

D. OLMSTED.
BANDS FOR BINDING GRAIN.

No. 171,950.

Patented Jan. 11, 1876.

Fig. 1.

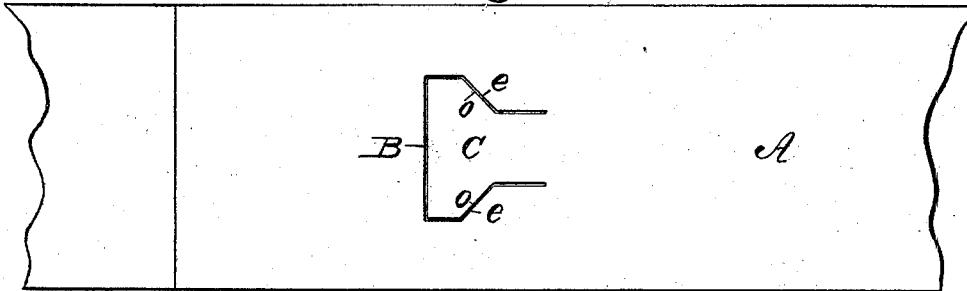


Fig. 2.

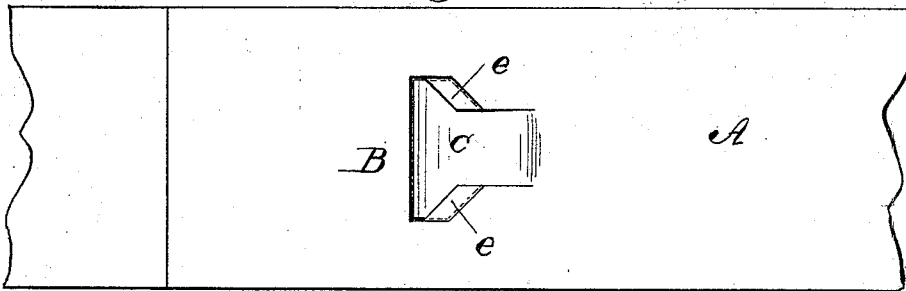


Fig. 3.

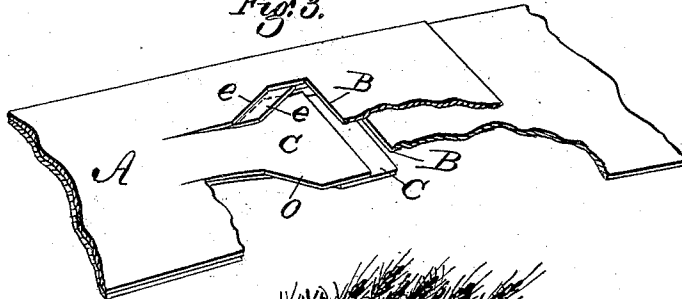
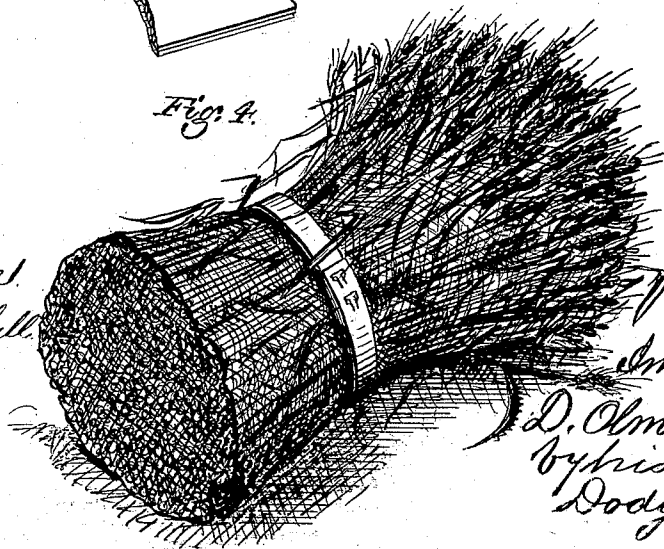


Fig. 4.



WITNESSES:
Hill H. Dodge
Gerrit Twitchell

Inventor,
D. Olmsted,
By his atty
Dodge & Gerr.

UNITED STATES PATENT OFFICE.

DAVID OLMSTED, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF PART OF
HIS RIGHT TO CHARLES R. CHUTE, OF SAME PLACE.

IMPROVEMENT IN BANDS FOR BINDING GRAIN.

Specification forming part of Letters Patent No. **171,950**, dated January 11, 1876; application filed
September 6, 1875.

To all whom it may concern :

Be it known that I, DAVID OLMSTED, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Bands for Binding Grain, of which the following is a specification :

My invention consists of a paper band for binding bundles of grain, and in a novel method of locking or fastening the band when on the bundle, as hereinafter more fully described.

Figure 1 is a plan view of the lapped ends of the band, showing the cut made in it to form the locking tongue or joint. Fig. 2 is a similar view, showing it locked or fastened. Fig. 3 is a perspective view, with a portion shown in section to more clearly illustrate the manner of fastening the band; and Fig. 4 is a perspective view of a bundle with the band applied.

Various machines have been invented to bind grain as it is cut in the field; and, as straw cannot be successfully used as a band with these machines, attempts have been made to substitute twine and wire, but these, for various reasons, are objectionable.

The object of my invention is to produce a simple, cheap, and efficient band that can be readily applied, either by machinery or by hand, in the binding of grain.

With this object in view, I make my bands of paper, using for the purpose any style or make of paper that is sufficiently strong, and which has been subjected to a process or treatment which will render it water-proof, or practically so. The bands are cut from a sheet or roll of paper, of the proper size to encircle an ordinary bundle of grain, and have their ends lap a few inches, more or less, they being an inch or more in width, according to the strength of the paper from which they are made. They may be subjected to the waterproofing process either after they are cut from the sheet, or before, though the more convenient method will be to prepare the paper in large sheets or rolls, and then cut the bands therefrom subsequently. Paper bands thus prepared are sufficiently strong to answer the required purpose, and can be used with great facility, as well as being very cheap.

There are many ways in which such bands can be fastened; but I prefer the plan shown

in the drawings as being very simple and expeditious. When the band A has been passed around the bundle its two ends are lapped one over the other, as shown in Figs. 1, 2, and 3, and then, by means of a proper tool, (which may be constructed to operate like a conductor's ticket-punch,) a cut is made through both of the lapped parts. The shape of the cut thus made is shown at B, Figs. 1, 2, and 3, where, it will be observed, the cut is such as to leave a tongue or flap, C, which is considerably wider at its free end, its opposite or narrower end being left uncut, the tongue or flap C thus remaining fast to the band. As the cut is made through both thicknesses, the free or wider end is pushed through the hole or opening toward the inside, as shown in Fig. 3, and, as they are released, the expansion of the bundle draws the outer tongue C backward, causing its edges *c* to engage under the corresponding edges *c* of the under thickness or layer, as shown in Figs. 2 and 3, thereby locking the ends securely together.

It will readily be seen that the form of the cut or locking parts may be varied from that shown, the only requisite being that its outer end shall be the widest, so that when pushed through the hole or cut in the under layer it will lock therein, and not pull out. The form shown is well adapted to the purpose, the inclined edges *e* and *o* causing them to engage easily and readily, and not being so liable to catch or tear as they would if cut at right angles to the length of the band; and the sides where the strain comes being in line with the direction of the strain, there is less liability to tear out than there otherwise would be.

Thus far I have described the band as being first applied to the bundle, and then having the cut made afterward, as would be the case where the whole operation is performed by machinery. It is, however, obvious that the bands may be fully prepared beforehand; and when they are to be applied by hand, either on that class of machines where the binding is performed by hand, or where the bundles are bound as they are left lying on the ground, it may be found desirable and most convenient to have the cuts made in them beforehand. In such case there may be two or more cuts

made a little distance apart, so as the more readily to adapt the bands to the different-sized bundles. By making three or more cuts in a band, at least two of them may be made to interlock, thus making the locking of the ends doubly secure. So, too, when done by machinery, or by a hand-tool, after the band has been put around the bundle, as previously described, two or more cuts or locking-joints may be made simultaneously, Fig. 4 representing a bundle having a band applied with two locking-joints.

When prepared beforehand and applied by hand it is only necessary to slip the band around the bundle and draw it up until one of the joints or cuts in one part comes opposite one in the other, when the tongue C is pushed through the opening in the inner part, and the band released, when, as before explained, the expansion of the bundle will draw the edges *o* of the tongue C back under the edges *e* of the hole, thus locking the ends securely together.

The paper should be sufficiently rigid or stiff to prevent the tongue C from doubling up and drawing out of its hole; but as the pressure

of the bundle tends to press it out flat, and to hold it securely between the bundle and the band, a small degree of rigidity will be found sufficient. As there are several well-known processes of rendering paper water-proof, or sufficiently so for this purpose, it is not necessary that I should describe them. Paper made of long fiber, and having the fiber arranged lengthwise of the band, will be suitable for the manufacture of the bands, as the stronger the material is the narrower or lighter the band may be.

Having thus described my invention, what I claim is—

1. As a new article of manufacture, a water-proof paper band for binding bundles of grain, substantially as set forth.

2. A paper band provided with one or more T-shaped holes and corresponding T-shaped tongues, constructed to operate as described, for fastening said band around the bundle.

DAVID OLMSTED.

Witnesses:

HOWARD DOUGLASS,
JOHN H. STEVENS.