A. L. SCHAVOIR.

COMBINATION MOLD.

APPLICATION FILED OCT. 29, 1921.

1,409,591.

Patented Mar. 14, 1922.

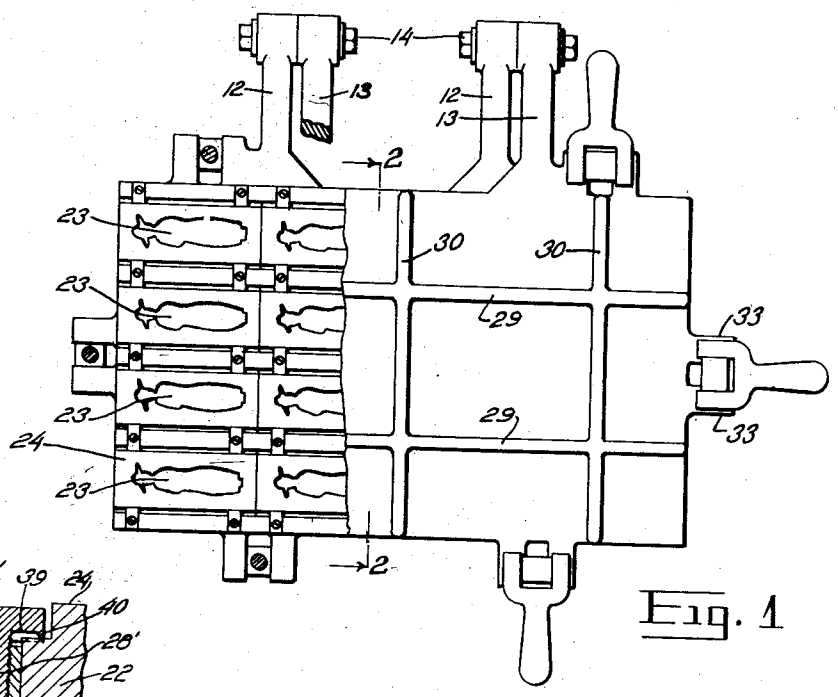

Fig. 1

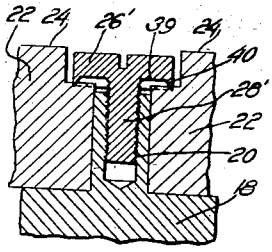

Fig. 4

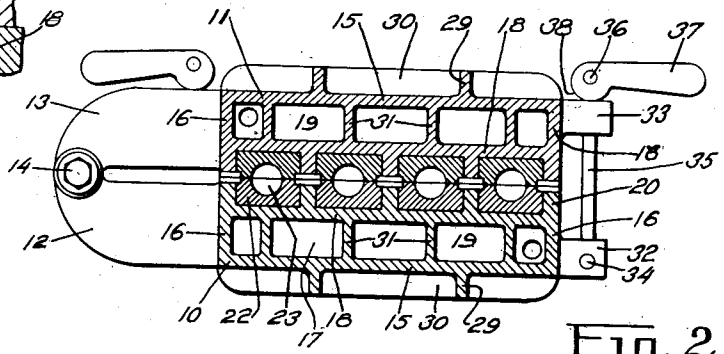

Fig. 2

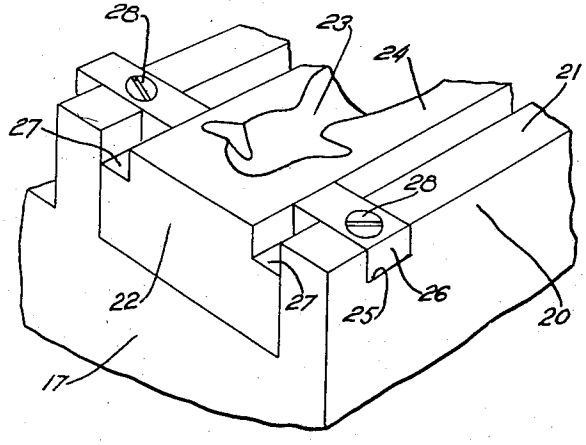

Fig. 3

INVENTOR.

Arnold L. Schavoir

BY

G. H. Braddock

ATTORNEY

UNITED STATES PATENT OFFICE.

ARNOLD L. SCHAVOIR, OF STAMFORD, CONNECTICUT.

COMBINATION MOLD.

1,409,591. Specification of Letters Patent. Patented Mar. 14, 1922.

Application filed October 29, 1921. Serial No. 511,255.

To all whom it may concern:

Be it known that ARNOLD L. SCHAVOIR, a citizen of the United States, and resident of Stamford, in the county of Fairfield and State of Connecticut, has invented certain new and useful Improvements in Combination Molds, of which the following is a specification.

This invention relates to a combination mold more especially useful for the purpose of manufacturing in quantity rubber or celluloid articles, such as balls, dolls and the like.

The invention has for its general object to provide a novel and improved mold which will be simple and durable in construction and cheap to produce, will be efficient to ideally perform its intended function, and will be compact and light to be readily manipulated in use with but a minimum of effort.

More specifically, the invention has as its objects to produce a combination mold the sections of which are provided with removable forms of relatively soft metal capable of being more accurately shaped to give better molding results, and to provide an improved and very simple arrangement for removably fastening said forms in the sections.

With the above and other objects in view, the construction, arrangement and combination of parts constituting the invention will now be fully described and will hereinafter be specifically claimed, it being understood that the disclosure herein is merely illustrative, slight changes in details of construction and arrangement of parts being permissible so long as within the spirit of the invention and the scope of the claims.

In the accompanying drawing forming a part of this specification,

Fig. 1 is a plan view of the combination mold, a portion of one of the mold sections being broken away;

Fig. 2 is a sectional view on line 2—2 in Fig. 1, looking in the direction of the arrows;

Fig. 3 is a fragmentary perspective view on an enlarged scale of one of the mold sections, detailing the manner in which the relatively soft metal forms are removably secured in the sections; and

Fig. 4 is a detail view of a variant type of form holding means.

The combination mold, as shown in the drawing, consists of a lower section 10 and an upper section 11 which may be approximate duplicates of each other. The sections are hingedly connected in any preferred manner, as by means of arms, denoted by 12 and 13, respectively, extending rearwardly from the sections and pivoted upon pins 14, as will be understood.

Each mold section may consist of a casting of suitable material, such as iron or steel, having a base 15, side and end walls, denoted by 16 and 17, respectively, a flat base 18 arranged opposite base 15, all of said bases and walls providing a completely enclosed chamber 19, and parallel, spaced apart form holding strips 20 situated upon the base 18, perpendicular thereto, and without the chamber 19, the form holding strips preferably extending longitudinally of the base 18 and parallel with the side walls 16 of the section. Any number of form holding strips 20 may be employed, spaced at any suitable distances apart, the outer holding strips, as shown, desirably being in alignment with the side walls 16 of the casting and constituting extensions of said side walls. Those edges 21 of the form holding strips that are farthest from the base 18 are, in the instance of each mold section, desirably flat, and all of said edges terminate in the same plane.

Numeral 22 denotes forms of relatively soft metal, adapted to snugly and removably fit between the holding strips 20 and against the flat bases 18, constructed to provide half-molds 23, of any configuration, capable of producing the rubber or celluloid article being manufactured. The faces of each of the forms 22 are desirably smooth and flat, and the forms are of proper thickness so that their faces 24, farthest from the bases 18, terminate in the same plane as do the edges 21 of the holding strips.

The novel manner in which the forms are fastened in stationary position between the holding strips 20 to be readily removable from the mold sections will now be explained. The edges 21 of the holding strips are recessed as at 25 to receive blocks 26, the depth of each recess 25 being equal to the thickness of the block which it receives so that the blocks do not protrude beyond the plane of the edges 21 but lie in said plane, and the side edges of the faces 24 of each of

the forms 22 are recessed, as denoted at 27, to also receive said block, the recesses 27 being of the approximate depths of the recesses 25. Screws 28, or other removable attaching means, passing through holes in the blocks and entering the holding strips, insure the fixed positions of the blocks. In the instance of the blocks at the side edges of the mold, one end of the block is situated in the recess of the holding strip and the other end thereof is in the recess of the form, while in the instance of each of the other blocks, the middle portion of the block is in the recess 25 and the end portions are in different recesses 27.

To strengthen bases 15, without adding considerably to their weight, they may be provided with longitudinally and laterally extending ribs, denoted by 29 and 30, respectively, and supports 31 may extend across the chambers 19 to strengthen the castings.

Mechanism, forming no part of this invention, may be provided for swinging the upper mold section on its hinge and toward and from the lower mold section, the arms 12 and 13 and pins 14 being so arranged that when the upper and lower sections are moved toward each other, as they are shown in the drawing, the edges 21 of the form holding strips and the faces 24 of the forms of the different sections evenly and firmly engage each other so that the half-molds 23 cooperate to supply complete and independent molds, best shown in Fig. 2.

The sections can be locked together in any manner. As shown, I provide a series of clamps for this purpose and locate the same at spaced apart positions about the lower and upper sections, each clamp preferably consisting of a pair of aligning U-shaped lugs, denoted by 32 and 33, respectively, one extending from the lower and one from the upper section, a cross-pin 34 imbedded in the legs of lug 32, a link 35 pivotally supported at its lower end upon cross-pin 34 and extending between the legs of lug 33, a cross-pin 36 upon which the upper end of the link is pivoted, and a lever 37 having cam faced arms 38 pivoted upon cross-pin 36 and adapted to bear against the upper faces of the legs of U-shaped lug 33. It will be apparent that to unlock the sections in order that they can be moved apart, all that is necessary is to first swing the levers 32 upwardly from the positions in which shown in the drawing to release the cam faced arms from lugs 33, and to then swing the links 35 on the cross-pins 34 and away from the combination mold. To lock the sections the operations just described are reversed.

It is to be understood that the chamber of each mold section is provided with an inlet and an outlet opening whereby hot and cold fluids, such as steam and cold water or cold air can at different times be introduced into said chambers.

The manner in which the mold functions is obvious, and further description upon this point is thought unnecessary.

It is apparent that by the provision of removable forms of relatively soft metal better manufacturing results can be accomplished. When the very simple, but reliable, arrangement of this invention is employed for fastening the forms in the sections, forms that have become unfit for use can be quickly removed and replaced by others at small expense and with but a minimum of effort.

In Fig. 4 I have disclosed a variant type of form holding means, numeral 28′ representing a screw threadably received in a holding strip 20 and having an enlarged head 26′ bearing against the forms. The lower face of the head 26′ may be of any suitable configuration for its purpose, the one shown having an annular, downwardly extending edge 40 adapted to firmly engage the forms.

Having thus fully described the invention, what I claim and desire to secure by Letters Patent is:

1. A combination mold comprising a pair of sections each consisting of a casting having therein a chamber and including form holding strips without said chamber, and relatively soft metal forms removably fastened between said holding strips and constructed to constitute half-molds.

2. A combination mold comprising a pair of sections each consisting of a casting including a plurality of walls providing a chamber and form holding strips without said chamber upon one of the walls of said chamber, and relatively soft metal forms removably fastened between said holding strips and constructed to constitute half-molds.

3. A combination mold comprising a pair of sections each consisting of a casting constituted by walls providing a chamber and parallel, spaced apart form holding strips upon one of said walls and without said chamber, and relatively soft metal forms removably fastened between said holding strips to serve as half-molds, said holding strips being perpendicular to the wall upon which situated and having their extremities terminating in the same plane.

4. A combination mold comprising a pair of sections each consisting of a casting constituted by walls providing a chamber and parallel, spaced apart form holding strips upon one of said walls and without said chamber, and relatively soft metal forms removably fastened between said holding strips to serve as half molds, said holding strips of the different sections having their

extremities terminating in the planes of the working faces of said forms.

5. A combination mold comprising a pair of sections each consisting of a casting having side and end walls and a pair of bases, one of said bases of each section having parallel, spaced apart holding strips thereon, and relatively soft metal forms removably fastened between said holding strips to serve as half-molds, the extremities of the holding strips of the different sections terminating in the planes of the working faces of said forms.

6. A combination mold comprising a pair of sections each consisting of a casting constituted by walls providing a chamber and parallel, spaced apart form holding strips upon one of said walls, relatively soft metal forms between said holding strips and adapted to serve as half-molds of the different sections, and means for removably fastening said forms in position, said means in the instance of each section comprising blocks fastened in recesses in said holding strips and forms, respectively, a face of each block, a face of each form, and the extremities of the holding strips all terminating in the same plane.

7. A combination mold comprising a pair of sections each consisting of a casting constituted by walls providing a chamber and parallel, spaced apart form holding strips upon one of said walls, relatively soft metal forms between said holding strips and adapted to serve as half-molds of the different sections, and means for removably fastening said forms in position, said means in the instance of each section comprising devices fastened in recesses in said holding strips and forms, respectively, and having rigid engagement with said holding strips and forms.

Signed at Stamford in the county of Fairfield, and State of Connecticut, this 22nd day of October, A. D., 1921.

ARNOLD L. SCHAVOIR.