

July 18, 1967

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3,331,373

PLATE OF PLASTIC MATERIAL WITH FASTENING MEANS LOOSE-LEAVES

Filed Oct. 18, 1965

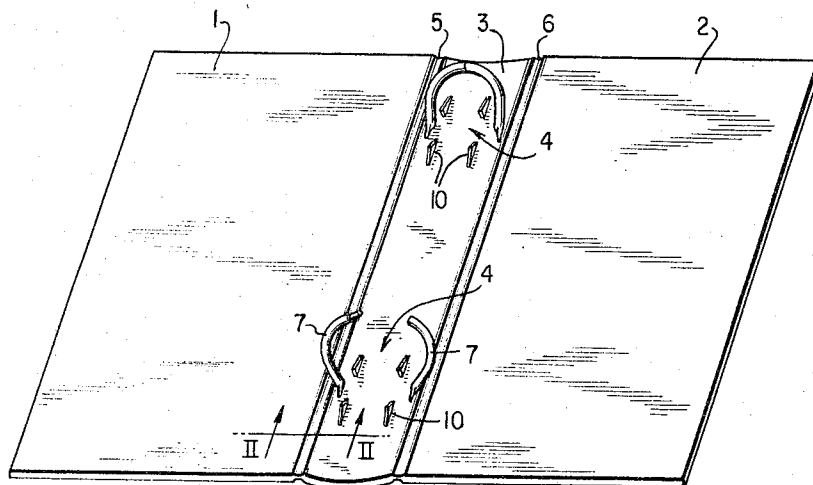


FIG. 1

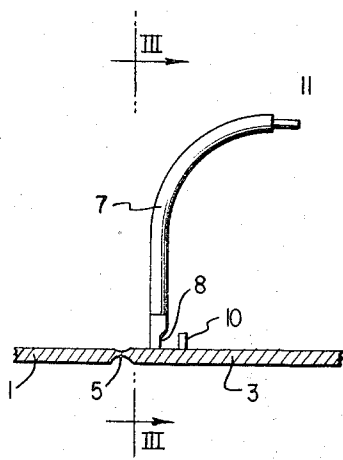


FIG. 2

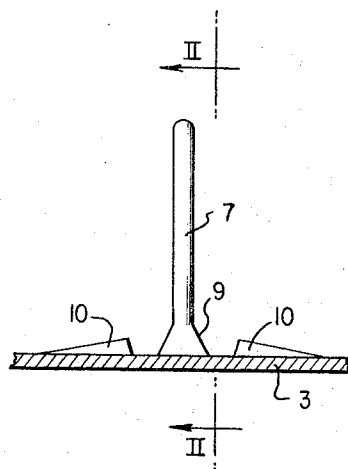


FIG. 3

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PLATE OF PLASTIC MATERIAL WITH FASTENING MEANS FOR LOOSE-LEAVES

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Filed Oct. 18, 1965, Ser. No. 497,075

Claims priority, application Germany, Mar. 15, 1963,
L 44,383, L 44,384
4 Claims. (Cl. 129—24)

The present invention relates to a sheet holder integrally made from synthetic material. More particularly, this invention relates to ringed notebooks, file folders, loose-leaf binders, etc., which consist of two cover parts, an integral back connected therewith by hinged portions of reduced thickness and a sheet receiving device having a plurality of integral loops or brackets. This application is a continuation-in-part of application Ser. No. 352,384, filed Mar. 16, 1964 by Ludwig Lohmeier, now abandoned.

It is known to have binders made from synthetic material, wherein the cover parts and the back are integral and the device for receiving detachably the sheets of paper is made separately and secured to the back of the binder by riveting, glueing or some other means of connection.

For economy, it is desirable to construct the receiving device integral with the back as well as with the cover parts of the binder. This poses a problem, because the receiving prongs or brackets must be readily pivotable, on the one hand, for easy insertion and removal of sheets, and on the other hand, they must have as great a rigidity as possible to securely hold the sheets.

It is an object of the present invention to provide a binder economically made in one piece from synthetic material in such a manner that the sheet receiving prongs or brackets or loops meet both of the aforementioned basic requirements.

It is another object of this invention to provide an integral sheet holder, which may be manufactured economically in a single molding operation.

Another object of this invention is to provide an integral sheet holder with a sheet receiving bracket connected to a base by means of a hinge portion of reduced thickness.

Still another object of this invention is to provide an integral sheet holder with a sheet receiving bracket connected to a base by means of a hinge portion of reduced thickness to allow pivoting of the bracket and of increased width to provide sufficient rigidity for retaining sheets.

Additionally, an object of this invention is to provide an integral sheet holder with a sheet receiving bracket connected to a base by means of a hinge portion of reduced thickness to allow pivoting of the bracket and an abutment adjacent to the portion of reduced thickness to keep sheets from being clamped in the portion.

These objects are achieved, in accordance with the present invention, by providing relatively rigid sheet receiving prongs or brackets having a reduction in material thickness to form pivots in the area of their connection to the back of the binder. Such a reduction in material thickness provides convenient pivots for the receiving brackets which are rigid in the remaining portion. According to extensive tests, the pivots have such a great resistance, despite the material reduction that they will withstand the stresses that occur during the normal service life of a binder. The resistance of the pivots may be increased further by widening the pivot portions of the receiving brackets trapezoidally transverse to their pivot plane. Furthermore, a web-like projection may be provided at the back of the binder adjacent to the pivots

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of the receiving brackets so that sheets will not be clamped in the pivots.

These and other objects, features and advantages of the present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show for purposes of illustration only, one embodiment in accordance with the present invention, and wherein:

FIGURE 1 is a perspective view of a binder according to the present invention;

FIGURE 2 is a partial cross-sectional view of a receiving bracket taken along lines II—II of FIGURES 1 and 3; and

FIGURE 3 is a cross-sectional view taken along line III—III of FIGURE 2.

Referring now to the drawing wherein like reference numerals are used throughout the various views to designate like parts, and more particularly to FIGURE 1, a binder is illustrated made from synthetic material as a ringed notebook, consisting of two cover parts, 1, 2 and a back 3, and a sheet receiving device including two pairs of brackets or loops 4. All of the aforementioned parts are made in one piece in an extrusion process, for example, or any other molding process. The two cover parts 1 and 2 are connected or secured to the back 3 by means of hinged portions 5 and 6, respectively, of reduced thickness thereof which allow convenient closing and opening of the binder.

Receiving prongs or brackets 7 are disposed in pairs to project through holes in sheets of paper to securely hold the sheets by interengaging with one another. The receiving bracket 7 are largely rigid and include, as seen in FIGURE 2, in the vicinity of their connection to the back 3, a reduction 8 of the material thickness; thus, a pivot is formed about which the receiving brackets may be pivoted during the operation of opening or closing the pairs of brackets. In FIGURE 1, the lower pair of brackets 4 is shown in its open position; means (not shown) such as an operator's hands would be required to hold the brackets in the open position against their inherent resilience, which urges them into the closed position of the upper pair of brackets shown in FIGURE 1.

In FIGURE 3 is shown a trapezoidal enlargement 9, to compensate for the decrease of the rigidity due to the reduction 8. Thus, the brackets 7 are provided with a pivot without a sacrifice of rigidity.

In addition, two web-like projections 10 are integral with and disposed on the back 3. During opening and closing of the receiving brackets 7, the projections 10 prevent the sheets placed into the binder from being caught and clamped in the pivot formed by the reduction 8.

The operation of the binder is apparent from the above description.

It is understood that the embodiment shown and described must be considered as an example only, and that further modifications in various respects will be possible within the scope and spirit of the invention as defined by the following claims.

I claim:

1. A loose-leaf binder for sheet material provided with holes, comprising: a back; a plurality of pairs of relatively rigid prong means upstanding from said back; separate resilient hinge means for each pair pivotally connecting at least one prong means of each pair to said back; said hinge means having a trapezoidal portion of less thickness than said prong means in the plane of pivotal movement about said hinge means forming a gap that could clamp the sheet material and of increased width relative to said prong means normal to the plane of pivotal movement about said hinge means; each of said prong means having a free terminal end to extend

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within the holes of the sheet material; said free terminal ends of each pair of prongs normally engaging each other to prevent the sheet material from moving off of said terminal ends; the resiliency of said hinge means being sufficient to allow said terminal ends to be forced away from each other for placement and removal of sheet material on and from, respectively, said prong means; plastic projection means mounted on said back closely adjacent to said hinge means for spacing the sheet material from said back beyond the portion of less thickness for preventing the sheet material from entering said portion of less thickness and preventing the sheet material from being clamped by said hinge means; side cover panel sheets on opposite sides of said back; hinge portions of reduced thickness between and connecting each of said side panels and said back; said hinge portions being of a resiliency sufficient to allow each of said side panels to be moved between a position in the same plane as said back and a position at right angles to the plane of said back; said back, prong means, hinge means, hinge portions, projection means and side panels consisting essentially of an organic synthetic plastic molded as one homogeneous integrated construction.

2. The binder according to claim 1, wherein said projection means extend away from said back for a distance, measured perpendicular to said back, that is at least as great as said portion of less thickness.

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3. The binder according to claim 2, wherein said side panels and said back are constituted by substantially uniform equal thickness sheet material, and said prong means are substantially uniform in cross-section for the majority of their extent.

4. The binder according to claim 3, wherein said free terminal ends have means to normally telescopically engage each other to prevent the sheet material from moving off of said terminal ends.

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