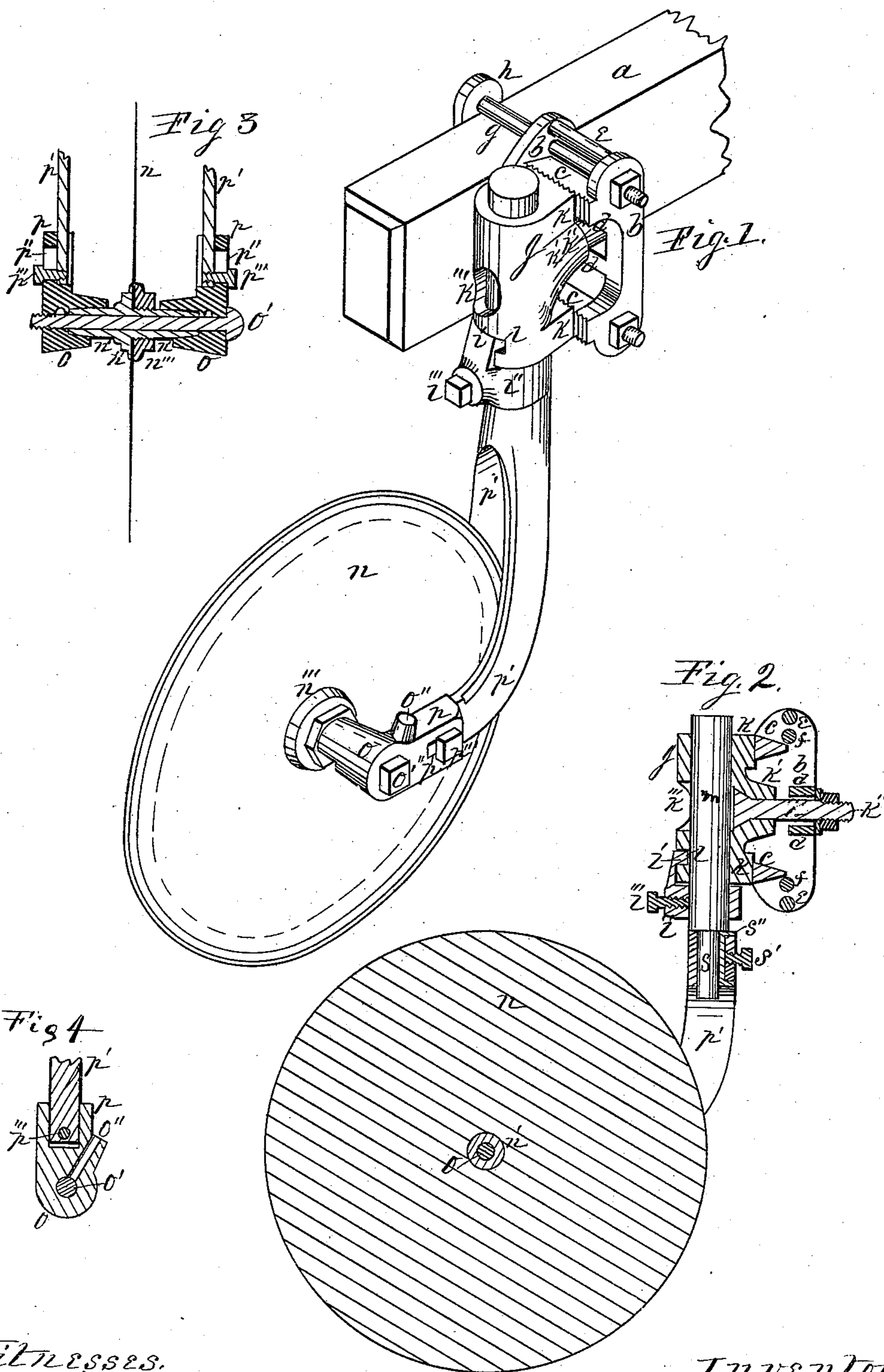


(No Model.)

K. W. MANWARING.  
Colter.

No. 227,373.

Patented May 11, 1880.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

KINYON W. MANWARING, OF DE WITT, IOWA.

## COLTER.

SPECIFICATION forming part of Letters Patent No. 227,373, dated May 11, 1880.

Application filed March 2, 1880. (No model.)

To all whom it may concern:

Be it known that I, KINYON W. MANWARING, of De Witt, Clinton county, and State of Iowa, have invented a new and useful Improvement in Plow-Colters, of which the following is a specification.

My invention relates to that class of colters known as "rolling colters," designed to be employed in connection with plows; and the subject-matter of my invention will be hereinafter more fully described.

In the accompanying drawings, Figure 1 is an isometrical representation of a colter embodying my invention, of which Fig. 2 is a vertical central section in a plane parallel to the plow-beam. Fig. 3 is a horizontal transverse central section of the colter; and Fig. 4 is a vertical central section of one of the yoke-arms, connecting with the colter.

In the figures, *a* represents a portion of a plow-beam, on which my improved colter is mounted by means of a clamping-frame, consisting of the plates *b*, suitably separated and supported in such separate position by connecting-bars *c*, *d*, and *e*, and are perforated, as at *f*, to receive screw clamping-bolts *g*, which, in connection with the clamping-plate *h*, serve to fix the clamping-frame to the plow-beam in an adjustable manner. The enlarged edge of the connecting-bars *c* are corrugated vertically, as clearly shown in the drawings, and the connecting-bars *d* form a transverse slot to receive a clamping-bolt, *k'*, to fix thereto, in an adjustable manner, a suitable socket to receive the shaft of the colter-yoke center. This clamping device is substantially the same as a clamp patented to me September 30, 1879, No. 220,161.

At *j* is represented a colter-yoke socket fitted with arms *k*, corrugated to engage the corrugations in the bar *c* of the clamping-frame. It is also provided with a center arm, *k'*, opened to receive a screw clamping-bolt, *k''*, which is passed through a suitable opening, *k'''*, into position in the arm, and, by means of a suitable screw-nut, operates to hold the socket to the clamping-frame in an adjustable manner. The lower end portion of this socket is provided with an annular slot, as at *l*, of suitable dimensions to receive the hook portion *l'* of a screw clamp-collar, *l''*.

At *m* is represented a colter-yoke shaft of suitable size to freely enter the yoke-socket. This shaft is also received by the screw clamping-collar *l''*, which is fixed in position thereon by means of a suitable set-screw, *l'''*, by means of which the shaft is made vertically adjustable in the socket to vary the running depth of the colter, and the free hook-connection of the clamping-collar with the socket permits of a limited vibration of a colter attached to the shaft, which vibration may be more or less regulated by the relative length of the annular slot in the socket and the hook on the screw clamping-collar.

At *n* is represented a colter-blade, made from steel plate in the usual manner, and is provided with a center opening to receive a tubular shaft, *n'*, fitted with a fixed collar, *n''*, and a screw-nut collar, *n'''*, between which the colter-blade is clamped to fix it in position thereon at right angles to the shaft; but instead of the fixed collar a removable collar may be employed. The ends of the tubular shaft are tapered, and are fitted to revolve in corresponding bearings *o*, fitted with a center opening to receive an axial screw-bolt, *o'*, one end of which is screw-threaded to engage the screw-threaded center opening in one of the bearings, and the projecting end of the axial screw-bolt may be fitted with a check-nut to prevent the accidental loosening of the axial bolt. The upper portions of these end bearings extend over their lower portions, to operate as a mud-band to prevent dust or grit entering the bearings, and by means of the center axial bolt a double wearing-surface is provided, the center one of which is well protected from grit and adds greatly to the durability of the colter, and by means of its screw-thread connection and taper end bearings the joints of the bearings may be kept in close working contact. These end bearings are fitted with oil-ducts *o''*, which communicate with the journal-bearing at the end of the tubular shaft, by which both the inner and outer bearings may be lubricated, and the flow of the oil will be outward, which will tend to keep the bearings free from grit. These bearings of the tubular shaft are provided with arms *p* at right angles to their shaft-bearings, and are recessed on their inner faces to receive the end portions

of the yoke-arms  $p'$ , and are slotted lengthwise, as at  $p''$ , to receive clamping-bolts  $p'''$ , the screw ends of which enter screw-threaded holes in the arms of the yoke to clamp them in position to the arms of the bearings. By this arrangement the bearings may be adjustable on the yoke-arms to properly align the colter. The upper portion of the yoke is made tubular and receives the lower end,  $s$ , of the yoke-shaft, held in place by a set-screw,  $s'$ , operating against a key-like bar,  $s''$ , placed in a groove formed in the socket of the yoke.

From the foregoing it will be seen that my improved colter possesses all the features necessary or required to properly adjust the colter in the following manner: It is capable of adjustment forward or backward on the beam by means of the clamping-frame. It is capable of vertical adjustment by means of the screw clamping-collar. It is capable of adjustment laterally by means of the socket-connection with the clamping-frame. It is capable of a vertical inclination laterally by means of the same connection of the socket with the clamping-frame. The colter can be aligned in the yoke by means of the adjustable bearings on the yoke-arms. By means of the taper bearings and axial bolt the bearings can be kept in close working contact. The action of a lubricating-oil will tend to clear grit from the bearings, and the several parts are made to be readily removed and new parts substituted.

I claim as my invention—

1. The combination, with a clamping-frame

provided with serrated cross-bars, of a yoke-shaft socket provided on one side with serrated faces which engage with the serrated faces on the cross-bars of the clamping-frame, said socket formed with a continuous tubular bearing at its upper and lower ends, and a clamping-bolt which is inserted through a hole in its socket, the head of the bolt seating in a recess formed on the inner surface of the socket, said bolt extending between cross-bars on the clamping-frame, and a nut for securing the bolt against displacement, substantially as set forth.

2. The combination, with a yoke-shaft socket provided with an annular slot, of a clamping-collar provided with a hook to engage the annular slot, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the yoke-shaft socket and a yoke-shaft, of a hook clamping-collar, substantially as and for the purpose hereinbefore set forth.

4. The combination, with a colter and its journals, of journal-bearings provided with sockets for receiving the ends of the yoke, and adapted to be adjusted forward or backward upon the ends of the yokes, substantially as set forth.

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Witnesses:

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