

(No Model.)

J. F. STEWARD.
METHOD OF MAKING TWINE FROM PAPER.

No. 500,627.

Patented July 4, 1893.

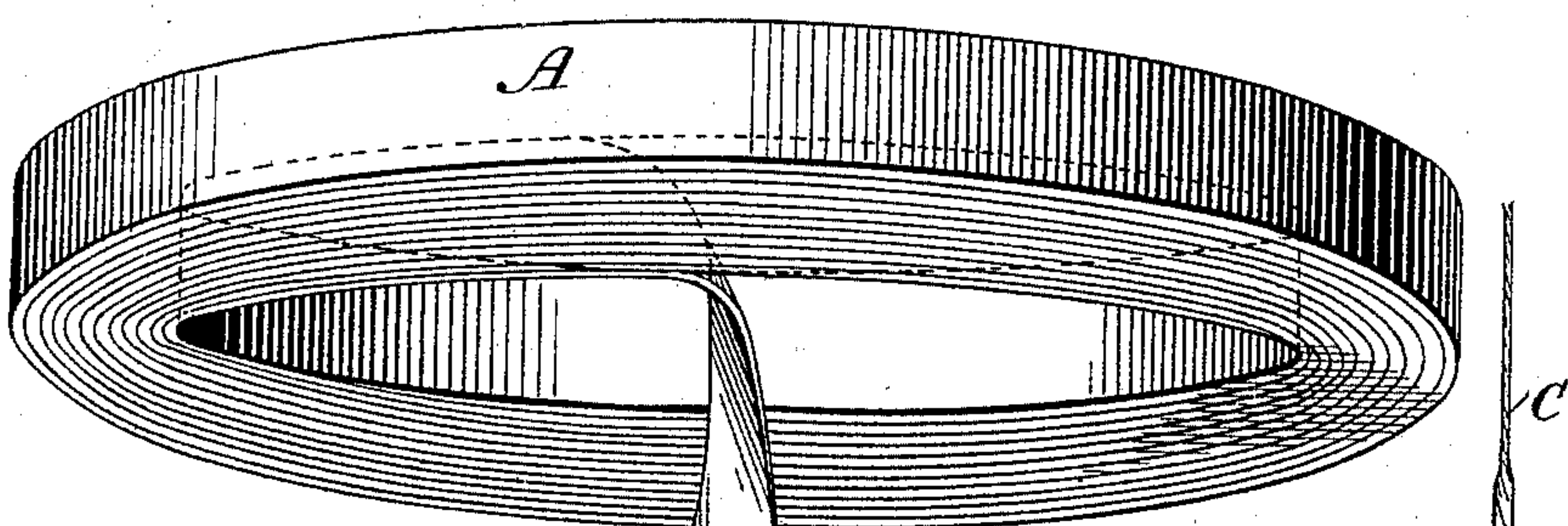
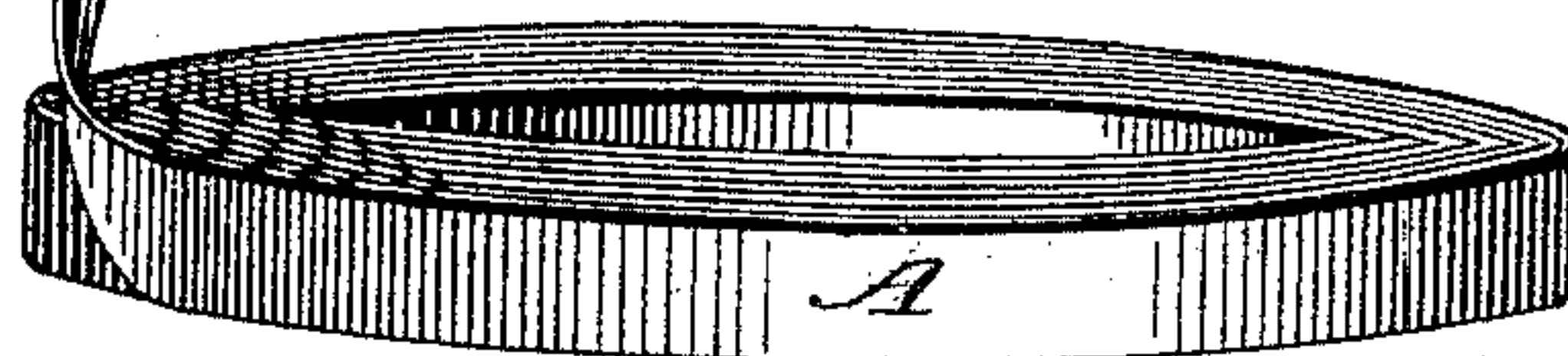


Fig. 1.

B

Fig. 2.

B



Witnesses.
Arthur Johnson.

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METHOD OF MAKING TWINE FROM PAPER.

SPECIFICATION forming part of Letters Patent No. 500,627, dated July 4, 1893.

Application filed April 11, 1893. Serial No. 469,977. (No specimens.)

To all whom it may concern:

Be it known that I, JOHN F. STEWARD, of Chicago, in the county of Cook and State of Illinois, have invented a new Method of Making Twine from Paper, of which the following is a full specification, reference being had to the accompanying drawings, designed to show the steps employed in producing the desired result.

10 Various paper twines have been made, some of them well adapted to the binding of grain, and it is particularly this kind of twine that my method is most efficient in producing, that is, a twine made from a strip of paper, the latter formed into a tube, the tube then collapsed and twisted.

15 Machines for making paper twine have heretofore, so far as my knowledge goes, either twisted the out-drawn strip of paper directly, as shown in the patent to R. V. De Guinon, dated February 8, 1870, No. 99,654, or, first coiled the paper into a continuous hollow cylinder by unrolling the said paper from the outside of a roll, and then formed it by drawing it through a tube. A difficulty has been encountered in the latter method because of the tendency of the paper to buckle, that is, to curve and form the tube first with one side of the paper outward, and in another instant with the other side outward. It is also found that when thus drawn, one edge of the paper is sometimes folded within the other, and at other times the opposite edge inward. This produces a crossing, and cutting of the edges into each other. It is desirable that the paper tube be given a slightly spiral form, and the new step in my method consists in drawing the paper longitudinally from the coil in forming the tube that is to be collapsed and twisted.

20 In the drawings Figure 1 is a perspective view of a disk of paper that shows the steps that follow the first preparation of the strip of paper. Fig. 2 shows the paper as drawn from the outside of the roll.

25 A is a strip of paper rolled in the form of a disk. B represents the part of the paper that has been formed into the tube; C the portion that has been collapsed and twisted. With the disk of paper placed in the position shown, and the inner part drawn in a longi-

tudinal direction, the coils in the disk give the tube a slightly spiral form, and that, too, in a perfect manner. The act of drawing the paper longitudinally from the disk, if the eye of the disk were small enough, would form a tube as, for instance, a child might make a tube by wrapping a strip of paper around a pencil and then drawing the center out. This illustration, however, is an extreme one for the reason that, in the use of my method, the tube formed by a strip of paper one inch in width is likely to be not more than a quarter of an inch in diameter, while the aperture at the center of the disk becomes, before the paper is all consumed, many inches. Notwithstanding the fact that the aperture is so large that the mere drawing out will not form a spiral tube, that method gives sufficient curvature to the strip of paper to cause it to form into a tube slightly spiral in form, and insures that that spiral form be uniformly formed one way, that is, one in which the paper is constantly turned in one direction.

30 It is found that paper that is slightly sized and thus adapted to use in making twine, if dampened, twists with less tendency to break the fibers, the effect of moisture being to soften the sizing and permit the fibers to assume new positions relative to each other when subjected to the stresses of twisting. I have found that the ordinary process of moistening the strip of paper in paper-twine making machinery, that is, drawing the latter over a moistened roller and immediately twisting it, is not as effective as to dampen the paper all through. To the latter end I moisten the paper before forming it into the roll and allow the latter to remain for a short length of time so that the moisture will become diffused and the strip when drawn out be uniformly dampened upon its two sides and throughout.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The method of making twine consisting in cutting paper into strips, rolling the said strips into the form of disks, then, beginning with one end of the paper, drawing it in the direction of the axis of the said disk, thus causing the convolutions that were in the strip of paper when in the disk form, to produce a coiling of the said paper in a continu-

ous direction while the tube is forming, then collapsing the said tube and twisting it, substantially as described.

2. The method of making twine consisting
5 in, first, cutting the paper into strips, moistening the said strips and forming them into a disk, then, beginning at one end of the disk and drawing it in the direction of the axis of the said disk, thus causing the convolutions

of the paper to give direction to the curvature of the paper as it is drawn therefrom and aid in forming a tube, then collapsing and twisting the tube into twine, substantially as described.

JOHN F. STEWARD.

Witnesses:

GEORGE H. ELLIS,
ARTHUR JOHNSON.