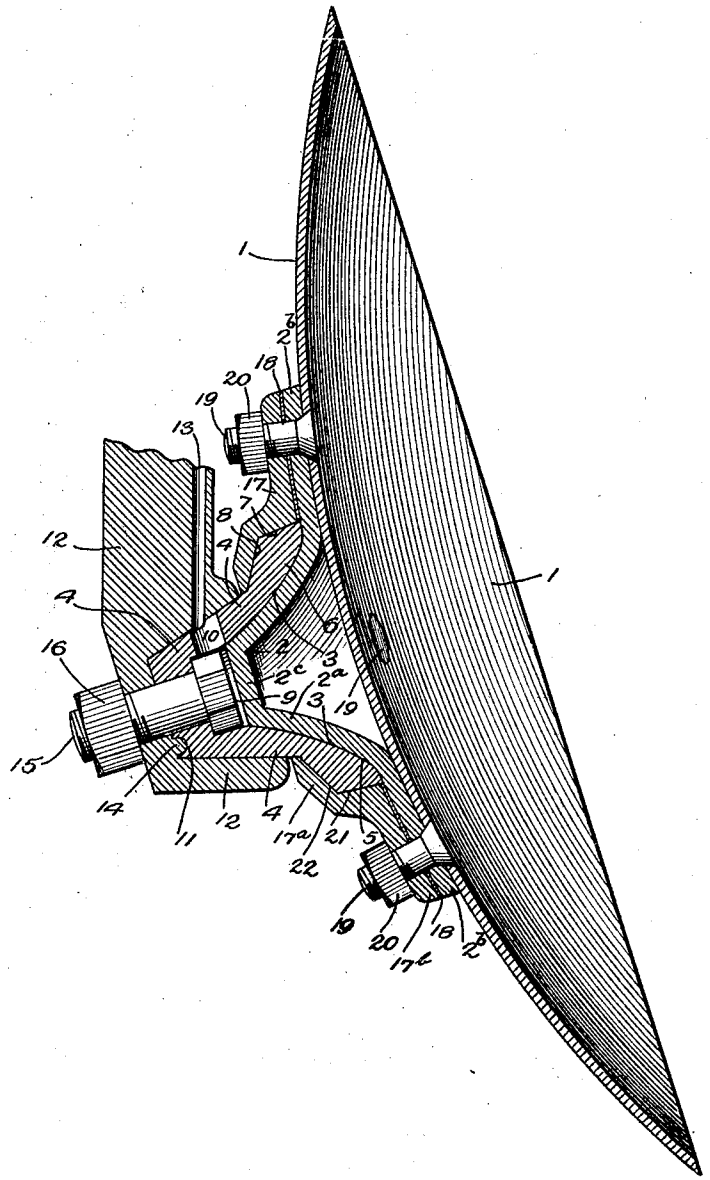
J. C. BOHMKER.

DISK BEARING.

APPLICATION FILED SEPT. 18, 1916.

1,422,918.

Patented July 18, 1922.



Witness:

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UNITED STATES PATENT OFFICE.

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DISK BEARING.

1,422,918. Specification of Letters Patent. Patented July 18, 1922.

Application filed September 18, 1916. Serial No. 120,603.

To all whom it may concern:

Be it known that I, JOHN C. BOHMKER, a citizen of the United States, residing at Bradley, in the county of Kankakee and State of Illinois, have invented certain new and useful Improvements in Disk Bearings, of which the following is a specification.

The invention relates to bearings for plow disks, and has for its object the provision of an improved bearing which can be manufactured at a reduced cost.

Bearings of the character indicated usually comprise an inner bearing member and an outer bearing member, the contacting surfaces being made straight in a direction extending longitudinally of the members and being usually chilled, in the molding operation, to harden the same. Difficulty has been experienced, however, in casting the outer bearing member, because of a tendency of the chill employed to stick fast to the casting and to become distorted, thus making it difficult and at times impossible to separate the chill from the bearing member and necessitating the frequent reshaping of the chill to restore it to its proper form. The cause of the chill sticking in the outer bearing member and of the distortion of the chill is that the metal of the bearing member shrinks to a greater degree than that of the chill and that the shrinkage at the outer or open end of the bearing member is greater than at the other end thereof. Such shrinkage of the bearing member causes it to exert pressure upon the chill and especially at the outer end thereof causing the surface of the chill, which has become soft due to the heat imparted to it from the molten metal, to bulge at the point of least pressure thereon, viz at its inner end. As a result the chill tends to stick fast within the bearing member, and when it is removed it must be restored to its proper shape before it can be used again.

In overcoming the difficulties indicated, I have found that by constructing the bearing with its contacting surface generated from Schiele's anti-friction curve, known as the tractrix (see the Encyclopedia Britannica, eleventh edition, volume 17, page 1012), or from an approximation of said curve, the pressure of the outer bearing member upon the chill within it forces the chill out of the bearing member with a sliding action, without any injurious effects thereon. Moreover the wearing quality of the bearing members is materially improved by reason of the employment of the anti-friction curve for the contacting surfaces.

In the accompanying drawings, wherein the figure is a central sectional view through a bearing embodying the features of my invention, 1 represents the plow disk which is secured to an axial bearing member or holder 2 by a suitable number of countersunk bolts. Said axial holder 2 comprises a conical portion 2^a having its outer surface generated from Schiele's anti-friction curve, or an approximation thereof, and a base 2^b in the form of an annular flange curved outwardly from the conical portion on a somewhat smaller radius than that upon which the curved surface of the conical portion is generated. The single continuous bearing surface 3 thus formed is chilled to harden the same. Preferably the conical holder 2 is made hollow, the walls being made of substantially uniform thickness throughout. This construction tends to produce a uniform shrinkage of the member throughout, as well as to economize in material.

The outer bearing member is in the form of a conical sleeve 4 having a chilled interior surface 5 which is complementary to and in contact with the surface 3 of the holder 2. The sleeve 4 further has an annular projection 6 with chilled exterior surfaces 7 and 8. Near the head of the sleeve and closed by the head 2^a of the axial holder is an oil chamber 9 having a feed duct 10, communicating therewith, while on the head of the sleeve is a recess 11. The plow support 12 has an oil-supply duct 13 registering with the duct 10 and a pin 14 which fits into the recess 11, the latter combination restraining the sleeve from rotation. The sleeve is secured to the plow support by an axial bolt 15 and a nut 16.

An annular member or collar 17 is provided for securing the conical sleeve 4 to the axial holder 2. Said collar is secured to the disk 1 by means of bolts 19 extending through the disk, the base of the holder 2 and the collar, nuts 20 being threaded upon the projecting outer ends of the bolts. Said collar 17 comprises a clamping portion 17^b and a bearing portion 17^a having chilled interior surfaces 21 and 22 which are in con-

tact with the chilled exterior surfaces 7 and 8 of the annular projecting flange 6 of the sleeve 4.

Preferably the contacting bearing surfaces 7 and 21 of the conical sleeve 4 and collar 17, are so disposed relative to the contacting surfaces 8 and 22 of the sleeve and collar as to form therewith an obtuse angle, so that the combined contacting surfaces approximate in shape the arc of a circle struck from the point of greatest pressure exerted upon the disk by the earth being plowed, such point being located near the lower periphery of the disk. This construction is advantageous in that it diminishes the extent of separation of the contacting surfaces 8 and 22 at the upper side of the bearing, thus distributing the wear between the surfaces 7 and 21 and 8 and 22.

If desired, a shim 18 may be provided between the collar 17 and the annular portion 2^b of the conical bearing member 2, for the purpose of taking up wear between the parts.

I claim as my invention:

A plow disk gearing comprising an inner member having its exterior surface generated in accordance with Schiele's anti-friction curve or an approximation thereof and hardened by a chilling operation, and an outer member having its interior surface generated on the same or a similar curve complementary to the exterior surface of said inner member and likewise hardened by chilling, said members being secured together in interfitting relation and adapted to be secured respectively to a support and to a plow disk.

In testimony whereof, I have hereunto set my hand.

JOHN C. BOHMKER.

Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,422,918, granted July 18, 1922, upon the application of John C. Bohmker, of Bradley, Illinois, for an improvement in "Disk Bearings," an error appears in the printed specification requiring correction as follows: Page 2, line 26, in claim, for the word "gearing" read *bearing;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 29th day of August, A. D., 1922.

[SEAL.] KARL FENNING,

Acting Commissioner of Patents.