

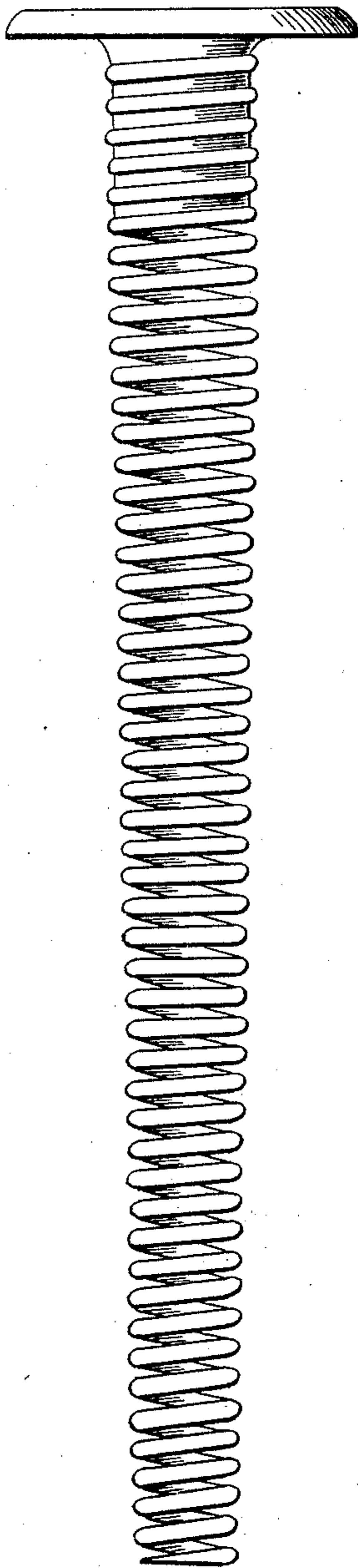
LIGHTER, HARDING & CURTIS.

Seed-Drill Teeth.

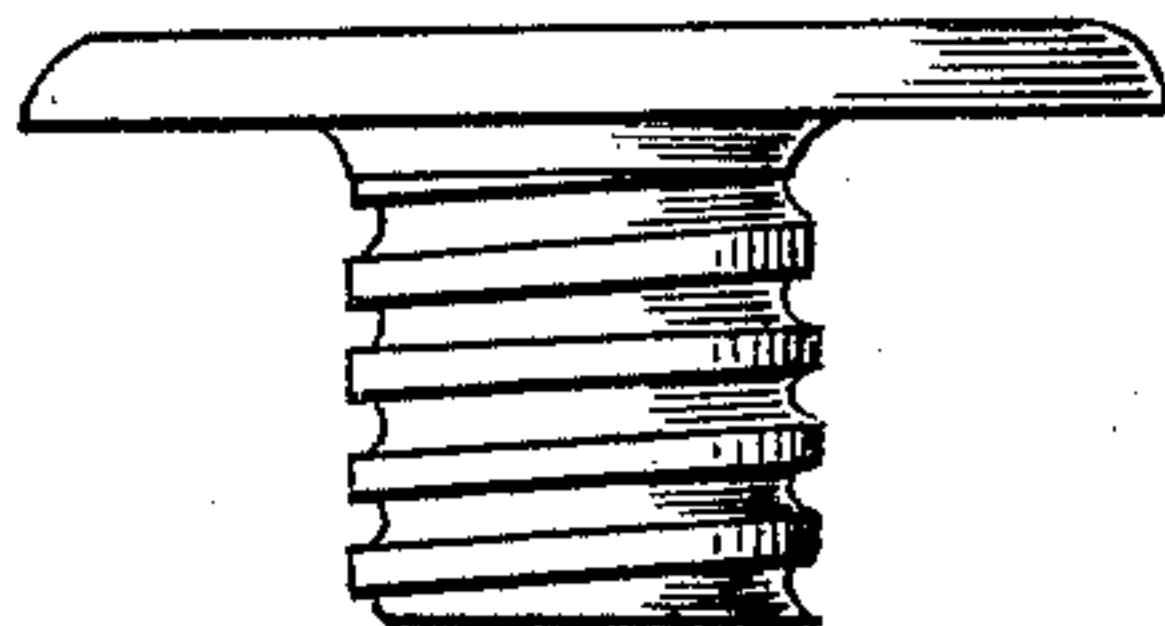
No. 67,660.

Patented Aug 13. 1867

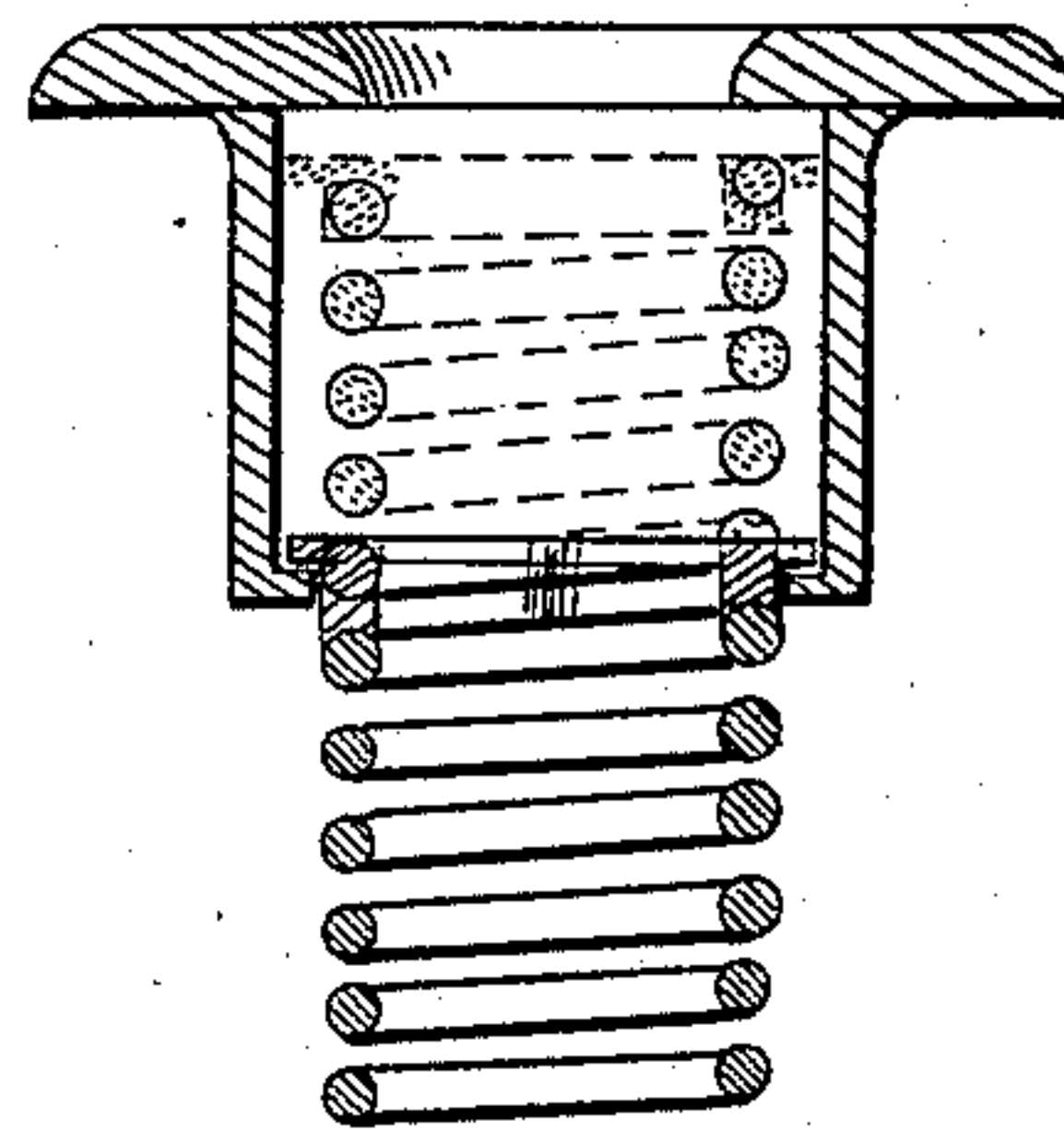
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



**Witnesses:**

*Alfred Mahon*  
*A. M. Stout*

**Inventor:**

*Samuel R. Lighter*  
*Thomas Harding*  
*Jas. Curtis by their*  
*Atty. Wm. Zebb*

# United States Patent Office.

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

*Letters Patent No. 67,660, dated August 13, 1867.*

## IMPROVEMENT IN GRAIN-DRILL TUBES.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, SAMUEL K. LIGHTER, THOMAS HARDING, and JOSEPH CURTIS, of Hamilton, Butler county, Ohio, have invented a new and useful Improvement in Grain-Drill Tubes, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, as part of this specification, whereof—

Figure 1 is a perspective representation.

Figure 2 is a mouth-piece; and

Figure 3 represents a modified connection of the parts.

This invention is an improvement on the patent of Lighter & Harding, of November 6, 1866, and consists, first, in winding the wire of which the tube is made around the mandrel in such manner as to form an open coil, as represented in fig. 1, instead of a closed coil, as in former patent; and, secondly, to allow the tube to play inside of the socket, as represented in fig. 3, instead of on the outside, as in the original patent.

The advantages of this arrangement and construction are manifest: the tube is more flexible and perfect in its yielding to obstructions, by either horizontal or vertical motions, and it is more durable and less liable to clog.

What we claim as our improvement on the patent of November 6, 1866, and desire to secure by Letters Patent, are—

1. The tube, (fig. 1,) made with open coils, in the manner and for the purposes described.
2. The mode of connecting the tube to the socket on the inside, instead of the outside, in the manner substantially and for the purpose set forth.

SAMUEL K. LIGHTER,  
THOMAS HARDING,  
JOS. CURTIS.

Witnesses:

FRANK A. LIGHTER,  
JOSEPH B. CURTIS.