

No. 694,225.

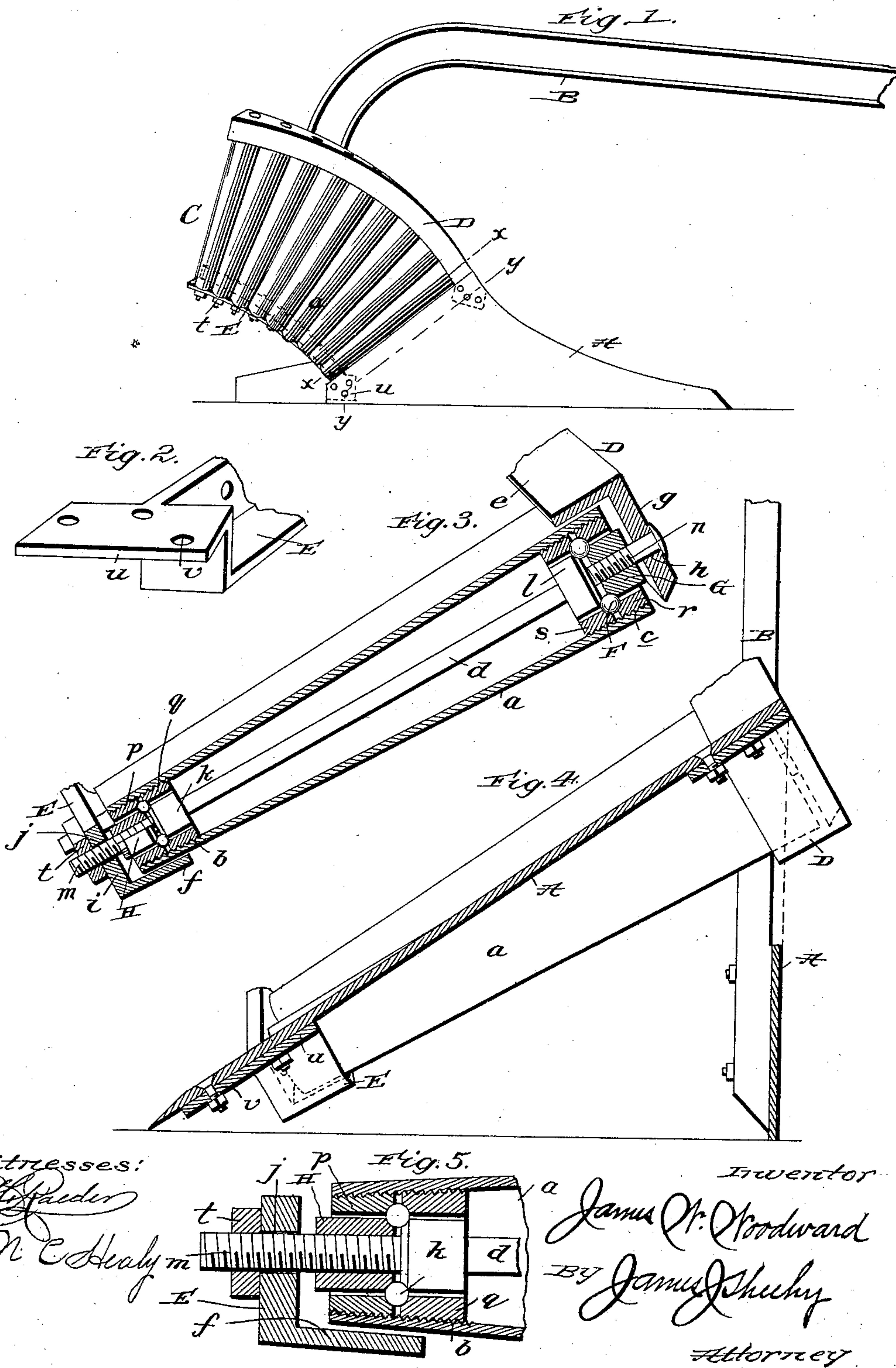
Patented Feb. 25, 1902.

J. W. WOODWARD.

PLOW.

(Application filed Nov. 8, 1901.)

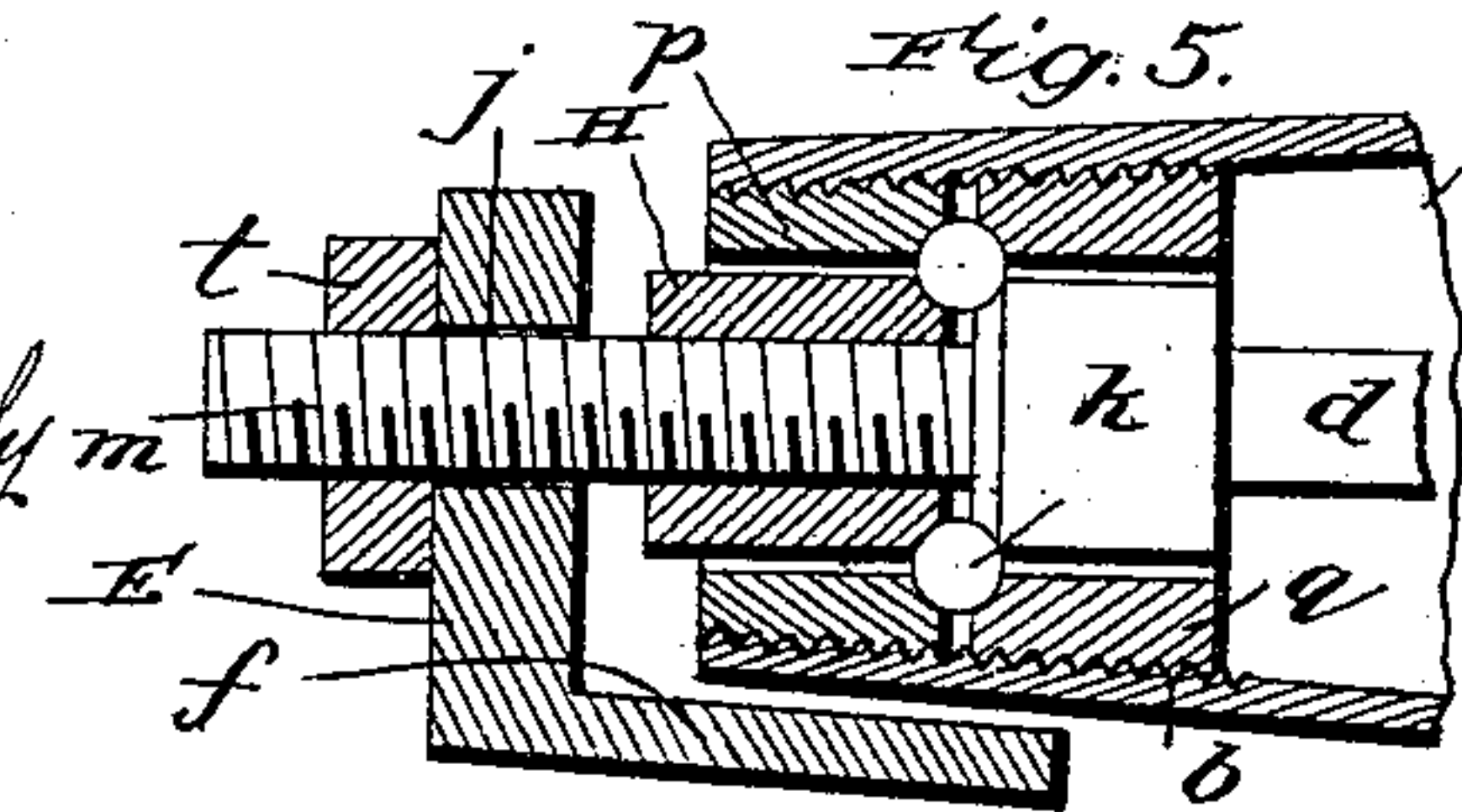
(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES WILLIAM WOODWARD, OF LEWISTON, IDAHO, ASSIGNOR OF ONE-HALF TO JAMES A. BAILEY, OF LEWISTON, IDAHO.

PLOW.

SPECIFICATION forming part of Letters Patent No. 694,225, dated February 25, 1902.

Application filed November 8, 1901. Serial No. 81,587. (No model.)

To all whom it may concern:

Be it known that I, JAMES WILLIAM WOODWARD, a citizen of the United States, residing at Lewiston, in the county of Nez Perces and State of Idaho, have invented new and useful Improvements in Plows, of which the following is a specification.

This invention relates to improvements in that class of plows in which the moldboards are provided with rollers for the purpose of lessening the draft and preventing the moldboards from coming in contact with the plowed earth.

The novelty and advantages of the invention will appear from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1 is a side view of a plow with my improvements applied. Fig. 2 is a perspective view of a part of one of the roller-supporting bars. Fig. 3 is a sectional view taken in the plane indicated by the dotted line $x x$ on Fig. 1. Fig. 4 is a view taken in the plane indicated by the dotted line $y y$ on same figure, and Fig. 5 is an enlarged sectional detail view.

Referring by letter to said drawings, A indicates the share, and B the beam, of a plow, which may be of the form and construction usually employed.

C indicates my improved moldboard, which is made up of a series of conical rollers, which are disposed in a curvilinear manner or approximately in the shape of a fan and taper from their upper ends downwardly. These rollers, as better shown in Fig. 3 of the drawings, comprise a conical shell a , screw-tapped at each end, as shown at b and c , a central rod d , and roller-bearings at each end of the shell.

D indicates an upper bar, and E a lower bar, each of which is bent or shaped so as to conform in outline to the curvature or configuration of the upper and lower edges of a moldboard. Of course the shape may be varied according to the fancy of the mechanic, as the improvements are adapted for use on any and all plows and also on cultivators. The bars D and E are of angle-iron, and the upper bar has a flange e , which overlaps the upper ends of the rollers, and the lower bar

E has a flange f , which underlaps the other or reduced ends of the rollers, so as to exclude earth and the like from the bearings. The upper bar has a depending flange g , which is provided with a suitable number of holes h , through which the rods d extend and are secured thereto by heading or otherwise. The other bar E has a flange i , which is also provided with holes or apertures j to receive the opposite ends of the rods d , so that the rods, and consequently the rollers carried thereby, are sustained in these two bars, so that they may be allowed to rotate. Each rod is provided with integral or fixed collars k and l . The collar k is provided at a suitable distance from the lower end of the rod and is of a less diameter than the collar l , which is fixed or formed on the rod at a suitable distance from the upper or opposite end. The rollers are each provided with a set of bearing-rings at their ends, and the rods are threaded at each end, as shown at m and n . The rings at the lower or reduced end of each roller are indicated by p and q , while the rings at the upper or larger end are shown at r and s , and these respective rings are turned into the threads at the ends of the rollers.

F indicates balls, which are held in proper position by means of a nut G at the upper end of the rod and a nut H at the lower end thereof.

In assembling the parts of the rollers the threaded rings should be first placed in the shells a , after which the rod should be inserted from the large end, and when the balls are placed in position the nuts G and H may be turned on the threaded parts of the rod until the desired adjustment has been attained. In this position the rods will be prevented from moving in either direction within the tubes or rollers and said rollers will be allowed to revolve freely on the ball-bearings. The upper ends of the rods should then be passed through the apertures in the bar D and secured thereto, while the opposite or lower ends of said rods may be secured by means of nuts t , so as to permit them to be readily removed. In order to get access to the nuts G and H, a sufficient space may be left between the ends of the rollers and the bars D and E to permit the introduction of

a spanner or other implement to grasp and turn the nuts. While the bars carrying these tapering rollers may be secured to the share or other part of a plow by any suitable means, yet a convenient way of making the connection would be to provide each bar at its forward end with a transverse flange *u*, so as to bear on the share and pierce the same, as at *v*, so as to register with holes in the share, and pass bolts through the same and turn nuts on the ends of the bolts.

While I have shown the rollers with a smooth external surface, yet in some cases the rollers may be corrugated, and when corrugated they will serve more effectively in breaking up the earth as it passes from the share to the moldboard.

Having thus described my invention, what I claim is—

20 1. In a plow or the like, a moldboard comprising upper and lower supports, rollers interposed and mounted between the supports and having hollow ends arranged adjacent to the supports and protected thereby, and anti-

friction-bearings disposed in said hollow ends of the rollers. 25

2. The combination with a plow; of the rollers screw-tapped at opposite ends, the rods shouldered near opposite ends, the bearing-rings arranged in each end of the rollers, the nuts and balls interposed between the nuts, rings and shoulders, and suitable supports for the rods, substantially as specified. 30

3. The combination with a plowshare; of the angle-bars *D* and *E*, the hollow rollers containing ball-bearings at their opposite ends and protected on the upper side at their upper ends by a flange of one angle-bar and protected at their lower ends and on their undersides by a flange of the other angle-bar, substantially as specified. 35 40

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES WILLIAM WOODWARD.

Witnesses:

JOHN B. ANDERSON,
JAMES A. BAILEY.