April 2, 1929. F. R. CLARK 1,707,598

CASTING BOX FOR PRINTERS

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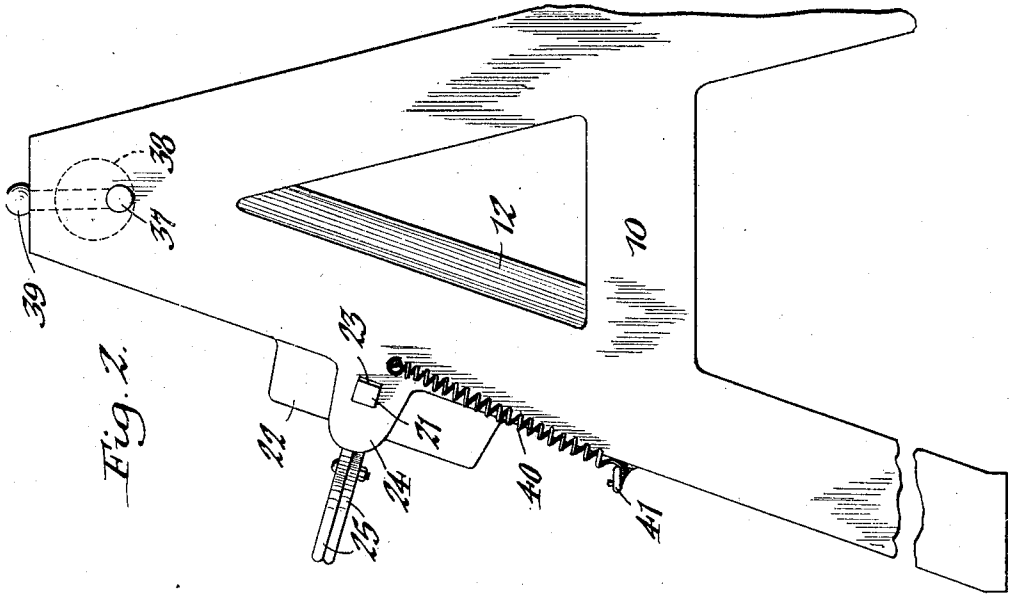



Fig. 2.

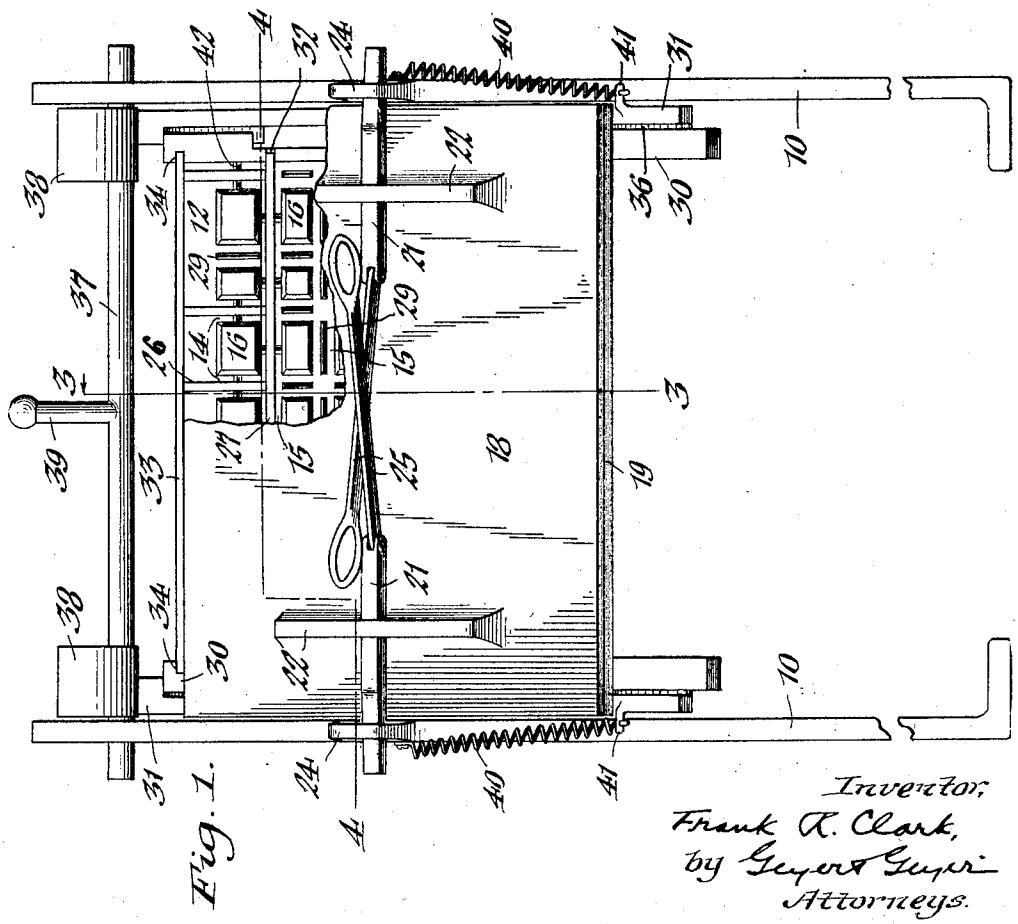



Fig. 1.

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Fig. 3.

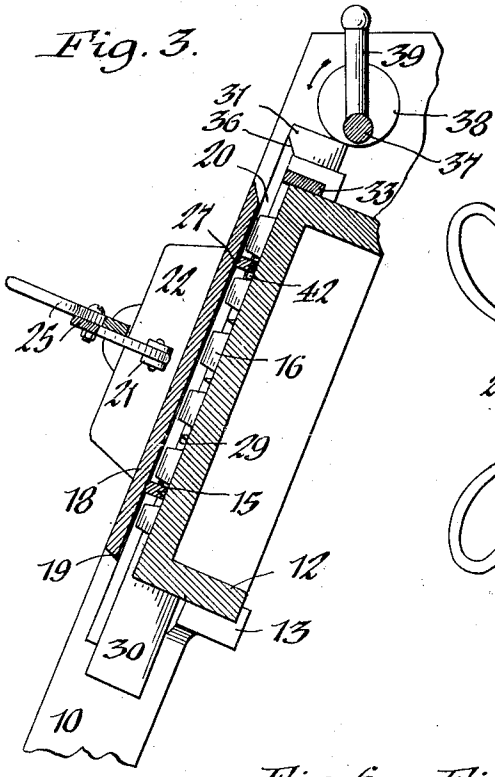



Fig. 4.

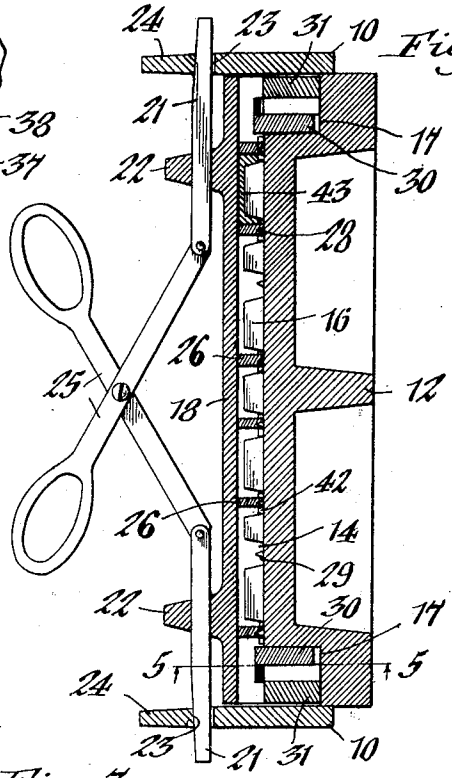
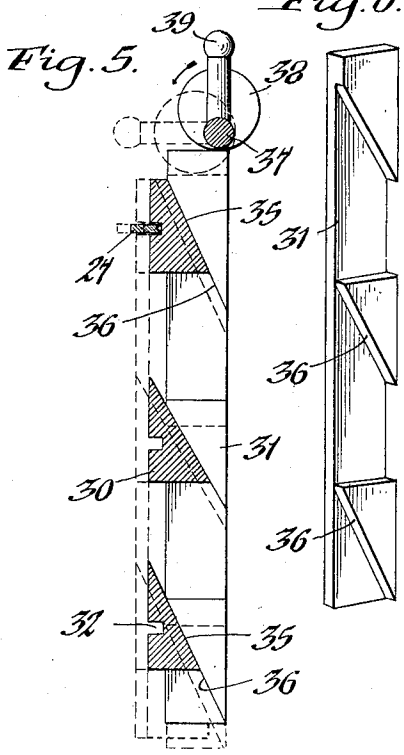



Fig. 6.

Fig. 7.

Fig. 5.



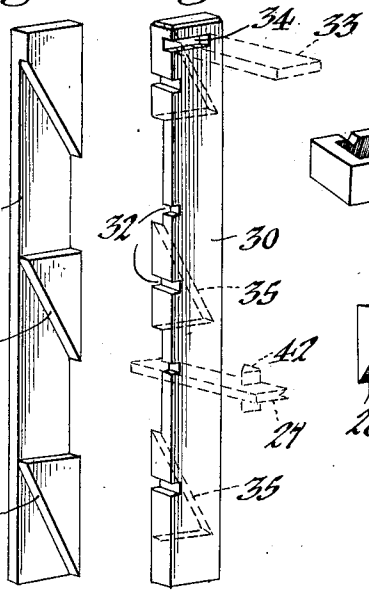




Fig. 9.

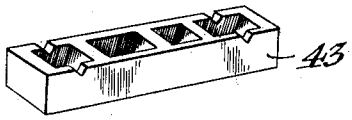
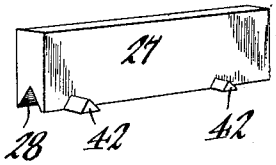



Fig. 8.




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Patented Apr. 2, 1929. 1,707,598

# UNITED STATES PATENT OFFICE.

FRANK R. CLARK, OF BUFFALO, NEW YORK.

## CASTING BOX FOR PRINTERS.

Application filed May 6, 1927. Serial No. 189,236.

This invention relates more particularly to a device or machine for casting printer's furniture, bases or mountings for cuts and electrotypes, and stereotype plates.

One of its objects is the provision of a simple, inexpensive and efficient device of this character by which the printer can readily produce his own furniture, mountings and plates, and which does not require skilled workmen to operate it.

Another object of the invention is to provide a casting box which is readily adjustable to adapt itself to the classes of work mentioned and which is so constructed and organized as to enable different sized furniture to be cast at the same time.

A still further object is to provide positive and reliable means for uniformly releasing or ejecting the finished casting from the box.

In the accompanying drawings:—

Figure 1 is a front elevation of a casting box embodying my invention. Figure 2 is a fragmentary side view thereof. Figure 3 is an enlarged fragmentary transverse vertical section on line 3—3, Fig. 1. Figure 4 is an enlarged horizontal section on line 4—4, Fig. 1. Figure 5 is a vertical section taken in the plane of line 5—5, Fig. 4. Figures 6 and 7 are perspective views of the companion ejector bars. Figure 8 is a perspective view of one of the division strips or partitions. Figure 9 is a perspective view of a piece of furniture cast in the improved box.

Similar characters of reference indicate corresponding parts throughout the several views.

In the preferred embodiment of the invention shown in the drawings, the various parts of the device are supported on a suitable frame consisting of A-shaped members 10, 10 between which is disposed a substantially rectangular cast iron plate 12 constituting the base of the casting box. This base plate is supported in a slightly inclined position on lugs or ledges 13 formed on the front legs of the A-frames, as shown in Fig. 3. The front face of the base plate has a series of intersecting vertical and horizontal casting or furniture-forming grooves or cavities 14, 15 which are spaced at different distances apart and may be graduated according to the printer's measure so that any combination of them may be used at one time for casting furniture and the like of different sizes, as to both length and width. The resulting bosses or projections 16 formed by these intersecting grooves are slightly tapered outwardly to provide the necessary draft in effecting the ready removal of the castings therefrom, the latter being formed between at least two adjoining grooves and the bosses functioning as cores to make the furniture plate mounts and stereotypes lighter and to reduce the amount of casting metal employed to a minimum. Along its opposite marginal sides the base plate has forwardly-facing upright channels or guideways 17.

Removably applied over the front face of the base plate 12 is a cover plate 18, these parts forming the bottom and top walls of the casting box into the grooves 14, 15 of which the casting metal is adapted to be poured thru an inlet opening 20, as shown in Fig. 3. The cover plate may be detachably held in place by locking bolts 21, 21 guided in lugs 22 formed at the opposite sides of said plate and adapted to engage openings 23 formed in flanges 24 projecting from the front edges of the A-frames 10. While these bolts may be actuated in any suitable manner, crossed hand levers 25 are preferably employed which are pivoted at their inner ends to the locking bolts for conveniently actuating them and also for facilitating the handling of the cover plate in applying it to and removing it from the base plate 12. In order that the cover plate may be adjusted toward and from the grooved face of the base plate and thus enable castings of various heights to be made, the outer ends of the bolts which pass thru the openings 23 are tapered or wedge-like in shape.

For the purpose of blocking off or adapting the various grooves or cavities 14, 15 to make furniture, plate mounts and stereotypes of different sizes, vertical and horizontal walls, partitions or division strips 26, 27 are employed which are made in various lengths and heights and which are adapted to be removably mounted in said grooves for forming the two sides and an end wall of the mold. These strips are disposed edgewise and centrally of the intersecting grooves 14, 15 and are provided in their bottom edges with longitudinal channels or grooves 28 extending from end to end thereof for engagement with corresponding centering ribs or

tongues 29 formed in the bottoms of said intersecting grooves. The cover plate 18 engages the outer edges of the division strips and any two of such upright strips, which constitute the side walls of a given mold, are supported at their lower ends on the corresponding horizontal strip which forms the lower end wall of said mold. When castings of different heights or thicknesses are desired, division strips of a corresponding height are employed and the cover plate 18 can be readily adjusted to them by the locking bolts 21.

Means are provided for facilitating the removal of the finished castings from the box and for this purpose ejecting devices are employed which operate in conjunction with the division strips to release the castings from the bosses 16 of the base plate 12. These ejecting devices preferably consist of two sets of relatively movable over lapping bars 30, 31 located at opposite sides of the box and seated in the guideways 17 in the marginal sides of the base plate, as shown in Figs. 1 and 4. The inner bar 30 of each set normally projects with its front edge forwardly of the face of said base plate and is provided in such edge with notches 32 in which the base portions of the horizontal division strips 27 are seated and held against vertical displacement in the casting box, as seen in Fig. 7. Said inner bars 30, while free to move as a unit laterally of the companion bars 31 and forward and backward relative to the base plate, are held against vertical movement relative to such parts by a tie member or bar 33 which rests on the top edge of said plate and engages corresponding grooves or recesses 34 in the opposing inner faces of the inner ejector bars. In their outer sides, the latter are provided with rearwardly-facing inclined teeth or cam faces 35 and the outer ejector bars 31 are provided in the adjoining inner sides with companion forwardly-facing inclined teeth or cam faces 36. These outer bars project above the inner bars and are normally supported and held against slipping downwardly by the teeth thereof engaging the corresponding teeth of the companion inner bars, in the manner shown in Fig. 5, and they are capable of movement lengthwise in their guideways 17 relative to said inner bars but are prevented from outward displacement relative thereto. By forcing the outer bars downwardly, the companion inner bars are moved outwardly and carry the division strips 27 therewith, with the result that the castings are disengaged or released from the molds.

To effect the uniform and ready downward movement of the outer ejector bars 31 when it is desired to remove the finished castings, a horizontal operating shaft 37 is provided which is journaled at its ends in the upper ends of the A-frames 10 and has cams 38 thereon arranged to engage the upper ends of said bars. A handle 39 is attached to the shaft to operate it. Springs 40 fastened at their upper ends to the frame 10 and at their lower ends to lugs 41 formed on the outer bars 31, serve to constantly urge the latter to their elevated normal position. In order to positively insure the withdrawal of the castings from their molds as the ejecting mechanism is operated the divisions strips 26, 27 have laterally-projecting lugs or feet 42 on the opposite sides of their lower edges, as shown in Figs. 3, 4, and 8. By the provision of these lugs, as the ejector bars 30 are actuated to force the division strips outwardly, the lugs on the latter function to pry or raise the castings from the bottoms of the molds.

In using this casting box, assuming the cover plate 18 to have been removed, the division strips 26, 27 are placed in casting grooves 14 to block the same off so as to produce the particular size or sizes of furniture, plate mounts or stereotypes desired, the strips being adjustable on the base plate 12 so that various sizes of furniture can be produced at any one time. After arranging the strips as desired, the cover plate is applied and locked in position by the bolts 21, 21, whereby molds are produced to cast the corresponding furniture. The casting metal is then poured into these molds thru the inlet opening 20, and after the same has cooled sufficiently, the cover plate is removed, the cam shaft 37 is rocked forwardly to lower the ejector bars 31 and force the companion bars 30 outwardly to release the finished castings 43 from the base plate in the manner heretofore described.

This improved casting box is simple, compact and inexpensive in construction, it is readily adjustable for making printer's furniture of different sizes as well as mountings for electrotypes, and stereotype plates, and it is easy to operate.

It will be understood that the embodiment of the invention herein shown and described is illustrative of one form and that the invention may be incorporated in other forms and various changes in the construction thereof may be made within the scope and spirit of the appended claims.

I claim as my invention:—

1. A printer's casting box, comprising a supporting frame, a plate mounted on said frame and having a series of intersecting mold-forming grooves therein, a cover applied to said plate over its grooves, and detachable walls separable from the plate and its cover and adapted for disposition edgewise in said grooves and forming the side walls and an end wall of the molds.

2. A printer's casting box, comprising a supporting frame, a plate mounted on said frame and having a series of intersecting vertical and horizontal mold-forming grooves in its face, a cover applied to said plate over its grooved-face, and division

strips detachably arranged edgewise in said grooves and forming the side walls and an end wall of the molds, the vertical division strips resting endwise on the top sides of the horizontal division strip.

3. A printer's casting box, comprising a supporting frame, a base plate mounted in a substantially upright position on said frame and having a series of intersecting vertical and horizontal mold-forming grooves extending across its face, a cover plate removably mounted over the grooved-face of said base plate to form the top wall of the molds, and a plurality of uniformly-shaped division strips of varying lengths detachably arranged edgewise in said grooves and against which said cover plate bears, the vertical division strips constituting the side walls of the molds and the horizontal strips forming an end wall thereof.

4. A printer's casting box, comprising a supporting frame, a base plate mounted in a substantially upright position on said frame and having a series of intersecting vertical and horizontal mold-forming grooves in its face, a cover plate arranged over the grooved-face of said base plate and forming the top wall of the molds, division strips detachably arranged edgewise in said grooves and against which said cover plate bears, the vertical division strips forming the side walls of the molds and the horizontal strips forming an end wall thereof, and means for centering said strips in their grooves.

5. A printer's casting box, comprising a supporting frame, a base plate mounted in a substantially upright position on said frame and having a series of intersecting vertical and horizontal mold-forming grooves in its face, the bottoms of said grooves having centering ribs therein, a cover plate arranged over the grooved-face of said base plate and forming the top wall of the molds, and division strips detachably arranged edgewise in said grooves and against which said cover plate bears, the bottom edges of the strips having longitudinal channels for engaging said ribs, the vertical division strips forming the side walls of the molds and the horizontal strips forming an end wall thereof.

6. A printer's casting box, comprising a supporting frame, a base plate mounted in a substantially upright position on said frame and having a series of intersecting vertical and horizontal mold-forming grooves in its face, a cover plate arranged over the grooved-face of said base plate and forming the top wall of the molds, division strips detachably arranged edgewise in said grooves and against which said cover plate bears, the vertical division strips forming the side walls of the molds and the horizontal strips forming an end wall thereof, and means for supporting the horizontal division strips in their grooves, the vertical division strips being supported on the adjoining horizontal strip.

7. A printer's casting box, comprising a supporting frame, a base plate mounted in a substantially upright position on said frame and having a series of intersecting vertical and horizontal mold-forming grooves in its face, a cover plate arranged over the grooved-face of said base plate and forming the top wall of the molds, division strips detachably arranged edgewise in said grooves and against which said cover plate bears, the vertical division strips forming the side walls of the molds and the horizontal strips forming an end wall thereof, and combined means for supporting the horizontal division strips in and ejecting them from their grooves to release the casting from the molds.

8. A printer's casting box, comprising a supporting frame, a base plate mounted in a substantially upright position on said frame and having a series of intersecting vertical and horizontal mold-forming grooves in its face, a cover plate arranged over the grooved-face of said base plate and forming the top wall of the molds, ejector bars disposed at opposite sides of the base plate and held against movement in a vertical direction, said bars having notches in their front edges, division strips detachably arranged edgewise in the base plate grooves and against which said cover plate bears, the horizontal division strips being seated at their ends in the corresponding notches of said ejector bars and forming an end wall of the molds and the vertical division strips resting at their lower ends on said horizontal strips and forming the side walls of the molds, and means for moving said ejector bars away from the face of said base plate to free the finished castings from the molds.

9. A printer's casting box, comprising a supporting frame, a base plate mounted in a substantially upright position on said frame and having a series of intersecting vertical and horizontal mold-forming grooves in its face, a cover plate arranged over the grooved-face of said base plate and forming the top wall of the molds, ejector bars disposed at opposite sides of the base plate and held against movement in a vertical direction, said bars having notches in their front edges, division strips detachably arranged edgewise in the base plate grooves and against which said cover plate bears, the horizontal division strips being seated at the ends in the corresponding notches of said ejector bars and forming an end wall of the molds and the vertical division strips resting at their lower ends on said horizontal strips and forming the side walls of the molds, the bases of said division strips having laterally projecting lugs which overlie the bottoms of the mold-forming grooves, and means for moving said

ejector bars away from the face of said base plate to free the finished castings from the molds.

10. A printer's casting box, comprising a supporting frame, a base plate mounted in a substantially upright position on said frame and having a series of intersecting vertical and horizontal mold-forming grooves in its face and vertical guideways at its opposite sides, a cover plate arranged over the grooved face of said base plate and forming the top wall of the molds, a pair of relatively movable overlapping ejector bars arranged in each of said guideways and having a series of inclined cam faces disposed along their adjoining edges whereby upon a vertical movement of one of said bars the other is caused to move in a direction away from the face of the base plate, means for holding one of the ejector bars of a pair against movement lengthwise of the guideways, such last-named bars having notches in their front edges, means for moving the companion bars of a pair lengthwise of the guideways in one direction to cause a transverse movement of the other bars in an outward direction, means for yieldingly moving said longitudinally movable bars in the opposite direction, and division strips detachably arranged edgewise in the base plate grooves and against which said cover plate bears, the horizontal division strips being seated at their ends in the corresponding notches of said ejector bars and forming an end wall of the molds and the vertical division strips resting at their lower ends on said horizontal strips and forming the side walls of the molds.

11. A printer's casting box, comprising a supporting frame, a plate mounted on said frame and having a series of intersecting grooves therein forming molds, a cover applied to said plate over its grooves, detachable walls adapted for disposition in said grooves and forming the side walls and an end wall of the molds, slide bolts for detachably locking the cover in place on said grooved-plate, and crossed levers for actuating said bolts.

12. A casting device for making printer's furniture, stereotype plates, and mounts for cuts and electrotypes, comprising a base member having a plurality of intersecting vertical and horizontal cast-forming grooves spaced at different distances apart according to the printer's measure and forming resulting bosses of varying sizes therebetween, division strips detachably seated edgewise in said grooves in spaced relation to the adjoining bosses, said strips constituting the side walls and an end wall of the molds, and a cover plate removably mounted over the grooved face of said base member.

13. A division strip for a printer's casting box, comprising a bar having a groove in its underside, and lugs projecting laterally from the lower edge of said bar.

FRANK R. CLARK.