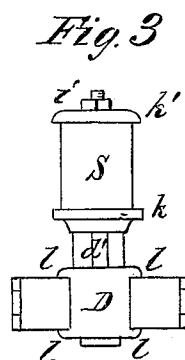
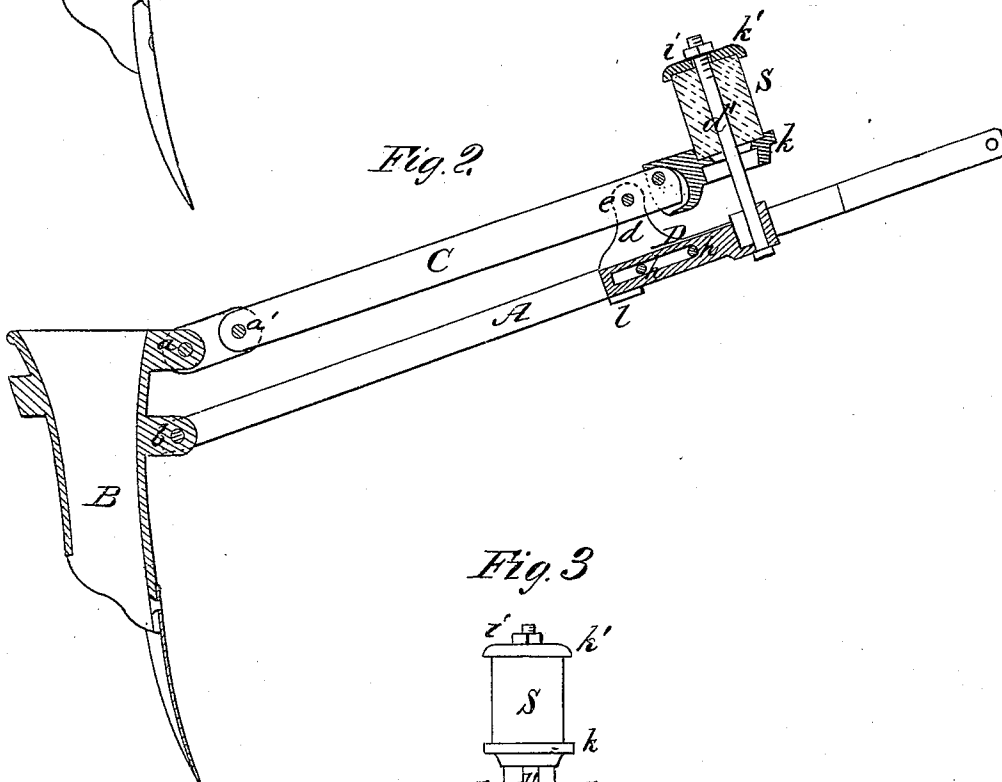
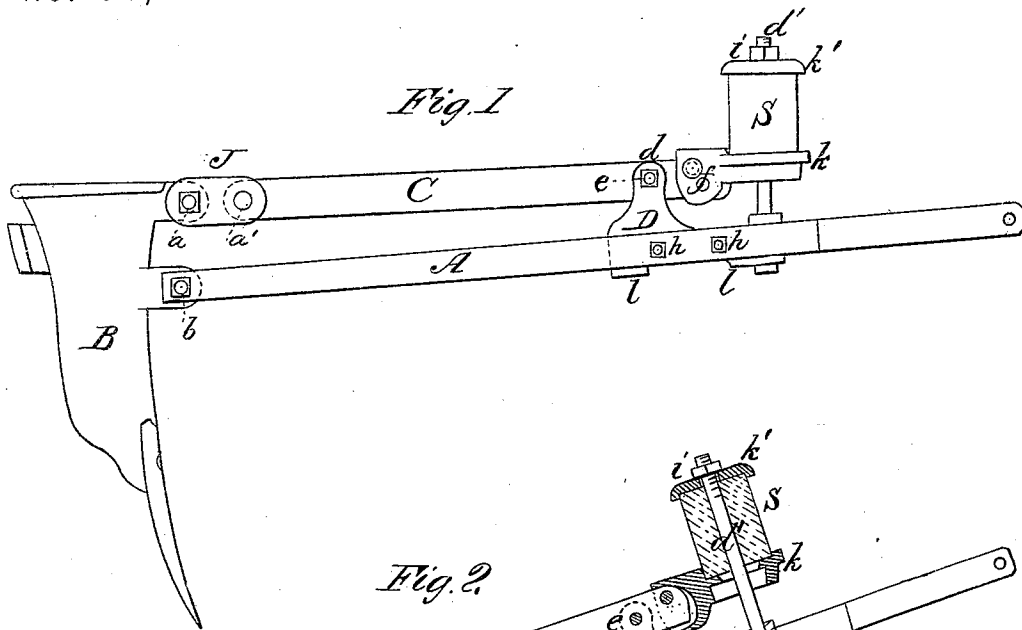


J. F. KELLER.
Drill-Tooth Attachments.

No. 150,328.

Patented April 28, 1874.



WITNESSES
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By

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UNITED STATES PATENT OFFICE.

JOHN F. KELLER, OF HAGERSTOWN, MARYLAND.

IMPROVEMENT IN DRILL-TOOTH ATTACHMENTS.

Specification forming part of Letters Patent No. **150,328**, dated April 28, 1874; application filed March 14, 1874.

To all whom it may concern:

Be it known that I, JOHN F. KELLER, of Hagerstown, in the county of Washington and State of Maryland, have invented a new and valuable Improvement in Drill-Teeth Attachments; and I 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, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a side view of my device; Fig. 2 is a sectional view of the same; and Fig. 3 is an end view.

This invention has relation to the attachment of seeding-machine drill-teeth to their drag-bars; and my object is to improve the device set forth in my Letters Patent No. 105,810, dated July 26, 1870, by constructing the fulcrum-bearer for the spring-bar, and also the spring-bearing for this bar, on a block which is longitudinally adjustable between the drag-bars carrying the drill-teeth, as will be hereinafter explained.

The following is a description of my invention:

In the annexed drawings, A designates the drag-bars, B the tubular drill-tooth or "boot," and C the spring-bar. The drag-bars are forked at their front ends in the usual manner, and they are connected at their rear ends to a lug, *b*, on the front of the tooth B, by means of a pivot-joint. Above the pivotal connection of the drag-bars A the rear end of the spring-bar C is connected to a lug, *a*, on the drill-tooth B, by means of links *C'*, which will allow the tooth B to give back should its point strike an obstruction which would be liable to break or derange the parts. The front portion of the spring-bar C is pivoted at *e* between ears *d*, which are formed on a block, D, and the front extremity of the bar C has rigidly secured to it a cup, *k*. S designates

an india-rubber block, which is seated upon the cup *k*, and confined in place thereon by means of a bolt, *d'*, having a T-head on its lower end. This bolt passes freely through the block D, through the cup *k* and its spring S, and also through a cap, *k'*, on the upper end of the spring, and receives on it a nut, *i*, by adjusting which the force of the spring can be increased or diminished. The block D is slotted longitudinally, and secured to the drag-bars A by means of bolts *h*, which are passed through said longitudinal slot. By loosening the nuts on the bolts *h* the block D can be adjusted longitudinally, and the drill-tooth set at any desired angle with respect to the drag-bars, according to the depth which it may be desired to run it. The block D is constructed with lugs *l* on its sides, which receive the drag-bars between them and greatly strengthen these bars, at the same time making them stiffer than they would otherwise be.

It will be seen from the above description that the spring S is applied to the same block on which the bar C has its fulcrum; consequently, when the block is adjusted to change the angle of the tooth B, the relative positions of the spring and fulcrum *e* will not be changed.

What I claim as new is—

1. The adjustable block D, in combination with spring-bar C, spring S, and drag-bars A, substantially as described.

2. The rod *d'*, loosely applied to the block D, and passed through the cup *k*, spring S, and cap *k'*, and provided with an adjusting-nut *i*, in combination with the spring-bar C having its bearing on said block, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOHN F. KELLER.

Witnesses:

GEORGE E. UPHAM,
PHIL. C. MASI.