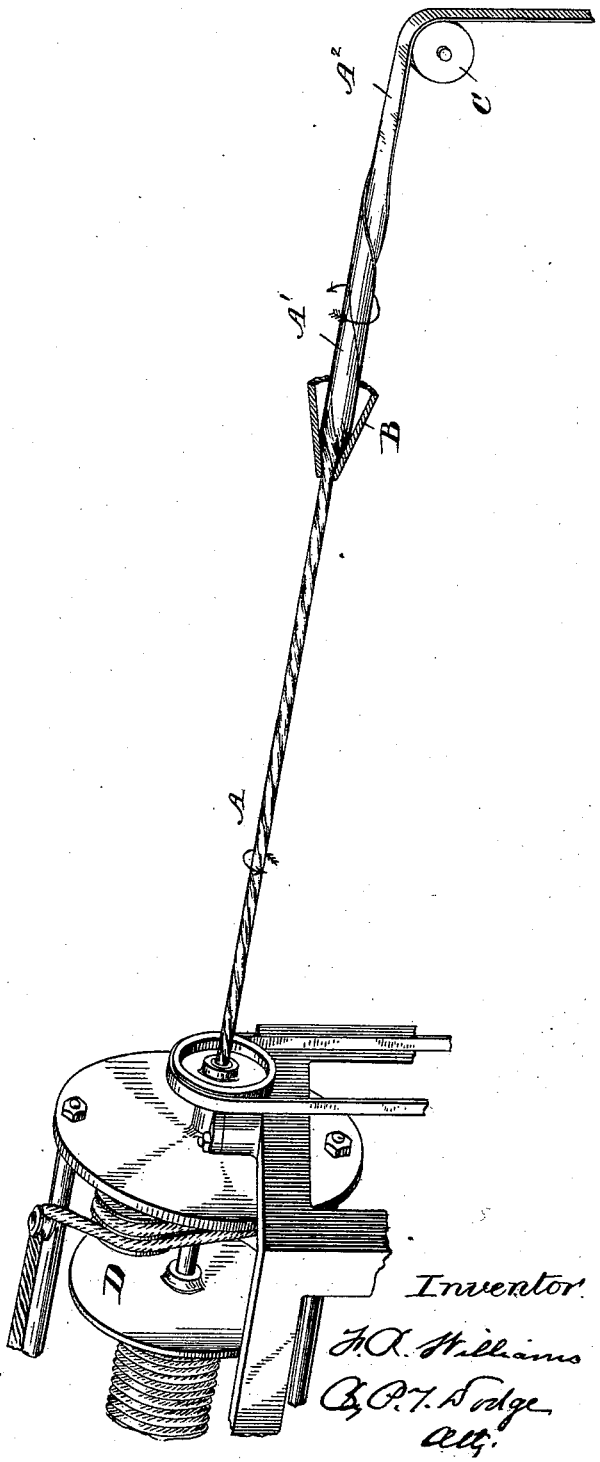
(No Model.)

F. R. WILLIAMS.

METHOD OF MAKING TWINE.

No. 523,061. Patented July 17, 1894.



Witnesses.
Arthur Johnson
Fabius J. Elmore

Inventor.
F. R. Williams
by P. J. Dodge
Atty.

UNITED STATES PATENT OFFICE.

FARMER ROOD WILLIAMS, OF BELOIT, WISCONSIN, ASSIGNOR TO THE WILLIAM DEERING & COMPANY, OF CHICAGO, ILLINOIS.

METHOD OF MAKING TWINE.

SPECIFICATION forming part of Letters Patent No. 523,061, dated July 17, 1894.

Application filed January 5, 1893. Serial No. 457,380. (No model.)

To all whom it may concern:

Be it known that I, FARMER ROOD WILLIAMS, of Beloit, in the county of Rock and State of Wisconsin, have invented a Method of Making Twine from Strips of Paper, of which the following is a full description, reference being had to the accompanying drawings.

The method forming the subject matter of this application is one for producing the twine shown and described in my application, Serial No. 321,838, filed August 24, 1889.

I procure paper of suitable strength, cut it into strips, and twist the same by means of an ordinary throstle or flier but combine therewith a former through which the paper is drawn while receiving its twist.

The figure represents an apparatus suitable for forming a twine in accordance with my method.

In said figure A is the completed twine. A′ is the strip of paper formed into a tube, and A^2 is the strip of paper as delivered from a spool, "sliver-can," or any other suitable holder.

B is a former through which the paper is drawn by the action of the twisting and spooling devices.

The former B may be considered to be any suitable aperture larger at the receiving end than at its delivery end which is as small as the twine to be twisted from a given strip of paper will permit it to be. It must be so small that the strip of paper, unless tightly twisted, cannot be drawn through it. It is preferable to make it funnel shape, as shown.

C is any roller over which the strip of paper may be drawn. The paper is started through the opening in B by cutting it narrow at its end so that it can be easily passed therethrough and carried into the flier or attached to the spindle of a throstle, preferably a flier D, as shown in the drawing. Assuming the latter to be rotated in the direction to give a twist, indicated by the arrow, and by the operation of the flier the twine also drawn longitudinally, it will be readily understood that the paper at A will be twisted. As the paper can be drawn through the small opening in B but with difficulty, the tension on the part A will be great and the resistance, due to tension to any further twist, will cause the paper within the opening B to receive part of the twist and hence reduce it in size. So reduced the twine may be drawn by the flier. In another instant the further twisting will be resisted and the paper within the former B again reduced in size. As a matter of fact, the condensation of the paper where it is first brought in contact with the surface of the aperture is practically constant and as a result the twine is practically uniform in its twist. The pressure upon the walls of the aperture is never sufficient to prevent a part of the twist from extending to the strip of paper that is being delivered to the former, which twisting action causes it to assume a tubular form as shown at A′ but of course quite large. The aperture in the former B being circular and as small as possible, the tube, A′ in collapsing must form an irregular star shape, in section.

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

Forming a strip of paper into a tube, drawing the said paper through an aperture smaller than the said tube, at the same time twisting it and collapsing it, substantially as described.

FARMER ROOD WILLIAMS.

Witnesses:

JOHN F. STEWARD,

HARRY M. STRAWN.