R. W. LEWIS.

OILER FOR DISK DRILLS.

APPLICATION FILED JUNE 18, 1918.

1,383,957. Patented July 5, 1921.

Fig. 1

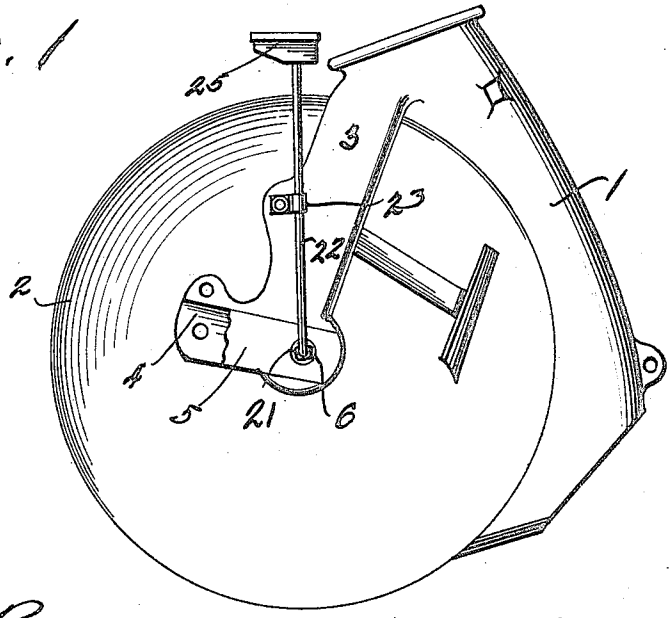


Fig. 2.

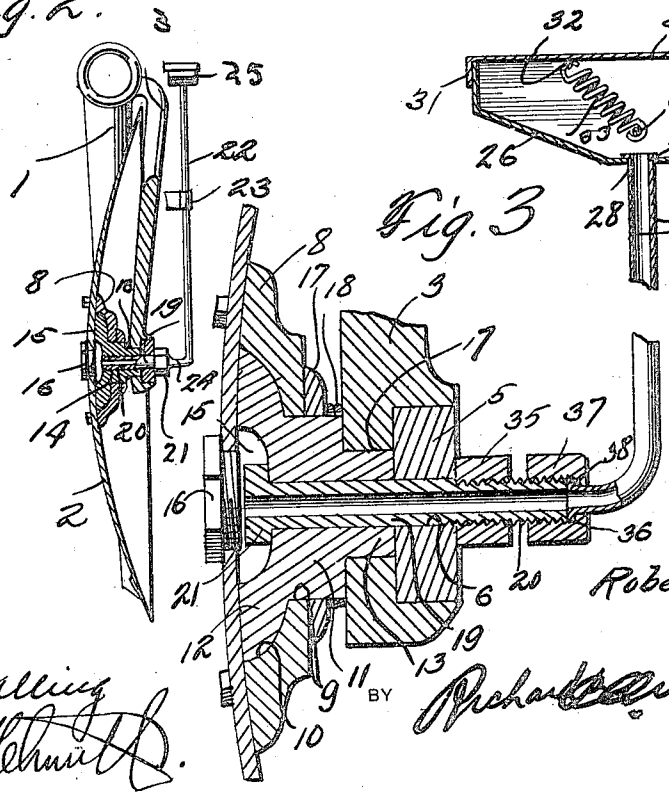


Fig. 3

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OILER FOR DISK DRILLS.

1,383,957. Specification of Letters Patent. Patented July 5, 1921.

Application filed June 18, 1918. Serial No. 240,565.

To all whom it may concern:

Be it known that I, ROBERT W. LEWIS, a citizen of the United States, residing at Granville, North Dakota, have invented certain new and useful Improvements in Oilers for Disk Drills, of which the following is a specification.

My invention relates to new and useful improvements in lubricators, and an important object of my invention is to provide a device of the above mentioned character which eliminates the usual disadvantages in removing the several grease caps of the usual disk drills in order to lubricate the spindles thereof, and to provide means whereby the lubricant reservoir may be positioned in a place easily accessible to the operator and whereby the lubricant will be fed to the spindle by gravity.

Another object of my invention is to provide a device including a bolt so constructed that the spindle of the disk drill will be thoroughly lubricated and so that the bolt may be readily removed from the spindle to facilitate the removal of the various parts.

A further object of my invention is to provide a device of the above mentioned character including a lubricant reservoir, the top of which is resiliently secured to the body of the reservoir so that said top may be securely held in position preventing foreign matter from entering the reservoir and to facilitate an easy placement of the top.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings, forming a part of the description and wherein like numerals of reference are employed to designate like parts throughout the same,

Figure 1 is a side elevation of the usual planter shoe and disk drill attached thereto, showing my invention applied thereto.

Fig. 2 is a transverse sectional view through Fig. 1.

Fig. 3 is a transverse sectional view through a modified form of my invention, showing a longitudinal vertical sectional view through the lubricant reservoir, and the pipe leading therefrom.

In the drawings, wherein is shown a preferred embodiment of my invention, the numeral 1 designates the usual planter shoe, which is arranged upon the convex side of the disk drill 2, and is provided with a downwardly extending arm 3 which supports the disk drill. The lower end of this arm 3 is provided with a groove 4 which accommodates the draw bar 5 which is provided with an opening 6 to aline with an irregular opening 7 in the lower end of the supporting arm 3 and this irregular opening 7 communicates with the groove or recess 4 in the arm 3.

The disk drill is provided with a hub upon the concave side of the disk, and is provided with a bore 9 therethrough which is enlarged as at 10 adjacent the disk drill. Adapted to be received in the bore 9 and enlarged part thereof, is a spindle 11 having an enlarged end 12 to fit into the enlarged part of the bore. The outer end of the spindle is provided with an irregular head 13 adapted to snugly engage the irregular opening 7 in the supporting arm so as to prevent the spindle from rotary movement. As shown in Fig. 2 of the drawing, the spindle is provided with a threaded bore 14 therethrough which leads into a lubricating chamber 15 in the inner end of the spindle adjacent the disk drill. The disk drill 2 is provided with a central threaded opening to communicate with the lubricant chamber 15 so as to accommodate a threaded cap 16. In order to lubricate the spindle of the present form of disk drill, it is necessary to remove the several caps 16 so as to provide an entrance into the lubricating chamber 15 in the spindle. After these several caps have been removed, the operator must go to each separate disk and insert a lubricant through the central threaded opening in the disk drill which accommodates the cap 16. After filling the lubricant chamber, the operator must again go to each disk and secure the cap 16.

A washer 17 is interposed between the supporting arm 3 and the hub 8 of the disk upon the spindle so as to exclude all foreign matter, such as dust and dirt, accumulating upon the spindle and eventually gaining access to the bore through the hub 8 and imposing wear upon both the spindle and said bore. The washer 17 is provided with an extension, not shown, which enters a suitable recess in the supporting arm. This construction prevents the washer 17 from rotating upon the spindle. Interposed between the washer 17 and the supporting arm 3 upon the spindle is a coil spring 18 which is assigned to urge the washer into close engagement with the hub.

My invention eliminates the disadvantages and trouble of removing the caps 16 to pass lubricant into the lubricant chamber 15 in

the spindle. The invention embodies two forms of connection for joining or securing the disk drill to the supporting arm. This connection serves a twofold purpose, namely, for supplying a lubricant to the lubricating chamber, and for securing the disk drill to the supporting arm as set forth above. This connection is merely an ordinary bolt having an oil duct or bore extending longitudinally entirely through the shank 20 and the head 21 thereof.

In the form shown in Fig. 2 where the bolt is used as a stud bolt, the threaded shank 20 of the bolt is adapted for threaded engagement with the threaded bore 14 through the spindle by passing through the opening 6 in the draw bar and through the lower end of the supporting arm 3. When the parts are assembled, the free end of the shank extends slightly into the oil chamber 15, in the spindle, and the head of the bolt abuts with the draw bar for securing the disk drill to the supporting arm.

An oil supply pipe 22 is arranged vertically of the apparatus and is held in position by a bracket 23 which is secured to the supporting arm 3 of the planter shoe. The lower end of the supply pipe 22 is bent inwardly to be joined to the head 21 of the bolt so that the oil will pass from the supply pipe 22 into the bore through the bolt. The upper end of the supply pipe is provided with a lubricant chamber 25 as more clearly shown in Fig. 3 of the drawings, which is substantially rectangular in shape and has a part 26 of its bottom inclined downwardly to the bottom 27 which is provided with a central outlet opening 28. The upper end of the supply pipe 22 passes through this opening 28 and is upset or provided with a flange 29 for making a secure connection. This reservoir is provided with a cover 30 having its marginal edges turned down to provide downwardly extending flanges 31 which are adapted to engage the outer faces of the sides and ends of this reservoir. Upon the under side of this cover, adjacent the forward end thereof, I provide an eyelet 32 to which is secured, one end of a coil spring 33, which has its opposite end secured to a rod 34 which is secured to the opposite sides of the reservoir at the end thereof opposite the end of the spring which is secured to the cover of the reservoir. It will be seen by this construction that the spring 33 is arranged at an angle so that when the flanges of the cover are disengaged from the reservoir, the spring will slide the cover upon the reservoir so that oil may be entered therein, this spring also securely holds the cover of the reservoir to the body portion and when the flanges of the cover are disengaged from the sides of the reservoir, it may be turned at right angles to the reservoir and will be held in this position while the lubricant is being entered into the reservoir. As soon as the cover is positioned in its proper place the spring will hold the same in close engagement with the reservoir. This reservoir 25 is positioned adjacent the top of the shoe 1 so that oil may be readily introduced therein.

In the form shown in Fig. 3 where the bolt is used as an ordinary bolt, the position of the bolt is simply reversed that is, the bolt is passed through the oil opening which is closed by the cap 16, shank first, so that the shank passes through the bore in the spindle, the washer and the co-acting parts to extend beyond the outer face of the draw bar, to accommodate a nut 35. This nut, when tightened upon the shank, moves the bolt toward the draw bar until the head of the bolt abuts with a wall of the oil chamber and accordingly secures the disk to the supporting arm 3. The lower end of the oil supply pipe 22 in this case, is bent at right angles, and the free end of the pipe is offset or provided with an outwardly extending flange 36. A nut 37 having a threaded recess therein, is adapted to secure the end of the supply pipe to the threaded shank of the bolt. An opening 38 is provided in the nut 37 and communicates with the threaded recess, so that the end of the pipe 22 may be passed through the opening 38 and the flange 36 seated in the bottom of the threaded recess. It will be seen that as the nut 37 is secured upon the threaded shank of the bolt, the flange 36 will be carried into close engagement with the end of the shank and accordingly the oil pipe will be brought into communication with the oil duct through the bolt.

In operation, the lubricant, will pass from the reservoir 25, by gravity, down the supply pipe 22 and then through the oil duct or bore to the bolt. From the bolt, the lubricant will pass into the oil chamber 15 in the spindle, and as the disk and hub rotate upon the spindle, the lubricant will pass down between the spindle, the disk and the hub, and accordingly will thoroughly lubricate the various parts requiring such lubrication so that the disk 2 will have free rotation upon its spindle. It will also be recognized that the lubricant will be kept, at all times, free from all foreign matter such as dust and the like.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having described my invention, I claim:

1. The combination with a support, a

spindle carried by said support, a disk drill mounted upon said spindle, of a hollow bolt passing through said support and spindle and extending into said oil chamber for conveying lubricant to the oil chamber, and for securing the spindle to the support.

2. The combination with a support, a spindle carried by said support and having an oil chamber therein, a disk drill mounted upon said spindle, of a hollow bolt passing through said support and spindle and extending into the oil chamber for conveying lubricants to said oil chamber, the head of said bolt abutting with a wall of the oil chamber in the spindle, and a nut upon the other end of the bolt for abutment with the support for securing the spindle to the support.

3. The combination with a support, a stationary spindle carried thereby and having an oil chamber therein, a disk drill rotatably mounted upon said spindle, of a hollow bolt passing through the support and spindle and extending into the oil chamber, and means for supplying lubricants to the hollow bolt.

4. The combination with a support, a stationary spindle carried thereby and having an oil chamber in its outer end, a disk drill rotatably mounted upon the outer end of said spindle, of a hollow bolt passing through the support and spindle and extending into the oil chamber, the head of said bolt abutting with a wall of the oil chamber in the spindle, a nut upon the other end of the bolt for abutment with the support for securing the spindle to the support, and means carrying an oil pipe for detachably connecting the oil pipe with the same end of the spindle.

5. The combination with a support, a spindle, a disk mounted on said spindle, of a hollow bolt extending through the spindle and the support for mounting the former upon the latter and for lubricating the spindle.

6. The combination with a support, a spindle having a threaded opening therein, a disk mounted upon the spindle, of a hollow bolt projecting through the support and having its threaded end received in said threaded opening of the spindle for securing the latter to the former, and for conveying lubricant to the spindle.

7. In combination, a support, a spindle, and a bolt extending through said spindle and support for mounting the former, and having an oil passage therethrough for conveying lubricant to the spindle.

8. In combination, a support, a stationary spindle carried thereby and having an oil chamber therein, and a hollow bolt extending through said spindle and support for conveying lubricant to the oil chamber and for securing the spindle to the support.

9. In combination, a support, a spindle carried thereby and having an oil chamber therein, a disk drill mounted upon the spindle and having its inner face forming one wall of said oil chamber, and means extending through the support and spindle and extending to said chamber for conveying lubricant thereto, said means also being provided to secure the spindle to the support.

10. In combination, a support, a spindle carried thereby and having an oil chamber therein, a disk drill mounted upon the spindle and having its inner face forming one wall of said oil chamber, said disk drill having an opening communicating with the oil chamber in the spindle, and a hollow bolt extending through the support and spindle and extending to said chamber for conveying lubricant thereto, the head of said bolt being of a size to pass through the opening in the drill.

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

ROBERT W. LEWIS.

Witnesses:
C. J. KROGFOSS,
J. V. LEWIS.