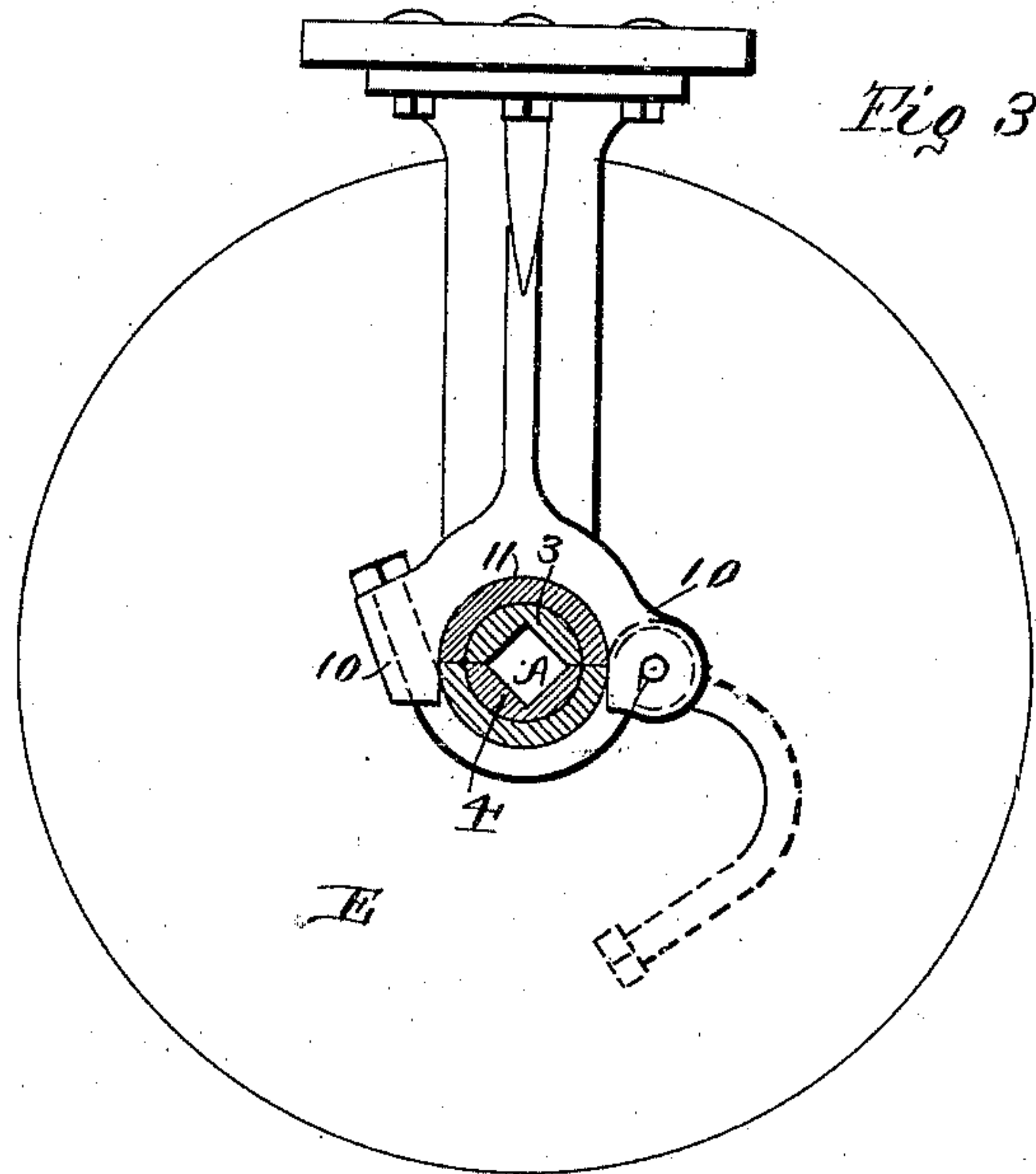
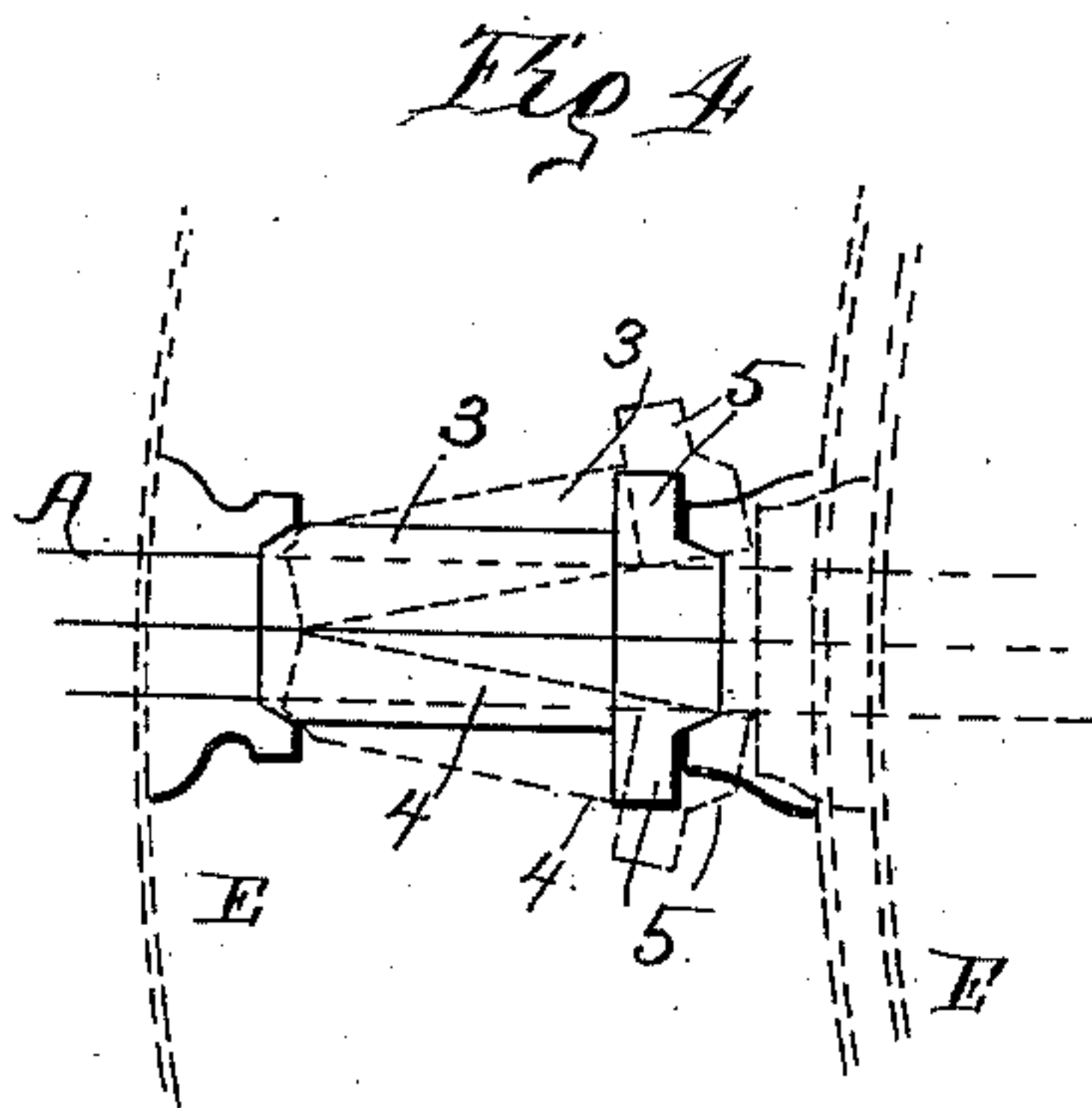
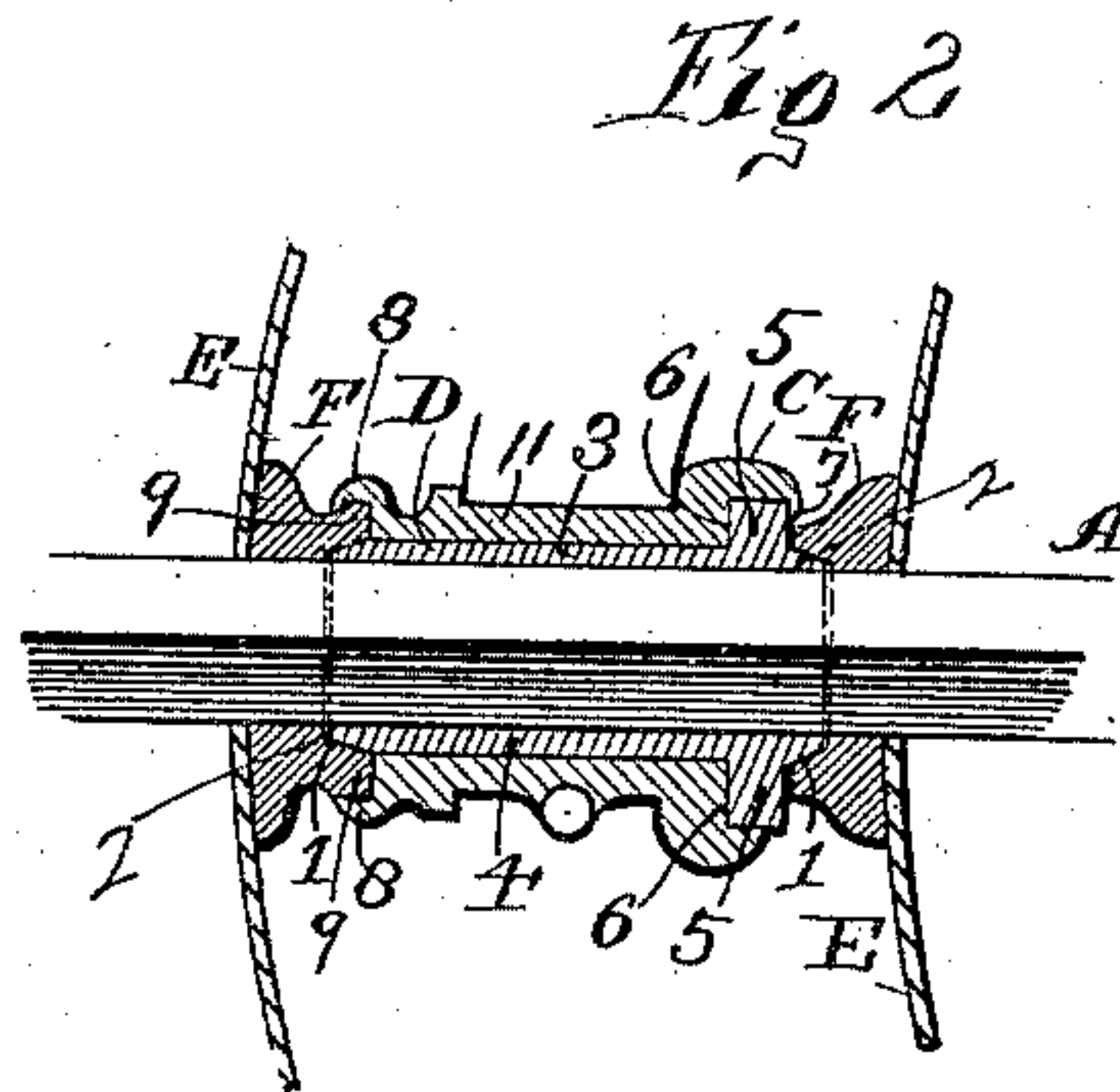
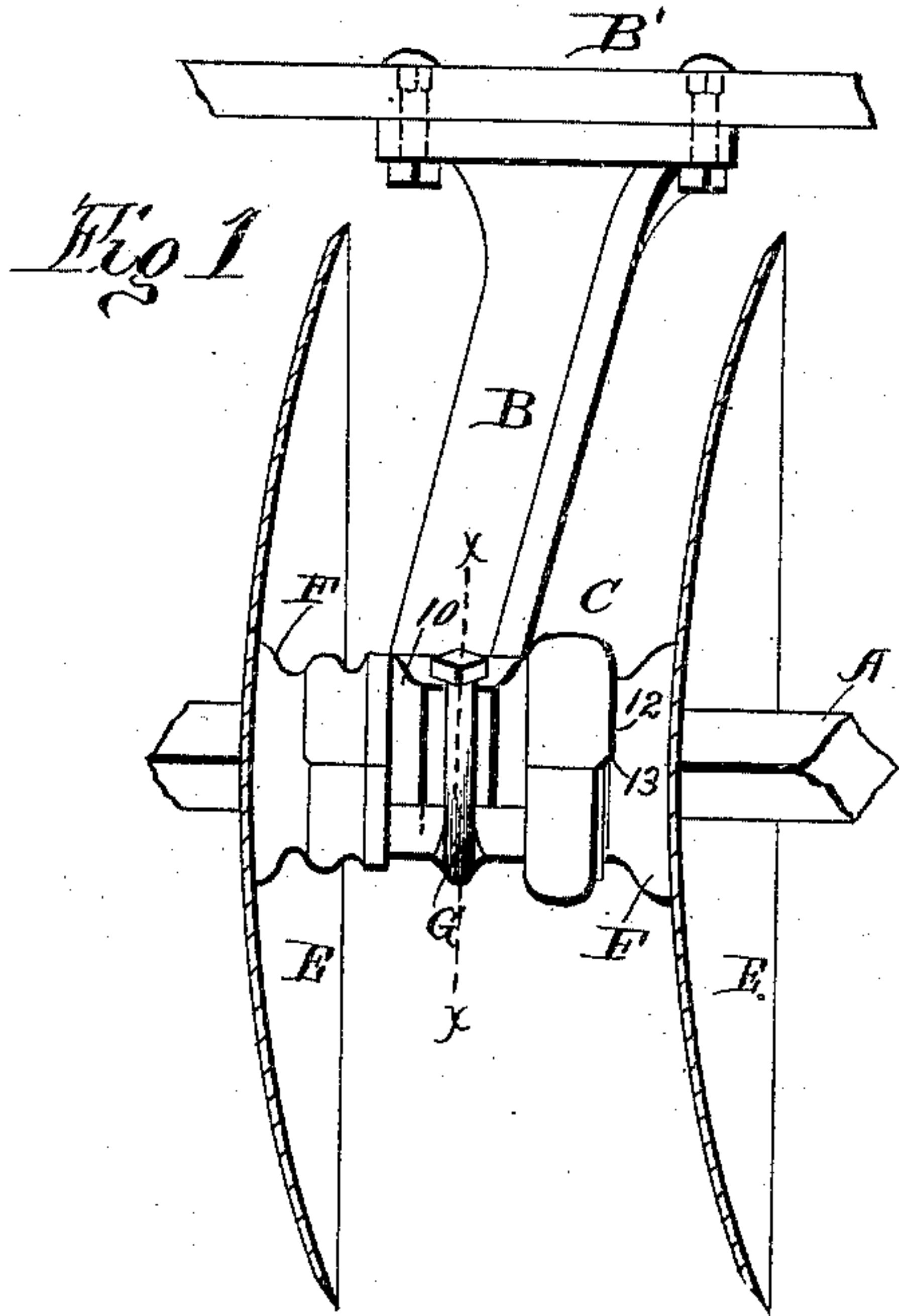


(No Model.)

C. S. RUEF.
DISK HARROW.

No. 445,787.

Patented Feb. 3, 1891.



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UNITED STATES PATENT OFFICE.

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DISK HARROW.

SPECIFICATION forming part of Letters Patent No. 445,787, dated February 3, 1891.

Application filed August 28, 1890. Serial No. 363,362. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. RUEF, a citizen of the United States, residing at Dixon, in the county of Lee and State of Illinois, have
5 invented certain new and useful Improvements in Disk Harrows; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to
10 make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in
15 disk harrows in which the disk gangs are connected to the hangers by means of journals which rotate in boxes suitably attached to the lower ends of said hangers; and the objects of my improvements are, first, to provide
20 a journal having an exterior annular flange and a box having a corresponding recess adapted to receive the end pressure of the disk gangs; second, to form the ends of said box to overlap the flange of said journal,
25 so as to exclude the dirt therefrom; third, to form said journal in two longitudinal halves for convenience in removal and replacement; fourth, to provide the box with an extension below the dividing-line of the journal and furnish
30 the same with an exterior bevel to shear off the dirt, and thus avoid any pocket for said dirt; fifth, to provide in the contiguous washers a conical seat for the ends of said journal to expedite the removal and seating
35 of said journal and as a means of compressing and holding said journal; sixth, the extending of the hanger below the line of separation of said box and journal, so that said hanger may assist the lower half of the box
40 and journal in resisting the end pressure; seventh, in providing a bowed bolt hinged in front of the disk gang to said standard and removably attached to the latter in the rear of the axle of said gangs as a convenience in
45 removing and replacing said boxes and journal. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a rear elevation of a portion of
50 a disk-harrow gang containing my invention.

Fig. 2 is a vertical section thereof in the line of the disk axle. Fig. 3 is a vertical section across said axle in the line *xx* of Fig. 1. Fig. 4 is a detail showing in dotted lines the position of the parts in removing the journal, the
55 box C being omitted.

As my invention pertains to improvements in and about the lower end of the usual hanger and is applicable to any of the well-known types of disk harrows, I do not deem
60 it necessary to show or describe the implement any further than will render intelligible the construction, operation, and location of my improvements. The description herein is of the right-hand disk gang and, with the
65 exception of Fig. 3, looking from the rear.

A is the usual axle of the disk gangs, which may be round or square or of any other desired conformation.

B is the usual hanger projected downward
70 from the usual draft-plank B' and attached at its lower end to the axle A through the medium of a box C and journal D.

E represents the usual disks, which in the construction illustrated have their concave
75 faces outward, constituting what is known as a "throw-out" disk harrow, resulting in a pressure inward of the disks; but with the obvious changes my invention is equally adaptable to "throw-in" harrows.
80

F are the washers seated on the axle A, which form at their ends contiguous to the disks E backing or support for the latter. In the opposite ends of the washers F are formed annular conical seats 1, surrounding the axle
85 A. The journal D is provided at each end with a tapering formation 2, adapted to conform to the concavities 1 in the washers F. The journal D is formed in two halves—the upper
90 half 3 and lower half 4—the line of separation between said halves being horizontal and in the plane of the longitudinal axis of the axle A. The journal D is further provided near its outer end with the exterior annular
95 flanges 5, adapted to enter a conforming recess 6, formed in the adjacent end of the box C. The recess 6 and flange 5 are extended radially as far as convenient in order to present the maximum of resisting-surface to
100 the inward pressure of the disk gangs. The

box C is also divided horizontally into two portions, the line of separation thereof being slightly below that of the separation of the journal D. The upper portion of the box C is formed with the outwardly-extending lip 7, which incloses the periphery of the outer portion of the flange 5 of the box C for the exclusion of dirt from the latter. A corresponding lip 8 is formed on the inner end of the upper portion of the box C to partially inclose the annular flange 9 of the washer F at that locality for the same purpose.

In order to back in some degree the lower halves of the box C and journal D against end pressure on said lower halves, the hanger B is provided with a front and rear downward extension 10, Fig. 3. The lower end of the hanger B being suitably seated in the external annular recess 11, formed in the box C and extending below the line of separation of the latter, said hanger assists the bowed bolt, hereinafter named, in holding the lower halves of box C and journal D against the aforesaid end pressure.

To prevent the rotation of the disk gangs from carrying the dirt into the end of the joint 7, I provide the upper portion of the box C with the segmental extension 12, having a beveled end 13, adapted to shear off the dirt carried up by the rear portions of the washers F. This construction prevents the upward movement of the rear of said washers from forcing the earth carried thereby into the joint 7 to interfere with the rotation of the journal D within the stationary box C.

G is a bowed screw-bolt hinged at its forward extremity in any suitable manner to the front projections 10 of the hanger B, and adapted, as shown in Fig. 3, to be removably seated and fastened at its free end in the rear extension 10 of said hanger, and thereby hold the parts rigidly in position. The advantage of the hinged bolt G lies in the fact that the wear of the journal D within the box C is often such as to require the substitution of another journal or box. Usually this has been effected by removing all of the disks E and washers F, so as to slip said journal on or off over the end of the axle A. In my construction to effect said removal it is necessary to move one of the disks E adjacent to the bearing only a sufficient distance to release one end of the journal D, as shown in Fig. 4. Then by unfastening and throwing down the bowed bolt G and slightly lifting the hanger B, as shown in Fig. 3, both the journal D and box C can be readily removed and replaced.

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

1. In a disk harrow, the combination of the hanger B, box C, axle A, washer F, provided with a conical seat 1, and the journal D, con-

structed in two halves and provided with the conical ends 2, substantially as shown, and for the purpose described.

2. The combination of the box C, suitably seated in the hanger B and provided with the recess 6, and the journal D, provided with exterior flange 5, adapted to conform to said recess 6, substantially as shown, and for the purpose described.

3. In combination with the hanger B, the box C, provided with recess 6 and lip 7, and the journal D, provided with the annular flange 5, substantially as shown, and for the purpose described.

4. In a disk harrow, the combination of the axle A, disks E, washer F, provided with conical seat 1, hanger B, box C, constructed in two halves and provided with conical ends 2, and suitable means for holding said parts in mutual relation, substantially as shown, and for the purpose described.

5. In a disk harrow, the combination of the box C, provided with recess 6, segmental extensions 12 and 13, journal D, provided with annular flange 5 and conical ends 2, washer F, provided with conical seat 1, axle A, and retaining-bolt G, substantially as shown, and for the purpose described.

6. In a disk harrow, the combination of the axle A, the box C, constructed in two portions and provided with the recess 6, the journal D, constructed in two portions and provided with external annular flange 5, the hanger B, provided with downward extensions 10, projected below the line of separation of said box and journal, and a suitable retaining-bolt G, substantially as shown, and for the purpose described.

7. In a disk harrow, the combination of a hanger B, box C, axle A, journal D, constructed in two parts adapted to inclose said axle, and a bowed bolt G, hinged at its forward extremity to said hanger in the rear of said axle, substantially as shown, and for the purpose described.

8. In a disk harrow, the combination of the axle A, disks E, washers F, provided with conical seat 1, box C, provided with annular recess 6, journal D, constructed in two portions and provided with conical ends 1 and exterior annular flange 5, the hanger B, provided with the projections 10, and bowed bolt G, hinged at its forward extremity to one side of said projections and adapted at its other end to be removably attached to the rear projection 10, substantially as shown, and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES S. RUEF.

Witnesses:

JOHN G. MANAHAN,
ADDA E. WARD.