(No Model.)

F. R. WILLIAMS.

TWINE FOR BINDING GRAIN.

No. 523,059. Patented July 17, 1894.

Fig. 1.

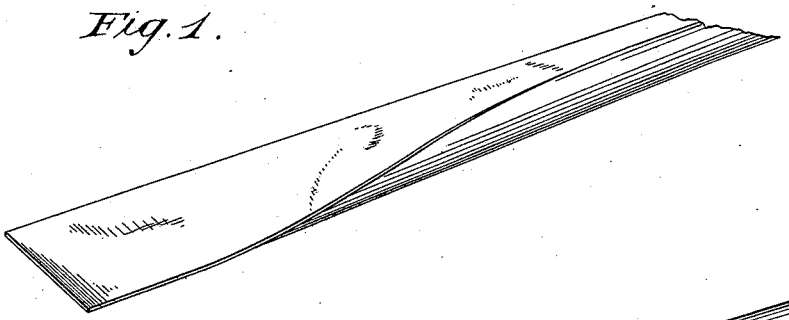


Fig. 2.

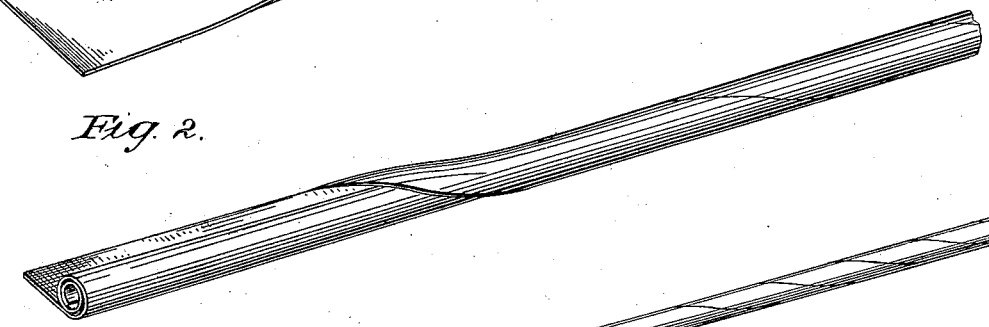
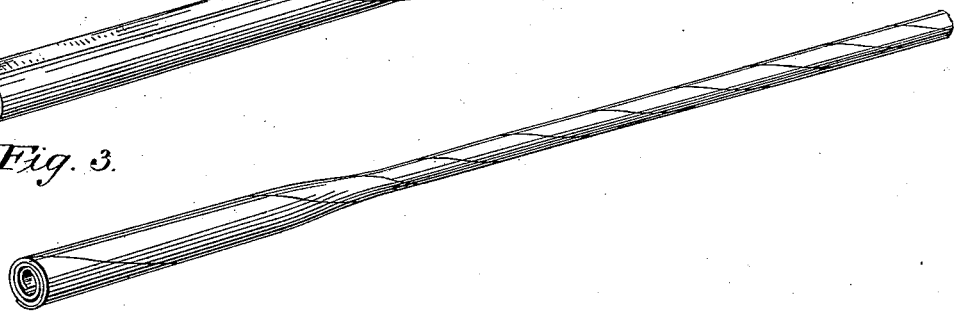


Fig. 3.



Witnesses.

Arthur Johnson.

W. A. Kennedy.

Inventor.

Farmer R. Williams

UNITED STATES PATENT OFFICE.

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

TWINE FOR BINDING GRAIN.

SPECIFICATION forming part of Letters Patent No. 523,059, dated July 17, 1894.

Application filed August 24, 1889. Serial No. 321,838. (No specimens.)

To all whom it may concern:

Be it known that I, FARMER R. WILLIAMS, a citizen of the United States, residing at Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Twine for Binding Grain, of which the following is a full, clear, and exact specification.

The object of my invention is to provide a twine suitable for use in grain-binding harvesters.

My twine consists of a paper strip wound or twisted into cylindrical form: by which I mean into such form as to present a strong and self-sustaining tube adapted to withstand severe longitudinal strains without separation of its coils or convolutions.

I am aware that an ordinary cord of fibrous material has been provided with a narrow strip of paper wound helically thereon. This structure did not, however, present a distinct or self-sustaining tube, or a tube adapted to withstand longitudinal strains except as it was internally-sustained and strengthened by the cord, and in this regard differed materially from the twine which I have invented which as already indicated comprises a strip of paper wound or rolled upon itself from one of its longitudinal edges to form a substantially solid cord or body.

I am aware of the patents of De Gunion, No. 99,654; Tice, No. 43,874, and Wortendyke, No. 42,896, which show and describe machines for forming cord or twine from a strip of paper by coiling or twisting the same in such manner as to present a hollow structure with no internal support, the result being that when subjected to longitudinal strain the edges of the strip at each adjoining coil would separate. These cords differ widely from that which I have invented, consisting of a strip curled or coiled longitudinally as it were from one edge toward the other so as to present a plurality of thickness throughout its length. Under such a construction the cord is cylindrical, embodying an internal sustaining portion made up of the strip, so that it is adapted to effectually withstand without separating or collapsing, the severe longitudinal strains to which it is subjected in practice.

In the accompanying drawings,—Figure 1 is a perspective view illustrating the initial step in the manufacture of my twine. Fig. 2 is a view illustrating the operation at a more advanced stage. Fig. 3 is a view illustrating the last step in the operation, and the finished cord.

In carrying my invention into practice I provide paper in long strips of uniform width. It may be made from any stock giving the necessary pliability and strength. I commence the manufacture by rolling or coiling the paper from one edge toward the other, as indicated in Fig. 1, until it forms a substantially solid cylindrical body with a plurality of layers or convolutions, as shown in Fig. 2. If made of suitable soft stock it will in this form answer a good purpose but be somewhat deficient in pliability. The pliability and strength may be increased by twisting the body, as shown on the right hand in Fig. 3, thereby compacting the same and reducing its size.

It is to be notched that in my twine the paper is coiled or lapped in such manner as to present at all points a practically solid body, in several layers; that the edges of the paper strip extend substantially in line with the axis of the twine so that it will resist longitudinal strains to advantage; and that its coils or convolutions cannot be pulled apart lengthwise of the twine as in the case of a strip wound spirally at a sharp angle to the axis of the twine.

What I claim is—

A twine consisting of a paper strip wound firmly into cylindrical form, its edges lying approximately in line with the axis of the twine, with one edge in the interior and the other edge on the exterior substantially as described: whereby the twine is adapted to resist longitudinal strains without untwisting or rupturing the strip.

FARMER R. WILLIAMS.

Witnesses:
A. L. UPTON,
ARTHUR JOHNSON.