Feb. 20, 1923. 1,445,624

A. H. HARRIS

MOLD

Filed Apr. 17, 1922

Fig. 1.

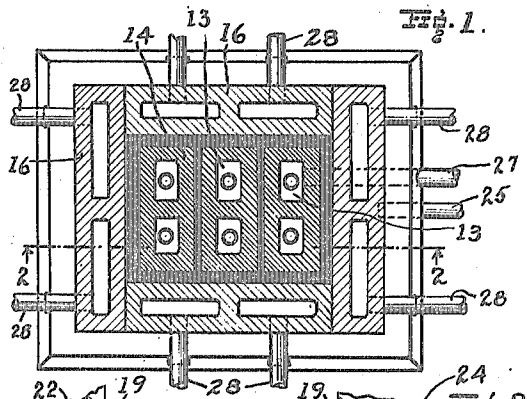


Fig. 2.

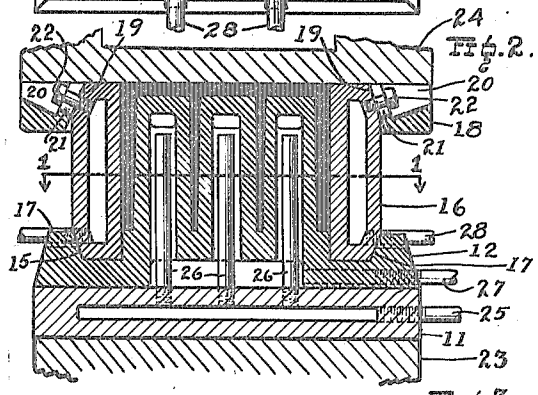


Fig. 3.

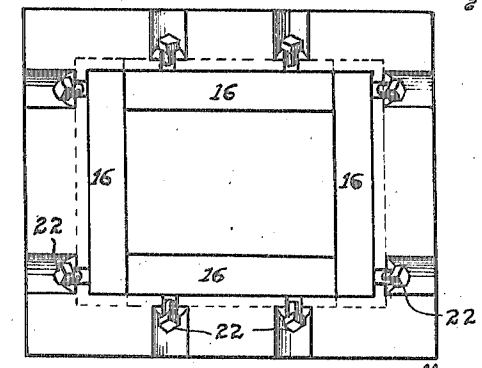


Fig. 4.

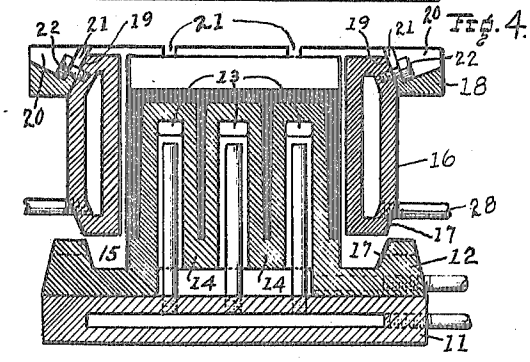


Fig. 5.

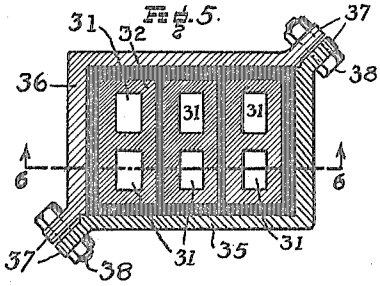


Fig. 6.

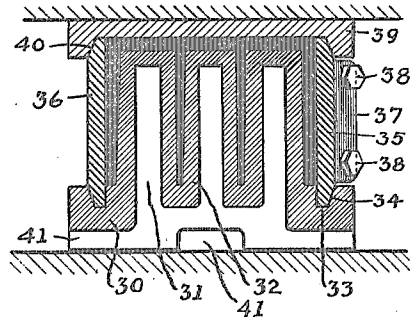
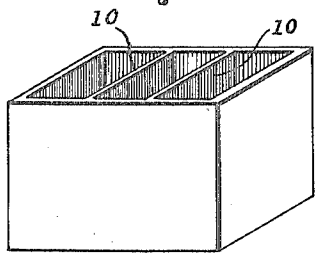


Fig. 7.



Inventor

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By

Attorney

Patented Feb. 20, 1923. 1,445,624

UNITED STATES PATENT OFFICE.

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MOLD.

Application filed April 17, 1922. Serial No. 554,087.

To all whom it may concern:

Be it known that I, ARCHER H. HARRIS, a citizen of the United States, and a resident of Barberton, county of Summit, State of Ohio, have invented certain new and useful Improvements in Molds, of which the following is a specification.

This invention relates to molds for use especially in connection with the molding of the container elements of storage batteries.

One of the objects of the invention is to provide a mold capable of making rectangular containers having perpendicular side walls and cross partitions, the container for a multiple cell battery being thus made in one piece. A further object of the invention is to provide what may be termed a "self-stripping" mold that will be comparatively simple and inexpensive to manufacture and which will be efficient in operation.

Other objects and the features of novelty will be apparent from the following description, taken in connection with the accompanying drawings of which:

Figure 1 is a transverse section of a mold embodying my invention, the section being on the line 1—1 of Fig. 2.

Fig. 2 is a vertical section of the same on the line 2—2 of Fig. 1;

Fig. 3 is a plan view of the mold;

Fig. 4 is a view similar to Fig. 2 but illustrating the self-stripping feature of the mold;

Fig. 5 is a view similar to Fig. 1 but illustrating a different form of the invention.

Fig. 6 is a vertical section on the line 6—6 of Fig. 5; and

Fig. 7 is a perspective view of a container adapted to be made in the molds illustrated.

Referring to the drawings and particularly to Fig. 7, it will be noted that the container, to be molded, is essentially a rectangular box, having the cross partitions 10. The number of these partitions may vary in accordance with the requirements of each particular case and the container indicated in Fig. 7 is merely for purposes of illustration and is not intended to in any way indicate the limits of the use of the invention.

Referring to Figs. 1 to 4 it will be noted that the mold comprises a base or bottom section 11, preferably jacketed to receive a heating medium, a core member 12 supported on the bottom section 11 and being provided with chambers 13 and partitions 14, the chambers being adapted to receive the heating medium and the partitions being slotted to form the partitions 10 of the article. In the drawings the article to be made is indicated in solid black.

The core member 12 has a surrounding groove 15 to receive the lower edges of the side members 16. The groove 15, and the outer walls of the side members adjacent the lower edges, are bevelled, as indicated at 17 for a purpose to be hereinafter described.

A top member 18, in the form of a rectangular ring, is provided with interior bevelled surfaces 19 which cooperate with similarly bevelled surfaces along the upper edges of the side members so that, when the side members and top member are placed in position, the bevelled surfaces 17 and 19 cooperate to move the side members laterally inward. Thus when pressure is applied to the top member the bevelled surfaces 17 and 19 will force the side members into their proper position, by a lateral movement. The top member 18 is provided with grooves 20 and slots 21 to receive the bolts 22, these bolts loosely connecting the top member with the side members and causing the latter to be moved laterally outward as the top member is removed. This is illustrated in Fig. 4, the separation of the side members being effected by the sliding of the bolts 22 in the slots 21.

At 23 and 24 I have indicated the platens of a press and it will be understood that, when it is desired to use the mold, the rubber composition or other material of which the article is to be formed will be placed in the mold and the platens brought together to force the various parts of the mold into the proper relation indicated in Figs. 1 and 2.

Steam or other heating medium may be supplied to the bottom member 11 by means of the pipe 25 and, in order to supply all parts of the interior of the mold with hot steam, I provide pipes 26 which carry it from the interior of the member 11 to the upper parts of the chambers 13. Any condensation which collects within the core member 12 may be discharged thru the pipe 27. The heating medium may be supplied to the jacketed side members 16 by means of pipes 28.

In the operation of the mold illustrated in Figs. 1 to 4 the parts will be forced to-

gether in a press, as above described, and the heating medium delivered to the various parts of the mold by the pipes 26 and 28. When the heat has been maintained a sufficient length of time to properly cure the article the platens 23 and 24 may be separated, in the usual way, and the mold taken apart. In order to make this operation convenient the top member 18 may be fastened to the platen 24 in any suitable manner so that as this platen is raised it will carry the top member 18 with it and first effect a slight separation or laterally outward movement of the side members 16 and then lift the side members clear of the article, which will be thereby exopsed. The article may be stripped from the core member 12 and the operation repeated. If desired, a cooling medium may be supplied thru the pipes 25 and 28 just before the mold is opened.

In the form of the invention illustrated in Figs. 5 and 6 there is a core member 30 which has the chambers 31 and partitions 32 as in the form previously described. The core member 30 is provided with a groove 33 having a bevelled surface 34, generally similar to the groove 15 and the bevelled surface 17 of the other form. There are two side members 35 and 36, instead of four as in the other form and these side members are not jacketed. They are provided with oppositely arranged lugs 37 by means of which they may be secured together by bolts 38. The side members are bevelled along their upper and lower edges, as in the other form, and the top member 39 is merely a plate hollowed out to receive the upper ends of the side members 35 and 36, cooperating bevelled surfaces 40 being provided between these parts, as in the other form.

The mold illustrated in Figs. 5 and 6 is intended to be placed in a steam chamber in a press so that the steam will surround the mold and enter the chambers 31 thru the grooves 41 in the bottom of the member 30. In this form, after the article has been cured, the top member 39 is removed and the bolts 38 taken out which will permit the separation of the side members from the member 30.

From the drawings it will be observed that the parts of the mold may be economically manufactured and that the heat will be so distributed as to produce uniform curing thruout all parts of the article. It will also be found that the forms of the invention illustrated will accomplish the objects of the invention, as set forth at the outset.

While I have illustrated and described what I now consider the preferred form of my invention it is understood that various changes may be made without departing from the spirit of the invention which is defined in the appended claims.

Having thus described my invention, what I claim is:

1. In a device of the class described, the combination of separable side walls, a chambered core member, having a groove to receive the side members, said groove being bevelled to force the side walls laterally inward, and a top member having bevelled surfaces cooperating with said side walls and adapted to force the latter inwardly when positioned thereon.

2. In a device of the class described, the combination of separable side walls, a chambered core member, having a groove to receive the side members, said groove being bevelled to force the side walls laterally inward, a top member having bevelled surfaces cooperating with said side walls and adapted to force the latter inwardly when positioned thereon, and means connecting said top member with said side walls whereby the latter are moved laterally outward when the top member is separated from the side walls.

3. In a device of the class described, the combination of separable side walls, a chambered core members having a groove to receive the lower edges of the side members, a jacketed base on which said core member is mounted, means for transferring a fluid from said base to the chambers of the core member, means for discharging fluid from the interior of the core member, a top member having bevelled surfaces to cooperate with surfaces on said side members to force the latter inwardly, and means for laterally separating said side members when said top member is removed.

4. In a device of the class described, the combination of separable side walls, a chambered core member having a groove to receive the lower edges of the side members, a jacketed base on which said core member is mounted, means for transferring a fluid from said base to the chambers of the core member, means for discharging fluid from the interior of the core member, a top member having bevelled surfaces to cooperate with surfaces on said side members to force the latter inwardly, and connecting means between said side members and the top member adapted to laterally separate the side members when the top member is removed.

5. In a device of the class described, the combination of side members the outer surfaces of which are bevelled along their upper and lower edges, a core member having a groove to receive the lower edges of the side members, said groove having bevelled surfaces to cooperate with the bevelled surfaces along the lower edges of the side members to force the side members laterally inward, a top member having interior sur-

faces bevelled to cooperate with the bevelled surfaces along the upper edges of the side members to force the side members inward, and means for supplying a heating medium to the interior of the core member.

6. In a device of the class described, the combination of side members the outer surfaces of which are bevelled along their upper and lower edges, a core member having a groove to receive the lower edges of the side members, said groove having bevelled surfaces to cooperate with the bevelled surfaces along the lower edges of the side members to force the side members laterally inward, a top member having interior surfaces bevelled to cooperate with the bevelled surfaces along the upper edges of the side members to force the side members inward, and means connecting the top member with the side members adapted to laterally separate the side members as the top member is removed.

In testimony whereof I affix my signature.

ARCHER H. HARRIS.