

P. J. RENNINGER.

BOOKBINDING.

APPLICATION FILED FEB. 24, 1911.

998,303.

Patented July 18, 1911.

Fig. 1.

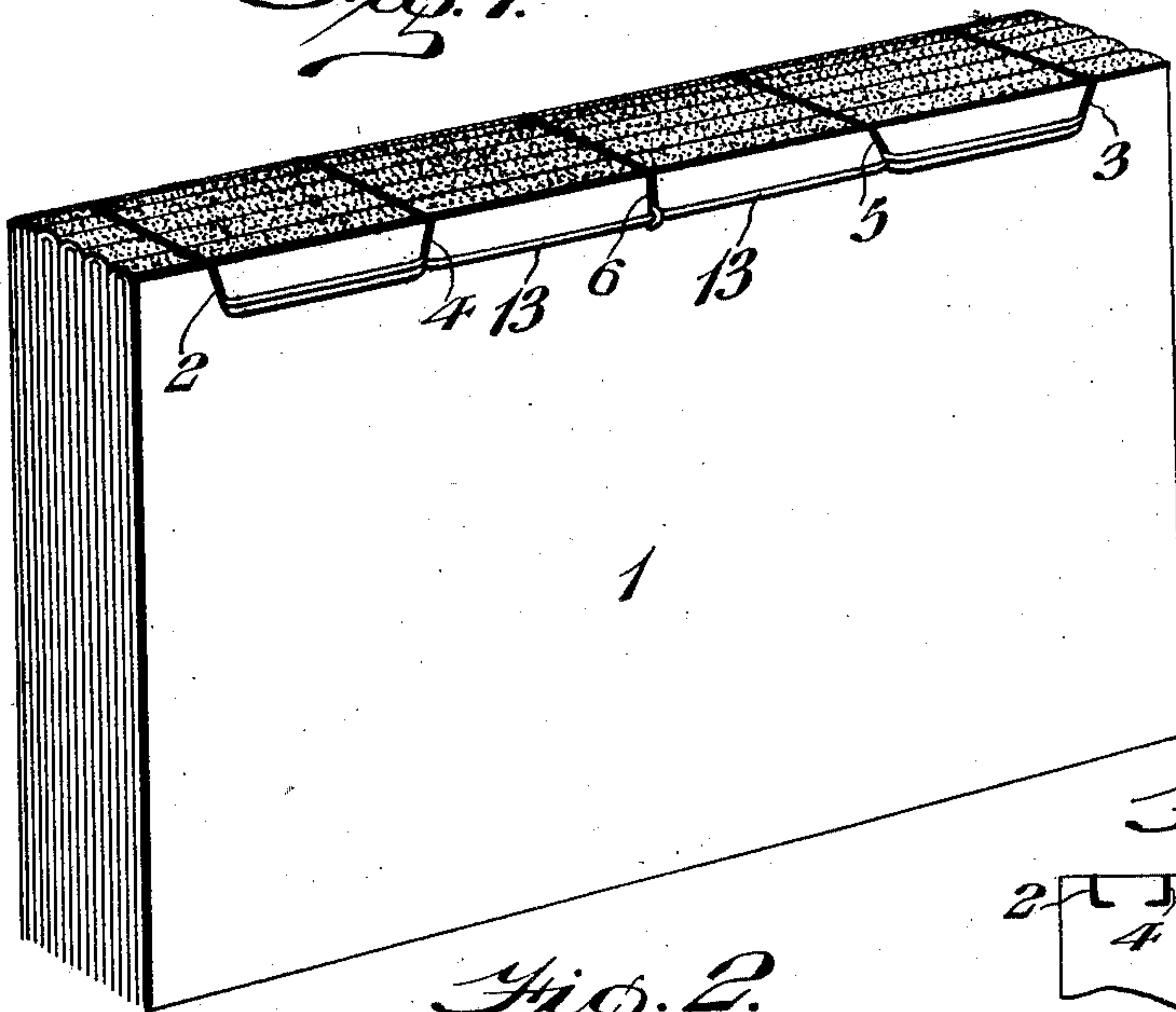


Fig. 5.

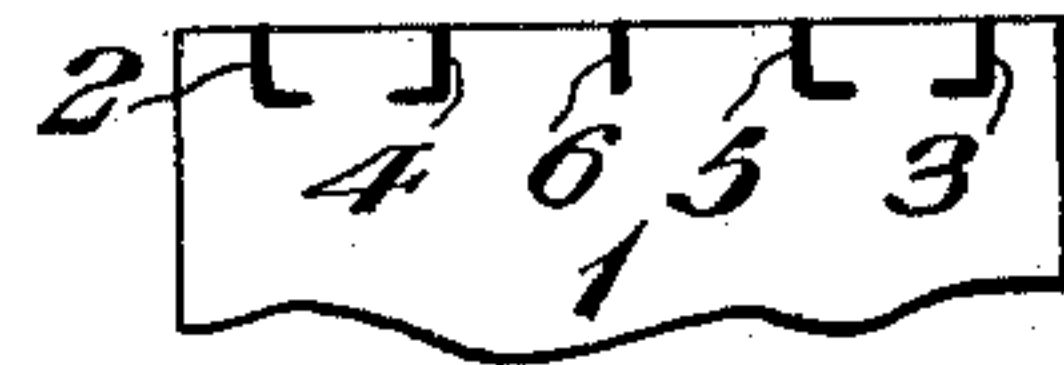


Fig. 2.

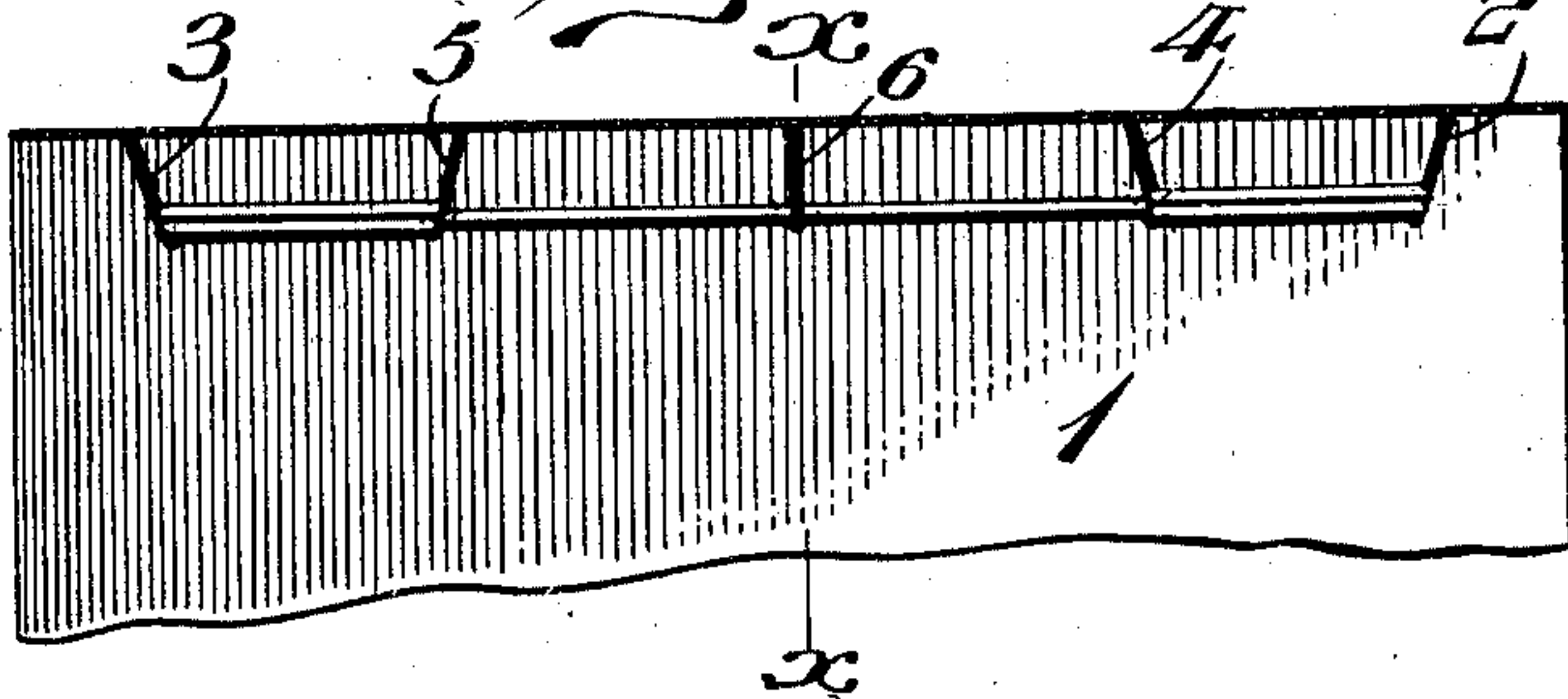


Fig. 3.

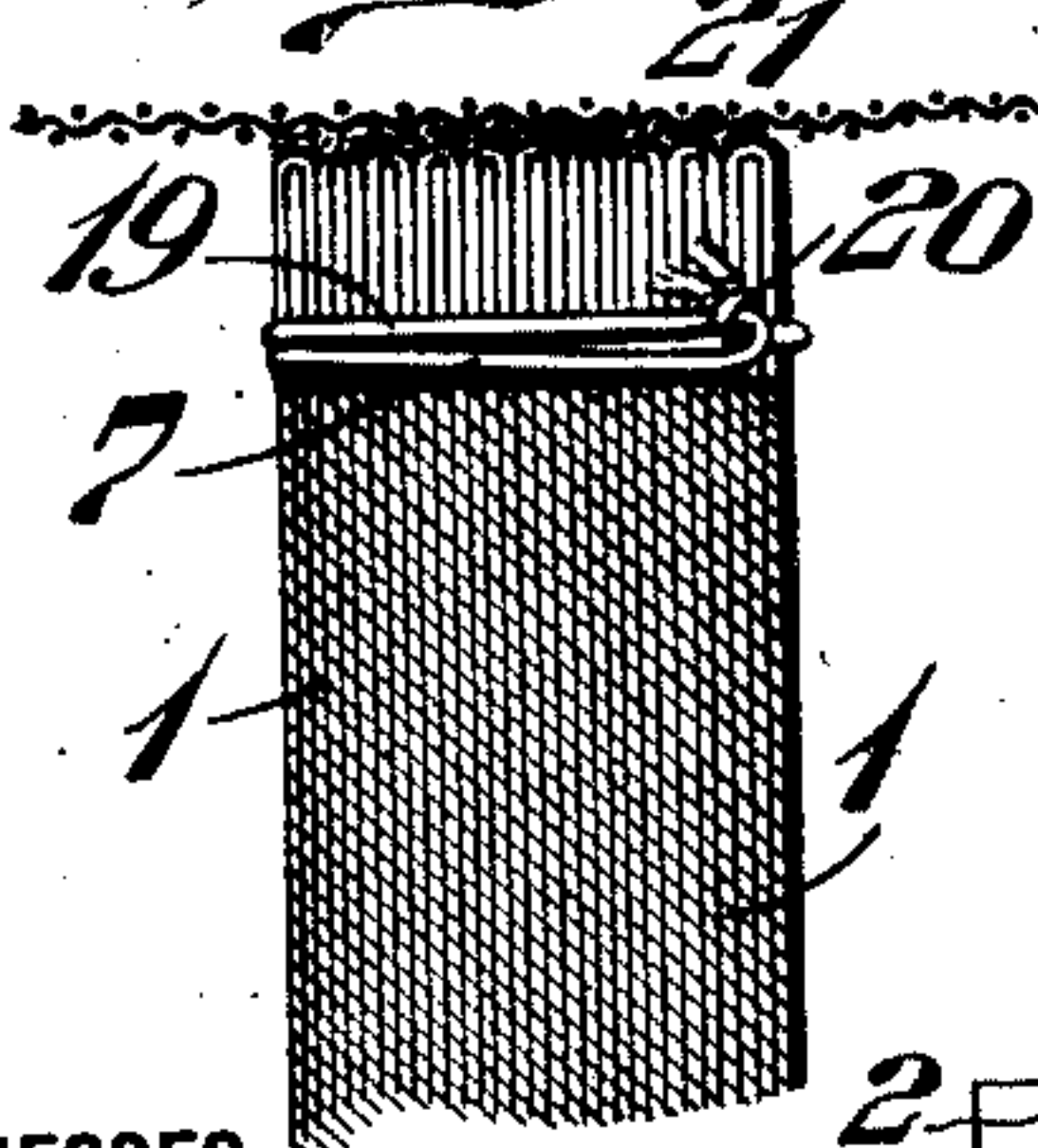


Fig. 4.

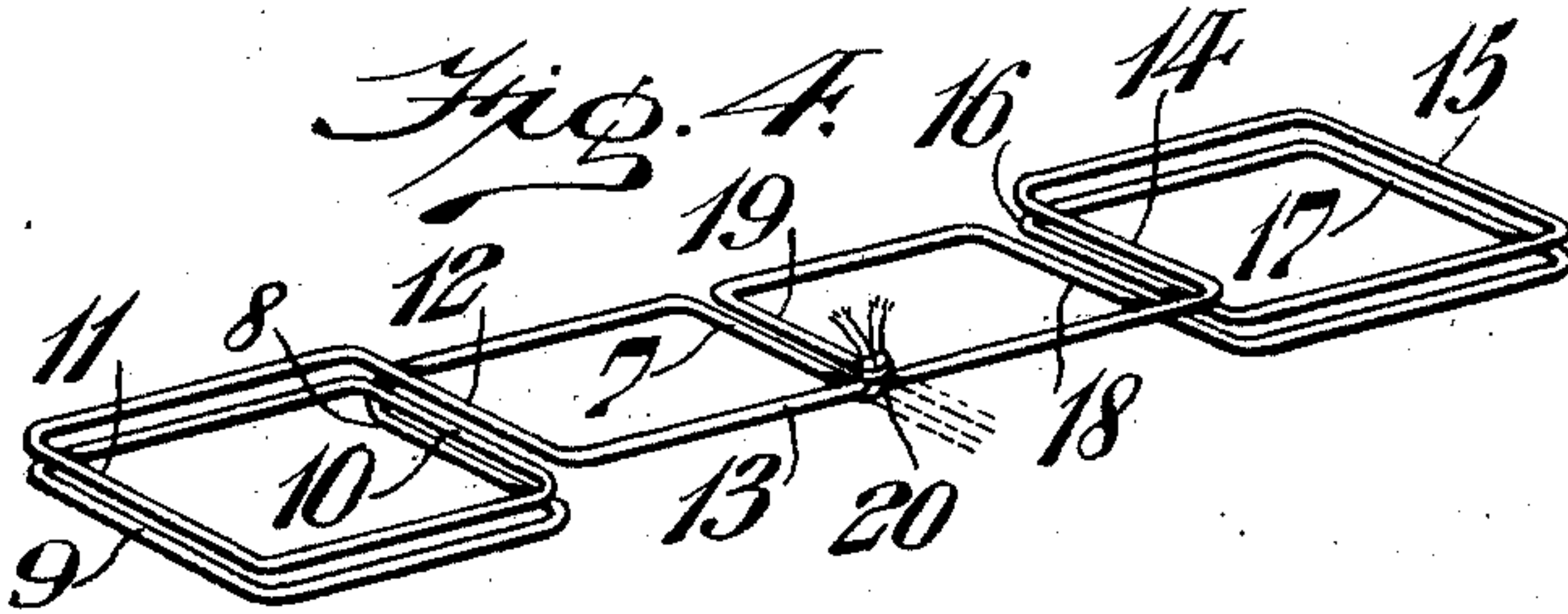
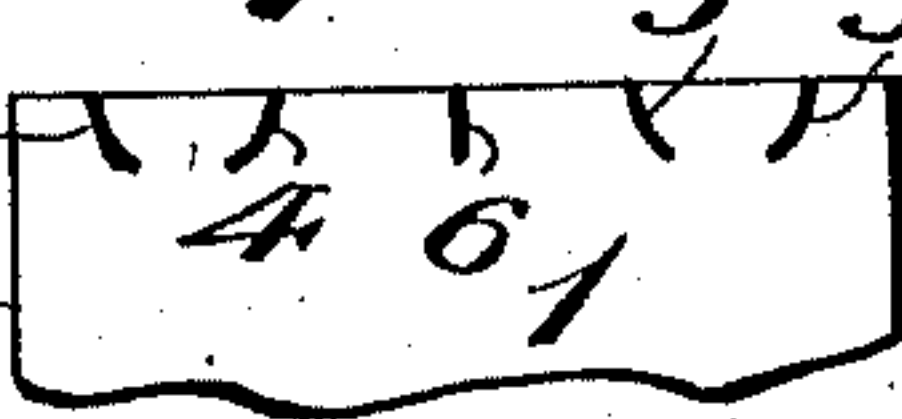


Fig. 6.



WITNESSES

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# UNITED STATES PATENT OFFICE.

PAUL J. RENNINGER, OF READING, PENNSYLVANIA.

BOOKBINDING.

998,303.

Specification of Letters Patent.

Patented July 18, 1911.

Application filed February 24, 1911. Serial No. 610,517.

*To all whom it may concern:*

Be it known that I, PAUL J. RENNINGER, a citizen of the United States, residing at Reading, in the county of Berks, State of Pennsylvania, have invented a new and useful Bookbinding, of which the following is a specification.

My invention consists of a novel fastening for the signatures of books, pamphlets and the like, in which the usual stitching is dispensed with.

It further consists of an improved fastening which will unite the signatures in a book, pamphlet or the like, in which the strain of opening the book will not break the back of the book.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

For the purpose of illustrating my invention, I have shown in the accompanying drawings forms thereof which are at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a perspective view of the signatures or folded sheets composing a book and joined or connected according to my invention. Fig. 2 represents a side elevation of the same, on the side opposite to Fig. 1. Fig. 3 represents a section on the line  $x-x$  in Fig. 2. Fig. 4 represents a perspective view of the loops of twine as they would appear when removed from the folded signatures. Fig. 5 represents a side view of a signature having L-shaped kerfs. Fig. 6 represents a side view of a signature having curved kerfs.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—1 designates the sheets or leaves which go to make up a book. The edges of the assembled signatures are formed with slanting cuts or kerfs, 2 and 3, at a suitable distance from their ends, and outwardly slanting cuts or kerfs, 4 and 5, are cut at suitable distances inward from said former cuts or kerfs. A cut or kerf, 6, is made preferably substantially at the middle of the edges of the signatures.

Suitable twine is first placed in the central kerf, as at 7, carried through one of the inner kerfs 4, as at 8, carried around the outside of the signatures to an end-kerf 2, as at 9, back on the other side of the signatures and through the same kerf 4, as at 10, around through kerf 2, as at 11, and back through kerf 4, as at 12. The twine is now carried along one side of the signatures, as at 13, to the inner kerf 5, through which it is passed as at 14, around the outside and through kerf 3, as at 15, back to the inner kerf 5, and through the same, as at 16, around through the outer kerf 3, as at 17, back through kerf 5, as at 18, and finally back through the straight central kerf 6, as at 19, where the ends of the twine are tied in a knot, 20 and are then turned back and forced into the same kerf 5. The back of the book thus formed is now coated with glue which is worked into the kerfs and a strip, 21, of textile fabric is attached by this glue and projects to opposite sides of the back, serving as a means to attach the cover of the book and providing the hinge therefor. By thus connecting the signatures of a book, an unbreakable back is obtained, as the leaves do not open on the stitches, as in the ordinary stitched book, but bend on their inner margins. By cutting the kerfs obliquely and each pair converging, and by carrying the twine through such oblique kerfs and around the signatures, the several leaves and signatures cannot be pulled out, as would be possible if the kerfs were cut straight because the kerfs form a wedge for the twine. Economy of time and cost is also obtained, as it is only necessary to assemble the signatures, cut the kerfs, and wind the twine through them, instead of stitching the several signatures to the tapes or cords which connect them in the ordinary process of bookbinding.

The end kerfs 2 and 3 and inner kerfs 4 and 5 may be cut L-shaped, with the foot of the "L" pointing toward each other in the pairs of kerfs on either side of the central kerf, as illustrated in Fig. 5, or they may be cut curved, as illustrated in Fig. 6, with the inner ends curved converging in the pairs of kerfs on either side of the central kerf, the main point in cutting the kerfs being that, with the exception of the central kerf, the ends of each kerf shall be out of transverse alinement across the page.

Having thus described my invention, what



I claim as new and desire to secure by Letters Patent, is:—

1. A book consisting of a plurality of signatures having in their edges a straight kerf and a pair of converging oblique kerfs on each side of such straight kerf, and a twine having its ends carried through the straight kerf and carried around the signatures and through the oblique pairs of kerfs and united.

2. A book consisting of a plurality of signatures having, in their edges, a straight kerf and a pair of converging oblique kerfs on each side of such straight kerf and twine looped through said pairs of oblique kerfs and through the straight kerf, embracing

the sides of the signatures the ends of the twine being united.

3. A book consisting of a plurality of signatures having, in their edges, pairs of converging kerfs, and twine looped through the pairs of converging kerfs, the ends of the twine being united, whereby a strain, tending to open the signatures, will serve to tighten the twine in the kerfs and against the sides of the signatures and prevent improper separation of the latter.

PAUL J. RENNINGER.

Witnesses:

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C. D. McVAY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."