E. E. CLARKE.

CUTTING PASTEBOARD FOR BOXES.

No. 46,604. Patented Feb. 28, 1865.

Fig. 1.

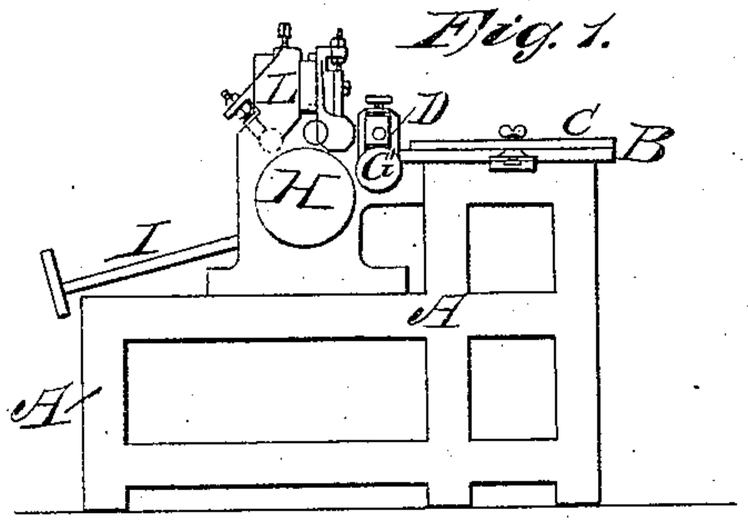


Fig. 2.

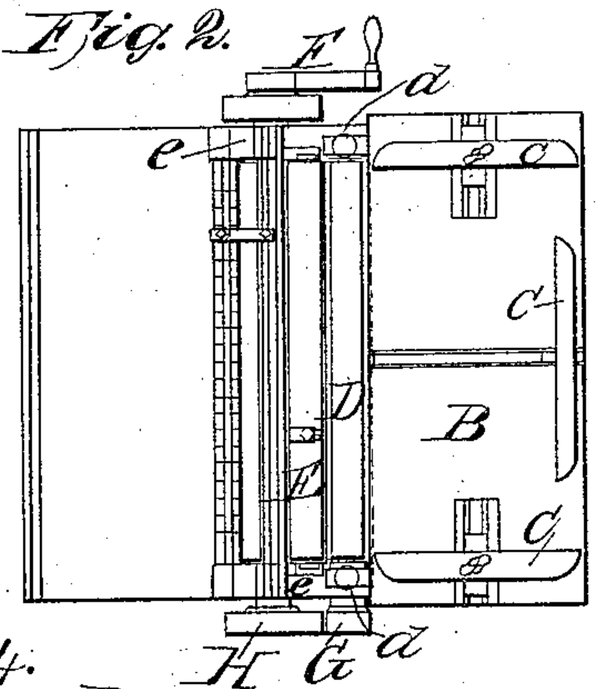


Fig. 3.

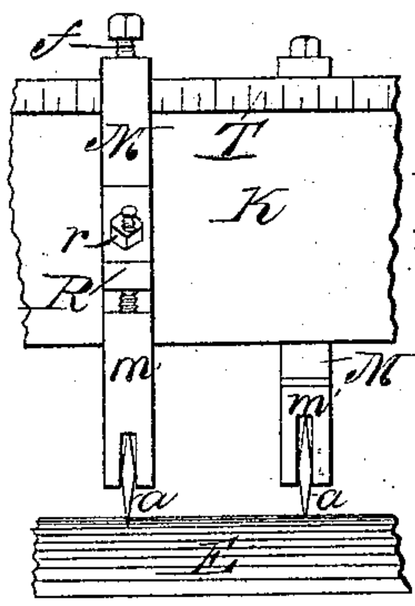


Fig. 4.

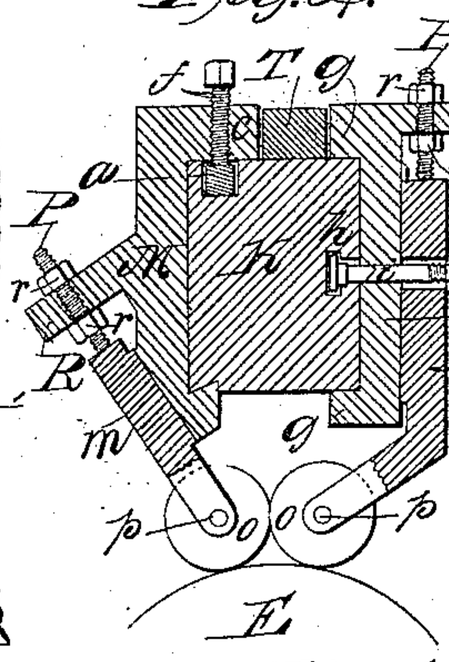


Fig. 5.

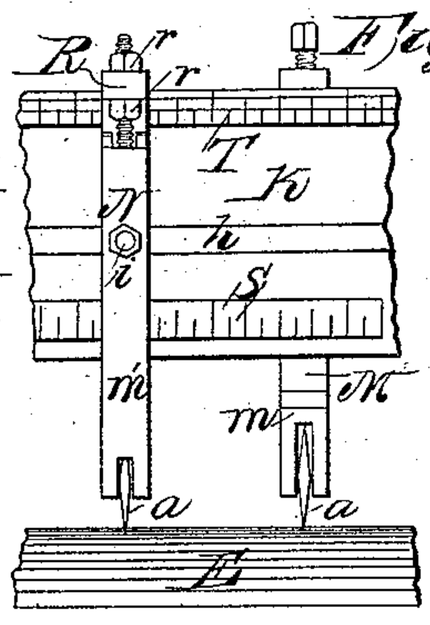


Fig. 11.

Fig. 9.

Fig. 7.

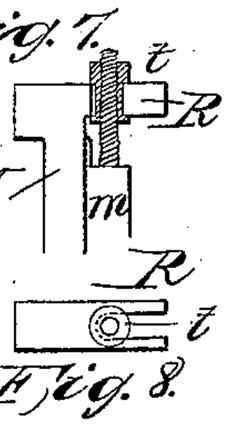
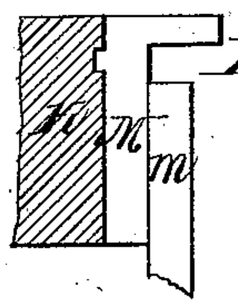


Fig. 8.

Fig. 12.



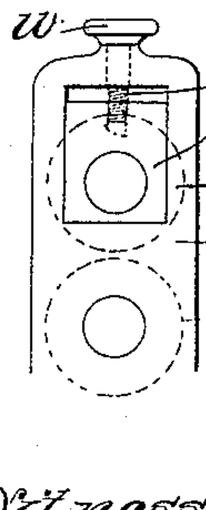


Fig. 6.

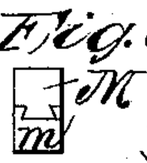


Fig. 10.

Witnesses.

S. R. Hickson

John E. Earle

Inventor.

Elizur E. Clarke

UNITED STATES PATENT OFFICE.

ELIZUR E. CLARKE, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO FRANKLIN N. CLARKE, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR CUTTING PASTEBOARD FOR BOXES.

Specification forming part of Letters Patent No. **46,604**, dated February 28, 1865.

To all whom it may concern:

Be it known that I, E. E. CLARKE, of New Haven, in the county of New Haven and State of Connecticut, have invented new and useful Improvements in Machines for Cutting Pasteboard for Boxes; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, when taken in connection with the accompanying drawings and the letters of reference marked thereon, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of a complete machine; Fig. 2, a plan top view of the same; Figs. 3 to 12, inclusive, sectional and detached views to fully illustrate my improvements.

Same letters and characters in the several figures indicate like parts.

My invention relates to an improvement in the machine for cutting pasteboard for boxes, for which Letters Patent were granted to me bearing date the 3d day of March, 1857. I have also filed another application in even date herewith for still further improvements.

In my original machine, the cutter-holder is placed upon one side of the cutter-stock, so that when it is required to cut a narrow strip it is necessary to place two cutter-stocks together, the cutter-holders on which are upon opposite sides, and are consequently termed right and left hand cutters. This I have found quite an inconvenience. Therefore the object of my invention is to construct cutter-stocks and cutter-holders so that they may be placed near together without the change required in my old machine.

To enable others skilled in the art to make and use my improvements, I will proceed to describe the construction and operation of the same.

A is the frame; B, the table on which the board to be cut is placed.

C C C are guides to aid in properly adjusting the board on the table to be cut.

D D are feed-rollers, placed in proper bearings, *d*, to draw the pasteboard into the machine.

E is the cutter roll or cylinder upon which the pasteboard is cut. It is hung on bearings *e*.

F is a crank for turning the cylinder E.

G is a pulley on the feed-roll shaft; H, a pulley on the cylinder-shaft. A belt connecting the two causes them to revolve together.

I is a table to receive the pasteboard after it is cut.

Thus far my machine is or may be like my original machine, patented as aforesaid.

K is the cutter-beam, supported at its two ends by standards L. (Shown enlarged in Figs. 3, 4, and 5.)

M and M′ are the cutter-stocks. M (see Fig. 4) is constructed so as to allow the use of a straight cutter-holder, *m*, and the other, M′, so as to allow the use of a bent cutter-holder, *m′*.

The cutter-stock M is held fast to the beam K in the following manner: I make a slight incline or groove upon the under side of the beam, (see Fig. 4,) and form the cutter-stock so as to hook into it. Upon the upper side I also make a groove, into which I place a shoe, *a*. The upper end of the the stock M, I set over the beam, and through the projection *c* over the beam I place a set-screw, *f*, so as to set down upon and into a seat in the shoe *a*, and when the said screw is turned down upon the said shoe it will hold the stock firmly in its place, and the said stock M may be moved along the beam by loosening the set-screw *f*.

The stock M′, I hold in the following manner: I make the said stock M′ with projections *g g* above and below the beam K, or a tongue and groove, as in Fig. 12. In the side of the beam I make a T-groove, *h*, into which I place the head of a bolt, *i*. Over this said bolt I place the stock M′, the bolt projecting through it, and also through the cutter-holder *m′*. Then, by turning a nut, N, onto the bolt and hard down upon the cutter-holder, the stock and holder will be firmly bound to the beam K, and may be moved along the beam by loosening the nut N.

I make a dovetail guide on the face of the cutter-stock, (see Fig. 6,) and a corresponding groove upon the cutter-holder, fitted so that the holders will slide freely thereon. In the lower end of the cutter-holder I make a slot, in which I place a cutter, *o*, the said cutter made so as to revolve freely on a pivot, *p*. On the upper end of the cutter-holder I make a screw, P, which sets through a projection, R, on the stock M. On the said screw I place

two nuts, *r r*, one above and the other below the said projection for the purpose of adjusting the cutters to raise or lower as it is required to cut the pasteboard either entirely or partially through, and by turning the two nuts hard against the projection R the cutter will be held firmly in its place. If I wish to raise the cutter from the roll, I loosen the lower nut and turn down the upper nut, and to lower the cutter reverse the operation. A slot in the holder *m* allows a movement over the bolt *i;* or I make the adjustment as shown in Figs. 7 and 8. Instead of the two nuts *r r*, Fig. 4, I make a slot into the projection R, into which I place a single grooved nut, *t*, Figs. 7 and 8. By turning the nut up or down I accordingly raise or lower the cutter-holder.

All the cutter-holders may be made straight, as *m*, or bent, as *m'*, or the bent in place of straight, or vice versa, the cutter-stocks being constructed accordingly, and with the adjustment shown in Fig. 4, or as shown in Figs. 7 and 8.

In the manufacture of cylindrical boxes it is necessary to "slit" or cut the lower edge of the side in points, or a "zigzag" cut, as it is commonly termed, so as to be able to turn the side under the bottom. In Fig. 9 I show a cutter for this purpose, the periphery of which is a zigzag cutter and cuts, as see Fig. 10. The form of the cut may be varied, as by making the cut serpentine, or other forms whereby the cut would produce the desired result.

For convenience in setting the cutters, I place measures S upon the side of the beam or T upon the top. By the application of these measures I am enabled to adjust my machine for cutting different widths with great accuracy.

In my original machine I allowed the upper feed-roll to lie upon the under roll, and as the pasteboard run between the two rolls it would raise the upper roll, and if the board were introduced between the rolls near one end of the rolls the upper roll would rest upon the under roll at the other ends. Consequently the two rolls would not be parallel, and would therefore press harder upon the inner edge than the outer edge of the pasteboard and feed the inner edge faster than the outer, cutting in a curve, instead of a straight line. I depended entirely upon the guides upon the table to conduct the pasteboard straight. To avoid this difficulty, I suspend the boxes *x*, (see Fig. 11,) which support the bearings of the upper roll, on screws *w*. The said screws have no thread-hold in and their heads rest upon the top of the standards and screw into the boxes. By turning the screws into the boxes the roll will be raised, and the reverse will lower them, and thus I am enabled to hold the upper rolls always parallel with the under, simply allowing the weight of the roll to rest upon the board sufficiently to draw the paper through between the two rolls.

Having fully described my improvements, what I claim as new and useful and as of my invention, and desire to secure by Letters Patent, is—

1. The zigzag cutter, constructed and arranged in relation to the cutter-holder, cutter-stock, cutter-bar, and main cylinder so as to operate in the manner and for the purpose described, and whether the same is used in connection with scoring or ordinary cutters, substantially as set forth.

2. The combination and arrangement for the adjustment and suspension of the upper feed-roll D, substantially as set forth and described. and for the purpose specified.

ELIZUR E. CLARKE.

Witnesses:
S. R. DICKSON,
JOHN E. EARLE.