

No. 785,865.

PATENTED MAR. 28, 1905.

S. E. DAVIS.  
SCRAPER FOR DISK DRILLS.

APPLICATION FILED SEPT. 6, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

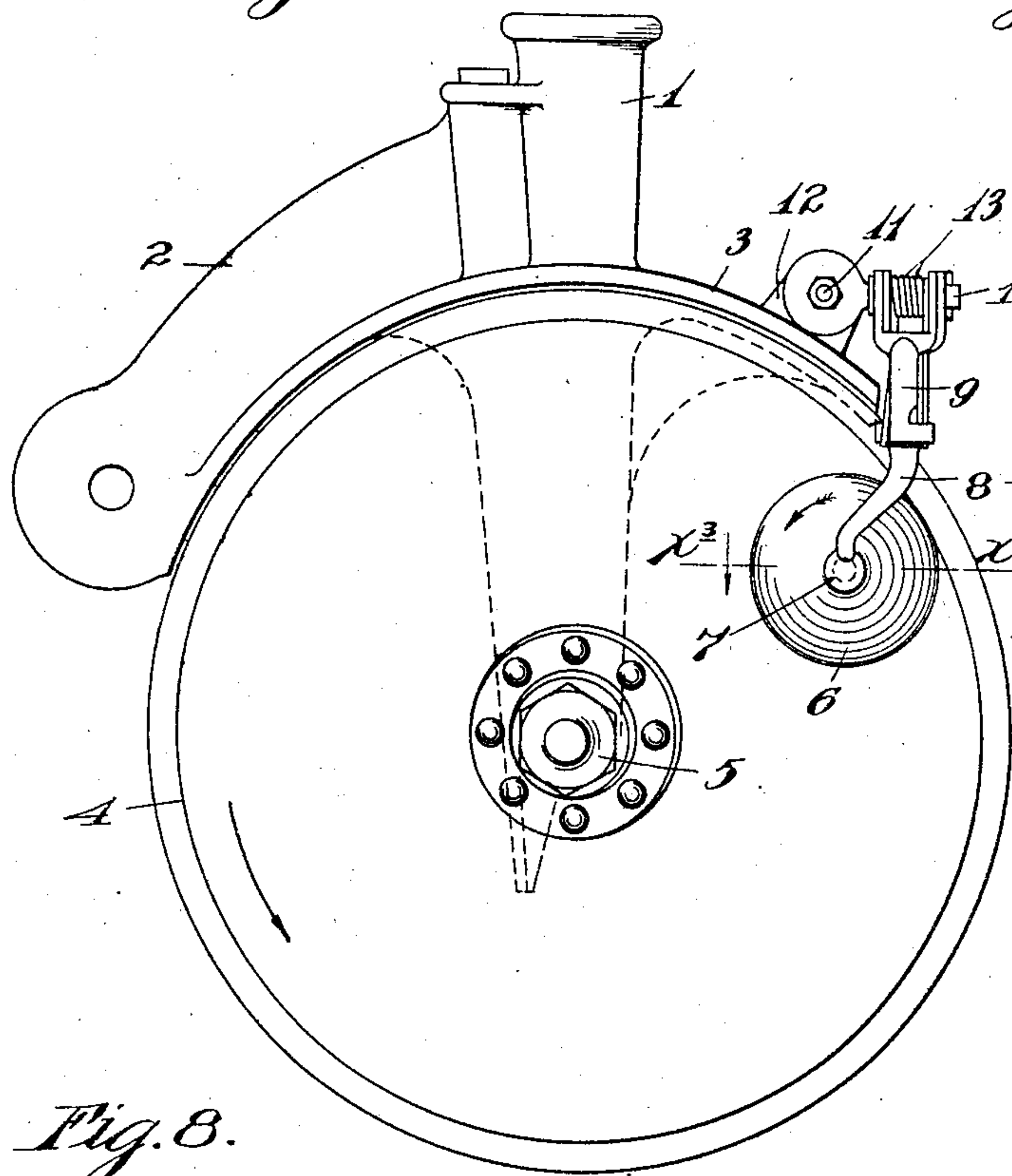


Fig. 2.

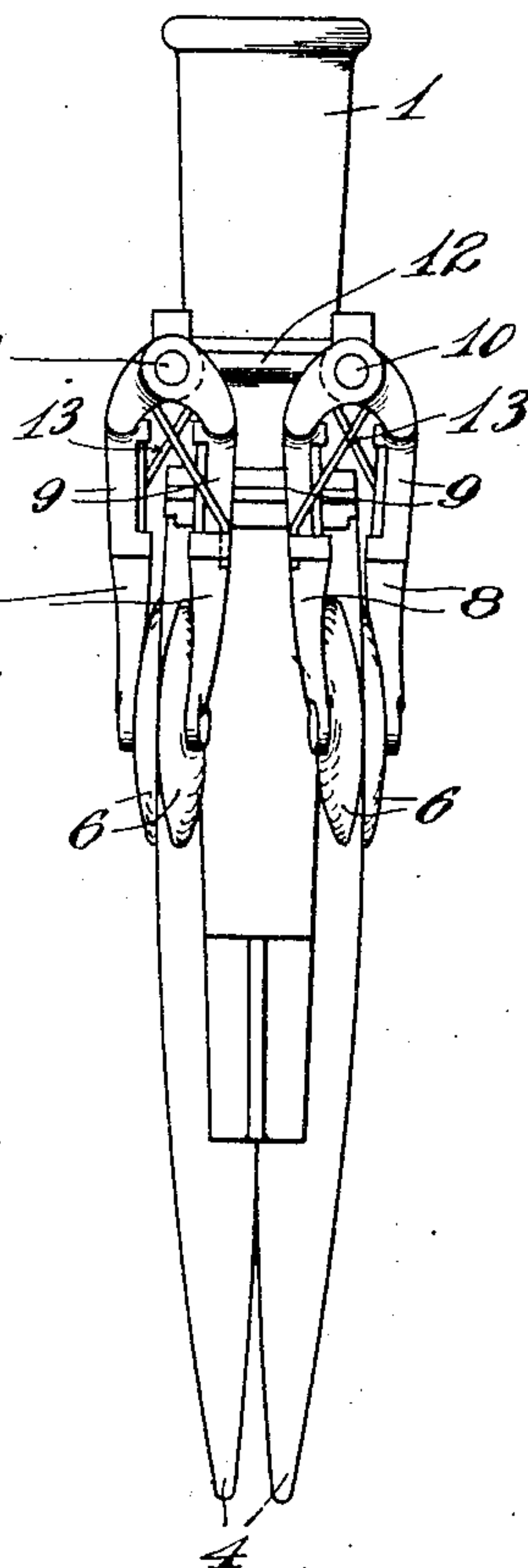


Fig. 8.

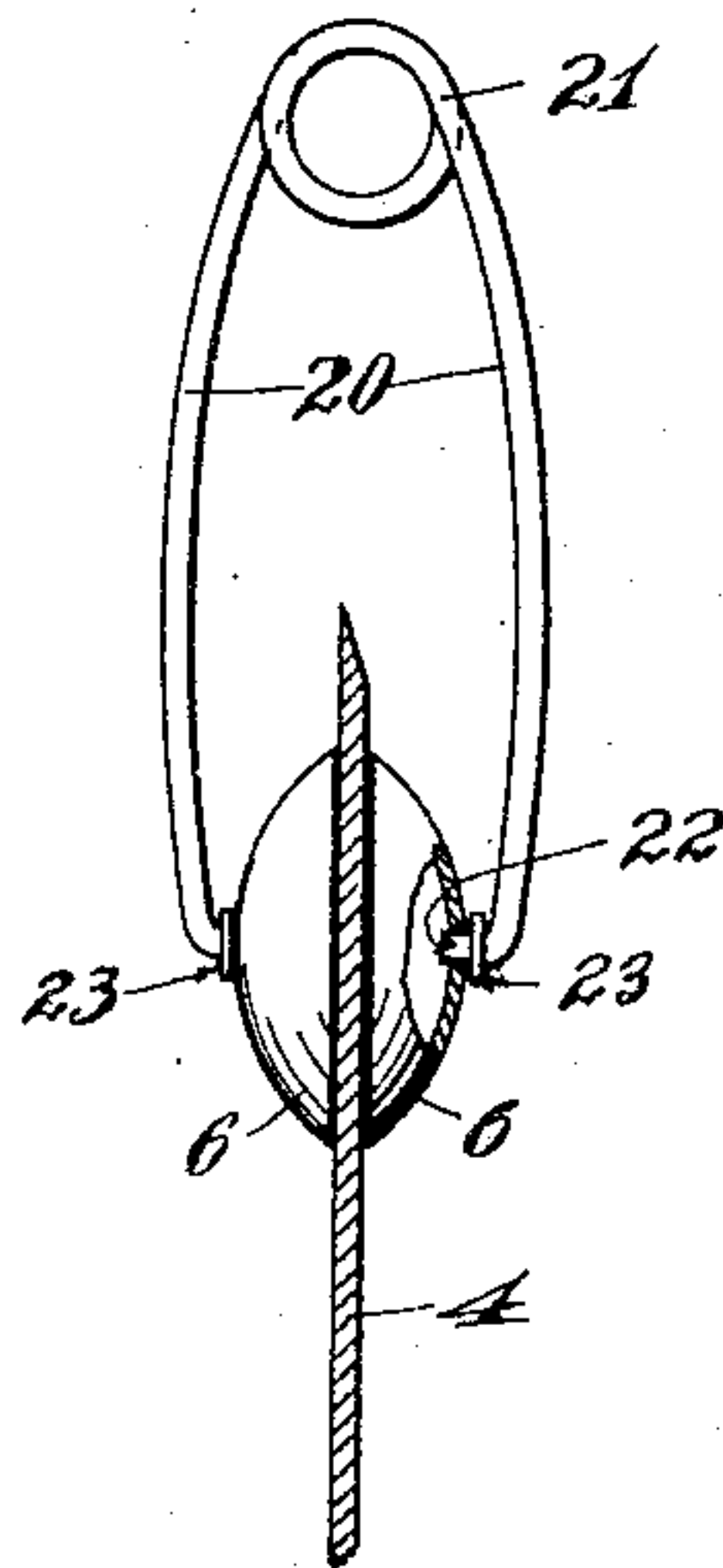
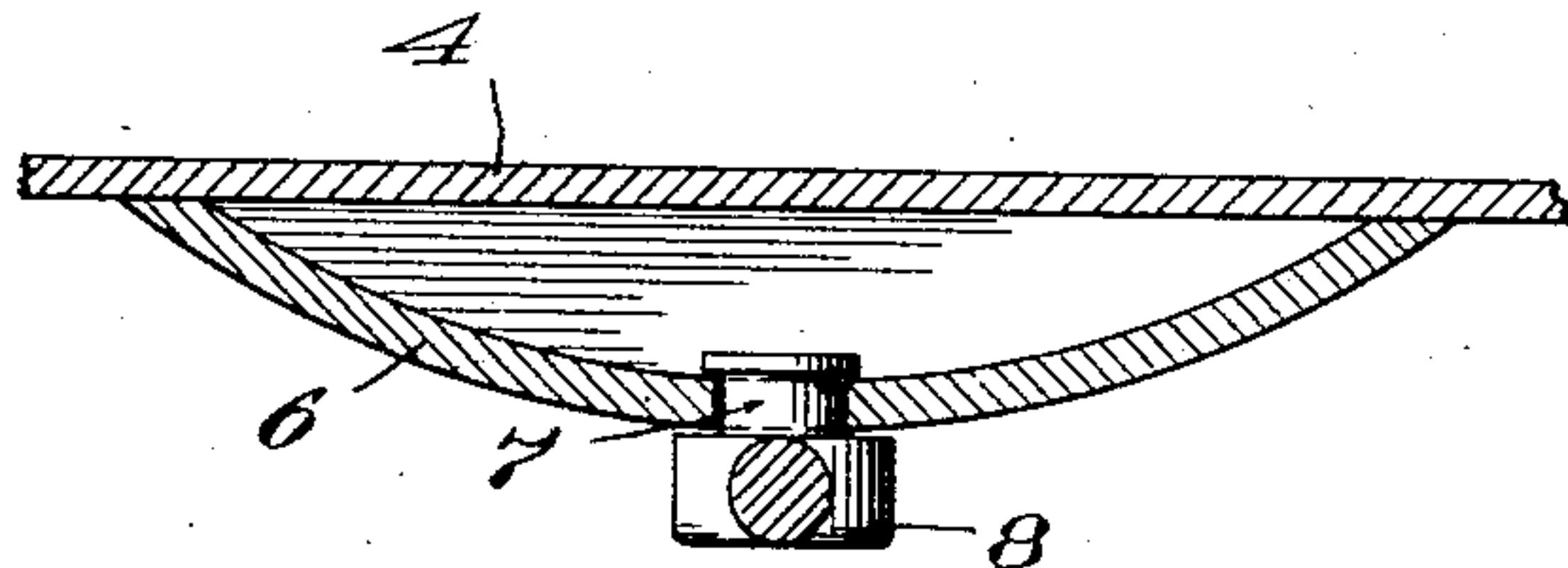


Fig. 3.



Witnesses.

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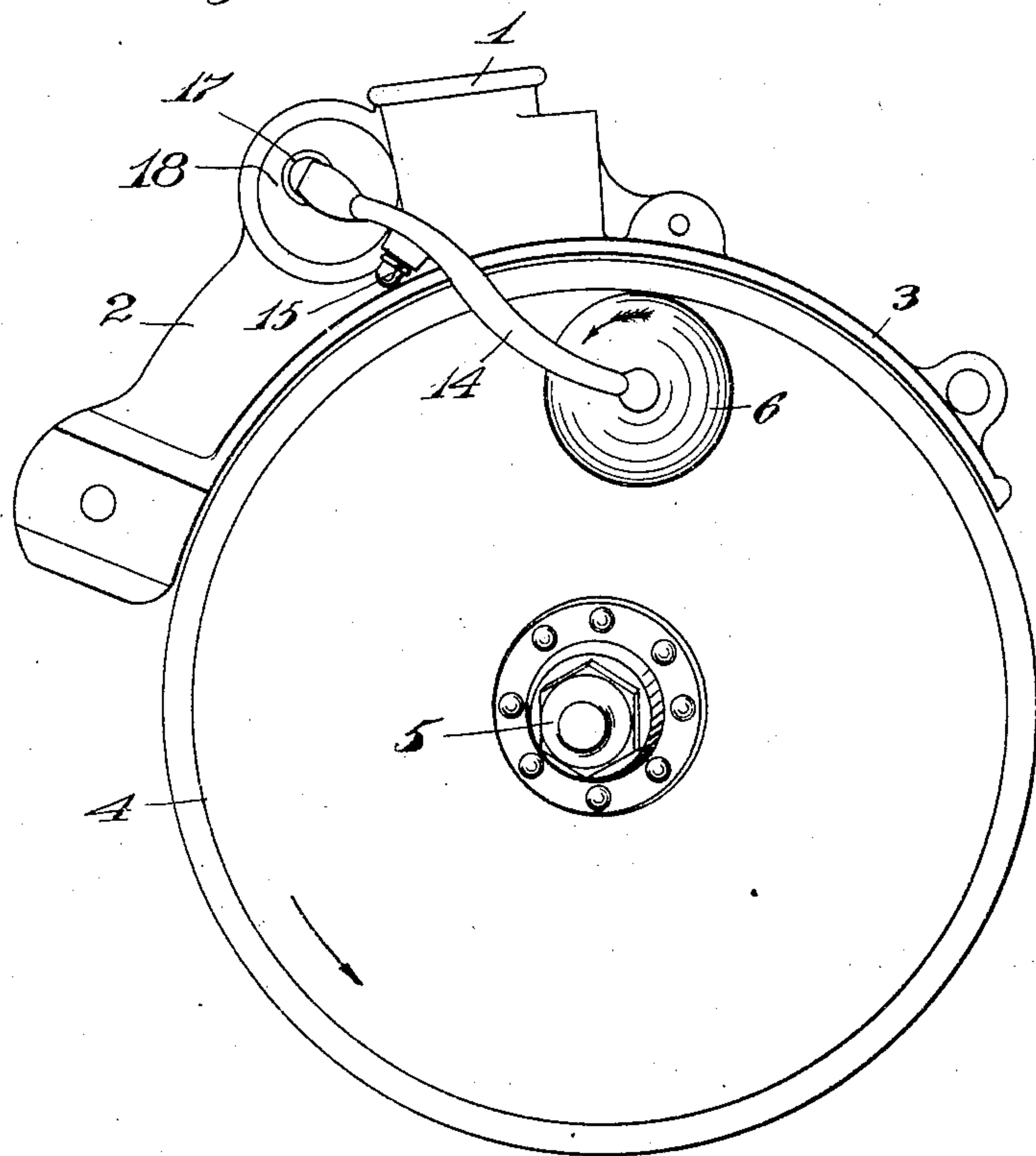
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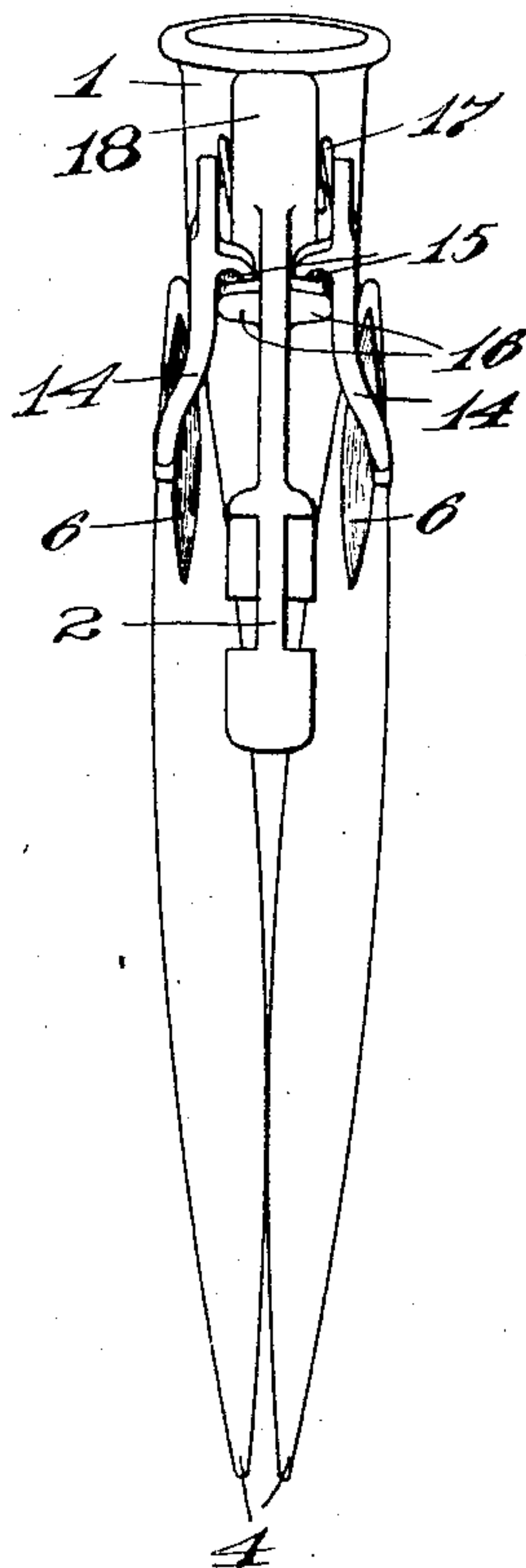
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2 SHEETS—SHEET 2.

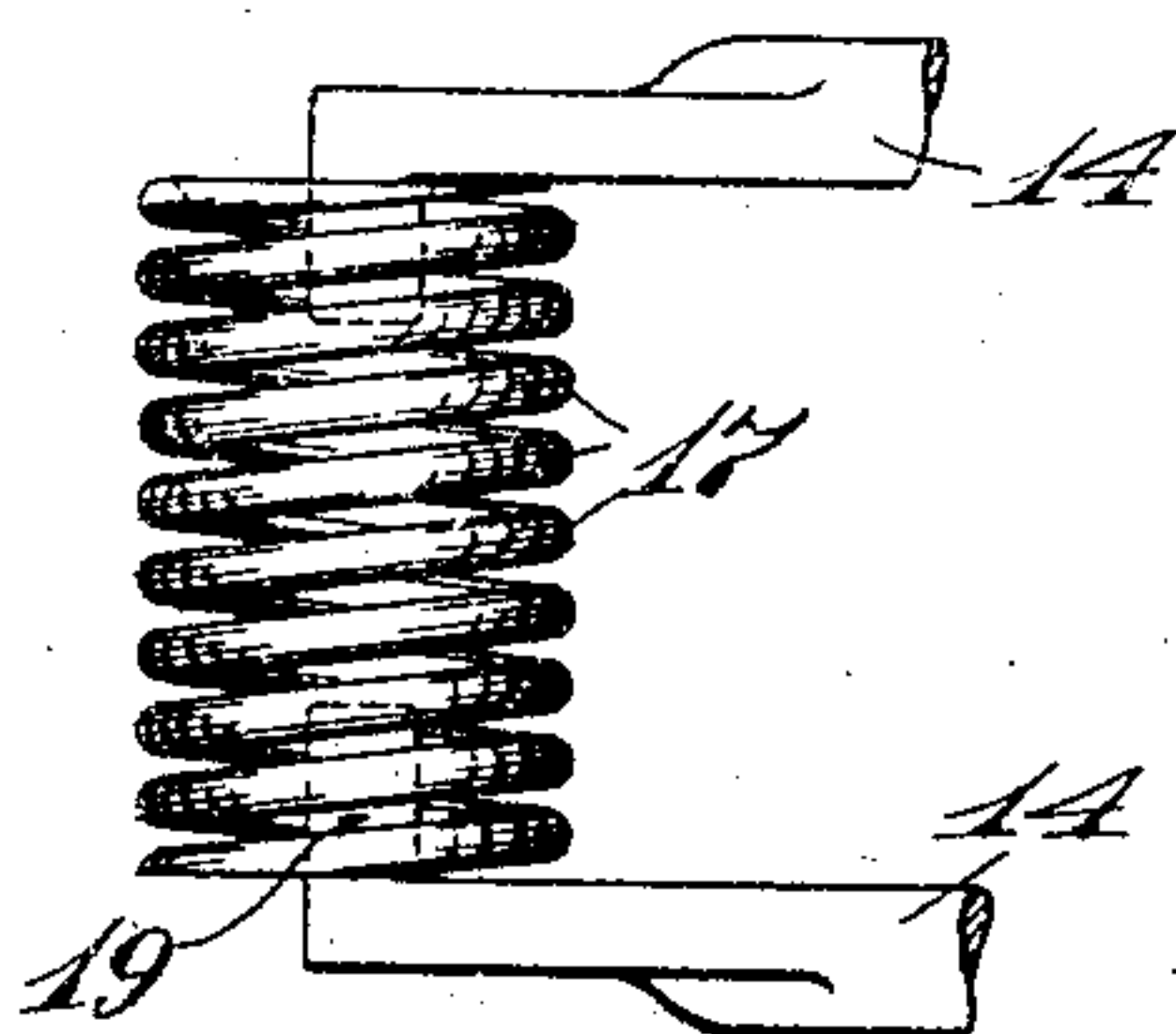
*Fig. 4.*



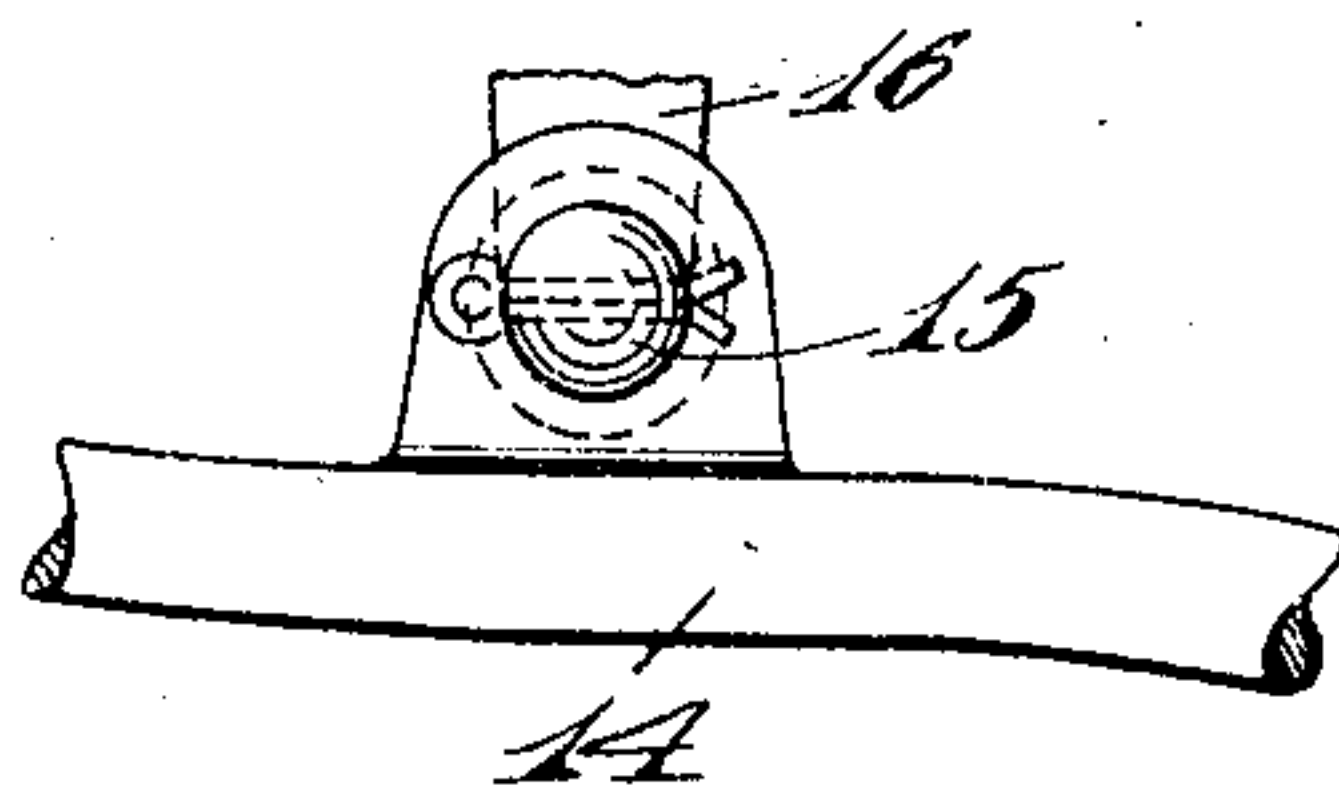
*Fig. 5.*



*Fig. 6.*



*Fig. 7.*



*Witnesses.*

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## UNITED STATES PATENT OFFICE.

SPENCER E. DAVIS, OF MINNEAPOLIS, MINNESOTA.

## SCRAPER FOR DISK DRILLS.

SPECIFICATION forming part of Letters Patent No. 785,865, dated March 28, 1905.

Application filed September 6, 1904. Serial No. 223,324.

*To all whom it may concern:*

Be it known that I, SPENCER E. DAVIS, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Scrapers for Disk Drills; and I do hereby 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.

My present invention relates particularly to disk drills, and has for its especial object to provide an improved scraper or scraper mechanism therefor.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings my invention is illustrated as applied to double-disk drills; but it will of course be understood that the same may be applied to single-disk drills, to plow-disks, and to rotating wheels generally.

In the accompanying drawings like characters indicate like parts throughout the several views.

Figure 1 is a view in side elevation, showing a seed-boot, a pair of disks, and cooperating scrapers applied to said disks, the said scrapers being designed in accordance with my invention. Fig. 2 is a rear elevation of the parts shown in Fig. 1. Fig. 3 is a horizontal section on the line  $x^3 x^3$  of Fig. 1, some parts being broken away. Fig. 4 is a view corresponding to Fig. 1, but illustrating different means for supporting the scraper-blades or scrapers proper. Fig. 5 is a front elevation of the parts shown in Fig. 4. Fig. 6 is a detail in plan, showing the forward end portions of the scraper-supporting levers illustrated in Figs. 4 and 5 and showing a coiled spring arranged to act thereon. Fig. 7 illustrates the manner in which the said scraper-levers are pivoted to the seed-boot; and Fig. 8 is a detail, partly in plan and partly in horizontal section, illustrating a modified form of scraper-support.

In Figs. 1, 2, 4, and 5 the numeral 1 indi-

cates the seed-boot, having a forwardly-projecting arm 2, to which a drag-bar (not shown) may be rigidly attached. At its rear end said boot is provided with a bearing-flange 3, shown as cast integral therewith and with the arm 2.

The numeral 4 indicates the disks, which are of the ordinary construction, being flat, as shown, and are pivotally connected to the lower portion of the boot 2 by journals 5 of the usual or any suitable construction.

The scraper-blades or scrapers proper in their most approved form are concavo-convex and are pivotally supported and yieldingly pressed against the face of the disk or disks which they are intended to clean. These concavo-convex scrapers are shown in both of the constructions illustrated and are indicated by the numeral 6. In Figs. 1 and 2, the scrapers 6 are loosely pivoted at 7 to the ends of arms 8, swiveled in arm-sockets 9, pivoted on trunnion-like bearings 10, which in turn are rigidly but adjustably connected by pivot-bolt 11 to a bearing-lug 12 on the boot extension 3. Springs 13, which, as shown, are coiled about the trunnions 10, act upon the arm-sockets 9 and yieldingly press the cooperating scrapers 6 against the opposite faces of the cooperating disks 4. The above-noted means for supporting the scrapers and which is duplicated for each disk 4, is disclosed and claimed in my prior patent, No. 718,825, issued to me of date January 20, 1903, and entitled "Disk drills." The said means is only one of the many which may be used to support my improved scrapers.

In the construction illustrated in Figs. 4 to 7, inclusive, the scrapers 6 are loosely pivoted to the ends of supporting-levers 14, which in turn are pivoted at 15 to bearing-lugs 16 on the boot 1. A coiled spring 17 is, as shown, passed through a large perforation 18 in the boot-arm 2 and is compressed between the forwardly-projecting ends of said arms, being held against displacement by intumed projections 19 thereof. This spring 17, acting on the arms 14, yieldingly presses the two disk-like scrapers 6 against the outer faces of the two disks 4. In this arrangement the inner surfaces of the disks may be cleaned by



the usual or any suitable scraper. In the arrangement illustrated in Figs. 1 and 2, as is evident, both the inner and outer surfaces of both disks are cleaned by my improved

5 scrapers.

When the disks 4 are, under the advance movements of the machine and by their contact with the ground, caused to rotate in the direction indicated by the arrow marked on Fig. 1 and on Fig. 4, the disk-like scrapers 6 will be caused to rotate in the direction of the arrow marked thereon in said Figs. 1 and 4. The rotation of the scrapers 6 under the frictional contact therewith is due to the fact that the outer portion of the disks 4 travel of course much faster than their inner portions. Otherwise stated, that surface of a disk which is in engagement with that portion of a scraper which is farthest from the axis of the disk-journal 5 always travels faster than that portion of said disk which is in engagement with that portion of said scraper which is nearest to the axis of said disk-journal. The rotary movement of the scraper-disks or scrapers proper is very important, because under such rotary movement said scrapers cut the dirt with a drawing action and thoroughly scour the faces of the disks. However, regardless of this rotary movement, the circle or disk-like form of the scraper is important, and especially a concavo-convex disk-like scraper or one having a convex exterior is extremely efficient. The rounded or convex surface of the scraper forces itself under the dirt adhering to the disk and crowds the same off from the disk and away from the same with a sort of double-wedge action, a wedge being afforded both in the plane of the disk and at a right angle thereto. Hence it will be understood that the scraper described is capable of quite a large range of modifications within the scope of my invention as herein set forth and claimed.

It is obvious that the improved scraper may be applied to a concavo-convex disk, and it will be further understood that the said scraper is adapted for application to a great many different forms and kinds of rotating disks or wheels.

Fig. 8 illustrates a novel form of scraper-support, said support being constructed from a single piece of spring metal, such as a tempered-steel rod 20, which is bent to form a sleeve-like coil 21 and end trunnions 22, upon which trunnions the scrapers 6 are loosely pivoted. Small washers 23 are placed on the trunnions 22 just outward of the scrapers. In applying this scraper-support in working position the bearing afforded by the coil 21 may be slipped onto one of the pivoted trunnions 10, before described. The spring tension of this support serves to keep the scraper 6 pressed against the opposite faces of the disk 4. This novel form of scraper I do not herein claim, but claim the same in an application filed as a division of this application of date January 24, 1905, under Serial No. 242,508.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination with a disk, of a disk-like scraper having a convex outer face and having continuous marginal engagement with said disk, substantially as described.

2. The combination with a disk, of a disk-like rotary scraper having continuous marginal engagement therewith, and with its axis eccentric to the axis of said disk, substantially as described.

3. The combination with a rotary disk, of a concavo-convex rotary scraper having continuous marginal engagement therewith, and having its axis eccentric to the axis of said disk, substantially as described.

4. The combination with a disk, of a concavo-convex rotary scraper having continuous marginal engagement with said disk at one side of the disk-pivot, and a spring-pressed arm loosely pivoted to said scraper, and pressing the same into frictional engagement with said disk, substantially as described.

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

SPENCER E. DAVIS.

Witnesses:

H. D. KILGORE,  
F. D. MERCHANT.