No. 758,923. PATENTED MAY 3, 1904.

M. D. KNOWLTON & F. H. BEACH.

METHOD OF FORMING STAY STRIPS.

APPLICATION FILED DEC. 2, 1902.

NO MODEL.

Fig. 1.

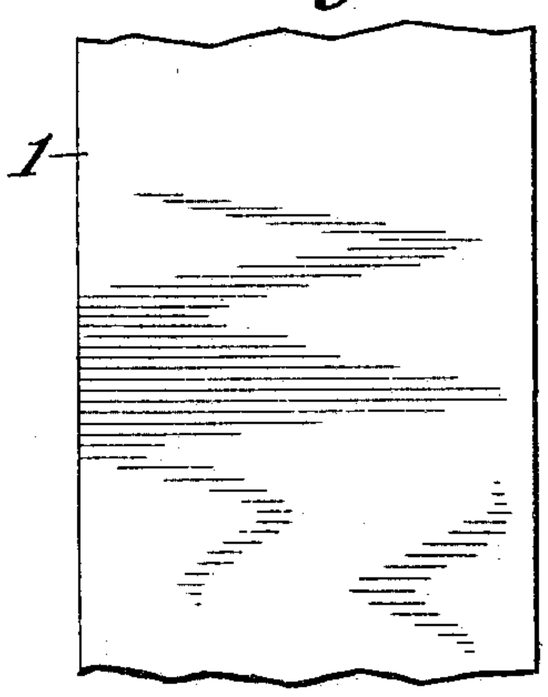


Fig. 2.

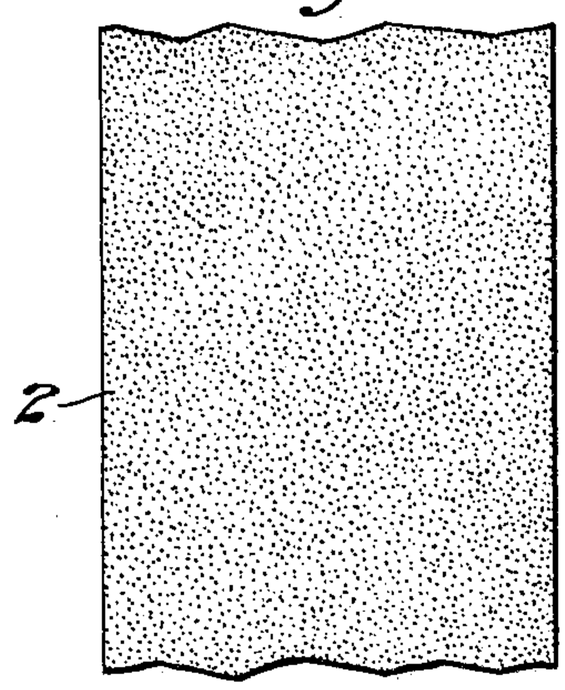


Fig. 3.

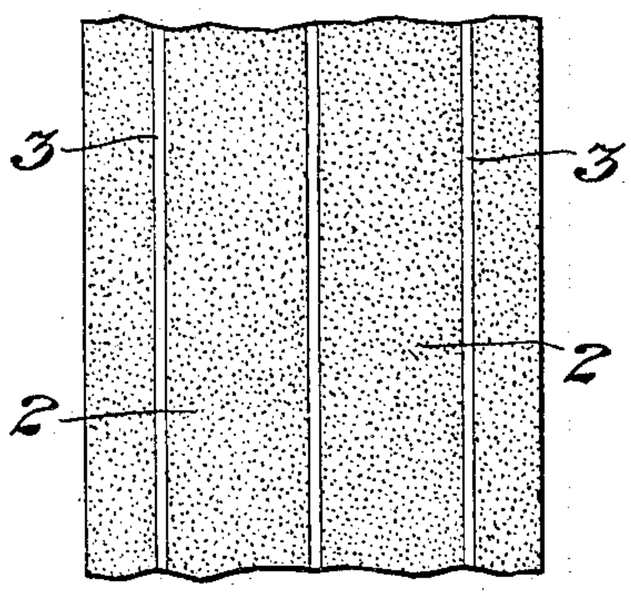


Fig. 4.

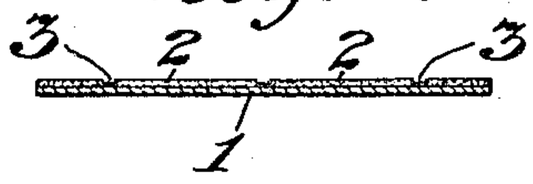


Fig. 5.

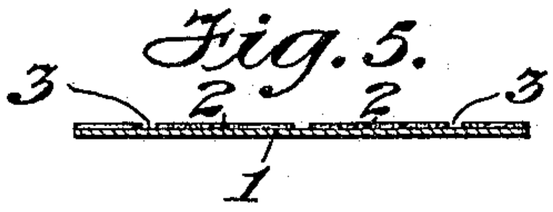


Fig. 6.

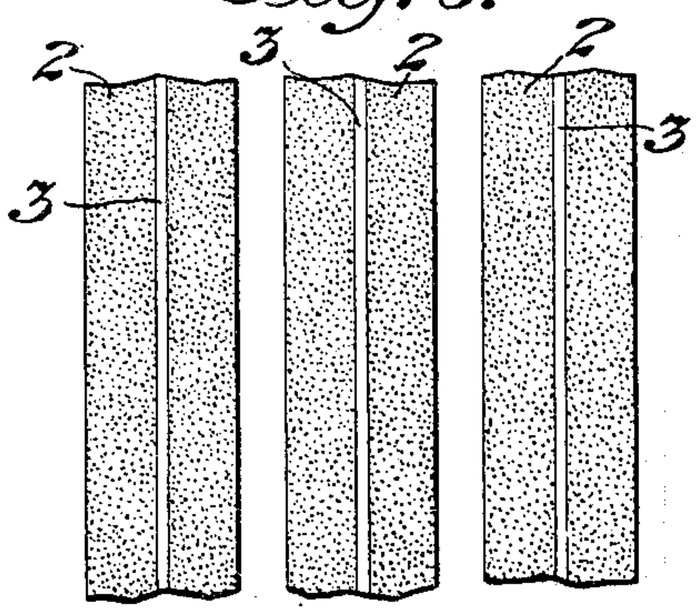
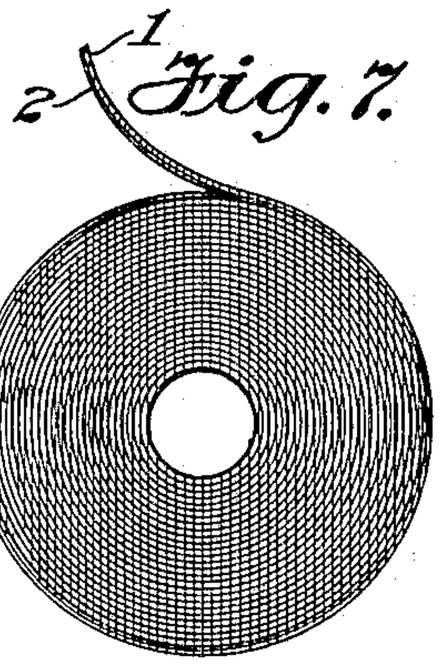


Fig. 7.



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No. 758,923. Patented May 3, 1904.

UNITED STATES PATENT OFFICE.

MARK D. KNOWLTON AND FRED H. BEACH, OF ROCHESTER, NEW YORK.

METHOD OF FORMING STAY-STRIPS.

SPECIFICATION forming part of Letters Patent No. 758,923, dated May 3, 1904.

Application filed December 2, 1902. Serial No. 133,635. (No specimens.)

To all whom it may concern:

Be it known that we, MARK D. KNOWLTON and FRED H. BEACH, citizens of the United States, residing at Rochester, Monroe county, State of New York, have invented a new and useful Method of Forming Stay-Strips, of which the following is a specification.

This invention relates to a method of forming adhesive stay-strips of the character disclosed in our pending application, Serial No. 78,087, filed October 9, 1901. These stay-strips, which are used in the manufacture of paper or strawboard boxes to be applied over the joints at the corners of the box for the purpose of securing the adjacent edges together, consist of a relatively narrow strip of paper or other fabric which is coated with glue or other adhesive substance on one side thereof. When such a strip is applied to the corners of a box by machinery, it is usually fed from a supply-reel through a suitable folder, then over a roll or other device for dampening the glue thereon, and finally to a position over the box-corner, to which it is applied by suitable clamping-dies. As the strip passes through the said folder the latter acts to double or fold the strip in its middle, so that it will take and maintain an angular or substantially **V**-shaped form in order to conform to the box-corner and take its proper position thereon when moved or placed over the same preparatory to being acted upon by the clamping-dies. In giving the strip such angular or **V**-shaped form it is desirable that the apex of the angle should be substantially central of the strip and parallel with its edges, so that the strip will extend an equal distance upon each side of the box when applied to the corner thereof. In feeding the strip through the folder to secure such correct angular formation of the same it sometimes happens that the bending-line of the strip veers more or less from a central or other desired line, so that in such cases an insufficient width of strip will be left at one side to properly fasten the box-corner, while in any event the uniformity of its appearance will be destroyed. The liability of the occurrence of such objectionable feature, however, is avoided in the stay-strip forming the subject-matter of our said pending application by providing the same with stiffened portions at each side of a longitudinal bending-line of less stiffness, the said stiffened portions being formed by a coating of stiffening substance applied thereto and the bending-line being formed by the partial or entire absence of such stiffening substance. When lateral pressure is applied to the edges of a strip thus formed, either by a folding device or by hand, the strip will bend on the said bending-line, as being the line of least resistance. To provide a simple and effective method for producing such a bending-line on stay-strips has been the object of our present invention.

In carrying our invention into effect a coating of stiffening substance in a fluid or semifluid condition is applied upon a sheet or strip of suitable staying material. Then and preferably while still in its fluid or semifluid condition the said substance is removed either wholly or in part on a desired bending-line, after which the coating substance remaining on the sheet will be permitted or caused to become set or hardened, and thereby impart the varying degrees of stiffness to the sheet or strip—that is, produce stiffened portions at each side of a desired bending-line of less stiffness.

In practice the process is usually adapted to the formation of a plurality of stay-strips at each carrying out of the same rather than to the formation of a single one. This will be best understood by referring to the accompanying drawings, forming a part of the specification, in which—

Figure 1 represents a piece of an uncoated sheet or strip of staying material; Fig. 2, a view of the same with a coating of the stiffening substance applied thereto; Fig. 3, a similar view, after the coating substance has been removed, on a plurality of parallel bending-lines; Figs. 4 and 5, cross-sections through a sheet after it has been operated on as shown in Fig. 3, the former showing a partial removal and the latter an entire removal of the coating substance in the formation of the said bending-lines; Fig. 6, a view showing the sheet cut into strips having one of the bending-lines arranged central thereof, and Fig. 7

a view showing one of the strips wound into a roll and in form to be placed on the market.

In carrying out our process as usually employed and as illustrated in the said drawings a sheet of paper or other desired material suitable for staying purposes, such as indicated at 1 in Fig. 1, and of sufficient width to be subsequently cut into a plurality of longitudinal strips of a desired width is coated with a suitable fluid or semifluid substance, as indicated at 2 in Fig. 2, which after becoming set or hardened will impart an increased stiffness to the sheet, the stiffening substance usually being a glue or other adhesive. After the sheet has been thus coated and while the coating substance is still in its fluid or semifluid condition the said coating substance is removed on a plurality of parallel lines, as indicated at 3 in Figs. 3, 4, and 5. This removal on the said lines may be only partial, as shown in Fig. 4, or entire, as shown in Fig. 5, the purpose in either case being to have the coating 2 thicker at each side of the line 3, whereby the latter will form a line of less stiffness. After the last-mentioned operation the coating substance is either permitted or caused to become set or hardened on the sheet, this usually being quickly and conveniently done by passing the sheet over hot drying-cylinders. The sheet after its coating of stiffening substance has been thus set or hardened is then cut or slit into longitudinal strips having one of the bending-lines 3 about central thereof, as shown in Fig. 6, after which the cut strips are wound into rolls, as shown in Fig. 7, in which form they are usually placed on the market. In the stay-strip thus produced the lines 3, as before stated, will form a line of least resistance under any lateral or bending pressure applied to its edges, and so constitute and determine a bending-line for the strip.

What we claim is—

1. The method of forming stay-strips, which consists in applying a coating of stiffening substance upon a sheet or strip of staying material, and then removing said stiffening substance on a determined line.

2. The method of forming stay-strips, which consists in applying a coating of stiffening substance in a fluid or semifluid condition upon a sheet or strip of staying material, and then removing said stiffening substance on a determined straight line for a limited portion of the width of the strip.

3. The method of forming stay-strips, which consists in applying a coating of stiffening substance in a fluid or semifluid condition upon a sheet or strip of staying material, and then removing said stiffening substance on a determined line for a portion only of its depth.

4. The method of forming stay-strips, which consists in applying a coating of adhesive stiffening substance in a fluid or semifluid condition upon a sheet or strip of staying material, and then removing said adhesive stiffening substance on a determined line for a limited portion of the width of the strip.

5. The method of forming stay-strips, which consists in applying a coating of stiffening substance in a fluid or semifluid condition upon a sheet or strip of staying material, then removing said stiffening substance on a determined line for a limited portion of the width of the strip before it sets or hardens, and then setting or hardening said stiffening substance.

6. The method of forming stay-strips, which consists in applying a coating of stiffening substance in a fluid or semifluid condition upon a sheet or strip of staying material, and then removing said stiffening substance for limited portions of the width of the strip on a plurality of parallel lines.

7. The method of forming stay-strips, which consists in applying a coating of stiffening substance in a fluid or semifluid condition upon a sheet or strip of staying material, then removing said stiffening substance for limited portions of the width of the strip on a plurality of parallel lines before it sets or hardens, and then setting or hardening said stiffening substance.

8. The method of forming stay-strips, which consists in applying a coating of stiffening substance in a fluid or semifluid condition upon a sheet or strip of staying material, then removing said stiffening substance for limited portions of the width of the strip on a plurality of parallel lines, and then cutting said sheet into strips containing one or more of said lines.

9. The method of forming stay-strips, which consists in applying a coating of stiffening substance in a fluid or semifluid condition upon a sheet or strip of staying material, then removing said stiffening substance for limited portions of the width of the strip on a plurality of parallel lines from end to end of the strip before it sets or hardens, then setting or hardening said stiffening substance, and then cutting said sheet into strips containing one of said lines.

10. The method of forming stay-strips, which consists in applying a coating of stiffening substance in a fluid or semifluid condition upon a sheet or strip of staying material, then removing said stiffening substance for limited portions of the width of the strip on a plurality of parallel lines before it sets or hardens, then setting or hardening said stiffening substance, then cutting said sheet into strips containing one of said lines, and finally winding the cut strips into rolls.

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Witnesses:
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