

(No Model.)

2 Sheets—Sheet 1.

F. STEINKE & G. PROPST.
GRAIN DRILL.

No. 465,220.

Patented Dec. 15, 1891.

Fig. 1.

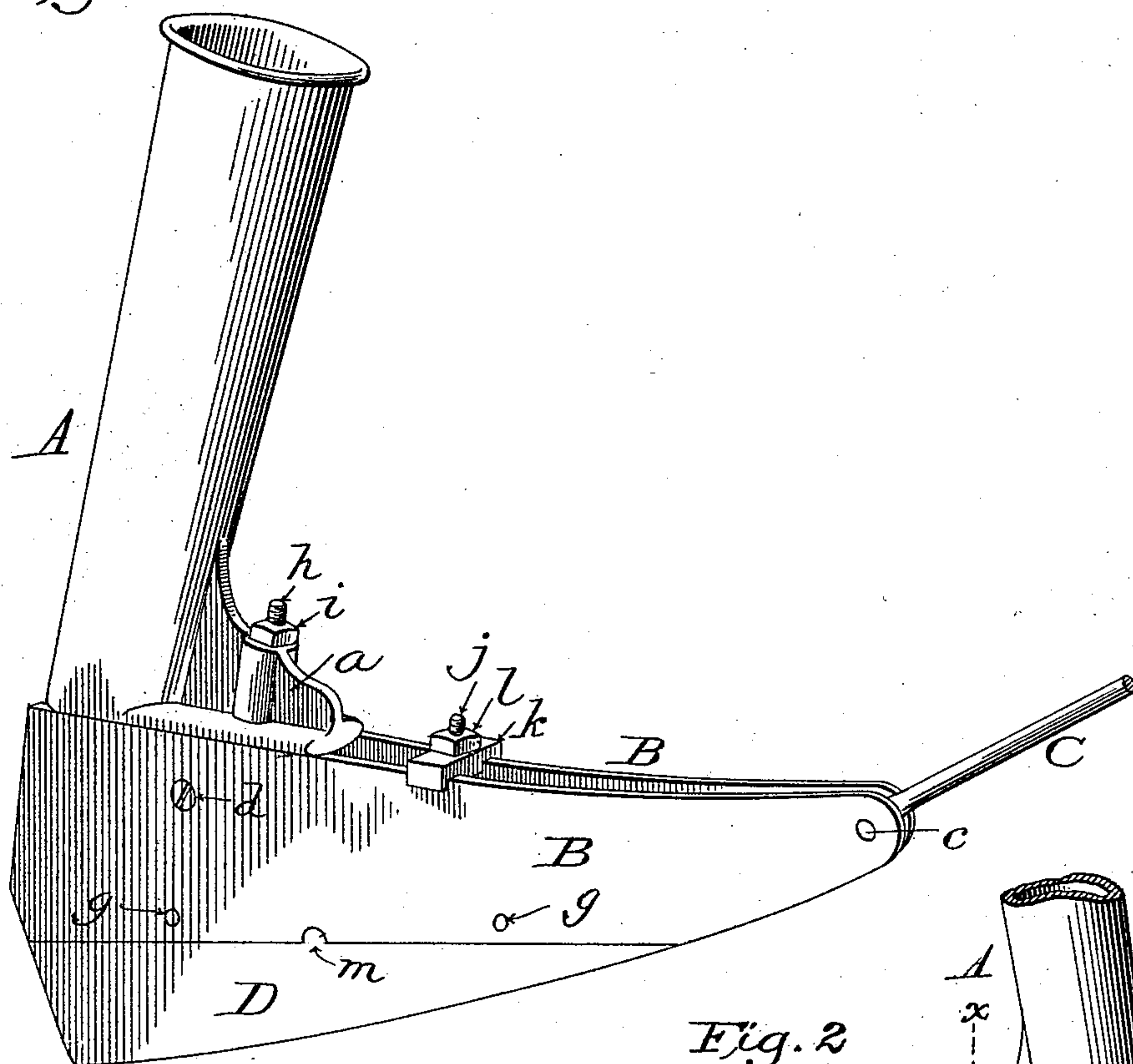


Fig. 3.

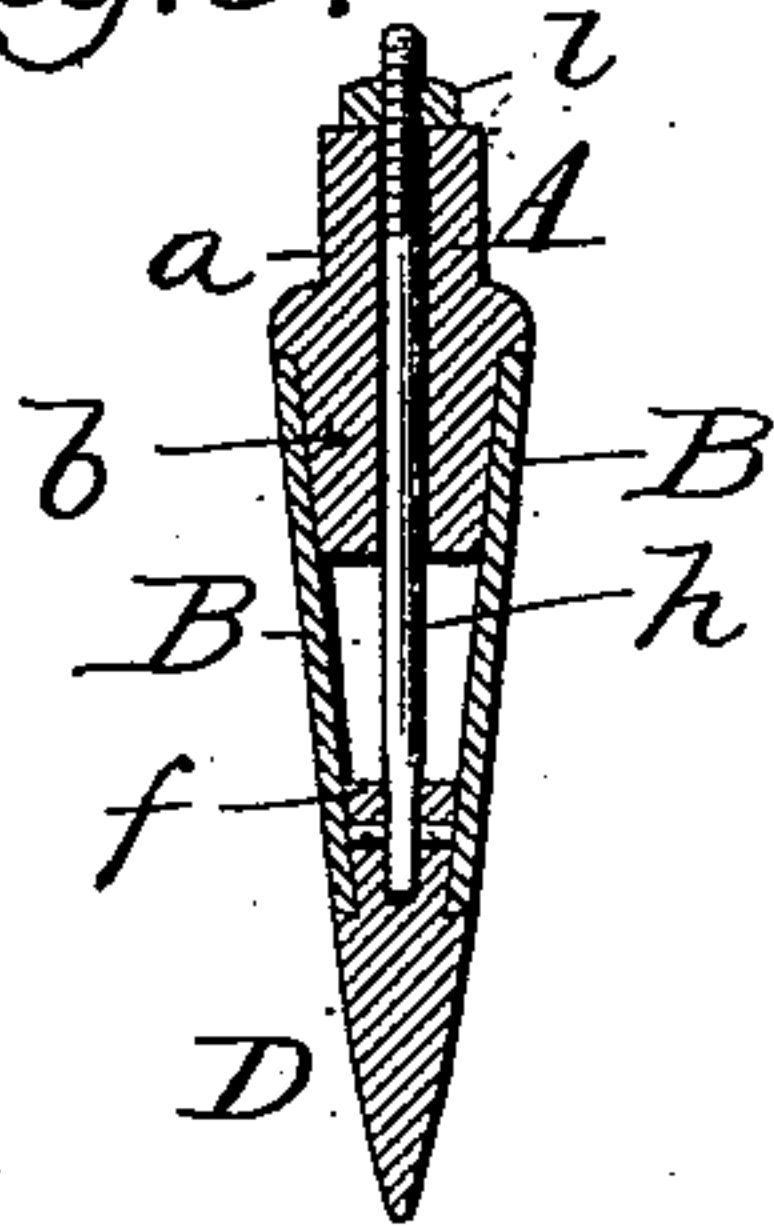
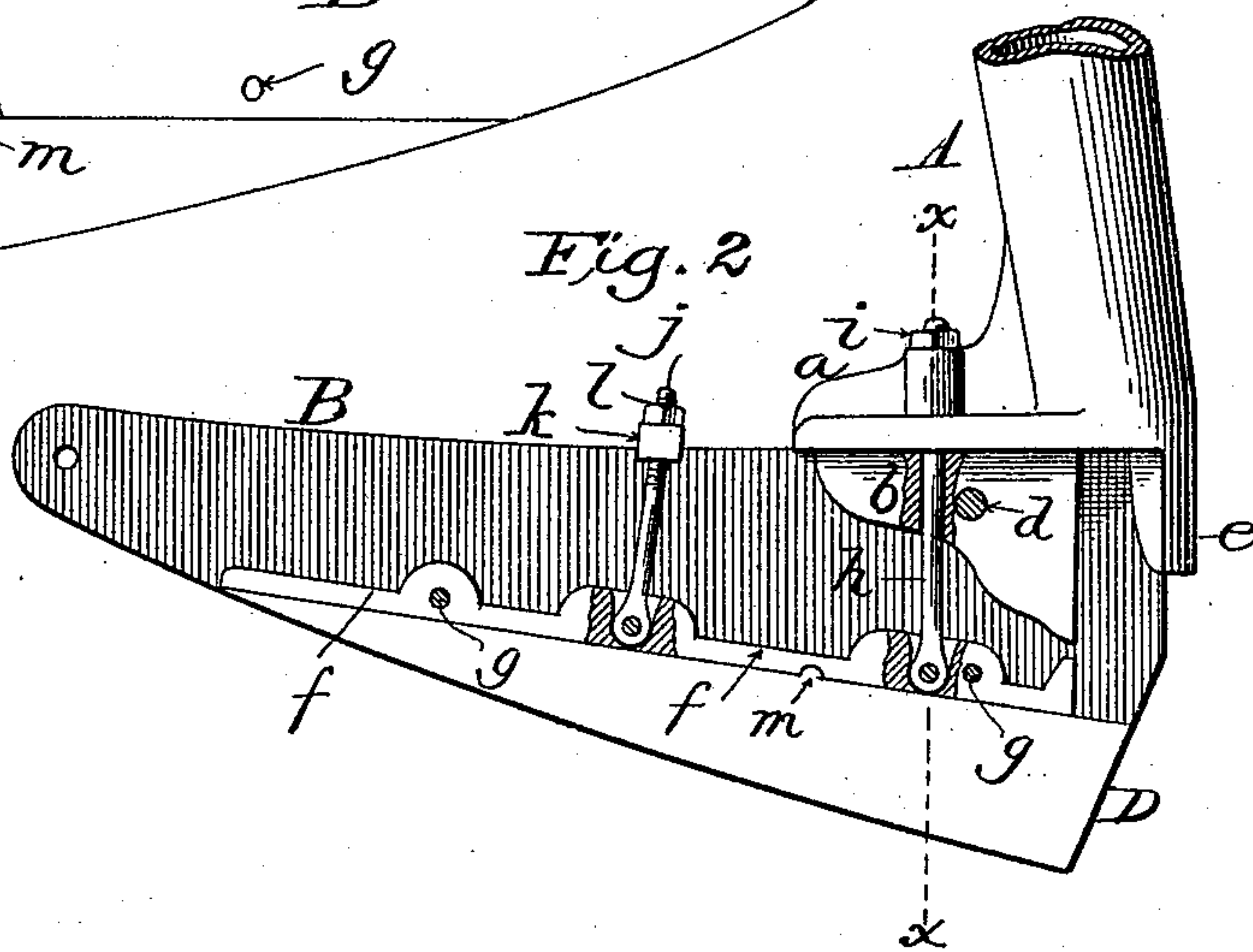


Fig. 2



FERDINAND STEINKE,
GEORGE PROPST,
Inventors.

Witness:

James F. Duhamel
Ernest A. Dodge

By *Dodger Sons,*
Attys.

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Fig. 4.

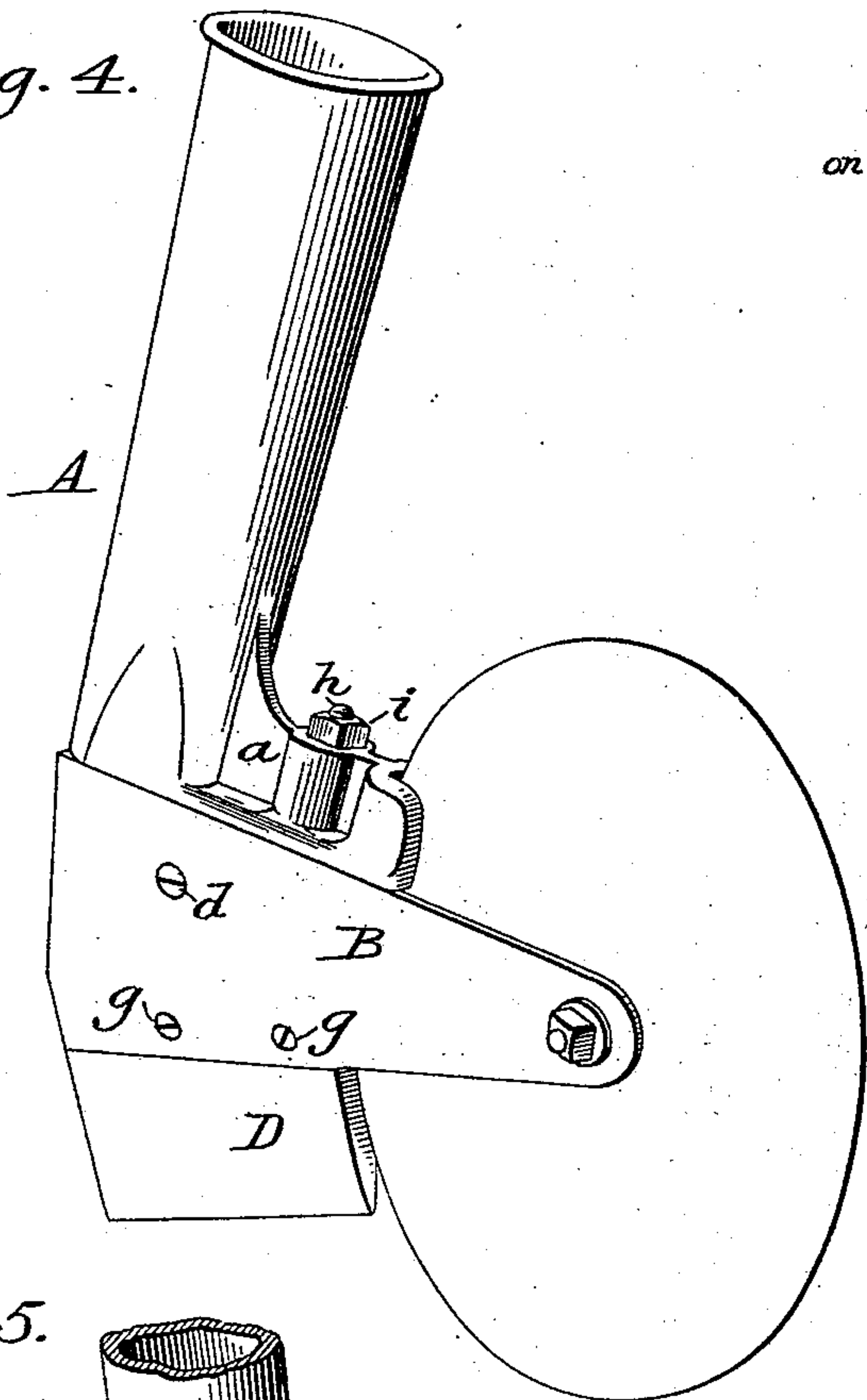


Fig. 7.

on x-x Fig. 6.

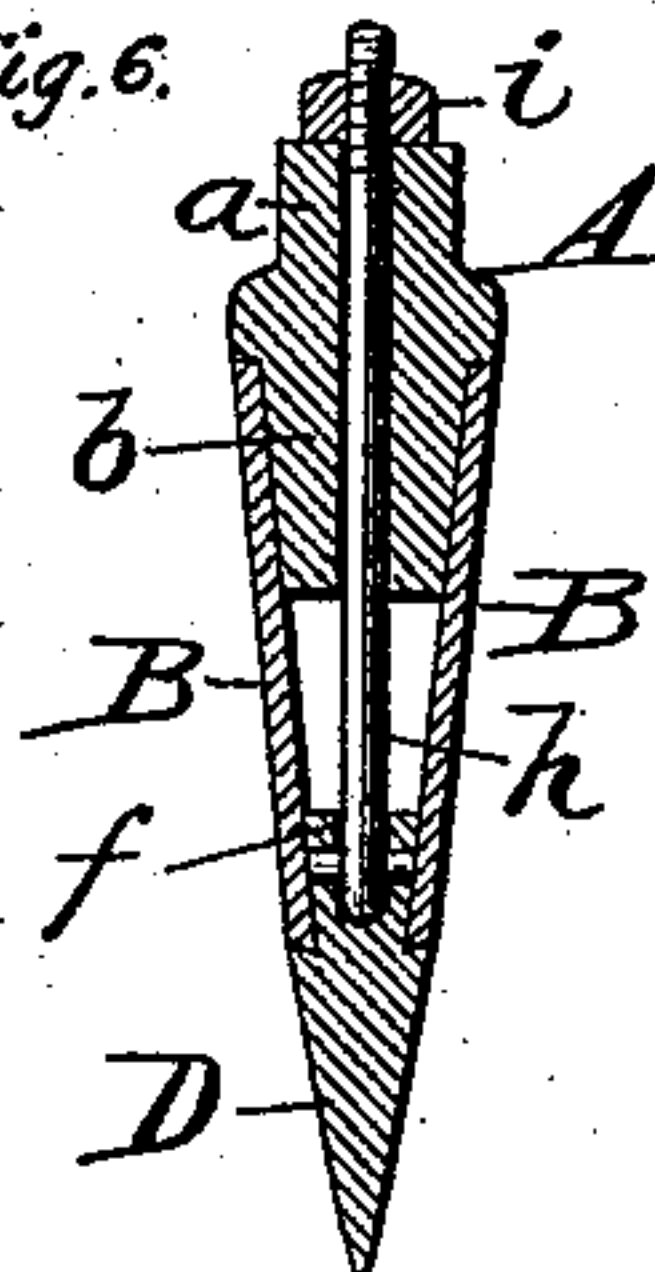


Fig. 5.

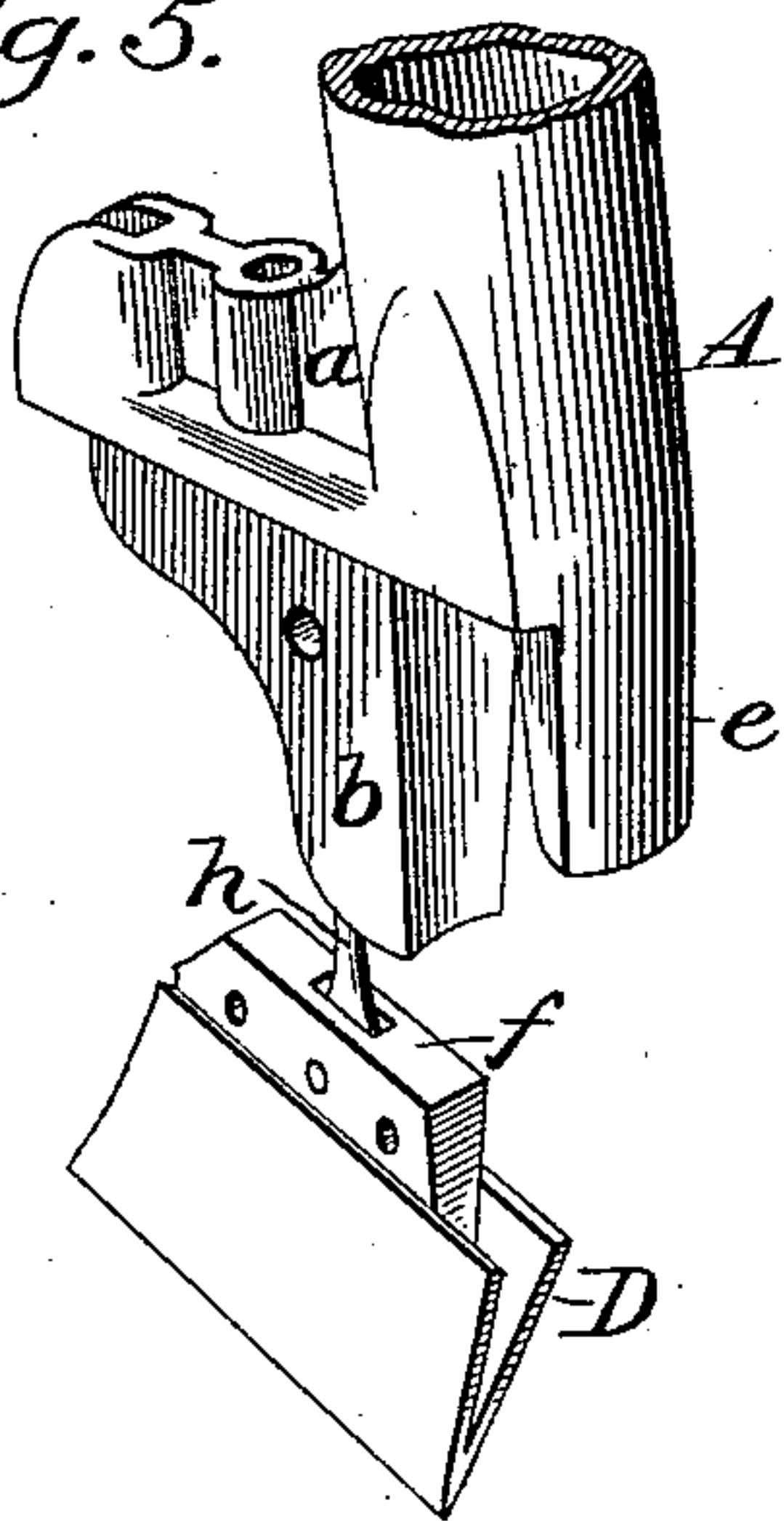
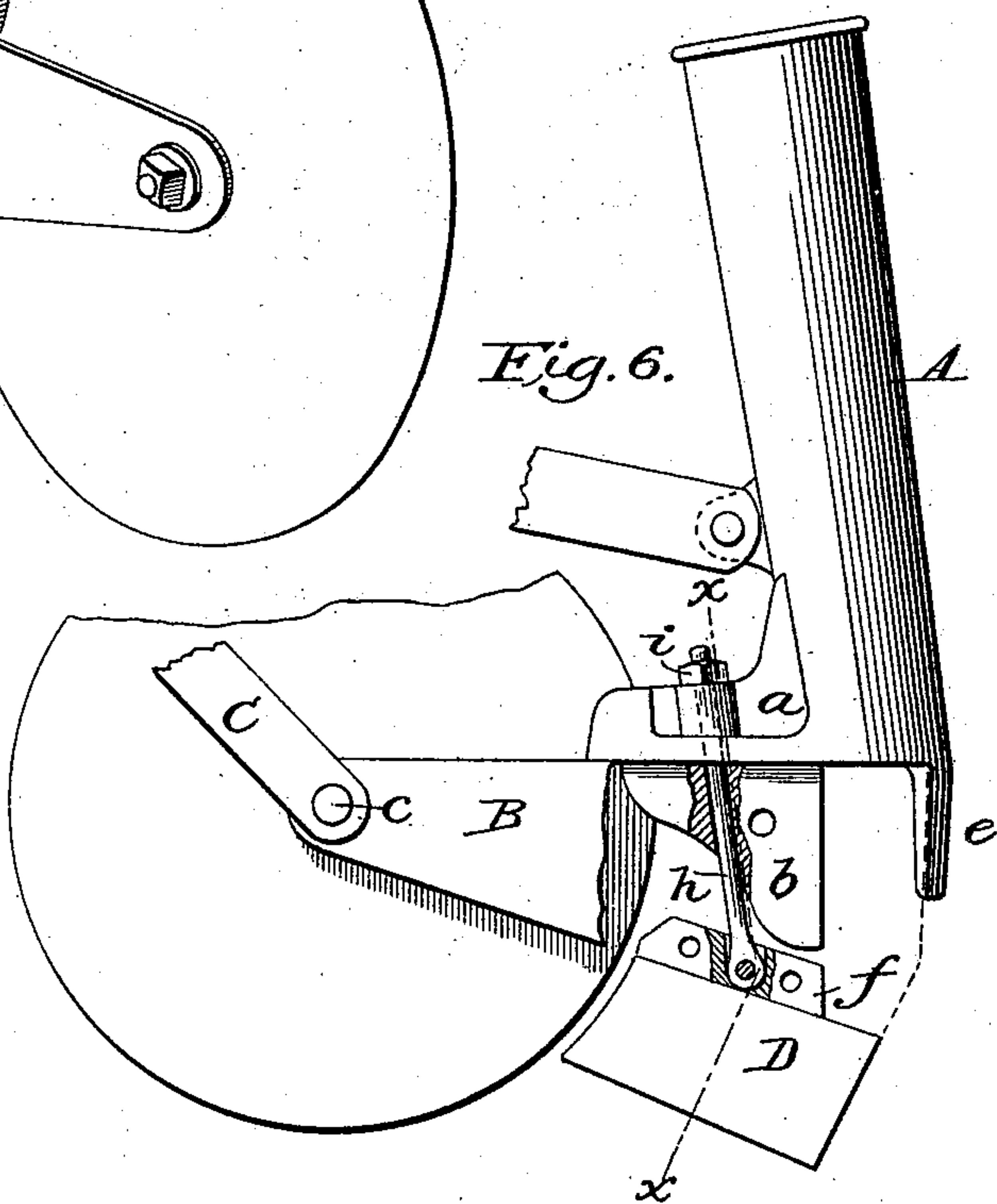


Fig. 6.



Witness:

James F. Duhamel
Horace A. Dodge.

FERDINAND STEINKE,
GEORGE PROPST,
Inventors

by Wodges Sons
Attys.

UNITED STATES PATENT OFFICE.

FERDINAND STEINKE AND GEORGE PROPST, OF HORICON, WISCONSIN.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 465,220, dated December 15, 1891.

Application filed September 28, 1891. Serial No. 407,038. (No model.)

To all whom it may concern:

Be it known that we, FERDINAND STEINKE and GEORGE PROPST, citizens of the United States, residing at Horicon, in the county of Dodge and State of Wisconsin, have invented certain new and useful Improvements in Grain-Drills, of which the following is a specification.

Our invention relates to grain-drills; and it consists in a novel construction of the shoe or furrow-opener.

In the drawings, Figure 1 is a perspective view of our improved shoe; Fig. 2, a side view with one of the side plates removed; Fig. 3, a vertical transverse sectional view on the line *x x* of Fig. 2; and Figs. 4, 5, 6, and 7 show the invention applied to a furrow-opener having the ordinary cutting-disk.

A indicates the feed-spout, having on its front face a forwardly-projecting arm *a*, which latter is in turn provided with a downwardly-projecting lug *b*, as shown in Figs. 2 and 3.

B B indicate two plates connected at their forward ends by a bolt *c*, by preference the same bolt which secures the draw-bar or brace-bar C. At their rear ends these plates are held apart by the lug *b*, as shown in Fig. 3, which they firmly embrace and to which they are rigidly united by means of a bolt, screw, or rivet *d*, extending transversely through the lug and plates, as shown in Figs. 1 and 2. Upon reference to Fig. 2 it will also be observed that the rear end *e* of the spout A projects downward between the rear ends of the plates B B, thereby forming a short extension of the spout and assisting in the bracing of the parts.

D indicates a toe or wedge which fits between the lower edges of the plates, the said wedge being V-shaped in cross-section, as shown in Fig. 3. This toe or wedge is provided along its upper edge with a lug, rib, or flange *f*, or it may be merely a series of short lugs, which serve as a spacing-block for the plates B B, which embrace it upon opposite faces, and to which it is secured by bolts, rivets, or screws *g g*, which, as shown in Figs. 1 and 2, pass transversely through the plates and the interposed lug of the toe. In order to further secure the toe or wedge in place, we provide a bolt *h*, secured in any suitable

manner at its lower end to the lug or flange *f* and projecting upward through the arm *a* and lug *b*, where it is provided with a nut *i*, as shown in Figs. 1, 2, and 3. In advance of this bolt *h* is a second bolt *j*, secured at its lower end to the toe or wedge and extending upward above the plates, where it passes through or is provided with a cap or block K, fitting upon the upper edges of the plates and held in place thereon by means of a nut *l*, as shown in Figs. 1 and 2.

To relieve the bolts, screws, or rivets *g g* of the strain to which they would be subjected by the dragging of the shoe through the ground, we form on the toe or wedge a transverse lug or projection *m*, which, engaging a corresponding seat in the lower edge of the plates, prevents any longitudinal movement of the toe relatively to the plates and takes up the strain that would otherwise come upon the rivets *g*. This arrangement may, but not with such good results, be reversed—that is to say, the lug or projection may be formed on the plates and the socket on the toe or wedge.

Upon reference to Figs. 4 to 7, it will be seen that the invention can without material change be applied to those shoes or furrow-openers employing a rotatable disk to run in advance of the toe or wedge. Owing to the presence of the disk, which is journaled between the forward ends of the plates, the toe or wedge is made much shorter than under the prior arrangement. This shortening of the toe or wedge enables us to dispense with the transverse lug *m* and the bolt *j*, with its cap and nut; but otherwise the construction and arrangement correspond with that previously described and shown.

From the foregoing description it will be seen that the toe or wedge may be readily removed for sharpening, &c., and that any of the parts may be cheaply and readily replaced when broken.

Having thus described our invention, what we claim is—

1. In combination with spout A, having arm *a* and lug *b*, the plates B B, embracing the lug and secured thereto, and the toe or wedge secured to the plates.
2. In combination with spout A, having

arm *a* and lug *b*, the wedge or toe having lug or flange *f*, the plates embracing the lugs *b* and *f*, and fastenings for uniting the parts.

3. In combination with spout A, having
5 arm *a* and lug *b*, the plates B B, the toe or wedge D, and the bolt *h*, secured at its lower end to the toe or wedge and passing up through the lug and arm.

4. In combination with spout A, having a
10 spacing lug *b* and rear downward extension *e*, a toe or wedge D, and the side plates B B.

5. In combination with a spout A and plates B B, the toe or wedge D, having a transverse
15 lug *m* to engage the plates and relieve the fastening devices of undue strain.

6. In a shoe for drills, &c., the combination,

with a spout, of plates embracing the side faces thereof, a toe or wedge projecting up between the plates at their lower edges, and suitable fastening devices for uniting the 20 parts.

7. In combination with spout A, toe or wedge D, and side plates B B, the bolt *j*, having cap *k* and nut *l*, the bolt *h*, provided with
25 nut *i*, and the fastenings *d* and *g*.

In witness whereof we hereunto set our hands in the presence of two witnesses.

FERDINAND STEINKE.
GEORGE PROPST.

Witnesses:

J. ED. SAWYER,
ROBERT GRASKOPF.