Sheet 1 - 2 Sheets.

# G. Clark,

## Bottle Envelope

No. 54,080. Patented Apr. 17, 1866.

Fig. 3.

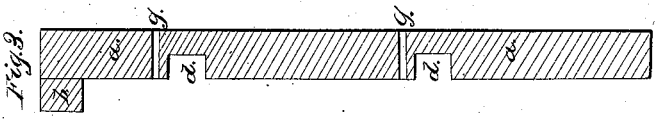



Fig. 2.

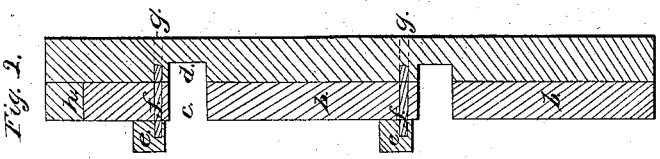



Fig. 5.


Fig. 1.

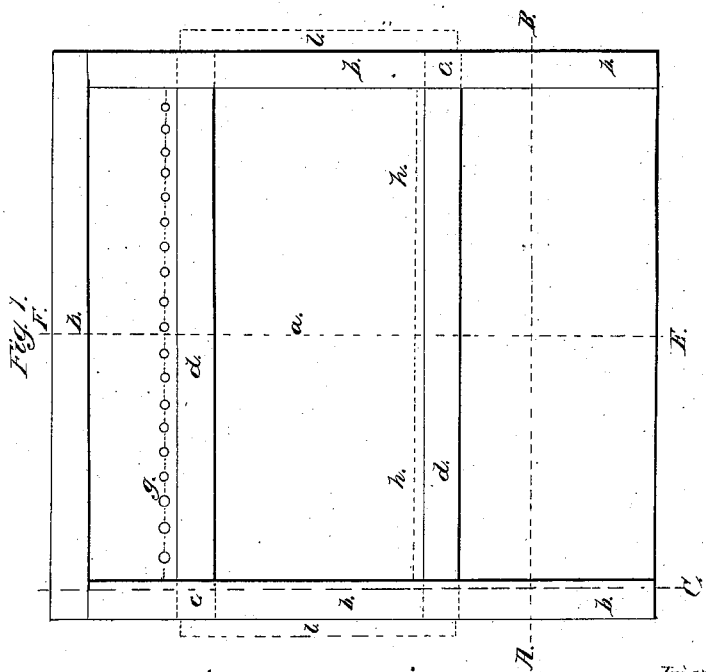
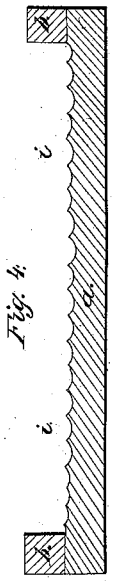



Fig. 4.




Witnesses.

W. H. Gilbert

G. K. Chapin

Inventor.

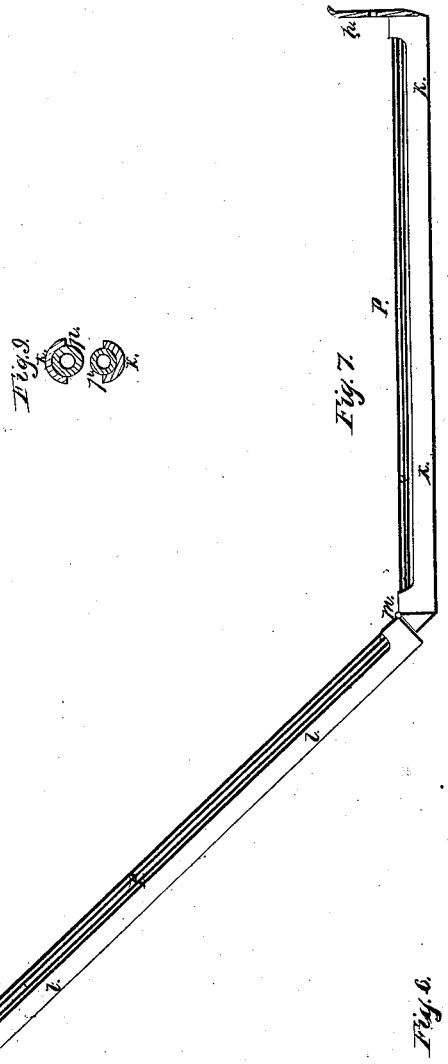
G. Clark

Sheet 2-2 Sheets.

# G. Clark,

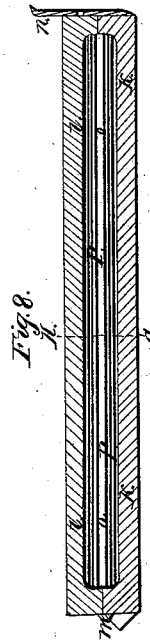
## Bottle Envelope,

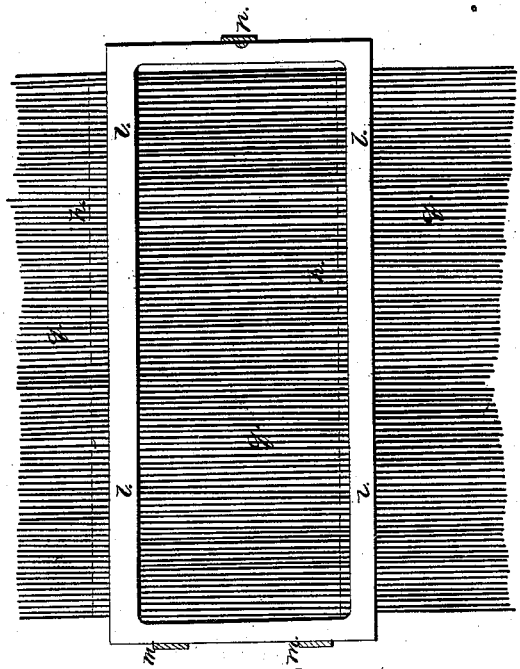
No. 54,080. Patented Apr. 17, 1866.









Witnesses.

H. A. Gibbs

G. R. Chapin

Inventor.

G. Clark.

# UNITED STATES PATENT OFFICE.

GEORGE CLARK, OF LONDON, ENGLAND.

## IMPROVEMENT IN THE MANUFACTURE OF ENVELOPES FOR BOTTLES AND JARS.

Specification forming part of Letters Patent No. 54,080, dated April 17, 1866.

*To all whom it may concern:*

Be it known that I, GEORGE CLARK, of London, in the county of Middlesex, England, have invented certain Improvements in Envelopes or Wrappers for Covering, Packing, and Protecting Bottles, Jars, or other Fragile Articles, and in Apparatus for Manufacturing the Same; and I do hereby declare that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known, and of the usual manner of making, modifying, and using the same.

My invention consists in holding and maintaining in position separate pieces or bunches or strands of straw or other fibrous material previously cut to any required lengths and arranged in layers or pads of suitable size and shape for the manufacture of envelopes and wrappers, so that the lengths of fibrous material so held and maintained in position may be manipulated readily in the operation of fastening the lengths, bunches, or strands of fibrous material together laterally without the same separating from each other or shifting in or from their places more than desired previously to or during such process of fastening together laterally, whereby mats of fibrous material for envelopes or wrappers are made and fastened together laterally more accurately and securely, are better and more economically manufactured, and may be formed into better envelopes than by any method hitherto employed.

This result I obtain by clasping and holding temporarily in a state of rigidity pieces or bunches of straw or other fibrous material previously cut to any required lengths and arranged in layers or pads, as aforesaid, between or by means of an apparatus consisting of bars, rods, sheets, or plates of any stiff, rigid, or elastic substance, or of a stiff and rigid substance in combination with an elastic substance, so arranged and used that the fibrous material, before being permanently fastened, is clasped and held by such apparatus without displacement or material change of position while being permanently fastened together laterally by hand or machine sewing or other adequate means. The apparatus, of rigid substances alone or in combination with elastic substances, to effect this object may be constructed in various ways. That which I prefer I now proceed to describe: First, it consists of a wooden or metal board or table, which I call a "pad" or "board," for the purpose of arranging the fibrous material in a layer or pad of the required form, size, and thickness for the manufacture of an envelope or wrapper; second, a clasp or compressor, which I call a "clip," serving to compress and grasp the layer of fibrous material crosswise, so as to retain and hold the lengths of fibrous material in the position and form in which they are arranged as a pad; third, metallic pins fixed in a row on a rod or bar, wherewith to perforate the pad above referred to with holes in one or more rows, through which holes a string or wire for fastening the lengths of fibrous material together may be passed, as hereinafter described.

In the annexed drawings, Figure 1 is the plan of a pad-board, which may be made of wood or metal or other suitable material. Figs. 2 and 3 are longitudinal sections, and Fig. 4 is a cross-section, of the same board, showing grooves or channels *i i*, which may, however, be dispensed with. Fig. 5 is a rod or bar carrying a row of pins to perforate the pad with holes, if required; but the plan of perforating holes in the pad, and consequently the use of such pins, may in most cases be dispensed with. Fig. 6 is a plan of two metallic clips joined together into a frame and holding a pad of fibrous material in a rigid state. Fig. 7 and 8 are longitudinal sections of a clip, the former showing the upper branch of the clip open, the latter with it closed. Fig. 9 is a transverse section of Fig. 8.

Of these drawings the following is a detailed description, the same letters denoting the same parts of each drawing: *a* is the bottom of the pad-board. *b b* are the raised sides and end of the board, serving to regulate the width, length, and form of the pads. These sides and end may be made to shift so as to vary and regulate the spaces between them as required. *c c* are slots in the sides, and *d d* slots across the bottom, of the board to receive the clips *e*.

Fig. 5 is a rod or bar which carries the perforating-pins *f f*. *g g* are holes in the bottom of the pad-board, through which the pins *f f* pass when they perforate the pad *h h*.

Fig. 6 represents lines of string or wire fastening the bunches or strands of fibrous material together laterally; *i i*, Fig. 4, grooves or channels running longitudinally in the bottom of the table, with ridges between them. The purpose of this arrangement is, when necessary, to divide the lengths of fibrous material into bunches or strands by causing a certain number of lengths, when a layer is spread over the pad-board, to fall into each groove or channel; but the use of these grooves or channels may be dispensed with.

*k k* are the lower or foundation branches of the clips, and *l l* the upper branches thereof, turning up and down on hinges *m m; n*, a spring-catch to fasten and unfasten the clip-frame; *o*, space to contain the fibrous material between the upper and lower branches of the clips; *p*, india-rubber tubing fitting into the inside of the clips and serving as elastic springs or pliable fingers to lay hold of and retain the fibrous material; *q*, the straw or other fibrous material of the pad as held in position by the clips.

The clips may be made of metal or wood or other suitable substance or combination of substances. Each clip may be separate, or two or more may be fastened together so as form a frame, in the manner represented in the drawings, and they may be of any other form found desirable.

The manufacture of envelopes or wrappers according to my invention is as follows: The fibrous material, whether in separate pieces in its natural state, as straws or rushes, or in bunches or strands, is cut to the required lengths. The quantity or number of such lengths required to make a pad is then taken, and, whether in separate pieces or in bunches or strands, is spread out in a layer as evenly as may be and lengthwise over the bottom of the pad-board, and intersecting the slots *c c* with the clips therein, as hereinafter mentioned. Before arranging the lengths of fibrous material on the pad-board the clip-frame is placed therein, with the lower arms or branches of the clips in the slots *c c*, the india-rubber tubing being level with or only slightly above the surface of the pad-board and the upper branches of the clips left open. When thus arranged in the pad-board and covering the lower branches of the clips, the lengths of fibrous material are clasped, compressed, and confined and held securely in position on the pad-board and between the clips by closing the upper branches of the clips and fastening them to the lower branches thereof by means of a spring-catch or any other suitable contrivance. The layer of fibrous material is now a pad of the required form and dimensions, ready to admit of the same being fastened together laerally.

It will be readily understood that this operation of fastening together laterally, either by hand or with a sewing-machine, might be carried out while the pad is lying on the pad-board, slits being made in the latter for that purpose; but I consider the use of a movable clip-frame fitting into a pad-board on the plan shown in the drawings as preferable.

If holes are required to receive the fastening spring or wire, they may be punched in a row or rows through the pad, either by a small stamping-press or by the rod and pins shown in Fig. 5; or the holes may be punched singly or together in any other way. The perforation of such holes is not in general a necessary part of the process, as the string or wires may be passed between the pieces, bunches, or lengths of fibrous material.

The pad thus arranged and compressed and fastened in the clip-frame, as above described, being removed from the pad-board, is now securely held by the clips in a rigid state and ready to be made into a mat by fastening the lengths of fibrous material together laterally. This may be effected by means of one or more lines of thread being sewed by hand or with a sewing-machine across and through the pad as it is held by and in the clip-frame, or by one or more lines of thread, string, or wire being fastened across and between the lengths of fibrous material in any way which may be found most suitable, including the plan of fastening with lines of string worked under and over and between the lengths of fibrous material with a bodkin or a soft and flexible wire.

From trials I have made and brought into practical operation experimentally I consider that the most simple, economical, and effectual mode of forming the before mentioned and described pads into mats will be to cause the said pad so held in and by the clips to pass under the needle of a sewing-machine adapted for the purpose and worked in any of the well-known modes practiced for sewing textile fabrics, leather, and other substances with a sewing-machine. The pad being securely fastened laterally becomes a mat and is ready to be formed into a cylinder or tube by fastening the two outside bunches or strands together. The tube so fastened is an envelope or wrapper which may be left open or closed at the top as may be most suitable, according to the use for which the envelope or wrapper is intended.

If it be desired to turn up the ends of the straw or other fibrous material on themselves so as to increase the thickness of the envelope, the pad-board may be made with a flap to turn up and down on hinges at or near the middle, so that the portion of the fibrous material lying on the fixed part of the pad-board being held down by a rod or plate at the hinge-joint the portion of material lying on the flap when turned up will be doubled and folded down on the former portion, when the rod or plate may be removed and the material confined in the clip-frame, as before mentioned.

Having now described the nature of my said invention and in what manner the same is to be performed, I wish it to be understood that

I do not claim as new or of my invention the manufacture of envelopes or wrappers for bottles, except out of pads or mats made in the manner hereinbefore described or referred to, nor do I claim as new or of my invention any mode of fastening together lengths, bunches, or strands of fibrous material, so as to form them into mats after they are formed into pads, as hereinbefore described or referred to, or of forming such mats into tubes or envelopes; and I hereby declare that I claim as of my invention—

1. Envelopes or wrappers made from mats of fibrous material formed by cutting such fibrous material into any required lengths and holding the same in a rigid state in the form of layers or pads preparatory to and while being permanently fastened together laterally.

2. The apparatus above described to carry out my said invention.

In witness whereof I have hereto set my hand this 21st day of December, 1865.

GEO. CLARK.

Witnesses:

W. A. GILBEE,

G. F. REDFERN.