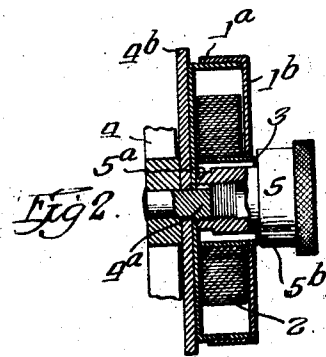
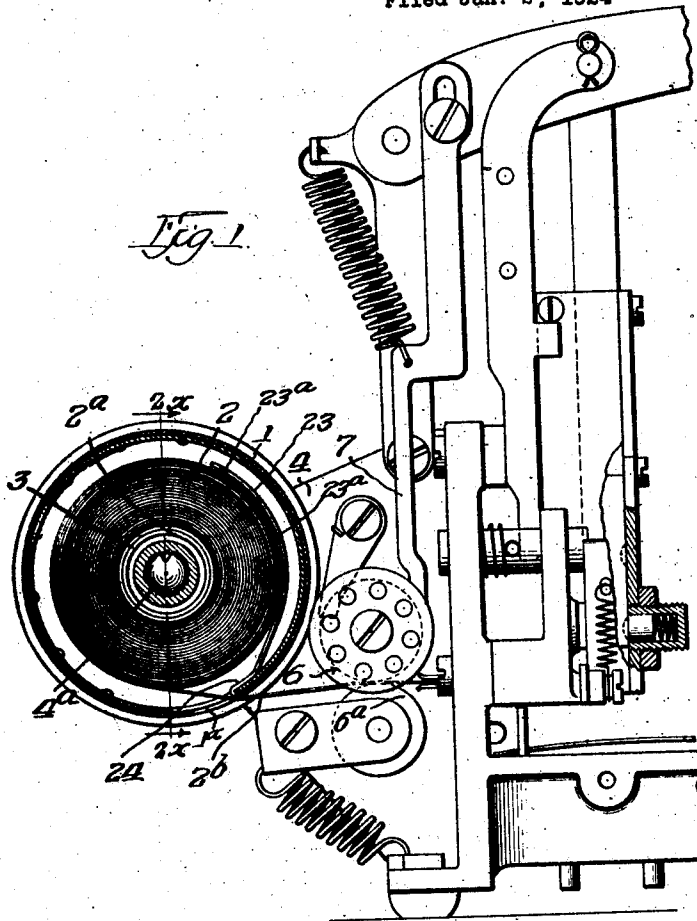


Aug. 17, 1926.

1,596,724

E. S. ENSIGN
EYELETTING MACHINE
Filed Jan. 2, 1924



Witness:
Ed. J. [Signature]

Inventor
Emory S. Ensign
By [Signature]

Patented Aug. 17, 1926.

1,596,724

UNITED STATES PATENT OFFICE.

EMORY S. ENSIGN, OF ROCKFORD, ILLINOIS, ASSIGNOR TO SPENGLER-LOOMIS MANUFACTURING CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

EYELETTING MACHINE.

Application filed January 2, 1924. Serial No. 633,911.

This invention relates to a machine which automatically produces eyelets from a continuous strip of stock, such as a thin ribbon of metal, and inserts each eyelet as it is made, or at a time properly related to the act of making it, into sheets of paper or like material. The several features of the invention are designed primarily for embodiment in machines corresponding in operative and structural organization, with the machines shown in United States Letters Patent Nos. 1,119,417 and 1,159,576, issued to the same inventor, and according to which the eyelet produced is of regular polygonal form, for instance, square, and made from a ribbon of metal, the transverse dimension of which corresponds to the dimension of the eyelet, and the invention will, for purposes of illustration, be described in connection with such a machine, although its several features are applicable to other eyelet forming and riveting machines.

The object of the invention is to provide an improved means for holding a coil of resilient metal ribbon in compact form but with freedom to respond very promptly and with minimum resistance to mechanism which automatically feeds it to blank severing and eyelet forming mechanism; and, to this end, one feature of the invention consists in mounting the metal ribbon, suitably coiled, upon a spindle, upon which it may revolve in paying out to the feeding mechanism, and holding the coil against expansion by means of a resilient but substantially stationary shoe which bears against the coil but contacts with a very small area of its periphery so that friction, resisting rotation of the coil, is very small compared with that which develops when the coil is permitted to expand under its inherent resiliency against a surface contacting with substantially its whole circumference; a collateral feature incident to this part of the invention consisting in constructing the spindle of the coil in the form of a revolving sleeve with which the inner end of the coil is connected and which is supplied with the coil and is confined therewith in a cylindrical housing, which latter comes into bearing upon a supporting bracket as a means for introducing the coil into the machine. Another collateral feature incident to this part of the invention consists in

housing the metal ribbon coil in a cylindrical shell hung by one of its end walls upon a stud carried by the supporting bracket, centering the revoluble hollow spindle through means of an axial opening in the other end wall of the shell, and confining the shell upon the stud and the spindle within the shell by means of a hub-like member threaded to the stud and having axially presented faces or shoulders of dimensions appropriate to overlie the wall of the shell which surrounds the stud and the end of the spindle which projects through the other wall of the shell.

In the accompanying drawing—

Figure 1 is a side elevation of a machine embodying the several features of the invention, a portion of the operating lever being broken away, and the parts immediately concerned with the features of the invention being shown in section.

Figure 2 is a section on the line 2^x—2^x of Figure 1.

1 represents a coil box enclosing a coil 2 of brass ribbon, the inner end 2^a of which is engaged with a cylindrical revoluble spindle 3, while the outer end 2^b, issuing from the slot 1^x of the shell 1, is engaged by feeding rolls 6, 6^a of known construction, that are revolved step by step in the operation of the machine, through some suitable means, such, for instance, as a thrust bar 7 in a known manner. Shell 1 comprises two members with telescoping cylindrical walls and opposed end walls 1^a, 1^b, of which the wall 1^a is perforated to receive the stud 4^a on the bracket 4, while the end 1^b is perforated to permit the tubular spindle 3 to project freely therethrough. A hub-like member 5 is threaded to the stud 4^a, and by its inner end 5^a clamps the inner shell 1 against the disk 4^b of the bracket 4. A shoulder 5^b on the outer portion of the hub 5 overlies the tubular spindle 3 which freely surrounds the hub, and without binding such spindle against rotation confines it axially with relation to the shell.

Since freedom of rotation of floating spindle 3 would permit the coil of metal ribbon to uncoil under its inherent resiliency sufficiently to expand against the inner wall of the shell, and develop excessive frictional resistance to the pull of feed rolls 6, 6^a, means are provided for resisting such expansion of the coil, without undue frictional contact with the periphery of the coil, and

this means consists, preferably, in the substantially stationary but resilient shoe 23 firmly anchored to the shell at 24, conforming to the circumference of the coil for a minor portion of its peripheral area, and still further restricted in its frictional resistance to ribbon feed, by forming upon its concave face, small bearing studs 23^a.

I claim:

10 1. A metal ribbon supply for machines of substantially the character set forth, comprising a coil of resilient metal ribbon having its inner portion free to unwind and its outer end free for engagement in feeding the ribbon, and a substantially stationary
15 arresting shoe positioned to contact circumferentially with a minor segment of the coil, thereby limiting radial expansion of the coil and maintaining a substantially constant
20 external dimension thereof from which the coil feeds while leaving the coil free to unwind.

2. A metal ribbon supply for machines of substantially the character set forth, comprising a coil of resilient metal ribbon,
25 means for mounting said coil with freedom to revolve as a whole, and with its interior convolutions free to unwind and expand outwardly, and a substantially stationary limiting shoe located to contact circumferentially
30 with a minor segment of the coil and thereby limit radial expansion while leaving the coil free to feed.

3. A metal ribbon supply for machines of substantially the character set forth, comprising a spindle, means for retaining the
35 spindle at a substantially fixed axis but with freedom of rotation, a coil of resilient metal ribbon anchored through its innermost convolution to said spindle, and having an end
40 extending from its outermost convolution in position for engagement to feed the ribbon, and a substantially stationary arresting shoe contacting circumferentially with a
45 minor segment of the coil and restricting expansion of the coil.

4. A metal ribbon supply for machines of substantially the character set forth, comprising a spindle rotatably confined at a fixed axis of revolution, a coil of resilient
50 metal ribbon surrounding said spindle, having its inner convolution anchored to the spindle, and adapted to unwind by rotation of the spindle within the shoe, as the coil is consumed from its periphery, and a substantially stationary shoe located to contact
55 circumferentially with a minor segment of the coil and resist its expansion while permitting it to maintain a substantially constant circumferential dimension during feed of the ribbon; said shoe being provided with
60 projections through which it contacts with the coil and by which its frictional resistance to rotation of the coil is reduced to a minimum.

5. In a winding and reeling device for an eyeletting machine employing continuous strip stock, a bracket having a supporting stud, a cylindrical shell having one end wall
65 perforated to receive said stud and its opposite end wall perforated to receive a spindle, a cylindrical spindle in the shell positioned by the last-named opening and adapted to carry a coil of strip stock, and
70 a hub extending through said spindle and engaging the bracket stud and confining the shell upon the latter.

6. In a winding and reeling device for an eyeletting machine employing continuous strip stock, a bracket having a supporting
75 stud, a shell having an axial opening in one wall thereof, engaging said stud in a manner to resist rotation of the shell, a hub extending axially through the opposite wall of the shell, engaging the stud and confining
80 the shell thereon, and a cylindrical spindle adapted to receive a strip of coiled stock surrounding said hub and axially confined in the shell.

Signed at Chicago, Illinois, this 13th day
85 of December, 1923.

EMORY S. ENSIGN.