

S. J. ADAMS.
Hub for Plow-Colters.

No. 214,229

Patented April 15, 1879.

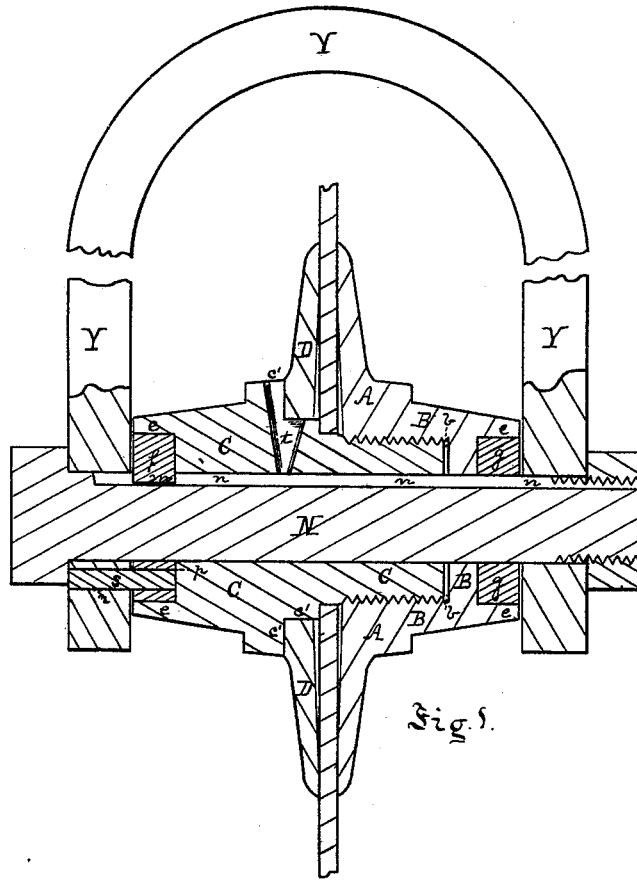


Fig. 1.

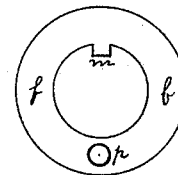


Fig. 2.

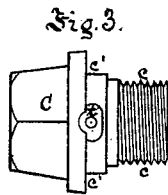


Fig. 3.

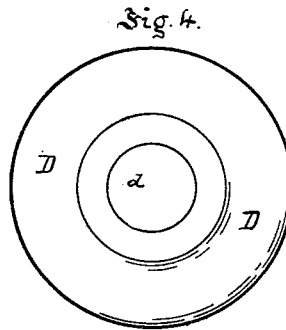


Fig. 4.

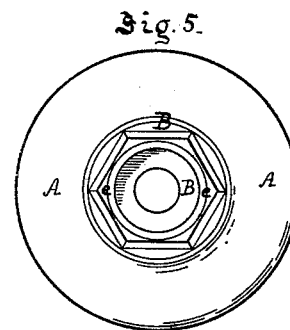


Fig. 5.

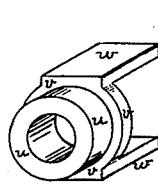


Fig. 7.

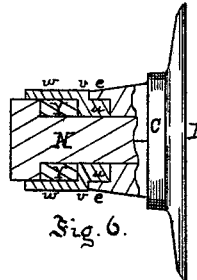


Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN HUBS FOR PLOW-COLTERS.

Specification forming part of Letters Patent No. **214,229**, dated April 15, 1879; application filed December 19, 1878.

To all whom it may concern:

Be it known that I, 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 I 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 vertical section of my improved hub, part of the yoke being shown in full lines. Fig. 2 is a face view of one form of stationary plug. Fig. 3 is a side view of the hollow bolt. Fig. 4 is a face view of the disk or ring plate. Fig. 5 is a face view of the half-hub; and Figs. 6 and 7 illustrate another form of stationary plug.

Like letters of reference indicate like parts in each of the figures.

My invention relates to hubs for mounting the revolving colters for plows within the yoke in front of the plow. These colters are formed of a circular plate 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, one of the most successful being formed of two plates, one of which was provided with a tapped or threaded projection on its inner face, which screwed into a correspondingly-threaded socket in the other plate and clamped the blade between them. This form of hub, though very generally used, has been found objectionable for different reasons, some of which were, that it was extremely difficult to cut the thread on the projection perfectly true, because of the large surface of the plate, and when not cut true the hub would only bind the blade on one side, and one of the faces of the hub was liable to break in screwing up or when a heavy strain was thrown on the colter; also, that the two parts were very hard to screw together on account of the friction of the large plates on the blade; and also that when either part was worn out the whole hub was worthless.

The object of the present invention is to overcome the objections to this form of hub,

and to improve the construction of colter-hubs in other particulars.

It consists, first, in forming the hub of three parts, one part or half-hub being in the form of a disk, and having a circular threaded recess extending from the center of its inner face, into which a hollow threaded bolt is screwed to clamp and secure the colter-blade between the half-hub and a ring-plate fitting over the hollow bolt; and, second, in other details of construction, hereinafter set forth.

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

In the drawings referred to, A represents the half-hub, formed in the shape of a disk to fit against the colter-blade, and having the extension B extending back from the center of the disk, and having an angular head formed thereon to give hold to a wrench. Extending from the inner face into said extension is the circular recess or female portion *b*, suitably threaded.

C is a bolt, having a cylindrical opening extending longitudinally through the same for the passage of the bolt or axle N when it is attached to the plow. On one end of the hollow bolt C is formed an angular head to give hold to a wrench, and next to the head is the seat *c'*, against which the ring plate D rests. The body of the bolt is cylindrical, and is threaded, as at *c*, so as to screw into the threaded recess *b*.

D is the ring-plate, of the same width as the half-hub A, in the center of which is the circular hole *d*, through which the bolt C passes until the plate rests against the seat *c'*.

The colter-blade is secured in the hub by placing it between the plate D and half-hub, and screwing the hollow bolt into the half-hub, thus clamping the blade between the plate and half-hub.

In colter-hubs as heretofore constructed much difficulty has been experienced on account of the rapid wearing away of the bolt or axle, caused by the sand or earth which works in between the bearing of the hub and axle, and cuts or wears away the axle. To overcome this I have formed at each end of the hub a circular flange or collar, *e*, within which the circular plug *u* (shown in Figs. 6

and 7) extends, said plug being held stationary on the axle or colter-yoke. The plug is of the proper size to fit neatly within the collar *e*, and prevent any dust or sand working in between into the bearing of the hub and axle. It is made of metal, and is provided with a flange, *v*, against which the end of the collar works, and with two arms or wings, *w*, extending back from the flange, as shown in Figs. 6 and 7, which arms fit on either side of the yoke *Y*, and thus hold the plug stationary.

If desired, the arms *w* of one of the plugs may extend beyond the yoke up the sides of the head of the bolt *N*, and also prevent it from turning, though the arms of the other plug are necessarily made short to allow the nut to be screwed up. This is very desirable, as the nut is apt to be jarred loose on the axle, and then the axle will turn with the hub, and soon wear out the narrow bearings in the yoke, as they are not protected from the sand and dust.

In Figs. 1 and 2 is shown another form of plug, *f*, fitting within the collar *e*, and held stationary by means of a key, *m*, which fits into a groove, *n*, in the axle *N*. It may also be held stationary with the colter-yoke *Y* by means of a movable pin, *s*, which passes through the hole *r* in the yoke and hole *p* in the plug *f*, the pin being slipped into place after the hub is secured in the yoke, and held in position by the head of the bolt or axle and the nut used for fastening the same. When the plug is held stationary with the yoke and also keyed to the axle, as before described, the axle is also prevented from turning.

The hollow bolt *C* is preferably made by casting, and has an oil-hole, *t*, for oiling the bearing of the axle and hub, extending along the seat *c'* thereof through to the central opening for the axle. The oil-hole is enlarged below the seat, so as to form a reservoir for oil within the hub.

The manner of attaching and mode of operation of my improved hub is as follows: The colter-blade is placed between the half-hub *A* and ring-plate *D*, and the hollow bolt *C* is then screwed through the ring-plate and colter-blade into the half-hub, thus clamping the blade between the ring-plate and half-hub, the principal friction encountered in the operation being between the hollow bolt and ring-plate. In attaching the hub in the yoke the plugs *u*, provided with the arms *w*, are placed in the collars *e* of the hub, and the hub slipped within the yoke until the flanges *r* rest against the collars from below, the arms *w* of the plugs passing up the sides of the yoke. The bolt is then passed through the yoke, hub, and plugs until its head fits between the arms *w* and the nut is screwed to place. When the grooved axle is used, the plugs *f* are placed within the

collars *e*, the hub placed in the yoke, and the axle passed through the hub, the keys *m* of the plugs fitting into the groove of the axle. If the pins *s* are used they are slipped through the openings *p r* in the yoke and plugs, and the nut is then screwed tight against the yoke, the head of the bolt and the nut holding the pins in place. If desired, the nut may be locked on the bolt by means of a key or nail driven into the groove *n*.

When the hub is in use the plugs remain stationary in the collars *e*, while the hub revolves, and thus prevent any sand or dust working in between the bearing of the axle and hub.

The following are some of the advantages of my improved hub: The hub can be screwed tighter against the blade than where the broad surface of the disk turns on it, as there is much less friction to encounter. By the use of three parts instead of two, a uniform bearing of the plates against the blade is obtained, enabling them to bind thereon around their entire surface. As all the wear on the axle is upon the hollow bolt, when it is worn out it can be replaced at one-third the cost of a new hub. When the stationary plugs are used, as they extend within the flanges or collars of the hub, they prevent the entrance of any sand or dust between the bearing of the hub and axle, thus practically sealing the bearing. The flanges of the wing-plugs take all the lateral or end wear of the hub, and protect the sides of the yoke from wear. The wing-plugs can be placed in position upon any colter-yoke, it not being necessary to recess or groove the yoke for their reception.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a colter-hub, the combination of the half-hub *A*, provided with the circular threaded recess *b*, the ring-plate *D*, and the hollow threaded bolt *C*, adapted to screw into the recess *b* and clamp the colter-blade between the half-hub and ring-plate, substantially as described.

2. In combination with the colter-hub, axle, and yoke, the stationary plugs, fitting within the collars *e* of the hub, to prevent the entrance of sand or dirt to the bearing, said plugs being provided with the flanges *v*, against which the ends of the hub work, and the arms or wings *w*, extending back from the plug up the sides of the yoke, to hold it stationary in the hub, substantially as set forth.

In testimony whereof I, the said S. JARVIS ADAMS, have hereunto set my hand.

S. JARVIS ADAMS.

Witnesses:

EDW. W. LYON,
JAMES I. KAY.