

No. 721,177.

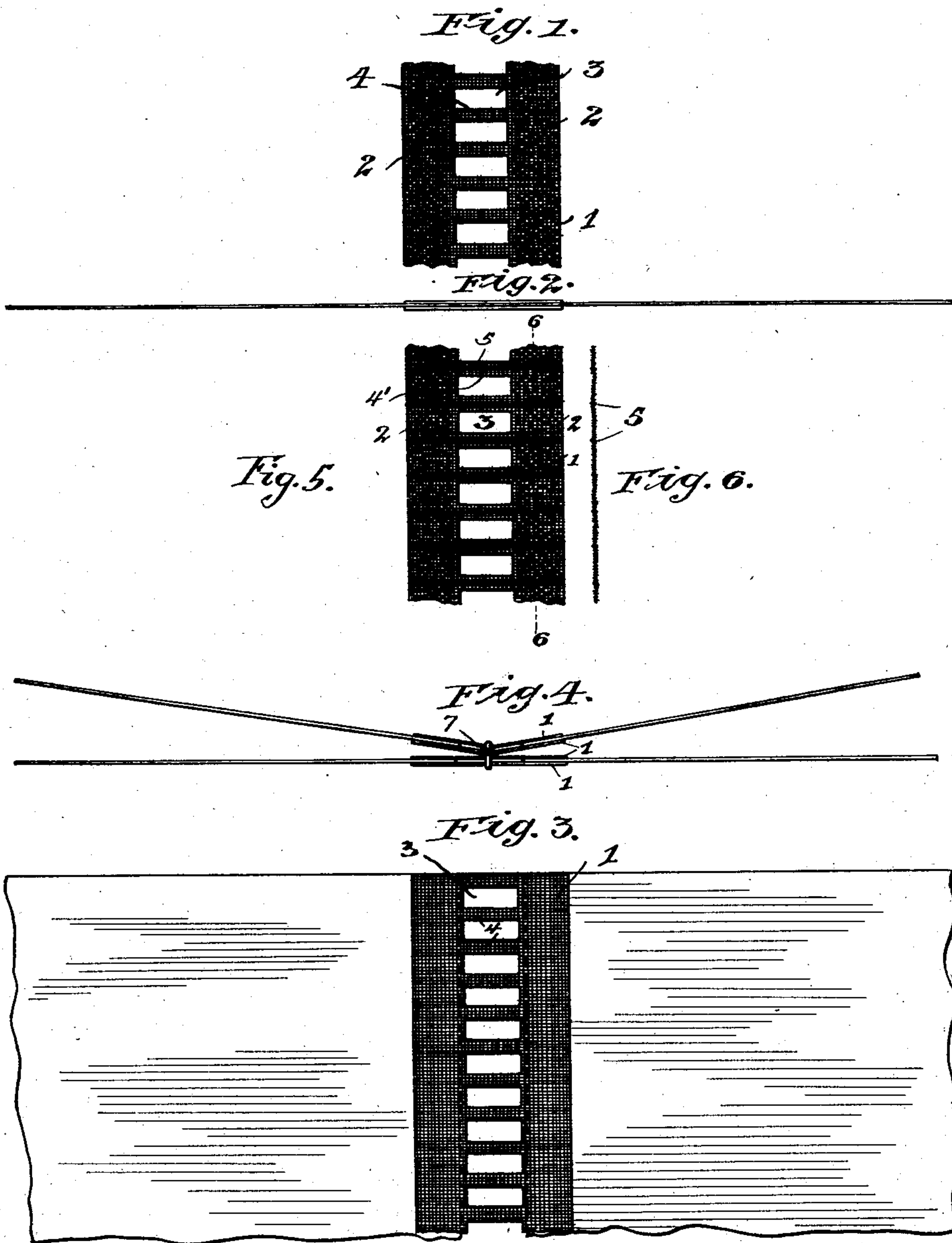
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W. M. GAMBLE.

LEAF HINGE.

APPLICATION FILED JUNE 9, 1902.

NO MODEL.



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# UNITED STATES PATENT OFFICE.

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## LEAF-HINGE.

SPECIFICATION forming part of Letters Patent No. 721,177, dated February 24, 1903.

Application filed June 9, 1902. Serial No. 110,781. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM M. GAMBLE, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Leaf-Hinges, of which the following is a specification.

This invention relates to improvements in leaf hinges or binders adapted for flexibly securing together leaves and the like, the invention relating more specifically to an improved form of binder formed of gummed strips of suitable width for uniting leaves with each other and provided between their margins with a longitudinally-extending perforated portion, which is thus made substantially more flexible or pliable than the main body of the strip.

The object of the invention is to provide a simple, inexpensive, and always-ready device of the character referred to which will form a durable and convenient means for flexibly uniting or hinging together two or more leaves or analogous objects.

To this end the invention consists in the matters hereinafter described, and more particularly pointed out in the appended claims; and the invention will be more readily understood from the description by reference to the accompanying drawings, forming a part thereof, and in which—

Figure 1 is a plan view of a fragmentary portion of my improved leaf-hinge strip. Fig. 2 is an end or edge view of a pair of strips applied to the opposite sides of the proximate edges of a pair of leaves and uniting the latter. Fig. 3 is a plan view of the leaves and hinge-strips shown in Fig. 2. Fig. 4 is a view similar to Fig. 2, showing a plurality of pairs of leaves united by means of the leaf-hinge strips. Fig. 5 is a view similar to Fig. 1 of a slightly-modified embodiment of the invention; and Fig. 6 is a sectional view of the fabric employed in making the hinge-strips shown in Fig. 5, the section being taken on line 6 6 of said Fig. 5.

Referring to the drawings, 1 designates a strip of material of any suitable flexible and tough fabric or sheet material coated on one side along each of its edges, as indicated by the stipple shading at 2, with a suitable gum or adhesive material capable of being made adhesive by moistening.

3 designates a longitudinally-extending series of perforations, which perforations preferably extend transversely of the strip a distance approximately equal to the ungummed or exposed part of the strip when the latter is applied and which are placed closely enough together to render the intervening uncut strap-like portions 4 very pliable, but yet strong enough to withstand the necessary wear. In the preferred embodiment shown herein the perforations 3 are of oblong rectangular form, having their greater length extending transversely of the strip, this form being preferred when a woven fabric of a straight weave is employed, for the reason that it secures a maximum strength and pliability, or, in other words, permits the greatest proportion of the hinge portion proper of the strip to be cut away without rendering the same too weak to properly withstand the wear. This construction also has the advantage of reducing to a minimum the tendency of the fabric to ravel or fray around the edges of the perforations. Preferably the fabric employed is an ordinary straight-weave rather fine cambric sized sufficiently to prevent it from readily raveling, but nevertheless not to such an extent to interfere with the flexibility of it or render it liable to break along the hinge-line in use. In practical use two such strips provided with the gummed marginal surfaces, but unperforated, are employed for securing together each pair of leaves, these strips being applied to the opposite sides of the edges of the leaves, as indicated in Figs. 2 and 4. In securing the leaves to the strips care is exercised to keep the proximate edges of the leaves at uniform distance apart and sufficiently remote from each other to expose the central strip, which is to become the hinge portion proper, and after the leaves have been thus secured together the strips are perforated by passing them through a suitable perforating-machine. This insures that both strips will be perforated in exact register with each other and also in exact proper relation to the margins of the leaves.

The form of strip shown in Fig. 1 may be, as hereinbefore stated, made of ordinary muslin or other suitable analogous fabric; but in Figs. 5 and 6 I have shown a specially-formed



fabric, which has the advantage of producing a stronger hinge than that shown in Fig. 1, but nevertheless almost equally pliable and convenient. In forming the construction shown in Fig. 5 a suitable fabric is woven composed in the main of relatively fine threads, but provided at suitable intervals with a heavier filling-thread, as indicated at 5, which threads are spaced at such distance apart in the fabric that when the strips have been formed and perforated the heavier threads will extend through the strap-like portions or hinge-sections proper, 4', as indicated clearly in Fig. 5. This fabric may be readily made by throwing in a heavy thread at regular intervals during the weaving of the fabric. In other respects the strip shown in Fig. 5 is constructed and applied the same as that shown in Fig. 1.

In case it is necessary, as it frequently is, to secure together a plurality of pairs of leaves this is conveniently accomplished by tying the strips together through the perforations, as indicated at 7 in Fig. 4, at suitable intervals apart throughout the length of the strips. Alternatively I may employ a series of relatively long stitches extending longitudinally along the median line of the hinge.

A construction embodying the present invention has for its chief advantage cheapness of production combined with a high degree of utility. The strips may be cut from woven webs of fabric longitudinally of the latter, and therefore of unlimited length, and gummed in continuous lengths by machinery and after application to the sheets perforated with great facility and speed, thus keeping the cost of manufacture down to a minimum. The hinge thus produced is extremely convenient in use and durable and absolutely prevents all tearing and disfiguring of the connected margins of the leaves, thus very materially prolonging the life of the sheet in case it is of that character which is to be used frequently—as, for example, sheet-music. The sheets thus bound together, moreover, present a neat and finished appearance and may be handled much more roughly without danger of being torn than when unprovided with hinges.

The present invention is not to be confounded with my previous invention in leaf-

hinges patented to me January 28, 1902, No. 691,757. That construction, while highly efficient and satisfactory in use, is very considerably more expensive in production and is suitable for making up into packages to be applied by the consumer, whereas the present invention is more particularly for use where the sheet-music is sent to a factory equipped with suitable apparatus for making, applying, and perforating the strips.

I claim as my invention—

1. As a new article of manufacture, a leaf-hinge consisting of a strip of fabric provided upon one side along each of its margins with an adhesive coating and provided with a longitudinally-extending series of perforations between said coated portions whereby it is rendered highly pliable.

2. As a new article of manufacture, a leaf-hinge consisting of a strip of finely-woven fabric comprising two marginal strip portions coated with adhesive material upon one side and integrally united by relatively narrow transversely-extending strap-like portions forming the hinge proper.

3. As a new article of manufacture, a leaf-hinge consisting of a strip of finely-woven fabric comprising two marginal strip portions coated with adhesive material upon one side and integrally united by relatively narrow transversely-extending strap-like portions forming the hinge proper, said fabric being provided at intervals apart with threads of increased strength arranged to extend through said narrow hinge portions.

4. In combination with a pair of leaves, means for hinging said leaves together, comprising a pair of leaf-hinge strips applied to opposite sides of the proximate edges of the leaves and each comprising a strip of soft, pliable material provided with a coating of adhesive material along both edges of one side and provided with a series of perforations extending longitudinally along the median line of the strip, substantially as described.

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