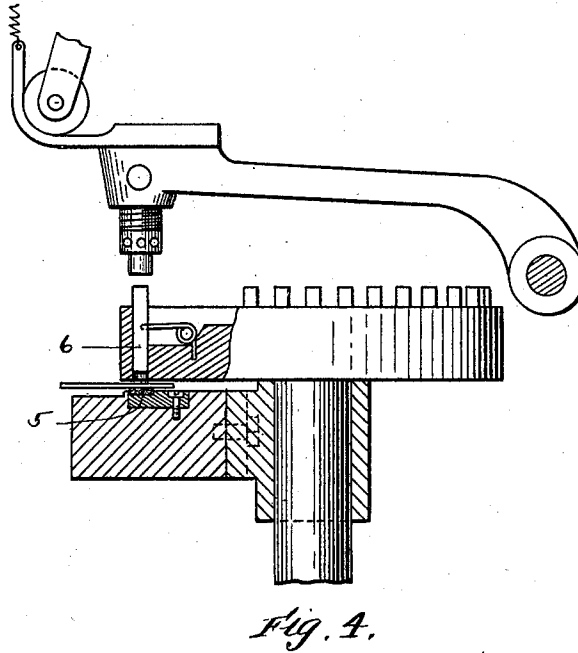
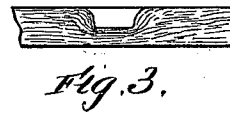
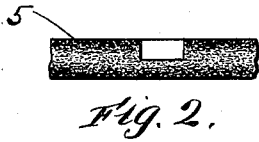
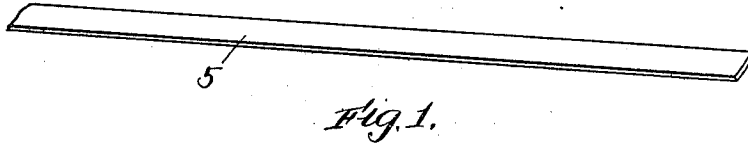


S. ELLIOTT.
FLEXIBLE BED STRIP FOR STENCIL CUTTING MACHINES.
APPLICATION FILED JUNE 25, 1909.

996,229.

Patented June 27, 1911.



Witnesses:
H. B. Davis,
Cynthia Doyle.

Inventor:
Sterling Elliott.
By Hayes & Hariman
Attys

UNITED STATES PATENT OFFICE.

STERLING ELLIOTT, OF NEWTON, MASSACHUSETTS.

FLEXIBLE BED-STRIP FOR STENCIL-CUTTING MACHINES.

996,229.

Specification of Letters Patent. Patented June 27, 1911.

Application filed June 25, 1909. Serial No. 504,220.

To all whom it may concern:

Be it known that I, STERLING ELLIOTT, of Newton, county of Middlesex, State of Massachusetts, have invented an Improvement in Flexible Bed-Strips for Stencil-Cutting Machines, of which the following is a specification.

In the stencil-cutting machine of Letters Patent No. 712,124, dated October 28, 1902, a flexible bed-strip is employed, which is moved intermittently by means provided for the purpose, and with which a punch co-operates when cutting the stencil. The flexible bed-strip therein shown consists of a strip of paper, of substantial thickness, and the end of the punch sinks into said strip more or less at each operation, driving into said strip the small pieces punched from the stencil. Although the fibers composing the strip are bound together as usual in the manufacture of paper, yet minute spaces exist between them, and, as a consequence, they are more or less yielding with respect to each other, and when the punch engages the strip the fibers are crushed or pushed aside by the end of the punch and a ragged cut produced.

For the production of the best results the apertures formed in the stencil must have sharp and well defined edges at both sides of the stencil, and to produce such apertures the cut in the stencil must be clean from top to bottom. An aperture formed by a cut which is clean at the top and ragged at the bottom is imperfect. To form an aperture in the stencil having sharp and well defined edges at both sides, or in other words, to make the cut clean from top to bottom, it is necessary that the bed-strip shall be sufficiently hard to enable the punch to sink into it without crushing or pushing aside the fibers at the side of the punch.

The object of this invention is the production of a bed-strip fulfilling the requirements above noted.

My improved bed-strip is composed of fibrous material, such as paper, filled and also preferably coated with minute, hard particles, which fill the interstices and unyieldingly support the fibers, so that as the punch sinks into it the fibers will not yield with respect to each other at the side of the punch, and hence will not be crushed or pushed aside at such point, and a clean cut will be made. The strip is more completely

filled exteriorly than interiorly, so that its density gradually decreases from its exterior to its interior. This is important, as it provides a strip with unyielding faces or sides to be first engaged by the punch and also with a yielding interior adapted to offer a gradually decreasing resistance to the punch as the punch sinks into it. It also enables the strip to be used either side uppermost, or if desired, to be used twice, first one and then the other side uppermost. Ordinary clay fillers used in the manufacture of paper cannot be employed for this purpose, for the reason that the particles have an abrasive action and wear away the end of the punch, hence the filler which I employ in addition to being hard, so as to unyieldingly support the fibers, is also non-abrasive.

Figure 1 is a view of a portion of a flexible bed-strip for stencil-cutting machines embodying this invention. Fig. 2 is an enlarged sectional detail of a portion of the bed-strip, showing the strip as having been filled and coated with minute, hard, non-abrasive particles, the density of the strip, incident to filling it, gradually decreasing from its exterior to its interior. Fig. 3 is a similar enlarged sectional detail of the bed-strip heretofore employed, showing the way the strip is crushed as the punch sinks into it. Fig. 4 is a detail showing a punch in its relation to the bed-strip.

5 represents the flexible bed-strip. It is composed of fibrous material, preferably paper, manufactured especially for the purpose, being devoid of clay, as the abrasive action of clay dulls the punch. It is made quite thick and may be composed of several plies attached or bound together in a manner quite usual in the manufacture of paper. The strip is temporarily submerged in a liquid solution of shellac, and the solvent for the shellac is thereafter eliminated by evaporation, leaving the minute, hard particles of shellac both in and upon the strip, as represented in Fig. 2. The strip is submerged but a short time, as for instance, it will be simply passed quickly through the solution, and as a result it is filled in a variable manner, it being more completely filled at and near its exterior than at its interior. When thus filled its density is variable, gradually decreasing from its exterior to its interior. At the exterior of the

strip the interstices are so completely filled as to form an unyielding support for the fibers composing the strip and provide a hard face, so that the punch, when first engaging it, cuts into it with a clean cut, as shown in Fig. 2, as contrasted to a ragged cut, as shown in Fig. 3, but as the punch sinks into the strip, owing to the gradually decreasing density thereof, less resistance is offered to the progress of the punch, so that the pieces removed from the stencil by the punch will be easily pressed into the strip. The bed-strip thus produced has a moderately dense interior and a hard uniformly coated exterior.

My newly invented strip enables the apertures formed in the stencil to have sharp and well defined edges at both sides thereof, and being filled with non-abrasive particles will not dull the punch.

The bed-strip thus constructed is flexible, and can be wound on a reel and subsequently fed intermittently beneath the punch, herein represented at 6, during the operation of cutting the stencil. It may be used either side uppermost, or may be used twice, first one side uppermost and then the other.

In lieu of shellac I may employ any other substance composed of minute, hard, non-abrasive particles, which may be drawn into the strip to fill the interstices thereof by a suitable conveying medium, which latter is subsequently eliminated by evaporation or otherwise, and give to the strip a variable

density, gradually decreasing from its exterior to its interior.

It is sometimes desirable to color the bed-strip, and in such case any well known coloring pigment may be added to the shellac or other filler which is employed, which is soluble in the solvent of said filler, so that when the solvent is eliminated by evaporation or otherwise the coloring matter will be deposited upon the strip.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

The flexible bed-strip herein described for stencil punching machines, consisting of a strip of fibrous material, variably filled and uniformly coated upon both sides with minute, hard, non-abrasive particles, the density of the strip; incident to variably filling it, gradually decreasing from its exterior to its interior, thereby providing hardened faces and a soft interior, to permit the ends of the punches which project through a stencil placed on the bed-strip to sink into the bed-strip by cutting and not by crushing or pushing aside the fibers thereof.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

STERLING ELLIOTT.

Witnesses:

B. J. NOYES,
H. B. DAVIS.