surfaces are brought together, the roller 27 will be forced down the track 28 and at the same time lift the trunnions 4 in the sliding boxes, the weight of the box being borne by the rollers 27 instead of the trunnions, as illustrated in Fig. III. Should it be desirable to employ more pressure than the weight of the box supplies, the set-screws 34 can be screwed down, so that when the trunnion 4 rises it will press against the sliding box 33. This will prevent the trunnion from rising any farther, and the additional pressure supplied by forcing the box into an upright or casting position will tend to bring the trunnion 4 and the roller 27 closer together, and consequently will give more pressure against the slides, and the rollers 21, which slide in the tracks 19 of the projections 18, and the box will in consequence be more firmly clamped together.

The upper half of the box is provided with

handles 36, by which it may be raised to open the box, and to more easily accomplish the opening of the box we employ a counter-weight 37, connected by a chain 38 to the upper half of the box, the chain passing over a grooved pulley 39, journaled in a tie-rod 40, which holds the upper ends of the standards 3 together.

To prevent the counterbalance-weight, through the chain 38, pulling the upper half of the box too far over, we connect the weight by means of a chain or chains 41 to the rod 40, so that when the weight has lifted the upper half of the box a sufficient distance the chains 41 will become taut and will sustain the weight 37, as shown in Fig. I, thus removing its pressure from the upper part of the box and preventing it from moving the upper part of the box too far.

The operation of the machine is as follows: The upper part 5^a of the box is first opened, as shown in Fig. I, and the matrix from which a cast is to be made is placed in the mold or gage 17. The upper half of the box is then lowered and the arms 8 are moved out of engagement with the inner end of the box, which will or can then swing to the vertical position, (shown in Fig. III,) and as it swings to this position the two parts of the box are united by the sliding plates 20 20^a and the projections 21, engaging the notched projections 18, as described. The cast is then made by pouring metal into the space between the two parts of the box, and the box is then brought to a horizontal position again, as shown in Fig. II, when the upper half of the box may be raised, as shown in Fig. I, permitting the cast to be removed and another matrix to be inserted.

We claim as our invention—

1. In a two-part casting-box, the combination of the notched projections on one of the parts, the sliding plates on the other half of the box, linked together at their meeting ends to stand in parallel planes one above the other and having projections adapted to engage in the notched projections, the guides, and means for automatically shifting the plates, substantially as and for the purpose set forth.

2. In a two-part casting-box, the combination of the notched projections on one part of the box, sliding plates on the other part of the box, linked together at their meeting ends to stand in parallel planes one above the other, and said plates having roller projections for engaging said notched projections, the guides, and means for automatically shifting the plates, substantially as and for the purpose set forth.

3. In a two-part casting-box, the combina-

tion of the notched projections on the upper half of the box, sliding plates on the lower half of the box, having rollers for engaging the notched projections, a projection 29 on the standards 2, having an eccentric groove, the links 25, and a projection on one of said links fitting in said groove, whereby the two parts of the box are automatically locked and unlocked, substantially as set forth.

4. In a casting-box, the combination of the upper and lower parts hinged together, notched projections on the upper part, sliding plates on the lower part, rollers on the sliding plates for engaging the notched projections on the upper part, links connecting the sliding plates, rollers on the links, and projections on the standard of the machine, having eccentric grooves in which the rollers on the links fit, substantially as and for the purpose set forth.

5. In a casting-box, the combination of the members 5 and 5^a, the member 5^a having notched projections 18 and the member 5 having sliding plates 20 20^a, provided with rollers 21, a link connecting the plates 20 20^a, a roller on the link engaging a groove in the projection 29 on the standard of the machine, and a lug 30 on the connecting-link, and a guide 22, having the recess 32^a to receive the lug 30, substantially as and for the purpose set forth.

6. In a casting-box, the combination of the part 5^a, having the notched projections 18, the part 5, having the sliding plates 20 20^a, with rollers 21 adapted to engage the projections 18, guides 22 22^a, having grooves 32 and recesses 32^a, in which the plates 20 20^a move, and links 25, having lugs 30 and spring extensions 31, and means for actuating said plates, substantially as and for the purpose set forth.

7. In a casting-box, the combination of the members 5 and 5^a, the member 5^a having notched projections 18, sliding plates 20 20^a, having projections 21, links 25, having projections 27, the grooved projection 29, the journals 4 on the lower half of the box, and the set-screws 34, substantially as and for the purpose set forth.

8. In combination with a casting-box made in two parts, adapted to be opened out, and a counter-balance 37, connected to the upper part of the box by a chain 38 and connected to the upper part of the frame of the machine by a chain 41, substantially as and for the purpose set forth.

CARL SCHRAUBSTADTER, JR.
CHARLES R. SCHILLING.

In presence of—
E. S. KNIGHT,
THOS. KNIGHT.