July 3, 1928. 1,675,517

W. M. SCHOLL

MATRIX FOR MAKING CASTS

Filed Oct. 31, 1925

FIG. 1

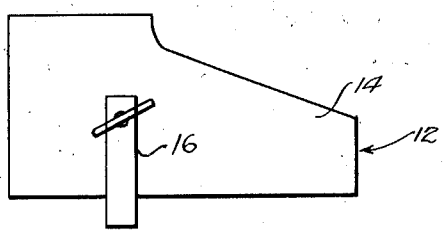


FIG. 3

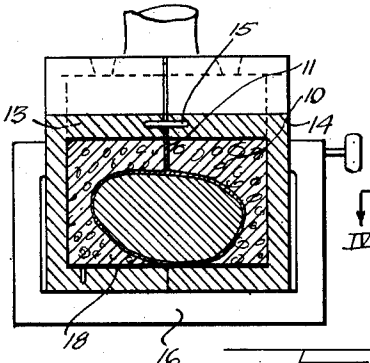


FIG. 2

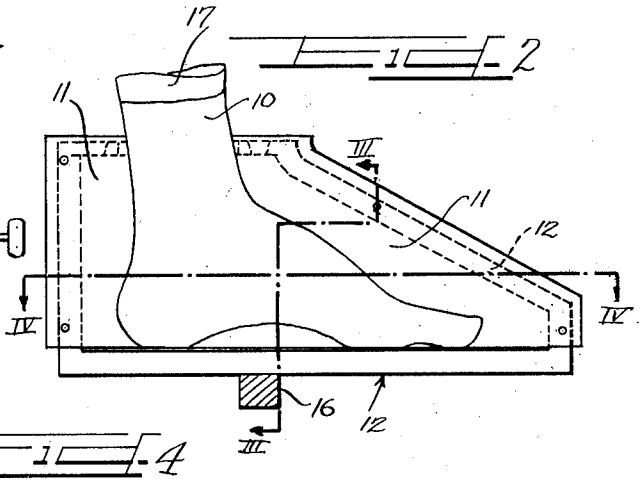


FIG. 4

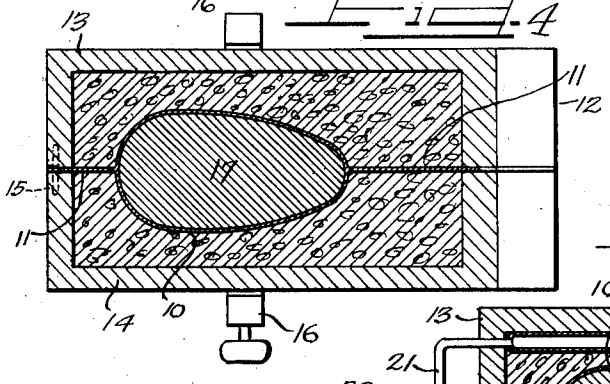
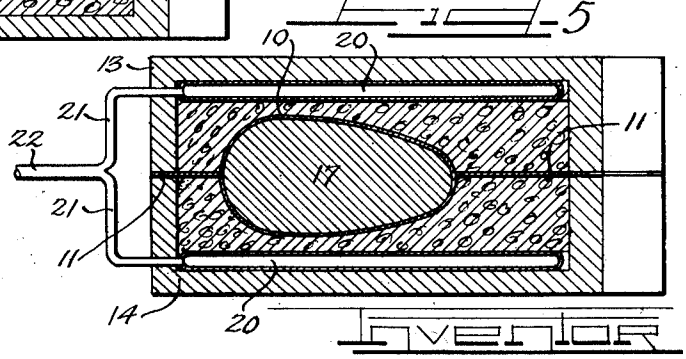


FIG. 5



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UNITED STATES PATENT OFFICE.

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MATRIX FOR MAKING CASTS.

Application filed October 31, 1925. Serial No. 65,904.

The invention relates to improvements in matrices and molds for producing casts of objects, which are substantially replicas thereof.

One of the objects is to improve means for producing a mold for an object within which a replica thereof may subsequently be made.

Another object is to provide improved means by which the two members of the flask or mold may be easily separated after the mold or two part matrix has been made.

A further object is to protect the object to be reproduced from the surrounding plastic by a very thin elastic covering which may be easily removed after the matrix has been made and which will so closely adhere to the object as to preserve and present all of the details of the object without materially increasing its size.

Other objects, advantages and benefits of the invention will become clearly apparent to persons skilled in the art, from a consideration of the following description and accompanying drawings, forming a part hereof.

On the drawings:

Figure 1 is a side elevation of the mold;

Fig. 2 is a side elevation of one mold member showing a sock-covered member or foot therein;

Fig. 3 is a transverse section taken substantially on line III—III of Figure 2.

Fig. 4 is a section taken on line IV—IV of Figure 2; and

Fig. 5 is a section, similar to Figure 4, showing a refinement of the invention.

In all the views the same reference characters are used to indicate similar parts.

The device is especially desirable for making cast replicas of the human foot.

The purpose of fitting footwear, boots, shoes and the like and the better to adjust orthopædic corrective appliances to particular feet by skilled persons located remotely from the persons requiring such service, cast reproductions of the foot or feet may very successfully be used to accomplish this result. There have heretofore been objections urged against making casts of the foot on account of the disagreeable feeling experienced in having the plaster directly in contact with the foot and the unpleasant, if not painful results ensuing from removing the cast from the foot. In many instances, in prior practice, a number of casts must be made before a serviceable one can be taken from the foot.

The present invention overcomes these objections by covering the foot with a thin, elastic, impervious sock before the plaster is applied thereto and by using part of the sock structure as a parting strip whereby the two integuments of the two-part mold or matrices may, easily, quickly and effectively be separated.

As shown on the drawings:

The sock 10 is preferably made of very thin sheet rubber of size to closely engage the surfaces of the foot and to closely adhere thereto.

A fin 11 extends radially from the sock and is to serve as a parting strip in the two-part mold or flask. The flask is generally indicated by 12, and it is composed of two hollow members 13 and 14. The flask members 13 and 14 are made to register by dowel pins 15, which are sharpened at their projecting ends for a purpose to be presently described.

A clamp 16, or a plurality of like clamps, may be used to hold the flask members or matrices together about the foot. A representation of a foot 17 is shown in elevation in Figure 2 and in cross-section in Figures 3, 4 and 5.

A thin metal strip 18 is secured to the bottom inside surface of one of the members, shown secured to member 13, and projecting into the interior of member 14 to prevent the lower meeting edges of the members from pinching the sole of the foot.

In using the device, the sock 10, of proper size, is first put on the foot. Member 13 is then partly filled with plaster of Paris or like plastic, and the member 13 is then applied to the foot sidewise. The fin 11 is now pushed onto the dowel pins 15, which perforate the fin and holds it extended and in contact with said edge. Member 14 is now partly filled with plaster and applied to the other side of the foot, and the members are pressed together until the excess of plaster is expelled from the matrix. The clamps 16 are now applied and tightened.

While the plaster is in the process of drying, or hardening, the patient may stand on the foot to spatulate into its natural form, as when walking. After the plaster has

sufficiently hardened, or set, the two members may easily and quickly be separated by removing the clamp.

The division line between the two members 13 and 14 is effectively preserved and maintained by the fin 11, which is a part of the sock.

Instead of placing the plastic in the members 13 and 14 as described, the members may first be put together on the foot and thinner plaster mixture may be poured or forced into the mold members near the ankle of the foot.

Figure 5 shows another manner of compacting the plaster in which two extensible rubber bags 20 are first placed, one into each of the mold members, and then the plastic is placed in said members, as described, and submerging said bags.

After the clamps 16 have been applied, the bags may be inflated through pipes 21—21 and 22. The enlargement of the bags will force the plastic into more intimate contact with the integument enclosing the foot.

The sock and the associated mold should be of size best adapted for the foot acted upon.

The device and mode of procedure may be used for making matrices within which to mold replicas of the human hand and other objects.

The act of removing a matrix from the foot or hand usually produces considerable pain because of the fact that the hairs projecting from the epidermis are embedded in the plaster, when plaster is applied in contact with the foot, and they are all pulled out when the matrices are removed. The rubber stock prevents contact of the plaster with the hairs and relieves this mode of procedure as a means of torture.

I am aware that many changes may be made, and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon, otherwise than necessitated by the prior art.

I claim as my invention:

1. In a mold, two separable hollow members to hold the plastic material and means to hold said members together in register in combination with a thin elastic removable impervious covering of sheet rubber to envelop the object to be inserted between said members.

2. In a mold, two separable hollow members to hold a plastic material and means to hold said members in register, in combination with a thin, elastic, removable, imperforate sock to enclose a foot to be inserted in said members, said sock having a projecting fin for inclusion between the meeting edges of said members to provide a parting zone.

3. In a mold, two separable hollow members held in register, a thin elastic container having a radially-projecting fin for inclusion between the meeting edges of said members and means to hold said fin to one member before application of the other member thereto.

4. In a mold, two separable hollow members to be held in register; a thin elastic container having a substantially continuous fin for inclusion between the meeting edges of said members and dowel pins to hold said members in register and to pass through said fin to hold it extended.

In testimony whereof I have hereunto subscribed my name.

WILLIAM M. SCHOLL.