No. 865,627. PATENTED SEPT. 10, 1907.

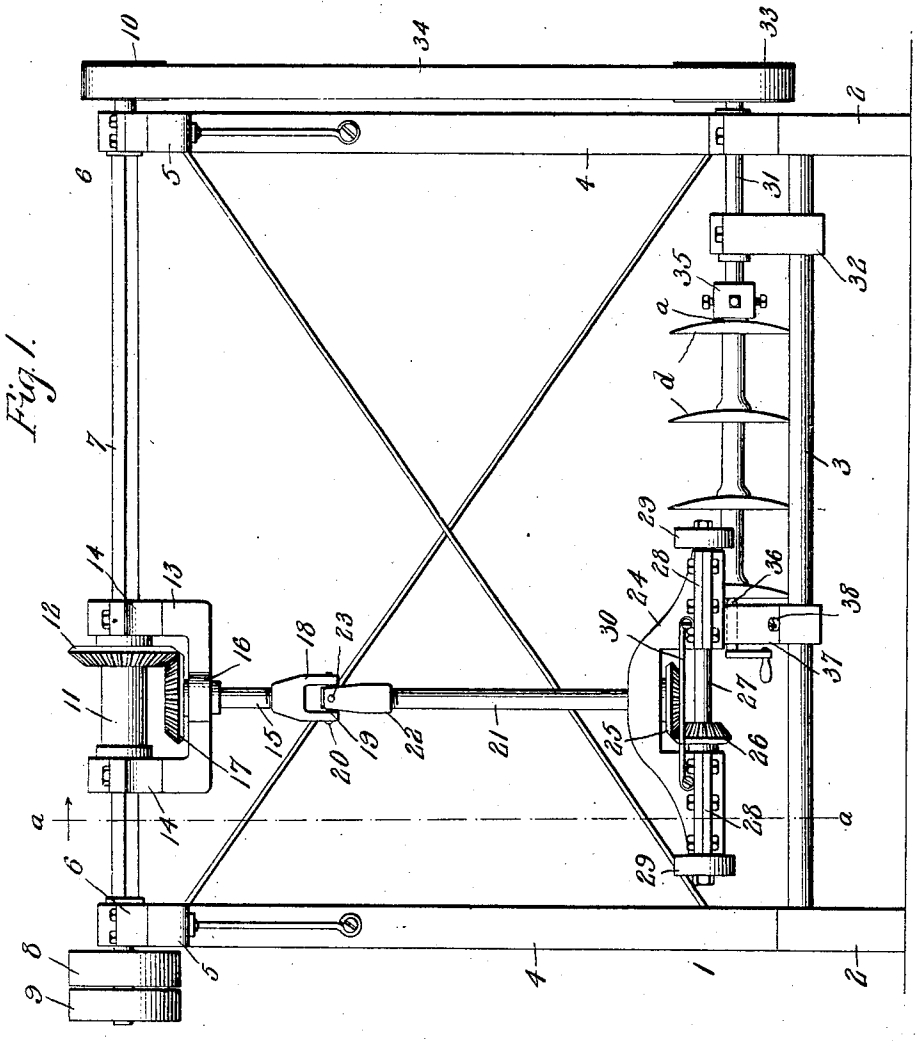
W. BROWER, M. ROSE & W. O. JONES.

DISK GRINDER.

APPLICATION FILED JUNE 14, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
Jos. F. Collins.
C. W. Griesbauer.

Inventors
William Brower,
Mahlon Rose and William Oscar Jones
by H. B. Williamson & Co
Attorneys

No. 865,627. PATENTED SEPT. 10, 1907.

W. BROWER, M. ROSE & W. O. JONES.

DISK GRINDER.

APPLICATION FILED JUNE 14, 1906.

2 SHEETS—SHEET 2.

Fig. 2.

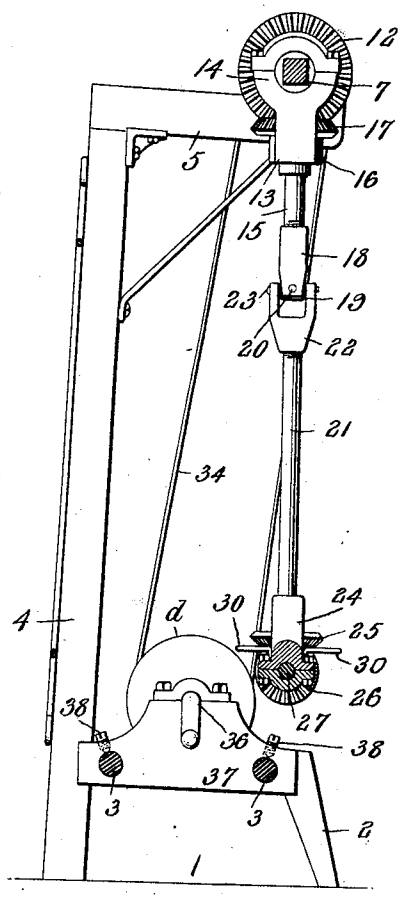
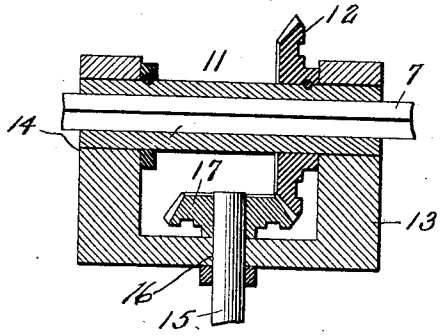


Fig. 3.



Witnesses
Jos. F. Collins.
C. H. Griesbauer.

Inventors
William Brower,
Mahlon Rose and William Oscar Jones
by A. B. Wilson & Co
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM BROWER, MAHLON ROSE, AND WILLIAM OSCAR JONES, OF MANLIUS, ILLINOIS.

DISK-GRINDER.

No. 865,627. Specification of Letters Patent. Patented Sept. 10, 1907.

Application filed June 14, 1906. Serial No. 321,726.

To all whom it may concern:

Be it known that we, WILLIAM BROWER, MAHLON ROSE, and WILLIAM OSCAR JONES, citizens of the United States, residing at Manlius, in the county of Bureau and State of Illinois, have invented certain new and useful Improvements in Disk-Grinders; and we 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 make and use the same.

Our invention is an improved disk grinder for grinding the disks of disk plows, harrows, and other agricultural machines, and it consists in the construction, combination, and arrangement of devices hereinafter described and claimed.

In the accompanying drawings,—Figure 1 is a front elevation of a grinder embodying our invention; Fig. 2 is a transverse sectional view of the same, taken on the plane indicated by the line *a*—*a* of Fig. 1; and Fig. 3 is a detail sectional view, showing a portion of the power shaft, the longitudinally shiftable frame, a portion of the flexible shaft, and the gears which connect the power and flexible shafts.

In the embodiment of our invention here shown, we provide a frame 1, which comprises the end members 2, a pair of longitudinal bars 3, which connect them, uprights 4 which rise from the rear side of the frame, and brackets 5 which project forwardly from the upper ends of said uprights. The said brackets are provided with bearings 6 for a shaft 7, that portion of which, between said brackets, is polygonal in cross-section. At one end of said shaft is a fast pulley 8 and a loose pulley 9. At the opposite end thereof is a pulley 10. A sleeve 11 of cylindrical form is movable longitudinally on the shaft 7 and has a bore of polygonal form to receive said shaft and adapt said sleeve to move endwise on said shaft and cause the same to be rotated thereby. Said sleeve has a beveled gear wheel 12. On said sleeve is mounted a frame 13 which depends therefrom and is provided with bearings 14 in which said sleeve rotates. The upper section 15 of a power-transmitting shaft is journaled in a bearing 16 in the lower portion of the frame 13 and has at its upper end a beveled gear 17, which engages the gear 12. At the lower end of said upper section 15 is a fork 18 between the arms of which is pivoted a block 19, as at 20. The lower section 21 of the flexible power-transmitting shaft has at its upper end a fork 22, the arms of which are pivotally connected to the said block 19 by a pivot 23, which is at right angles to the pivot 20, hence the lower section of said power-transmitting shaft is connected to the upper section thereof for universal angular movement with reference thereto. The fork, the block, and the pivots constitute a universal joint, which connects said sections of said power-transmitting shaft together.

The lower portion of the lower section of the flexible power-transmitting shaft is journaled in a frame 24, which is preferably of the form here shown. To the lower end of said lower section of such shaft is attached a beveled gear 25, which engages a similar gear 26 on a shaft 27 which is at right angles to the said lower section of said power-transmitting shaft and has its bearings at 28 in the ends of said frame 24. To the ends of the said shaft are attached emery or other suitable grinding or polishing wheels 29. The said frame 24 is provided on opposite sides with handles 30 which may be grasped by the operator.

At one end of the frame 1 is a countershaft 31, which is journaled in bearings in one of the end portions 2 and in a pillow block 32, which is secured on the bars 3. To the outer end of said countershaft is attached a pulley 33, which is connected to the pulley 10 by a belt 34, so that said countershaft is driven from the shaft 7. To the inner end of said shaft is attached a suitable chuck 35 for the reception of one end of a disk-shaft, such as indicated at *a*, to cause such disk-shaft, together with the disks *d* thereon, to be rotated by said counter-shaft. The opposite end of the disk-shaft is supported by a centering-shaft 36, which is journaled in a pillow block 37 that is slidably mounted on the bars 3, so that it may be adjusted toward and from the pillow block 32 to accommodate a disk-shaft of any length. Set screws 38 are here shown to secure the movable pillow block on said bars 3 at any desired adjustment.

It will be understood that the shaft 7 is driven by a suitable power-belt which engages the pulley 8. Motion is transmitted to the shaft, as hereinbefore stated, and said countershaft causes the disk-shaft and the disks thereon to rotate. The gears 12, 17, transmit power from the shaft 7 to the flexible power-transmitting shaft and power is transmitted from the latter to the shaft 27 by the gears 25, 26. Hence, the grinding wheels are rotated, and the operator who grasps the frame 24 holds the same so as to cause one of the grinding wheels to act against any one of the disks, as may be required in sharpening the disks. As the power-transmitting shaft is connected to the driving shaft 7 for slidable adjustment lengthwise of the latter, the grinding frame may be moved longitudinally, as may be required by the character of the work.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to with-

out departing from the principle or sacrificing any of the advantages of the invention, as defined by the appended claims.

Having thus described our invention, what we claim as new, and desire to secure by Letters-Patent, is,—

In a disk grinding machine, a frame, an overhead power shaft journaled therein, a sleeve arranged for sliding movement on and for rotation with the power shaft, said sleeve being provided with a beveled pinion, a yoke frame having bearings to receive the ends of the sleeve, a power transmitting shaft journaled at its upper end in the yoke frame and provided with a beveled pinion in mesh with the first-named pinion for operation by the power shaft, a grinding frame swiveled on and near the lower end of the transmitting shaft, a horizontal grinding shaft journaled in the grinding frame, intermeshing beveled pinions fixed respectively on the lower end of the transmitting shaft and on the grinding shaft for operatively connecting said shafts, means for sustaining a disk-carrying shaft in the frame, and vertically disposed grinding tools mounted on the ends of the grinding shaft to operate on the disks, said power transmitting shaft comprising a pair of sections having a universal joint connection adapting the grinding frame to swing in a direction transversely of the disk shaft and also at an angle relative to the vertical axes of the disks.

In testimony whereof we have hereunto set our hand in presence of two subscribing witnesses.

WILLIAM BROWER.
MAHLON ROSE.
WILLIAM OSCAR JONES.

Witnesses:
MAX P. SEIBEL,
CLARENCE GIBSON.