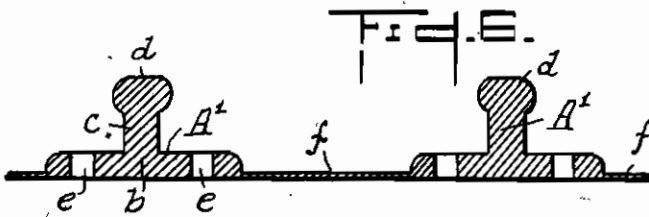
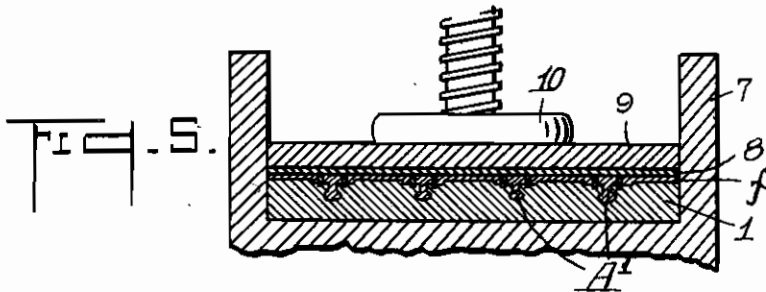
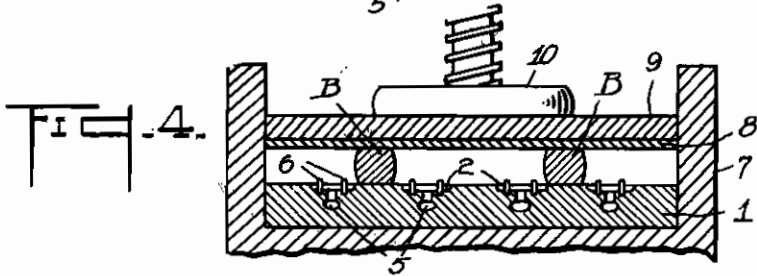
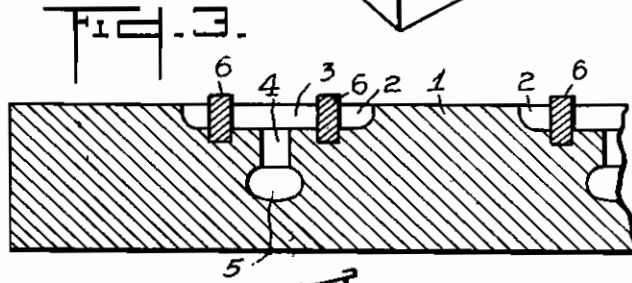
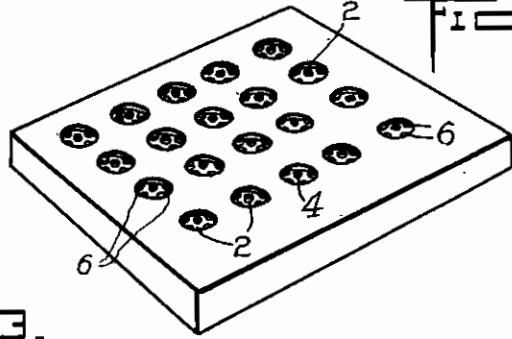
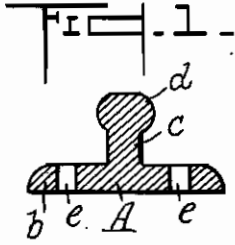


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 MANUFACTURING MALE MEMBERS OF SNAPS  
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# ALIEN PROPERTY CUSTODIAN

## MANUFACTURING MALE MEMBERS OF SNAPS

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Application filed July 23, 1940

This invention relates to a method of manufacturing male members of snaps by moulding from thermo-plastic material such as celluloid, and has for its object to manufacture male members of snaps by simple process of press-moulding without need of split moulds.

Another object of this invention is to provide a method of manufacturing a great number of male members of snaps by a single press-moulding operation.

A further object of this invention is to obtain male members of snaps made from celluloid material and the like, which material enables the members to have desirous and various colourings.

There are other objects and particularities of this invention, which together with the details thereof will be described later, reference being made to the accompanying drawings, in which:

Figure 1 is an enlarged sectional view of a male member of snap made in accordance with this invention.

Fig. 2 is a perspective view of a mould utilized in accordance with this invention.

Fig. 3 is an enlarged and fragmentary sectional view taken along the line III—III in Fig. 2.

Fig. 4 is a sectional view of the mould, press and mouldable materials as prepared ready for press-moulding operation, the showing being somewhat diagrammatic.

Fig. 5 is a view similar to Fig. 4, the parts being shown in the position just after the pressing operation completed.

Fig. 6 is an enlarged and fragmentary sectional view of a piece of product from the press-moulding operation in accordance with this invention, from which product the male members of snaps or the final product of this invention are obtained by simple cutting or punching operation.

In Fig. 1 is shown a male member A of snap button made from celluloid by press-moulding in accordance with this invention. It has a disc-like base portion b, a neck portion c centrally projecting from the base portion b at a right angle thereto, and a somewhat spherical head portion d having a diameter substantially larger than that of the neck portion c. The general shape of the member A itself is not new at all, and it has a plurality of through holes e in the base portion b for the purpose of sewing it on an object as usual.

In accordance with this invention, a plate like mould 1 (Figs. 2 to 5 inclusive) is utilized. The mould 1 is provided with a number of mould cavities 2 arranged in rows and columns in one side of the plate 1, the cavities being formed by machining the material of the mould 1. Each mould cavity 2 consists of a base portion 3 corresponding to the base portion b of the member A, a neck portion 4 corresponding to the neck portion c of the member A, and a head portion 5 cor-

responding to the portion d of the member A. within the base portion 3 of each mould cavity are planted a plurality of pins 6 for the purpose of forming the sewing holes e in the member A. The pin 6 preferably has such a height that a minute portion of the top end projects beyond the general plane of the mould plate 1 as clearly shown in Fig. 3, for the purpose described later.

The mould plate 1 is disposed within a press machine 7, and thermo-plastic material B such as celluloid are placed on the mould plate 1. A second mould plate 8 is then placed on the material B. The plate 8 has substantially the same dimension with the plate 1 except the thickness. The plates 1 and 8 are preferably made of brass, and the plate 8 is so thin that it has an adequate flexibility for the purpose shown later.

The heating of the thermo-plastic material B is effected by means of a massive heat plate 9 made of iron, which is heated to a suitable temperature before being placed in position within the press machine 7 as shown in Fig. 4. When celluloid is used, the temperature to which the heat plate 9 is heated is about 200° C. By the heating effect from this plate 9, the material B is made plastic, and by the pressing operation effected through the press-head 10 which is connected to a suitable operating mechanism, not shown, the plastic material is forced to flow throughout the space between the mould plates 1 and 8 as well as into the mould cavities 2. The pressing operation is limited by the pins 6 which abut the undersurface of the mould plate 8, as shown in Fig. 5. It is understood that there is a very thin portion f of the moulded material spreading over and between the opposite surfaces of the plates 1 and 8, the thickness of this thin portion f being determined by the height of the pins 6 which project beyond the upper surface of the mould plate 1. It is to be understood that the limiting of pressing operation which determines the thickness of the thin portion f may otherwise be provided by means of any other kind of stop members associated with the press machine.

During the pressing operation, the appropriate temperature of various parts were measured as follows, the material being celluloid:

	°C.
Heat plate 9	165
Mould plate 1	140

After the pressing is over, it is preferable to leave for a while, say two seconds, and then soft water, preferably soap water, is poured upon the heat plate 9. Before the pouring, the temperature of plates 9 and 1 were measured as about 110° C., and the plates are cooled to about 80° C. by the water pouring. Just after the above cooling, the brass plate 8 and the film like portion f of

the moulded product are picked up together at edge portions, and stripped from the mould 1. At the warm condition, as above-mentioned, of the product, the material has a suitable elasticity that the head portion *d* of each snap member A' connected by the film like portion *f* is allowed to pass through the reduced neck portion 4 of each mold cavity 2, without being collapsed permanently; that is to say, after passing through the neck portion 4, the head portion *d* recovers its original shape automatically.

After stripped off, the plate 8 together with the product are thrown into water for a further cooling, and the product can easily be stripped from the plate 8, the product being a number of snap

members A' connected together by the film like portion *f* of the material, as fragmentarily shown in Fig. 6, from which product individual snap members A are cut or punched off in any suitable and well-known manner.

When the pins 6 do not project beyond the upper surface of the mould plate 1, and the pressing operation is limited by any other stopping means, a thin film of the material will be leaved at the bottom end of each sewing hole *e* of the snap members, but such films do not cause any inconvenience for sewing operation, because they can be easily penetrated by sewing needles.

JUZO MORITA.