

(No Model.)

F. A. FOWLER.

CUTTING FLEXIBLE MATERIAL INTO PIECES HAVING BEVELED EDGES.

No. 349,388.

Patented Sept. 21, 1886.

Fig. 1.

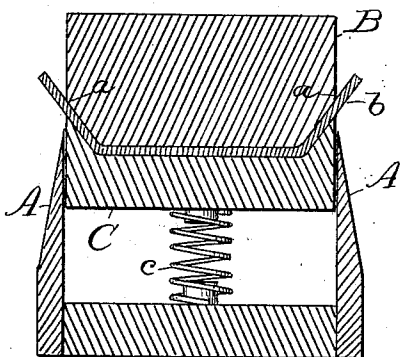


Fig. 2.

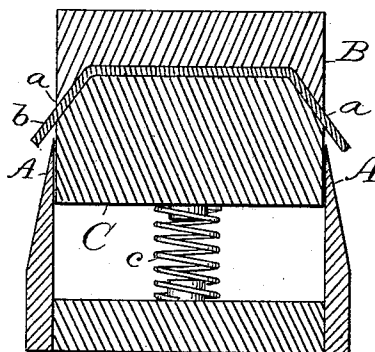


Fig. 3.

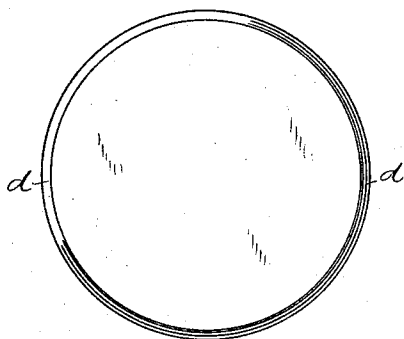


Fig. 4.



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FREDERICK A. FOWLER, OF NEW HAVEN, CONNECTICUT.

CUTTING FLEXIBLE MATERIAL INTO PIECES HAVING BEVELED EDGES.

SPECIFICATION forming part of Letters Patent No. 349,388, dated September 21, 1886.

Application filed June 16, 1885. Serial No. 168,846. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. FOWLER, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Cutting Flexible Material into Pieces having Beveled Edges, of which the following is a specification.

My invention relates to cutting flexible material into pieces having beveled edges. Prior to my invention I believe such pieces have been cut by hand only, so that my present invention is the first instance of cutting by machinery flexible material into pieces having a beveled edge. Pieces of cloth, rubber, or other flexible material may be cut with such a beveled edge in order to facilitate their attachment to some other object, or for the purpose of ornamentation, or for any desired purpose.

In the accompanying drawings, Figure 1 is a vertical section of one form of holder and knife for cutting flexible material into pieces having a beveled edge. Fig. 2 is a like view of another holder and knife for the same purpose. Fig. 3 is a plan view of one of the pieces thus cut, and Fig. 4 is a side elevation of the same.

In cutting flexible material by hand into pieces having a beveled edge it has been customary to have the material lie flat and to hold the knife at the desired angle. I deflect that portion of the material which lies along the line of cut into a given angle and hold it in this position, then cut the pieces with a uniform direction of cut while they are thus held, after which the material is released, and, when flattened will be found to have the proper bevel at the edge. Various means may be devised for thus deflecting, holding, and cutting the material. An apparatus for so doing is herein illustrated and described in order to better explain my method or mode of treatment. This apparatus I have made the subject of another application, the same being No. 178,615, filed September 30, 1885.

My knife, punch, and holder may be secured within any ordinary machine—as, for instance, a power-press—so that the punch may be

forced into the hollow knife or die, or vice versa.

A designates the hollow knife or female die; B, the punch, and C the follower inside of the knife and forced upward by the spring c.

I have represented the tools and the pieces cut as being round; but any desired shape may be cut by making the tools correspond to said shape of the pieces to be cut. A sheet of flexible material is placed between the punch B and follower C and the two brought together, so that the portion of the material adjacent to the cutting corners *a a* of the punch B stands at an oblique angle to the line of movement of said punch. The punch is then forced toward the hollow knife or die A, or vice versa. The punch B deflects different portions of the sheet into different planes by pressure against the face of the follower, thereby causing a portion of the material to lie at the desired angle to the cutting action of the knife, as shown in Figs. 1 and 2. The stock to be cut is then held at this angle. The punch, follower, and stock all move together until the cutting has been effected by the punch entering the knife. The parts then return and the piece of work so cut is removed, and after being flattened out will be found to have a beveled edge, *d*, as shown in Figs. 3 and 4. It will of course be understood that the shape of the faces of the follower and punch at points remote from the cutting-edge is immaterial, so long as that portion of the material which is to be cut is held at the proper angle. The faces of the punch and follower may, if desired, be different at certain points with reference to the contour of the pieces cut, so as to hold parts of the stock at different angles to the knife, and thus produce a beveled edge whose angle of inclination varies at different points in the contour of the piece thus cut; or the piece may, if desired, have a beveled edge for only a portion of its contour.

While I prefer at all times to use the hollow knife or die A, it is evident, that when the material is held as shown in Figs. 1 and 3 a hand-knife may be employed to run around the punch and make the cut, using the sides of the punch and follower as a gage for the knife, and that in such case the direction of

cut would be the same as when cut with the knife A, and would also be uniform upon all sides. Even with a hand-knife and such a holder pieces having beveled edges may be
5 cut very rapidly.

I am aware that it is common in cutting paper to clamp the material and hold it thus clamped while it is being cut, and that a prior patent shows and describes a clamp having
10 inclined faces, between which a pile of cards is clamped so as to tip the cards into an inclined angle to the path of the cutter, said cards lying perfectly flat one upon the other without being deflected at any point. All of
15 said art is hereby disclaimed. This process of cutting cards differs from my process because it does not involve deflecting any portion of the material, and by it only straight-edged work can be cut, and that only upon one
20 side at a time. My process deflects that portion of the material which lies along the line of cut, while the remainder of the material

may lie flat or otherwise, and when the material is so deflected and held the pieces are by one operation cut throughout the entire portion to be beveled, whether that portion forms
25 the edge of a round, square, or other shaped piece.

I claim as my invention—

That improvement in the art of cutting flexible material into pieces having each a beveled edge, which consists of deflecting different portions of each piece into different planes with that portion of the material which lies
30 along the line of cut deflected into a given angle, holding the same at said angle, then
35 cutting the pieces throughout the entire portion to be beveled with a uniform direction of cut while they are thus held, substantially as described, and for the purpose specified.

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Witnesses:

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