

C. & S. J. ADAMS.  
Plow-Colter.

No. 214,864.

Patented April 29, 1879.

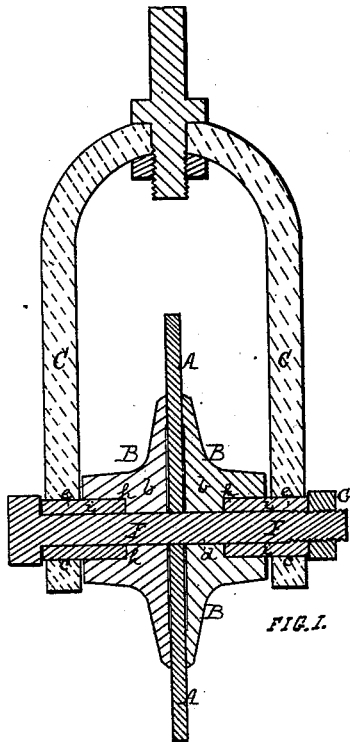


FIG. 1.

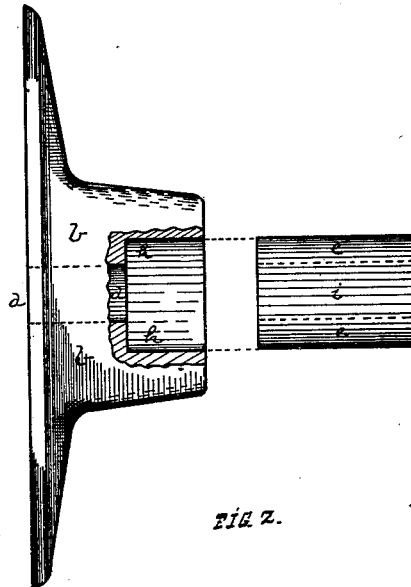


FIG. 2.

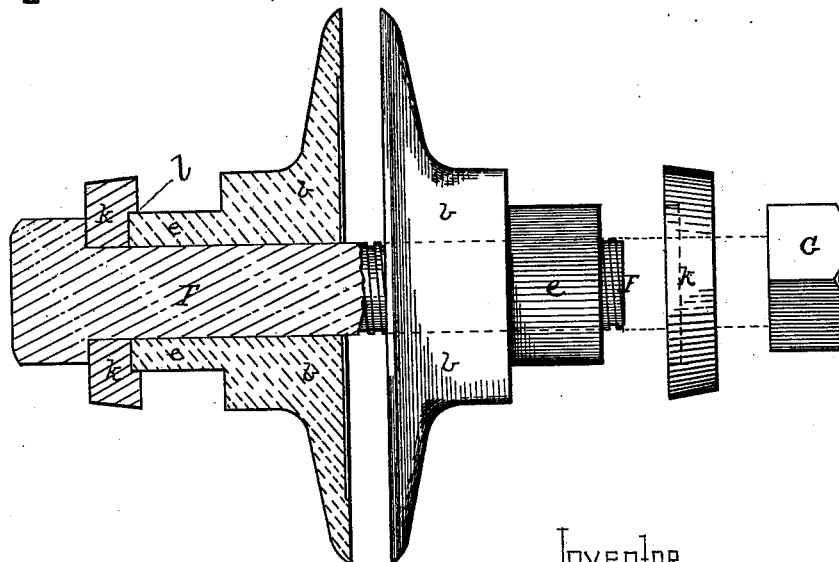


FIG. 3.

Witness:  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN PLOW-COLTERS.

Specification forming part of Letters Patent No. **214,864**, dated April 29, 1879; application filed  
June 20, 1878.

*To all whom it may concern:*

Be it known that we, CALVIN ADAMS and S. JARVIS ADAMS, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Hubs for Plow-Colters; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional view of our improved hub. Fig. 2 is a side view, partly broken away, of one-half the hub; and Fig. 3 is a side view, partly in section, of another form of our invention.

Like letters of reference indicate like parts in each.

Our invention relates to the hubs for mounting the revolving colters for plows within the yoke in front of the plow. These colters are formed of a circular piece of sheet-steel with the periphery ground to a sharp edge, which cuts the sod or earth in front of the plowshare, and thus enables the plow to force its way through loamy soil and turn the furrow more easily.

Heretofore different constructions of hubs have been used for this purpose, in all of which it was necessary to employ devices for clamping or fastening the blade between the parts of the hub, and separate means for attaching the hub with its blade in the colter-yoke. These constructions have all been objectionable, because of the difficulty of fastening them securely, and the wear caused by the revolution of the hub all came upon the axle-bolt, which was liable to wear through and break off; also, in some cases, because of their complication and cost of manufacture, and that the hub did not clamp the blade around its entire surface, and was liable to break.

By our invention all the objections to the colter-hubs as formerly made are remedied and done away with.

It consists in a colter-hub composed of two parts or disks provided on the outer sides with annular recesses, in which removable bearings or thimbles fit, said bearings being adapted to extend entirely through the yoke-journals and clamp the hub against the blade by means of

a nut and bolt pressing against the removable bearings.

To enable others skilled in the art to make and use our invention, we will describe its construction and operation.

In the drawings referred to, A represents the colter-blade; B, the hub, and C the yoke. The hub B is formed in two parts or halves, *b b*, the inner faces of which clasp the colter-blade A. The colter-blade is provided with the central opening, and the half-hubs *b b* with the bolt-holes *d* through the centers thereof for the passage of the bolt F.

In the half-hubs are formed the annular recesses *h h* around the bolt-holes *d*. The bearings *e* of the hubs are formed in the shape of thimbles *i*, which fit into the annular recesses *h*, and extend through the journals *c* in the yoke C.

The bolt F passes through the blade A and through the half-hubs with their bearings or extensions, and clamps the half-hubs upon the blade by means of the nut G, which screws it up, the head of the bolt pressing against one of the bearings *e*, and the nut against the other. By screwing up the nut it forces the half-hubs against the blade, and enables them to clasp it entirely around their inner faces, and thus gain a strong hold thereon. As the bearings *e* extend slightly beyond the yoke, and the nut and bolt are not screwed against the yoke, the colter and hub will revolve freely within the yoke, carrying the bolt and nut with them.

Where the bearings *e* are large it may, in some cases, be desirable to use the washers *k* at the ends of the bearings, to enable a small headed bolt to confine the hub within the yoke; but this is not always necessary, as the hub cannot escape when the yoke is firm.

Upon the inner faces of each of the washers *k* is formed the annular or cylindrical depression *l*, in which the ends of the cylindrical bearings fit after passing through the yoke, and so retain the washers in their proper relative positions to the bearings. When the washers are used a bolt having a head smaller than the diameter of the bearings pressing against the washers is sufficient to fasten the hub.

The manner of attaching our improved hub is as follows: The half-hubs are placed between the yoke and the sockets passed through the journals *c* into the annular recesses *h* in the half-hubs, thus forming the bearings of the hub. The blade is then passed between the half-hubs, the axle-bolt passed through the hub and blade, the nut screwed up on the bolt, and, by pressing against the bearings *e*, it clamps the hub upon the blade and rigidly secures it therein.

When it is desired to remove the blade for grinding or sharpening, it is only necessary to withdraw the bolt, when the blade will drop from between the half-hubs, the half-hubs remaining in place in the yoke. The bolt and nut revolve with the hub, and the entire wear by the revolution of the colter will come upon the bearings *e*, so that a bolt of smaller than the usual diameter may be used.

The thimbles or sockets *i* may either be made of wrought-iron, cast-iron, case-hardened iron, or steel, the substance which will wear longest being the most desirable.

When the thimbles or sockets become worn they may be reversed, so as to wear the ends fitting in the recesses *h*, or removed and replaced at a very slight cost.

Among the advantages of our improved hub are, the one bolt heretofore employed only for attaching the hub to the yoke serves also to clamp

the hub upon the blade, thus dispensing with the devices generally employed for that purpose. A smaller and cheaper bolt can be used. As no screw-thread is cut on the cast metal it may be formed of very hard metal, thus enabling it to wear longer. The hub binds the blade entirely around its circumference, and secures a firm hold on it. A square shoulder is provided against which to screw the nut, thus fastening it more securely. The hub may be made light, and has no projections on its surface, upon which the soil, &c., may catch.

What we claim as our invention, and desire to secure by Letters Patent, is—

The combination of the colter-hub *B*, composed of the two disks *b b*, having the annular recesses *h h* formed therein, and the removable bearings *i*, fitting into said recesses, and adapted to extend entirely through the yoke-journals, and to clamp the hub upon the blade, and be secured within the yoke by means of the bolt and nut pressing against the removable bearings, substantially as described.

In testimony whereof we, the said CALVIN ADAMS and S. JARVIS ADAMS, have hereunto set our hands.

CALVIN ADAMS.  
S. JARVIS ADAMS.

Witnesses:

THEO. F. AUSHUTZ,  
JAMES I. KAY.