

June 19, 1945.

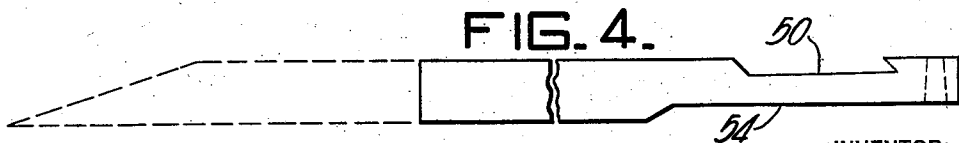
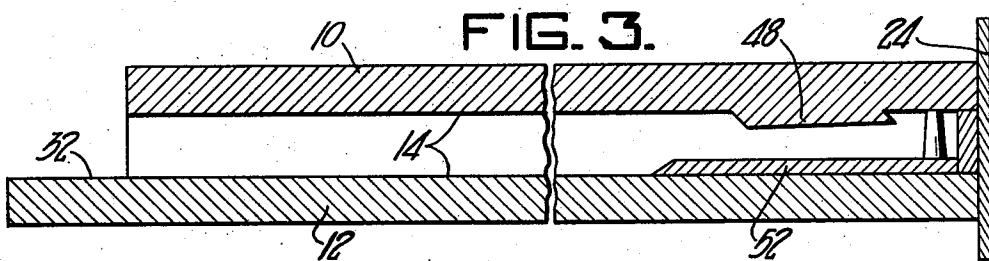
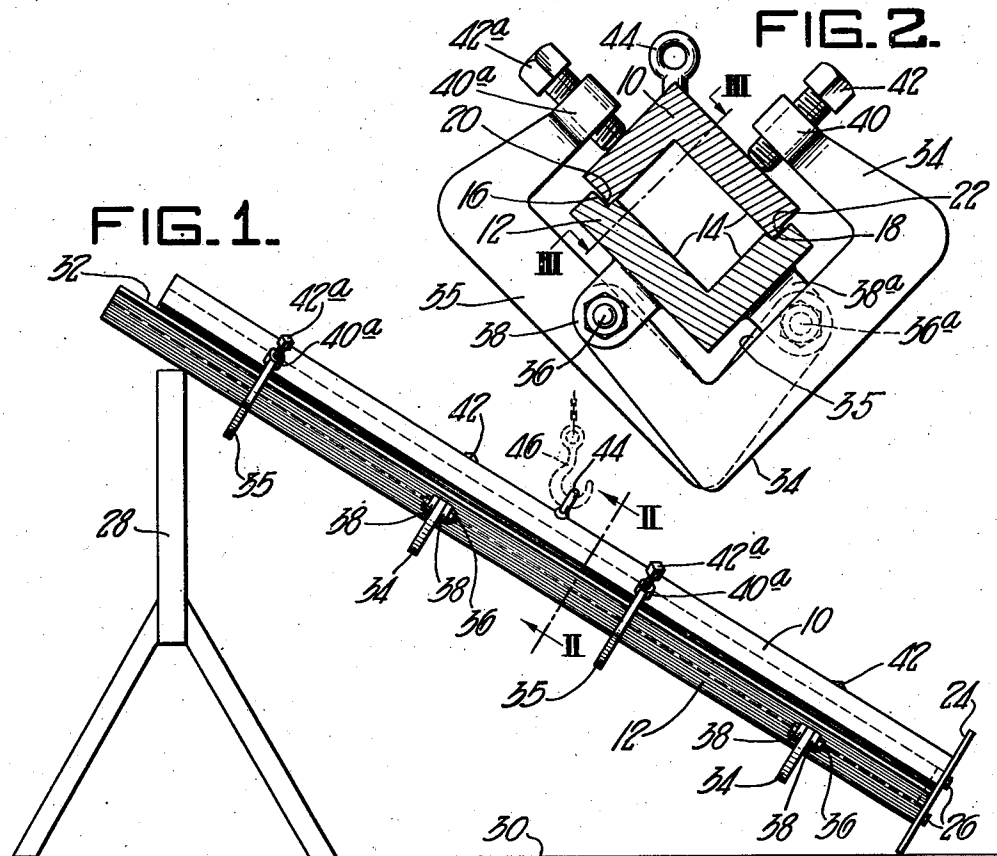
J. G. HUEY

2,378,480

ANODE MOLDS

Filed Oct. 15, 1943

2 Sheets-Sheet 1



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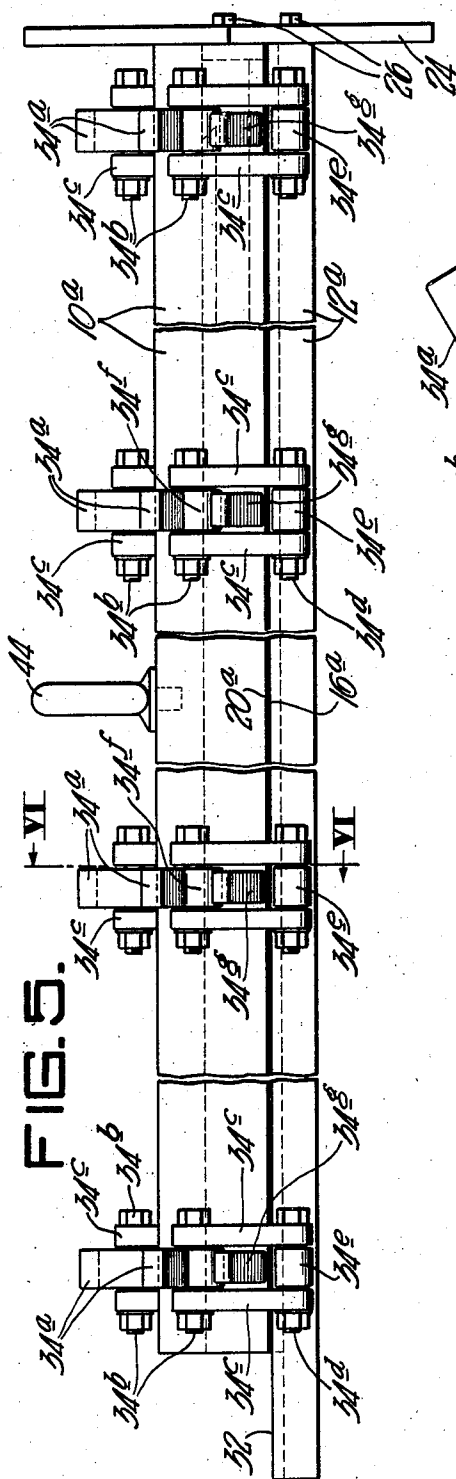
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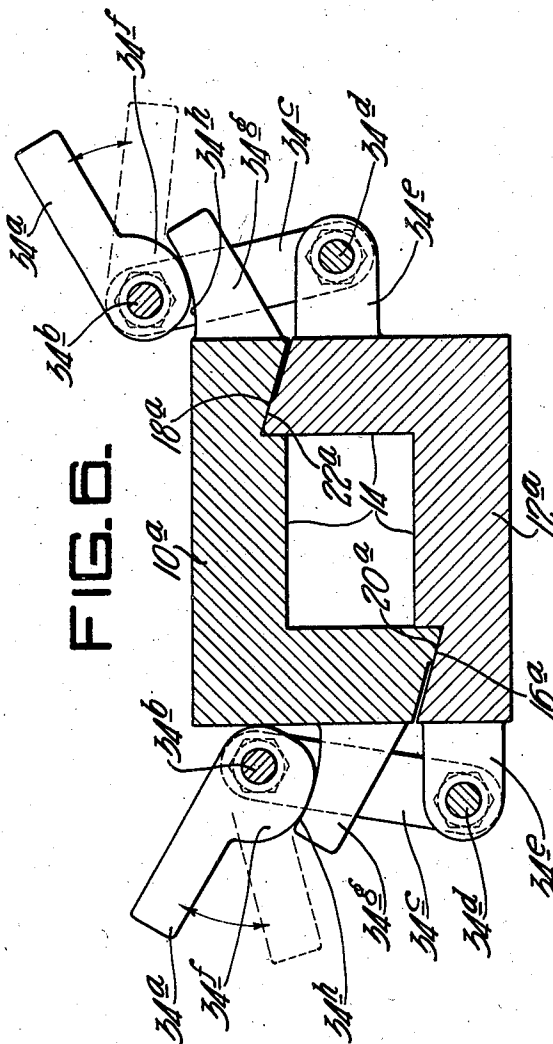
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,378,480

ANODE MOLD

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2 Claims. (Cl. 22-146)

This invention relates to improvements in metal molds which, while not limited thereto, are peculiarly well suited for the casing of anodes such as those used for depositing tin on a cathode in a conventional form of electrolytic process.

One object of the invention is to provide a metal mold structure whose parts are so constructed and arranged that they can be readily separated to free the work from the mold and yet be securely held in proper assembled relation.

Another object of the invention is to so form the component parts of the mold structure that they will accurately interfit and bear proper assembled relation with each other.

The above and further more detailed aspects of the invention will be fully apparent from consideration of the following detailed disclosure and the appended claims when read in connection with the accompanying drawings.

In the drawings:

Figure 1 is a side elevation illustrating the mold of the present invention in pouring position.

Figure 2 is an enlarged cross section on line II—II of Figure 1.

Figure 3 is a longitudinal section through the mold, taken on line III—III of Figure 2.

Figure 4 is a detail view of an anode cast in a mold of the present invention, the dotted lines illustrating the portion normally cropped off.

Figure 5 is a side elevation, partly broken away, illustrating a modification.

Figure 6 is a cross section on line VI—VI of Figure 5.

Referring to the embodiment of the invention illustrated, my improved mold comprises complementary sections 10 and 12, which are of substantially right-angular form in cross section, so that they jointly define a rectangular cavity 14 corresponding to the desired cross-sectional rectangular contour of the anode to be cast. The section 12 of the mold is formed along two of its inner edges with accurately finished grooves 16 and 18 forming seats for machined edge portions 20 and 22 formed at the extremities of the angle legs of the section 10.

An end plate 24 is secured by suitable bolts 26 to the lower end of the mold section 12. This plate forms a lower end closure for the mold cavity, and also serves as an end stop when assembling the mold section 10. Thus when the parts are assembled with the portions 20—22 engaging the seats 16—18, the mold parts are prevented from moving longitudinally with relation to one

another when in the normal inclined position of Figure 1 by the end plate.

As shown in Figure 1, in casting position the upper portion of the mold rests on a suitable support such as a horse 28, the lower end of the structure being supported by the end plate 24 resting on the floor 30. The lower section 12 of the mold is of slightly greater length than the section 10, so as to provide an upper pouring portion 32.

Quickly releasable means are preferably provided for firmly clamping the mold sections in assembled relation. By way of illustration, this clamping means may take the form of a plurality of yoke-like members 34 pivoted on studs 36 carried in lugs 38 extending outwardly from one of the angle legs of the mold section 12. The free end of each yoke 34 is provided with a hub 40 which is internally threaded to receive a clamp screw 42 adapted to be manipulated by a suitable socket wrench. Similar yokes 35 are pivotally mounted on studs 36^a secured on lugs 38^a branching from the lower legs of the angle of section 12, said yokes being provided with clamp screws 42^a. As thus arranged it is apparent that when the screws 42 and 42^a are tightened by means of a wrench, the sections 10 and 12 will be firmly held in assembled relation, one set of clamp screws acting in a direction at 90° to the other set, thus firmly holding the portions 20 and 22 in the seats 16 and 18 and yet providing an arrangement wherein upon release of the clamp screws, the mold sections can be readily parted substantially along the diagonal line of the rectangular anode cast in the mold. Such diagonal parting of the mold sections is desirable, for it facilitates ease of stripping the mold sections from the work. To facilitate such stripping further, the mold section 10 is provided with a lifting eye 44 adapted to be engaged by a hook 46 suspended from a chain operated by an overhead hoist. The inner portion of mold section 10 will be provided with an insert 48 adapted to form the undercut recess 50 in the anode shown in Figure 4. Similarly, a false plate 52 will be secured to the mold section 12 so as to form the notch 54 in the anode to be cast. Obviously other formations of mold inserts may be employed to suit the requirements of the particular work to be done. The pieces 48 and 52 may be cast integral with the mold sections, or they may be formed as loose pieces which strip out with the anode and are then stripped therefrom.

In the normal operation of the mold illustrated, the end plate 24 rests on the floor and is so at-

tached to the lower mold section 12 that the upper edge of one leg thereof is approximately level with the other, as shown in Figure 2. The horse or support 28 is of such height that the mold section 12 is inclined at an angle of about 30° to the horizontal for convenient pouring. The top section 10 of the mold is then lowered into position by manipulation of the hoist, and the end bearing portions 20 and 22 are engaged with the grooved seats 16 and 18. Continued lowering movement of the hoist then permits the upper section 10 to gently slide downwardly until it comes to rest against the end plate 24, it being understood that during this initial assembling of the parts, the yokes 34 and 35 are swung to inactive position so as to facilitate the nesting of the section 10 with the section 12. Thereafter the yokes are swung to the active position of Figure 2, and the bolts 42 and 42^a are tightened. Since the section 12 is slightly longer than the section 10, the metal to be cast is poured on the upper receiving portion 32. Usually the overall length of the mold is approximately 12 to 18 inches longer than the desired length of the finished anode. In the molding of tin anodes for use in electrolytic processes, it is desirable to cast the same somewhat longer than the desired length of the finished anode, and the top portion, such as indicated by dotted lines in Figure 4, is cropped off by shearing or milling, so as to eliminate the crop end, which usually contains blow-holes, pipes, or porous portions occasioned by evolution of gases from the lower portion of the mold.

In the modification of Figures 5 and 6, the mold sections 10^a and 12^a are formed with inclined or undercut grooves 16^a and 18^a forming seats for correspondingly inclined edge portions 20^a and 22^a, so that the two mold sections easily slip into correct position for clamping when they are placed together for assembly. In this modification there are illustrated cam-type clamps 34^a which are pivotally connected by studs 34^b with links 34^c in turn mounted on studs 34^d secured to lugs 34^e extending outwardly from the mold sections. The eccentric or cam portions 34^f of the clamps are adapted to wedgingly engage out-

wardly extended lugs 34^e having appropriately shaped faces 34^h for coaction with the cam portions 34^f.

While I have described quite precisely certain embodiments of the invention herein illustrated, it will be understood that various modifications and substitutions of equivalents may be made by those skilled in the art without departure from the invention as defined in the appended claims.

I claim:

1. A mold of the character herein shown and described, consisting of a pair of complementary coating sections of substantially right-angular cross-sectional contour, one of said sections having machined grooves extending longitudinally thereof along its inner edges and the other of said sections having mating edge portions machined to neatly fit said grooves, and a plurality of clamp members pivotally mounted to one of said sections adjacent outer faces thereof disposed at right angles to one another, said clamp members having elements engaging faces of the other section disposed at right angles to one another whereby the components of the forces jointly exerted by said clamp members firmly press the mating edge portions of one section cornerwise into the grooves of the other section.

2. A mold of the character herein shown and described, consisting of a pair of complementary interfitting sections of substantially right-angular cross section, one of said sections having depressed grooves extending longitudinally of the inner edges thereof and the other of said sections having mating projections extending along the inner edges thereof, a plurality of approximately U-shaped clamp members one of which is pivotally mounted adjacent one face of one of said sections and the other of which is pivotally mounted adjacent a face at right angles thereto, the free ends of said clamp members being adapted to engage the outer faces of the other of said sections disposed at right angles to one another, whereby the said clamp members jointly press the projections of one section cornerwise into the mating groove of the other section.

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