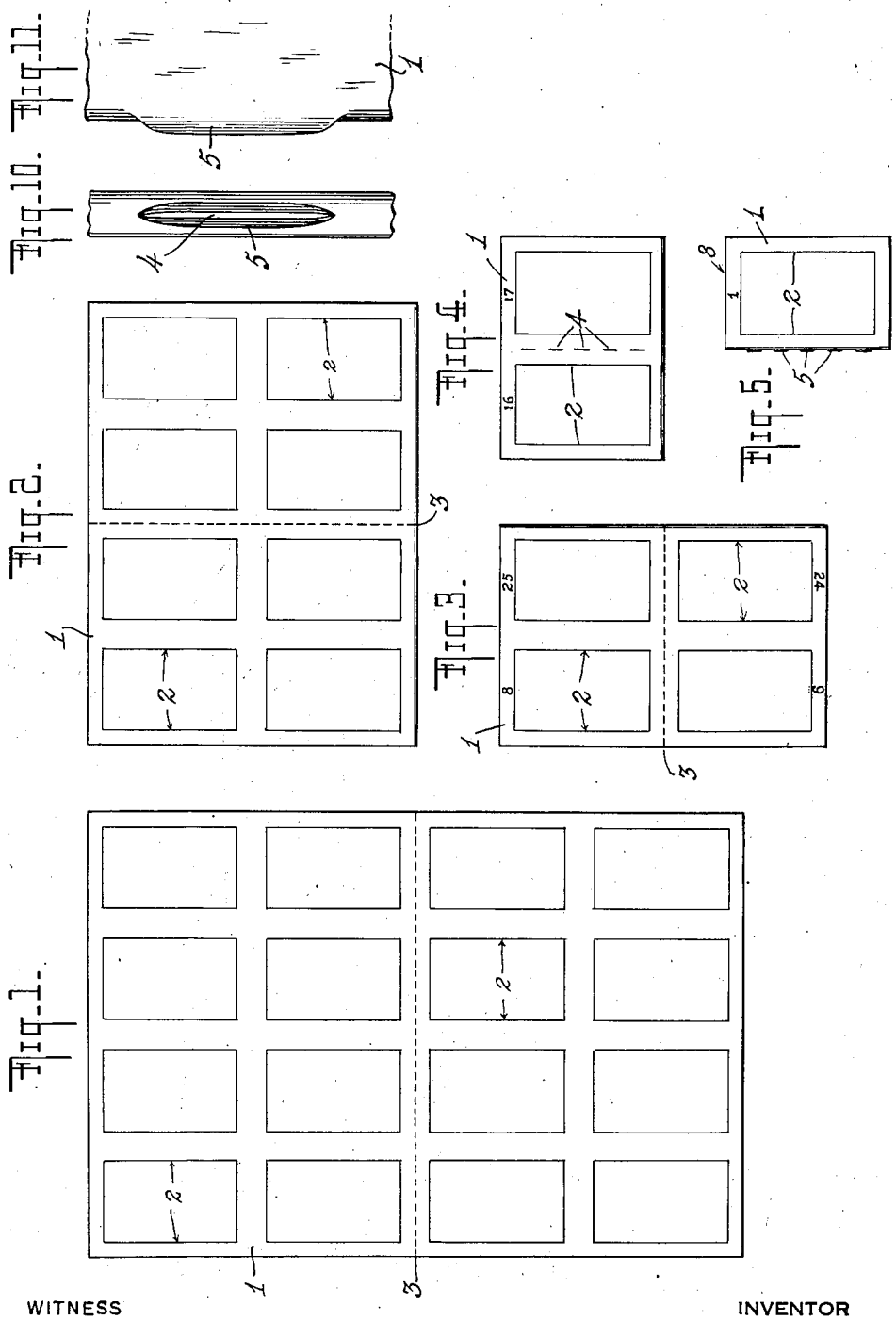
March 12, 1940. J. H. LOUNSBURY 2,193,534

BOOK

Filed March 20, 1939 2 Sheets-Sheet 1



WITNESS

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BOOK

Filed March 20, 1939 2 Sheets-Sheet 2

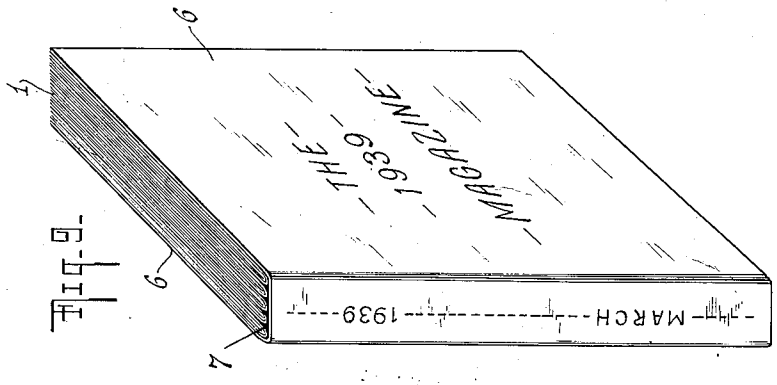

FIG. 6.

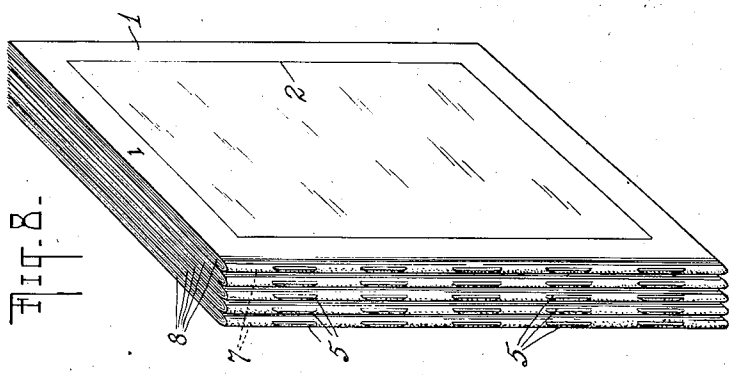

FIG. 8.

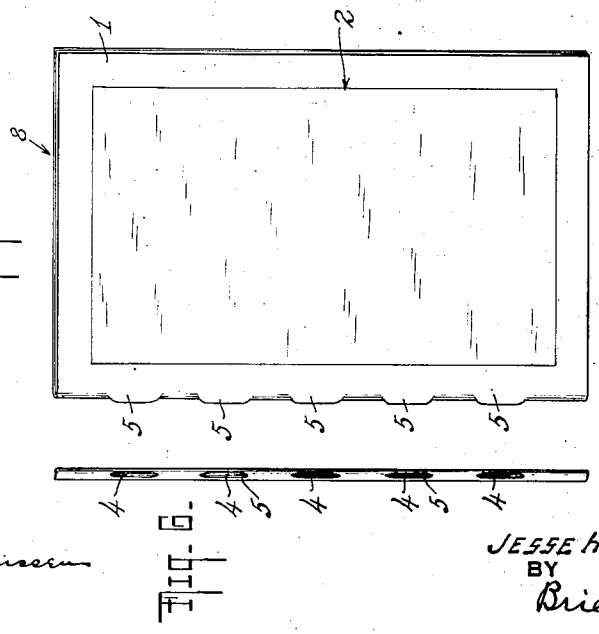

FIG. 7.

FIG. 9.

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2,193,534

BOOK

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Application March 20, 1939, Serial No. 262,867

2 Claims. (Cl. 281—21)

The invention relates primarily to books of the type represented by magazines or pamphlets in which a plurality of signatures are associated with a paper cover. The object of the invention is to produce a reliably united book of this type without sewing or stapling and thereby effecting economies of manufacture and obtaining a better product.

Heretofore it has been customary in the case of some pamphlets or magazines to sew or to staple all of the sheets including the cover together. Such stapling is termed a "saddle stitch". A number of signatures, each saddle-stitched in itself, were, in other cases, glued to the inside book portion of the cover. In other cases it has been customary to use a "side stitch" with metal staples which go through the sides of all of the signatures near the rear folds, the signatures being then attached to the cover sheet. Still another customary method is the one wherein the rear folded portions of all the signatures are cut away, the cover being then glued to the cut-away rear edges of the individual sheets. In this instance each sheet of paper is a unit in itself having a hinge at the point where it is glued to the back of the cover.

In the case of my new structure there is no stitching and no stapling and the several groups of sheets retain their status as signatures. The rear folded edges of the several pages are not cut away and the only agent which holds the parts together is the adhesive which, due to the special construction, is given an opportunity of supplying a durable connecting medium for all the sheets. The book of the new type is compact at the back since there are no staples to increase the aggregate thickness at the back. The new book can be opened at all points so as to lie more or less flat, which is not possible with most of the prior art publications. There are numerous obvious advantages in the new structure.

The invention is illustrated in the accompanying drawings in which Figs. 1 to 5 are successive views of a sheet of printed paper in process of being converted into a signature. Fig. 6 is a rear edge view of one of the signatures and Fig. 7 a face view of such a signature. Fig. 8 is a perspective view taken from the rear showing the collated signatures. Fig. 9 is a similar perspective view of the complete book with the cover attached. Fig. 10 is a fragmentary detail rear view on an enlarged scale of a part of one of the signatures, and Fig. 11 is a fragmentary detail side view of Fig. 10.

In the drawings 1 is a sheet of paper bearing printed matter indicated by 2 on both sides thereof in such interrelation that when the signature is completed the proper pages will appear in the right sequence. The sheet illustrated in Fig. 1, for instance, contains thirty-two pages of printed matter, sixteen on each side. The sheet of Fig. 1 is folded along the dotted line 3 and then appears in the form shown in Fig. 2. The folded sheet of Fig. 2 is next folded along the dotted line 3 and then appears in the form shown in Fig. 3 from which, on folding again on line 3 of Fig. 3 the folded sheet arrives at the condition of Fig. 4. Slits are thereupon cut through all of the folded sheets near the central line between the several printed pages in a direction toward the outer folded edge of the signature. These slits are indicated by 4 and there are five of them shown in Fig. 4, although obviously the number may be more or less. After the slits 4 have been cut the folded paper is once again folded, this time along the line of the slits 4, and this completes the signature 8. In Fig. 4 the edges of the slits are so close together that they practically touch throughout, but when such folding is done, the effect is to throw rearwardly and outwardly the paper edges 5 at the sides of the slits and to open up the gash. This is clearly illustrated in Figs. 7, 10, and 11. These gashes in that condition may be regarded as open mouths with the inner edge portions of the inner sheets extending up into the mouth.

After a number of signatures 8 which constitute the entire publication have been prepared as described, they are assembled or collated as shown in Fig. 8 and glue 7 is applied over the back edges of the assembled signatures 8 and to these glued edges the cover section 6 is applied as indicated in Fig. 9. The adhesive is usually applied by drawing the assembled signatures over a longitudinally grooved glue-transfer roller of well-known type. The manipulation of the collated signatures during these operations induces the open mouths 4, 5 to draw glue into the inner portions of the mouths so that glue has an opportunity of reaching all of the pages, though it does not to any noticeable extent appear at any inside parts of the completed book. The book can be opened at any point and the presence of glue is hardly apparent and usually not even detectable. Nevertheless, the union between the cover and the several sheets is firm and reliable.

After the cover has been adhesively attached to the signatures the bound unit is trimmed, the

top, side, and bottom edge folded portions of the several signatures being thereby cut away to individualize the leaves of the book in the bound condition. In some cases a strip of porous or open mesh fabric may be interposed between the outside of the assembled signatures and the inside of the rear cover. This is a well known procedure for which no claim is made in this case, although it could be employed in connection with the invention.

The slits or perforations may have other configurations than those illustrated in the drawings but the use of the slit shape has been found to be most satisfactory. It seems to allow the entry into the back of each signature of just enough and not too much of the adhesive. Numerous changes may obviously be made with respect to a number of the details of the described procedure and it is the intent to include such variations in the appended claims.

I claim:

1. A book including at least one signature with undiminished paper areas at the hinge region of the pages, said signature being provided at the central fold thereof with a plurality of aligned gaping open slits of substantial longitudinal extent unfilled save by adhesive material and passing through all of the pages constituting the signature, said slits alternating longitudinally with unslit portions of substantial longitudinal extent, the paper at the edges of said slits extending slightly outwardly from the fold line, a cover, and adhesive material extending into the open slits and effecting adhesive union as between all of the pages of the signature and as between the signature as a whole and the cover.

2. A book including at least one signature with undiminished paper areas at the hinge region of the pages, said signature being provided at the central fold thereof with a plurality of aligned gaping open slits of substantial longitudinal extent unfilled save by adhesive material and passing through all of the pages constituting the signature, said slits alternating longitudinally with unslit portions of substantial longitudinal extent, the paper at the edges of said slits extending slightly outwardly from the fold line, a cover, and adhesive material over the entire rear surface of the signature or signatures and at the projecting edges of the several pages where slitted extending into the open slits and effecting adhesive union as between all of the pages of the signature or signatures and as between the signature as a whole and the cover.

JESSE H. LOUNSBURY.