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HINGE CONNECTION FOR ELASTIC SHEETS

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Fig. 1

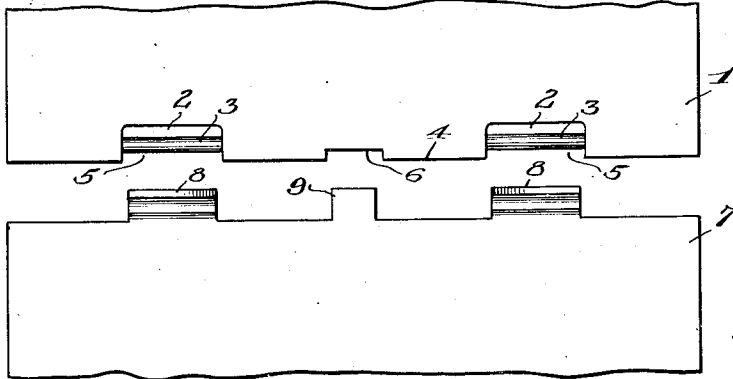


Fig. 5 Fig. 7

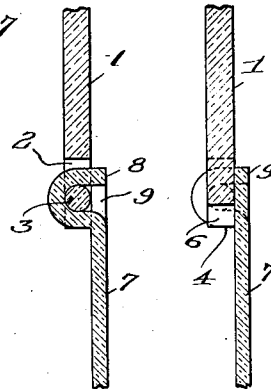


Fig. 2

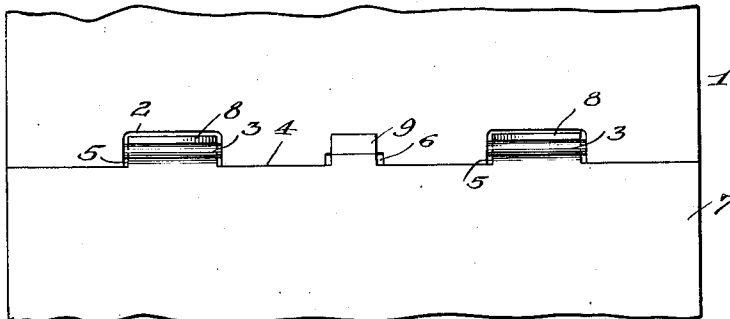


Fig. 6 Fig. 8

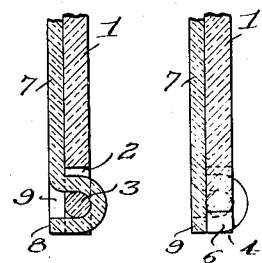


Fig. 3

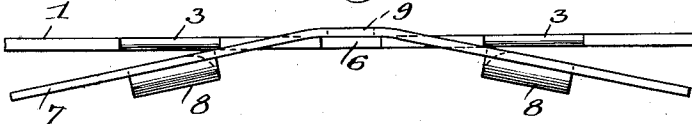
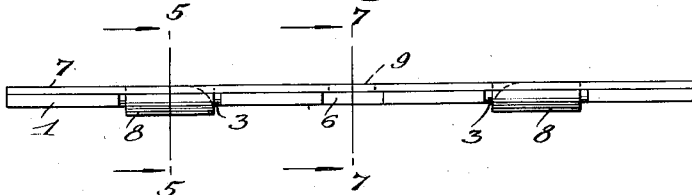


Fig. 4



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HINGE CONNECTION FOR ELASTIC SHEETS

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2 Claims. (Cl. 16—128)

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This invention relates to a hinge connection for elastic sheets, with more particular reference to relatively thin or flexible sheets of plastic or similar material, and has for its purpose to afford a practical and economical hinge for connecting two such sheets or plates.

The invention has for its further object to afford a construction that enables producing each plate or sheet from an integral mass of material, as by molding in the case of plastic, and connecting the two plates for hinged relationship without the need of separate pins or pintles for uniting the hinge elements.

Still another purpose of the invention is to afford a construction in which the hinge connecting portions are formed integrally with the respective plates or sheets and are assembled for operative hinged relation by flexing one of the sheets to permit its being brought into position for hinged connection with the other.

An additional object of the invention is to afford a construction in which two sheets can be molded from plastic material, affording a one-piece construction for each sheet, and making it possible to assemble or disassemble the two hinged sheets quickly and easily without likelihood of breakage.

To these and other ends, the invention consists in the construction and arrangement of parts that will appear clearly from the following description when read in conjunction with the accompanying drawings, the novel features being pointed out in the claims following the specification.

In the drawings:

Fig. 1 is a plan view showing two sheets constructed in accordance with the invention, the sheets appearing in spaced relation before assembling for hinged connection;

Fig. 2 is a similar view showing the sheets connected for relative pivotal movement;

Fig. 3 is a view in edge elevation with reference to Fig. 2, illustrating one sheet in the flexed position in which it is held during assembling;

Fig. 4 is a similar edge elevation showing the relation of the sheets after the flexed one is released and assumes the position of Fig. 2;

Fig. 5 is a sectional view on line 5—5 of Fig. 4 looking in the direction indicated;

Fig. 6 is a similar view showing the relative position of the parts when the sheets are rotated into overlying relationship;

Fig. 7 is a sectional view on line 7—7 of Fig. 4, and

Fig. 8 is a similar sectional view showing the

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position of the parts when the sheets are turned relatively into overlying relationship, similarly to Fig. 6.

The invention is susceptible of various applications and detailed embodiments, and for illustrative purposes is shown as applied to a pair of sheets or plates made from suitable plastic material by molding, as well known in the art, such plastic sheets being of a character and thickness that permits their flexing or bending laterally to enable assembling the hinged parts together, and in the construction shown, 1 designates a plastic or other sheet of elastic material provided with slots 2, and integral cylindrical pintles 3 separated from the adjacent edge 4 of the sheet by recesses 5, while 6 designates a recess in the edge 4 intermediate the pintles 3.

The connected hinge sheet is designated at 7 and may be somewhat thinner than the sheet 1, as shown, in order to enable readily flexing the sheet 7 in the manner that will be described presently for assembling the parts, and since it is not essential that both elements be of an elastic character, the sheet 1 may be somewhat thicker than sheet 7 although it is within the province of the invention to make both sheets of the same thickness, the only requirement being that one of the sheets be of sufficient thinness and elasticity to permit flexing it during assembly.

The sheet 7 is provided with two hook-shaped hinge portions 8 extending laterally beyond its edge, as shown, for cooperation with the pintles 3, and intermediate the hook-shaped hinge portions 8 is a locking portion or lug 9 that extends laterally beyond the edge of the sheet and overlies the adjacent surface of the sheet 1 when the parts are connected, in the manner shown in Fig. 2, to prevent their separation.

Referring to Figs. 1 to 3, the two sheets are assembled by first bringing them into the approximate relative position illustrated in Fig. 1, and flexing the sheet 7 until both the hook-shaped hinge portions 8 are below the undersurface of the sheet 1, as in Fig. 3. Such flexing of the sheet 7 can be accomplished manually or by any suitable tool or instrument for the purpose, and while thus flexed, the sheet 7 is moved bodily toward and over the sheet 1 until the locking portion 9 overlies the sheet 1 and the hook-shaped hinge portions 8 underlie the sheet 1 and are opposite to the slots 2. Then upon releasing the sheet 7 and permitting it to reassume its normal flat state, the hook-shaped hinge portions 8 move upwardly through the slots 2 into engagement with

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the pintles 3, and the parts are then in the position illustrated in Figs. 2, 4, 5 and 7.

The locking portion 9, overlying the body of the sheet 1, effectually prevents the hook-shaped hinge portions moving out of engagement with the pintles 3, as shown in Fig. 7. The two sheets can be swung relatively to each other through an angle of 180°, from the position shown in Figs. 5 and 7 to the position shown in Figs. 6 and 8, during which movement the locking portion 9 moves through the recess 6 and the hook-shaped hinge portions are accommodated by the recesses 5 at the edge of the sheet 1. Thus the hinged sheets can be moved to any point between the limit positions illustrated by Figs. 5 and 6 and are securely held against accidental separation, but can quickly be disassociated by flexing the sheet 7 in the manner shown in Fig. 3 until the hook-shaped hinge portions are disengaged from the slots 2 and then drawing the sheet 7 laterally away from the sheet 1.

The application discloses two hook-shaped hinge portions and one locking portion arranged intermediate thereof, and it is to be understood that the invention may be similarly applied to hinged sheets including a greater number of hook-shaped hinge portions than here shown, for instance, there may be any number of hinge portions with locking portions preferably arranged between each pair of hinge portions, while other modifications and departures from the structure shown may be had without departing from the essential features of the invention, and this application is intended to cover such changes as may come within the purposes of the improvement or the scope of the following claims.

I claim:

1. A hinge connection, including two elastic plastic sheets, one of said sheets having two hook-shaped hinge portions formed integral therewith, and extending into slots in the second sheet from one side thereof and engaging pintles formed

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integral therewith, and a locking portion formed integral with the first mentioned sheet and located between said hook-shaped hinge portions, said locking portion engaging the other side of said second sheet to prevent separation of the sheets.

2. A hinge connection including two elastic sheets, one of said sheets having a pair of spaced hook-shaped hinge portions formed integral therewith and extending laterally beyond one edge thereof, said hinge portions extending into slots in the second sheet from one side thereof and engaging cylindrical pintles formed integral therewith, said pintles being spaced from the edge of the sheet, and a locking lug formed integral with the first mentioned sheet and extending laterally beyond one edge thereof intermediate said hinge portions and in the same plane as the sheet, said locking lug engaging the other side of the second sheet and preventing separation of the sheets, the second sheet having a recess in its edge to accommodate said locking lug when the sheets are in perpendicular relation to each other.

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