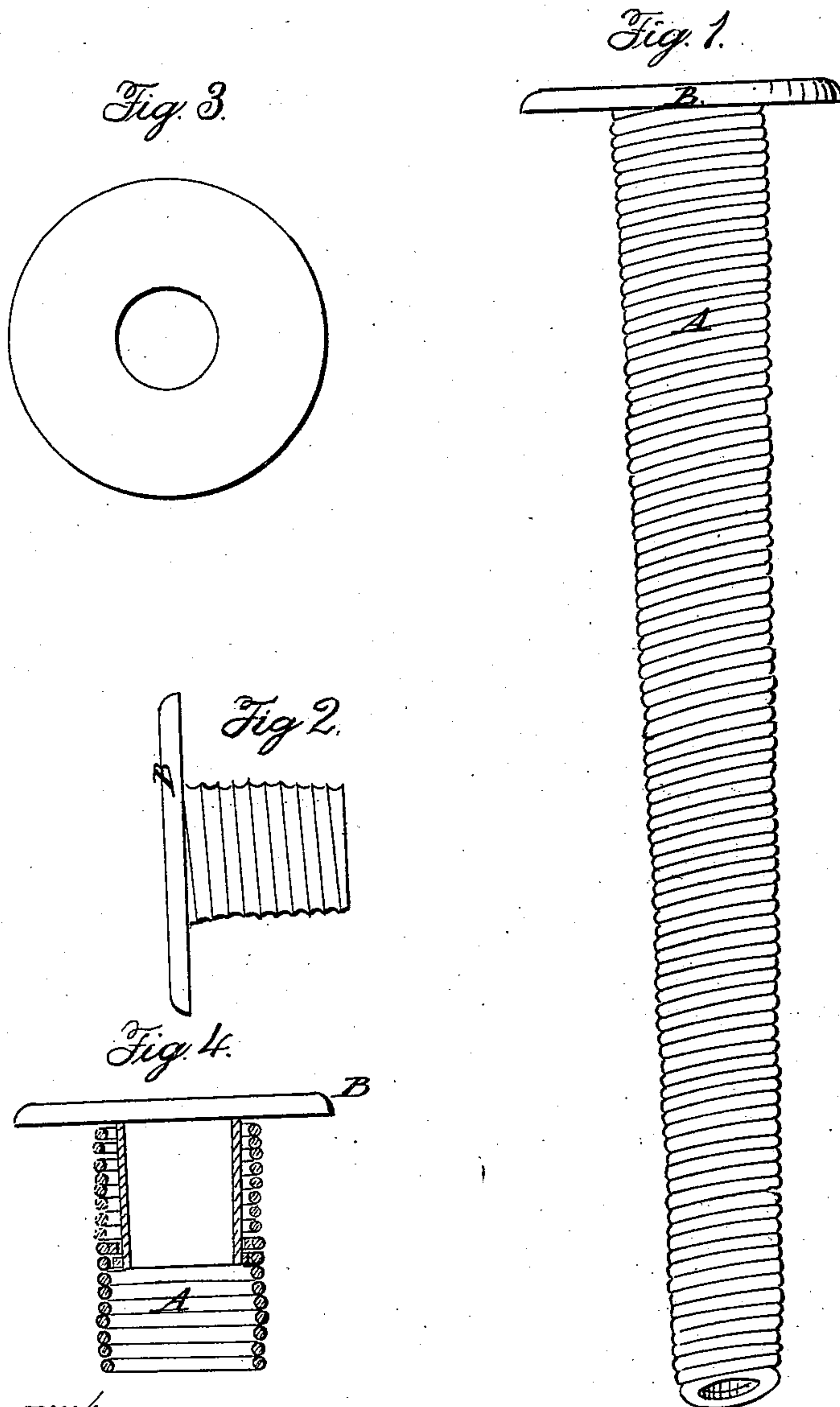


LIGHTER & HARDING.

Seed-Drill Teeth.

No. 59,422.

Patented Nov. 6. 1866.



Witnesses.

N. W. Heigwin
W. J. Johnston

Inventors.

Samuel K. Lighter
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UNITED STATES PATENT OFFICE

SAMUEL K. LIGHTER AND THOMAS HARDING, OF HAMILTON, OHIO.

IMPROVEMENT IN GRAIN-DRILL TUBES.

Specification forming part of Letters Patent No. 59,422, dated November 6, 1866.

To all whom it may concern:

Be it known that we, SAMUEL K. LIGHTER and THOMAS HARDING, of the county of Butler, in the State of Ohio, have invented a new Grain-Drill Tube; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings as a part of this case, in which—

Figure 1 is a perspective view. Fig. 2 is a view of the mouth-piece. Fig. 3 is a view of the top thereof; and Fig. 4 is a representation showing how the tube is made to yield to obstructions, as hereinafter set forth.

The tube is made by winding flexible wire or other flexible metal on a mandrel, and thereby forming a durable and flexible tube for conducting all manner of grain and seed from the grain-box to the hoe of the drill.

In order that this tube may more easily pass over stones, clods, or other obstructions, the mouth-piece may be constructed and connected with the tube, as represented in Fig. 4, so that the tube may slide up, as represented by the red color, and then fall back into place after the obstruction is passed. The elasticity of the tube to pass over such obstructions may also be increased by winding a portion of the upper part of the tube more openly around the mandrel. This is an important feature in the invention not shown in the drawings. An-

other modification is shown by Fig. 2, with female screw to enter the end of the tube, and thus fasten the tube permanently to the frame.

The operation and several modes of construction are so easily understood as not to need further description. This tube in its several forms and modes of attachment is intended to be used instead of those of leather and gum-elastic, over which this invention presents many important advantages. It is cheaper, more durable, and not so liable to clog or to collapse, and thus prevent the emission of seed.

We are aware that a patent was granted, December 15, 1857, to J. C. Haines for a similar tube, in combination with the hoe of the drill. The tube so constructed we do not claim; but

What we do claim, and desire to secure by Letters Patent, is—

1. The mode of connecting the tube to the frame, as shown in Fig. 2, and herein described.

2. As a modification, the mode of connecting the tube to the frame, substantially as shown in Fig. 4, to overcome obstructions, in the manner and for the purpose set forth.

SAMUEL K. LIGHTER.
THOMAS HARDING.

Attest:

THOS. MOORE,
N. G. CURTIS.