

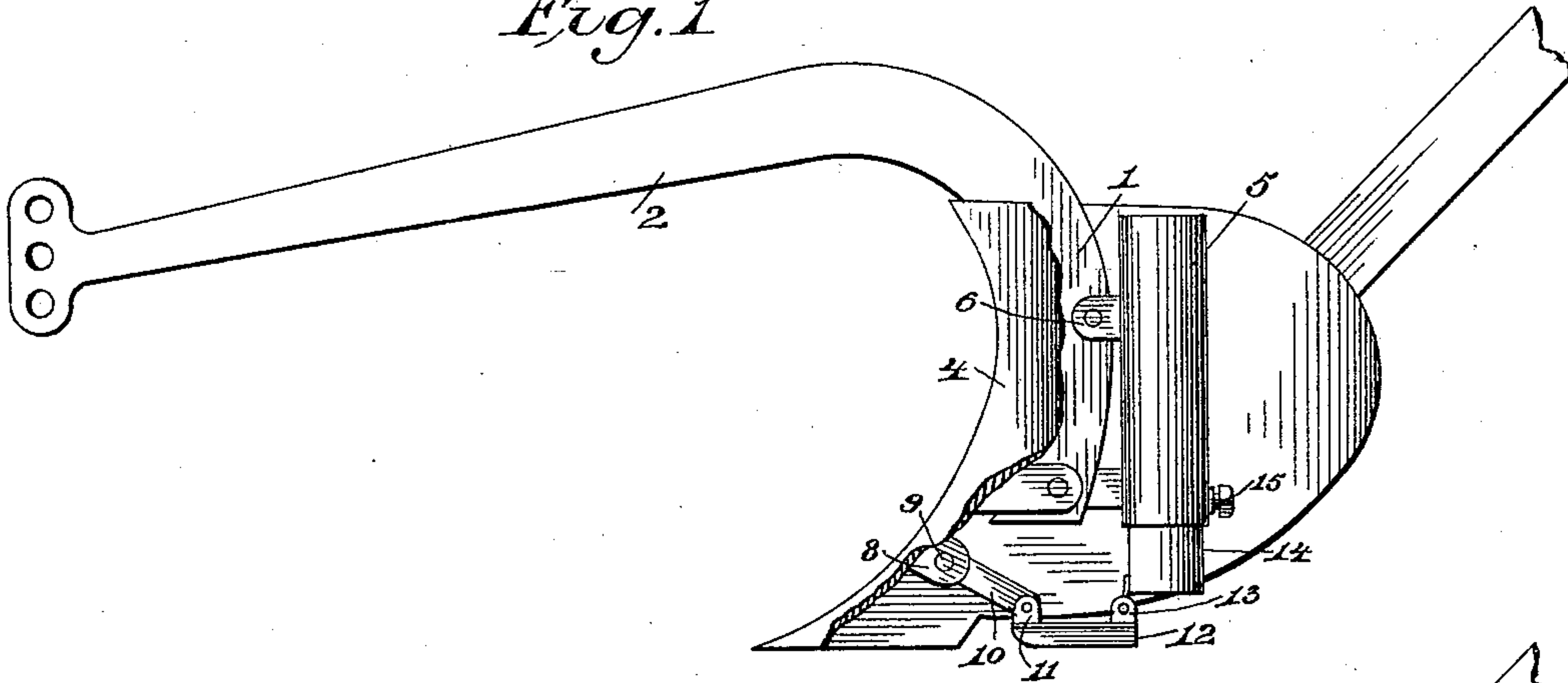
(No Model.)

W. A. LOUGHRY.  
COMBINED LISTER AND DRILL.

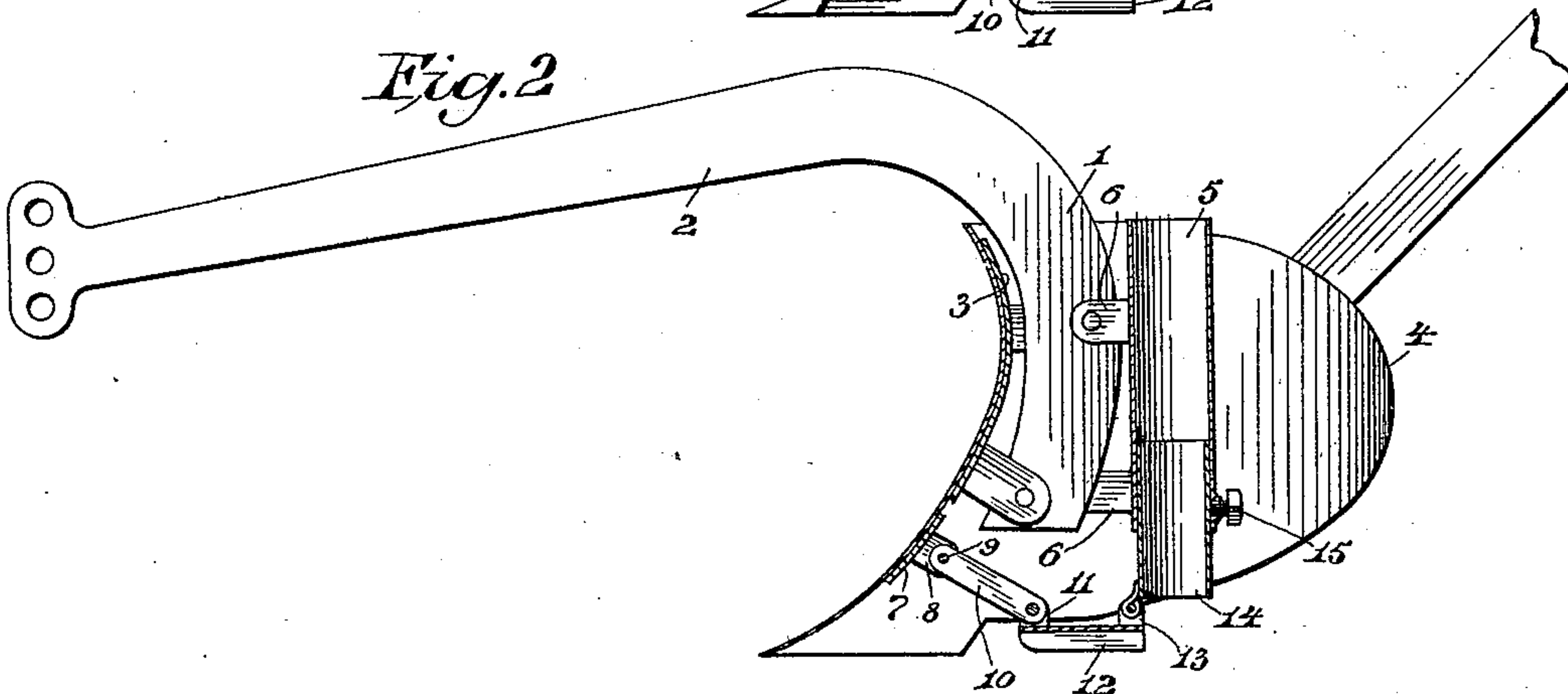
No. 461,353.

Patented Oct. 13, 1891.

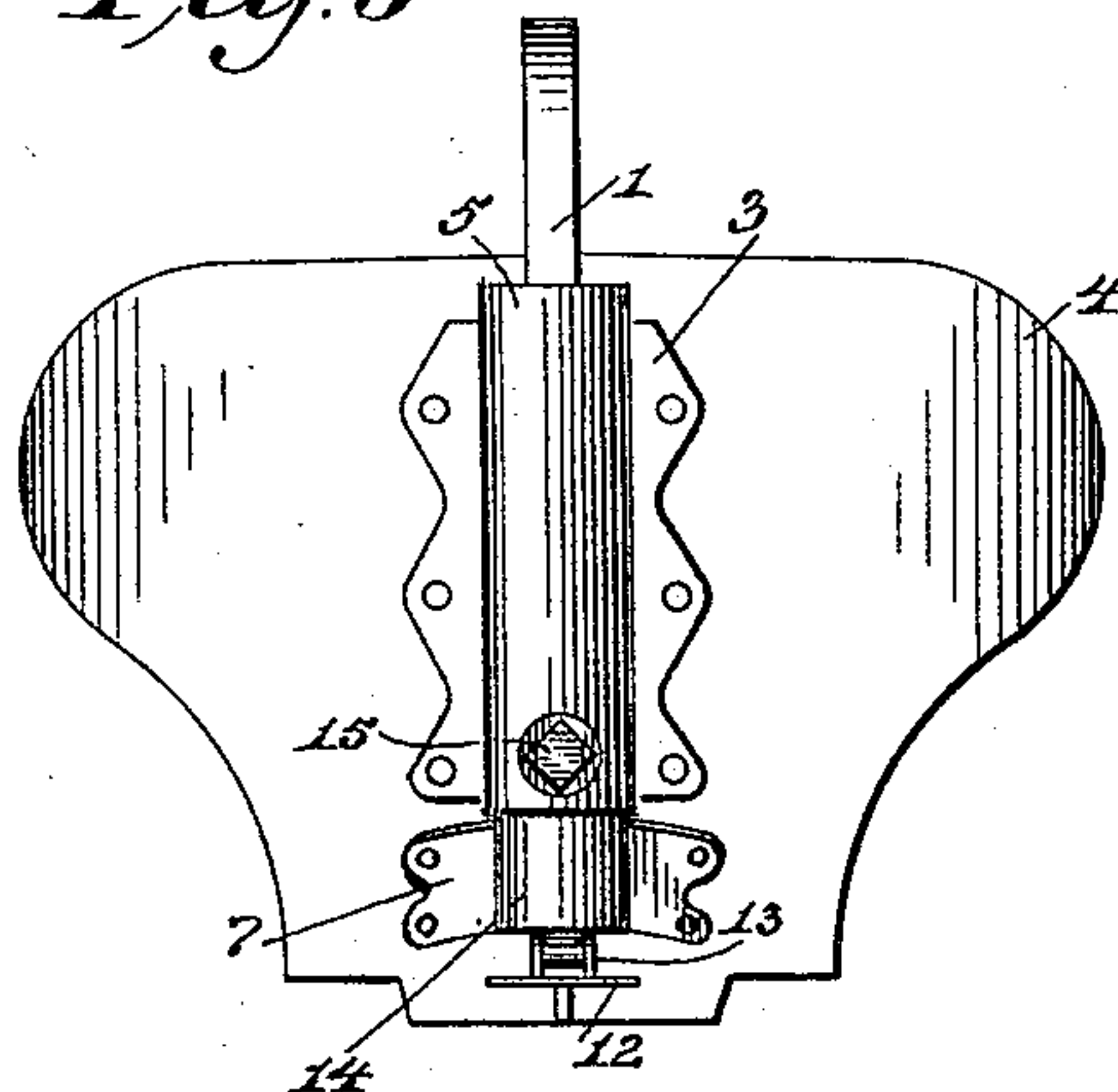
*Fig. 1*



*Fig. 2*



*Fig. 3*



Witnesses

*E. M. Gallaher*

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By his Attorneys,

*C. A. Snow & Co.*

Inventor

*Wm. A. Loughry*

# UNITED STATES PATENT OFFICE.

WILLIAM A. LOUGHRY, OF ODESSA, NEBRASKA.

## COMBINED LISTER AND DRILL.

SPECIFICATION forming part of Letters Patent No. 461,353, dated October 13, 1891.

Application filed December 5, 1890. Serial No. 373,673. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. LOUGHRY, a citizen of the United States, residing at Odessa, in the county of Buffalo and State of Nebraska, have invented a new and useful Combined Lister and Drill, of which the following is a specification.

This invention relates to combined listers and drills of that class in which a seed-tube is attached to the rear side of the standard of the beam carrying the plow and in which a runner is arranged in rear of the plow for the purpose of gaging the run of the latter.

The invention consists in the improved construction, arrangement, and combination of parts which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a side elevation of a plow to which my invention has been applied, part of the plow-blade having been broken away for the purpose of showing the construction more clearly. Fig. 2 is a longitudinal sectional view. Fig. 3 is a rear elevation.

Like numerals of reference indicate like parts in all the figures.

To the standard 1 of the plow-beam 2 is suitably attached the seat-plate 3, to which the plow-blade 4 is secured by means of bolts or in any other suitable manner.

5 designates the seed-tube, which may be provided with ears or brackets 6, by means of which it may be secured to the rear side of the plow-standard.

The seed-dropping mechanism to be used in connection with this device may be of any well-known construction, and has not been shown in the drawings hereto annexed.

To the rear side of the plow-blade, near the lower edge of the latter, is bolted or otherwise secured a plate 7, having a rearwardly-extending hinge-lug 8. Suitably connected to the latter by means of a pivotal bolt 9 is a link 10, the lower end of which is pivotally connected with a lug 11, extending upwardly from the front end of the runner 12. The rear end of the latter is provided with lugs 13, connected pivotally with the lower front end of a seed-tube 14, which slides and is vertically adjust-

able in the lower end of the seed-tube 5, where it may be held securely at any desired adjustment by means of a set-screw 15.

The operation of my invention is as follows: When, owing to wear of the plow-point or for any other reason, the plow is found to run too shallow, the set-screw 15 is loosened and the seed-tube 14 is lowered, thus lowering the heel of the runner 12 and throwing the point of the plow to the ground, where it may thus be caused to run at any desired depth. If, on the other hand, the plow is found to run too deep, the operation is simply reversed, the tube 14 being raised, so as to elevate the runner 12, and thus cause the point of the plow to be elevated. By tightening the set-screw 15 the tube 14 and the runner may be held securely at any desired adjustment.

It will be seen that by this invention the depth to which the plow shall be permitted to run in the ground is actually regulated by the runner. The important result hereby gained is that the runner is at all times caused to remain in the ground, thus steadying the plow.

In devices of this kind a gage-wheel, sometimes vertically adjustable, has frequently been used under the front end of the plow-beam for the purpose of regulating the depth to which the plow shall be permitted to run in the ground. Such a gage-wheel has been shown, for instance, in Patent No. 422,603, granted to myself on the 4th day of March, 1890. By my present invention this device is rendered useless and may be dispensed with.

My invention is susceptible of various modifications. Thus, for instance, the rear end of the runner might be connected directly to the tube 5 and the latter be made vertically adjustable upon the plow-standard. This modification, as is obvious, would involve only mechanical skill in its execution, and I reserve the right to this and to any other modification which may be resorted to without departing from the spirit of my invention.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, in a listing-plow, of a runner connected by a link with the rear side of the plow-blade, and a vertically-adjustable



seed-tube having its lower end hinged to the rear end of the runner, substantially as and for the purpose set forth.

2. The combination, in a listing-plow, of a link hinged to the under side of the plow-blade, near the lower end of the latter, a runner having its front end hinged to the lower end of said link, a vertically-adjustable seed-tube having its lower end hinged to the rear end of the runner, and means for retaining the seed-tube at any desired adjustment, substantially as and for the purpose set forth.

3. The combination, in a listing-plow, of a hinged link, a vertically-adjustable seed-tube, and a runner connected with the lower ends of said link and seed-tube by means of hinge-joints, substantially as set forth.

4. The combination, in a listing-plow, of a tube attached to the rear side of the plow-standard, a seed-tube vertically adjustable in said tube, a set-screw to retain said seed-tube in

position, a link hinged to the rear side of the plow-beam, near the lower end of the latter, and the runner connected by means of hinge-joints to the lower ends of the link and of the vertically-adjustable seed-tube, substantially as and for the purpose set forth.

5. The combination, in a listing-plow, of a vertically-adjustable seed-tube, a runner hinged to the lower end of the latter, and means for supporting the front end of said runner, substantially as and for the purpose set forth.

6. The combination of the plow, the runner hinged thereto, and the seed-tube hinged to the runner, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM A. LOUGHRY.

Witnesses:

C. B. SCOTT,

FRED A. NYE.