

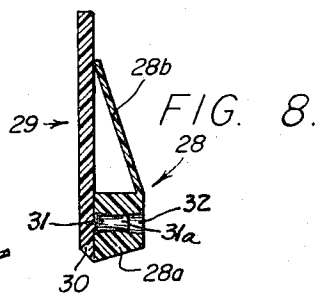
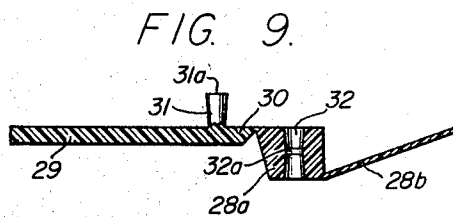
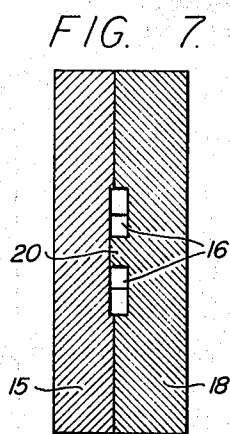
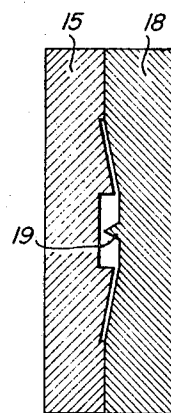
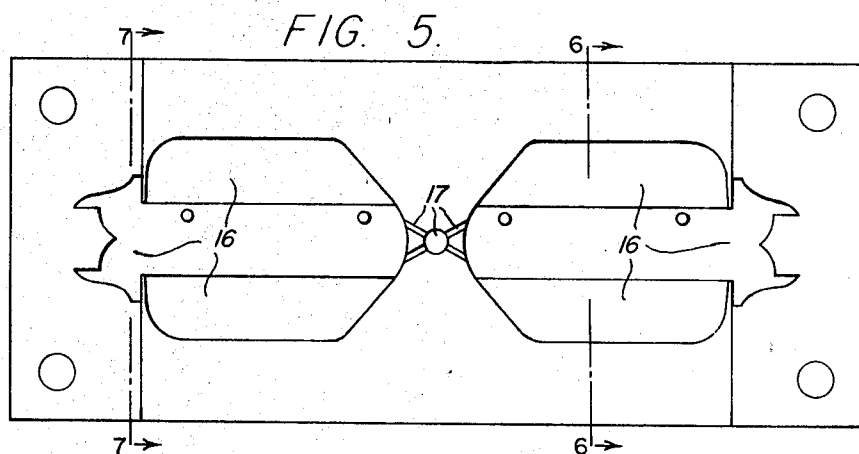
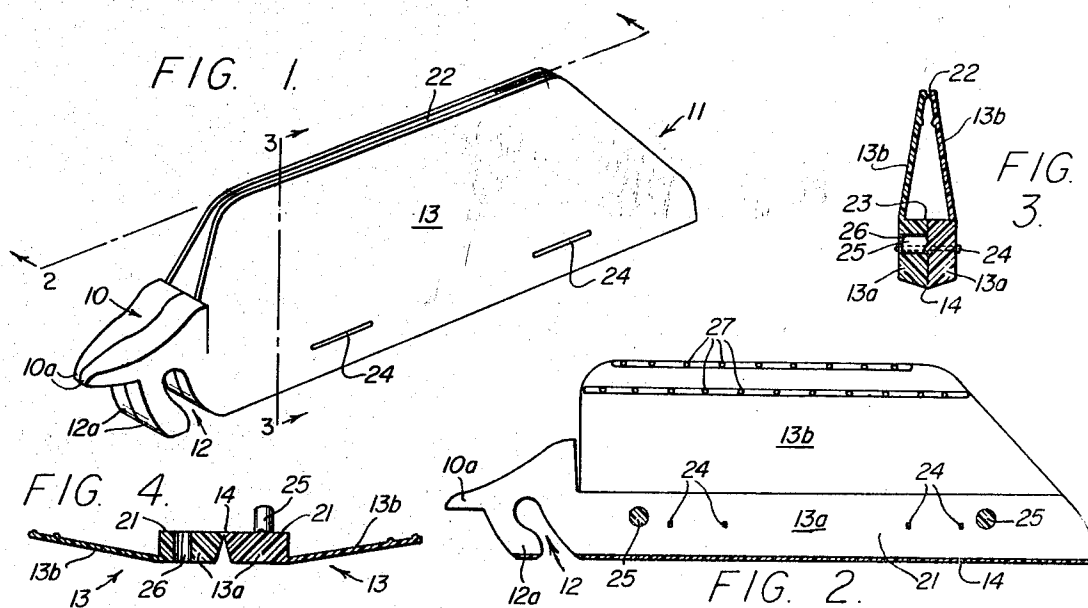
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ARTICLE-HOLDING CLIP AND METHOD OF PRODUCING SAME

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3,526,935 ARTICLE-HOLDING CLIP AND METHOD OF PRODUCING SAME

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5 Claims

ABSTRACT OF THE DISCLOSURE

A unitary article-holding clip molded from a tough yet resilient plastic material, such as nylon or the like. The clip is provided with article-holding jaws interconnected at their backs by a membrane portion of the plastic material serving as a hinge that keeps the respective jaws tied to each other while still enabling them to be brought into and maintained in coacting, clip positions. Consequently, the clip can be molded flatwise, as a unitary article. It is folded upon itself, following the molding operation, utilizing the interconnecting membrane as a hinge, and is fastened into clip formation thereafter. Suitable fastening members may be molded into respective confronting faces of the backs of the respective jaws for locking coaction when the jaws are folded into clip formation, or staples or some other fastening devices may be applied to such back portions of the jaws to hold such jaws in folded, clip formation for use.

BACKGROUND OF THE INVENTION

Field

The invention relates to clips for temporarily holding a variety of articles, but primarily flat, relatively thin, sheet-like articles, such as samples of paper stock, greeting cards, printed brochures, floor tiles, carpet samples, rolls of magnetic recording tape, etc.

State of the art

Clips of this type are usually made of metal with springs of one kind or another urging the jaw members together. If the jaws are made of plastic, they are molded individually and operably associated much as are the clips made of metal.

BRIEF SUMMARY OF THE INVENTION

In the making of the invention, the principal purpose was to provide an economical and effective clip for use with the article storage and inspection file forming the subject matter of our copending application Ser. No. 700,132, filed Jan. 24, 1968. It was desired to fabricate a clip for this purpose entirely or principally of resilient plastic material by a simple molding operation.

This objective was accomplished by molding the clip flatwise to unitarily provide coactive jaw members, at least one of which is effectively resilient (by reason of the plastic material employed) to provide clip action when the molded structure is put into clip formation with the jaw members mutually opposed. As molded, the jaw members are joined back-to-back by a membrane of the plastic material, which serves as a hinge in folding the molded clip structure upon itself to bring the jaw members thereof into coacting clip positions, i.e. into confronting relationship with back portions thereof in face-to-face relationship.

At least one of the jaw members has a relatively thick and rigid back portion, from one longitudinal side of which a relatively thin and resilient jaw portion extends in outwardly sloping relationship, transversely of the thickness dimension of the back portion. The other jaw mem-

ber may be similarly though oppositely formed, or may be merely of flat plate-like or generally corresponding formation, so that, when the flat, molded clip structure is folded upon itself along the membrane hinge joining the backs of the two jaw members and with the back portions of such jaw members in face-to-face relationship, the jaw portions of such members will meet or almost meet at and along their extremities, to be opened for the reception of an article only when pressure is applied between and lengthwise of such extremities against the inherent resiliency of the sloping jaw portion or portions of the one or more jaw members so formed.

The jaw members of the folded clip structure are secured together by fastening means, either molded into the back portions of such members as snap-locking, latch bolt and latch keeper, respectively, or applied in the form of one or more staples or other fastener.

DESCRIPTION OF THE DRAWING

The accompanying drawing illustrates what is presently contemplated as the best mode of carrying out the invention from the standpoints of both product and method, as well as one variation in the construction of the product to indicate the possibilities.

In the drawing:

FIG. 1 represents, by a pictorial view, a preferred form of the product adapted for use with the file of the aforementioned copending application;

FIG. 2, a view in vertical section taken along the line 2—2 of FIG. 1;

FIG. 3, a view in transverse section taken along the line 3—3 of FIG. 1;

FIG. 4, a fragmentary view corresponding to that of FIG. 3, but taken of the flatwise molded clip structure prior to folding it upon itself;

FIG. 5, an inside plan view of one part of a double cavity mold used to produce the clip structure of the foregoing figures;

FIG. 6, a transverse vertical section through both parts of the mold, the section being taken along the line 6—6 of FIG. 5;

FIG. 7, a view similar to that of FIG. 6 but taken along the line 7—7 of FIG. 5;

FIG. 8, a view similar to that of FIG. 3, but taken with respect to a somewhat different form of the clip of the invention; and

FIG. 9, a view similar to that of FIG. 4 but showing the full clip structure of FIG. 8.

DETAILED DESCRIPTION OF ILLUSTRATED EMBODIMENTS

In the form illustrated in FIGS. 1—3, the clip of the invention comprises a push tab member 10, an article-holding member 11, and a downwardly opening hook member 12. It is made by flat-molding a tough and resilient plastic material, such as nylon, in a mold (see FIGS. 5, 6, and 7), to provide a flat-molded structure, FIG. 4, comprising a pair of jaws 13, with tab end extensions 10a and intermediate hook forming portions 12a, joined by a relatively thin membrane portion 14, by folding the resulting flat-molded structure upon itself on the membrane 14, as a hinge, and by fastening the resulting structure as folded, see FIGS. 1 and 3.

The double cavity mold shown in FIGS. 5 and 6 is typical, but the mold construction as such forms no part of the present invention and will not be described in detail. This is well within the ordinary skill of a die maker accustomed to plastic molding techniques. Suffice it to say that the female part 15 of the mold is provided with double mold cavities 16 supplied with molten plastic through the usual sprue and runners 17, and the male part 18 of the mold is provided with longitudinally ex-

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tending core portions 19 for the respective mold cavities, to provide the membrane 14, and with core portions 20, FIG. 7, to provide the hook-forming portions 12a.

Each of the jaws 13 has a relatively thick back portion 13a and a relatively thin, resilient jaw portion 13b extending longitudinally of the back portion and projecting outwardly therefrom transversely of the thickness dimension of such back portion, so that, when the flat-molded clip is folded on membrane hinge 14 to place the inside faces 21 of the respective back portions 13a face-to-face, the resilient jaw portions 13b will project toward each other in mutually confronting relationship to provide a longitudinally-extending opening 22 for receiving an article to be held by the clip and such jaw portions will be spaced apart at their joiners with the respective back portions, see 23, FIG. 3.

The clip as so folded may be secured in its folded condition by the application of suitable fastening devices, such as wire staples 24, to the back portions 13a of the jaws 13, or by the snap-locking action of interlocking formations molded into the respective back portions of the jaws, as will be explained in connection with the embodiment of FIGS. 8 and 9.

It should be noted that the thicknesses of the back portions 13a of the respective jaws and the extent to which the jaw portions 13b thereof traverse the thickness dimensions of such back portions will determine how much the article-receiving opening 22 is actually open, if at all, and the degree of resilient holding action such jaw portions exert on a received article. These factors can be varied to suit the type of articles concerned for particular applications of the invention.

It will usually be advisable to mold interengaging, male and female members, 25 and 26, respectively see especially FIG. 4, into the confronting faces of the back portions 13a of the jaws to insure longitudinal rigidity of the resulting clip, and gripping formations 27 in the mutually confronting faces of the jaw portions 13b. As can be seen from the embodiment of FIGS. 8 and 9, the interengaging members may be made of interlocking formation, if desired, to avoid the necessity of using separating fastening devices such as the wire staples 24.

The embodiment of FIGS. 8 and 9 employs one jaw 28 of the same formation as the jaw members 13 of the first embodiment, having a back portion 28a and a resilient jaw portion 28b. The other jaw 29 is of plate-like formation and relatively thick as compared with the jaw portion 28b. It provides a relatively non-resilient reaction member for the resilient jaw portion 28b. This type of clip is primarily useful, without the tab or hook members of the first embodiment, for holding a sheaf of writing paper and for a variety of uses where individual clips are required.

Although this embodiment of the invention may also be secured in clip formation, as folded on membrane hinge 30, by means of wire staples or other applied fastening device, it is shown with interengaging members 31 and 32 of type that snap locked when interengaged. Thus, the male member 31 is a post of outwardly divergent formation toward its tip 31a, while the female member converges toward a constricted passage 32a intermediate its length and diverges therebeyond. The inherent resiliency of the plastic material permits sufficient deformation under pressure to permit the larger diameter

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tip 31a to pass through the constricted passage 32a, whereupon it expands and securely locks the two jaw members together.

Molding of this embodiment merely requires a mold of proper internal configuration, as will be apparent to one skilled in the art of molding plastics.

Whereas this invention is here illustrated and described in detail from the standpoint of presently preferred specific embodiments thereof, it is to be realized that various changes may be made within the generic purview of the disclosure.

We claim:

1. A unitary, article-holding clip molded from plastic material having inherent resiliency, comprising mutually confronting, article-holding jaws, each of which has a relatively thick back portion positioned in face-to-face relationship with a corresponding portion of the other jaw, and a relatively thin, resilient jaw portion extending longitudinally of said back portion and projecting outwardly therefrom transversely of the thickness dimension of said back portion and toward said other jaw, to provide, with said other jaw, a longitudinally-extending opening for receiving an article to be held by the clip; a membrane hinge portion integral with said jaws and joining them back-to-back; means holding said jaws in mutually confronting relationship; and a tab member is formed at one end of the clip.

2. A clip according to claim 1, wherein the tab member is formed at one end of the clip by similarly-formed end extensions of the jaws positioned in face-to-face, mutually confronting relationship.

3. A clip according to claim 2, wherein a hook member is formed between the tab member and the jaws, with its opening facing in a direction opposite to the jaw portions of the jaws.

4. A clip according to claim 1, wherein a hook member is formed between the tab member and the jaws, with its opening facing in a direction opposite to the jaw portions of the jaws.

5. A flat-molded structure for use in forming an article-holding clip comprising article-holding jaws, at least one of which has a relatively thick back portion and a relatively thin, resilient jaw portion extending longitudinally of said back portion and projecting outwardly therefrom transversely of the thickness dimension of said back portion; and a membrane hinge portion integral with said jaws and joining them back-to-back.

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DONALD A. GRIFFIN, Primary Examiner

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