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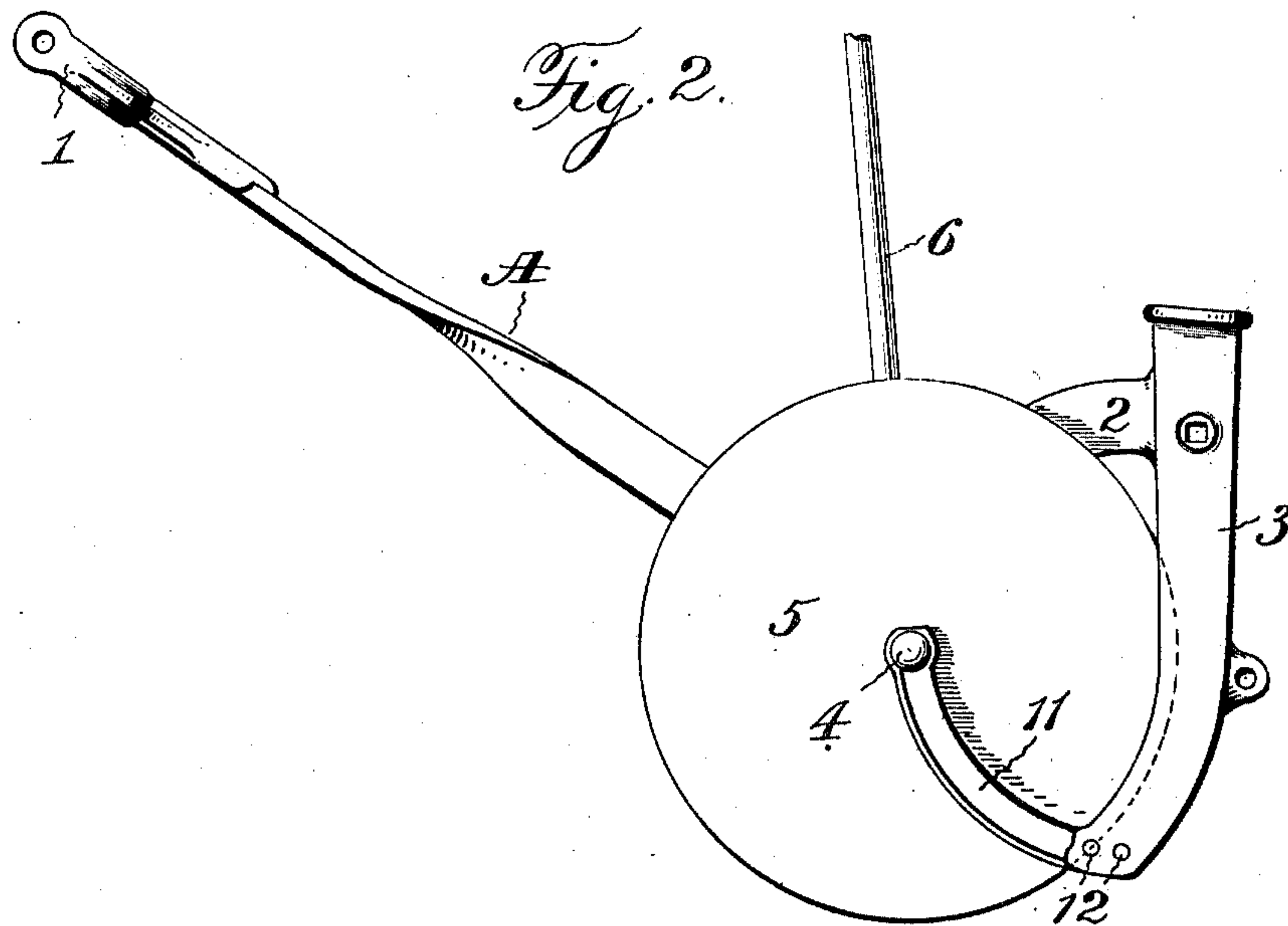
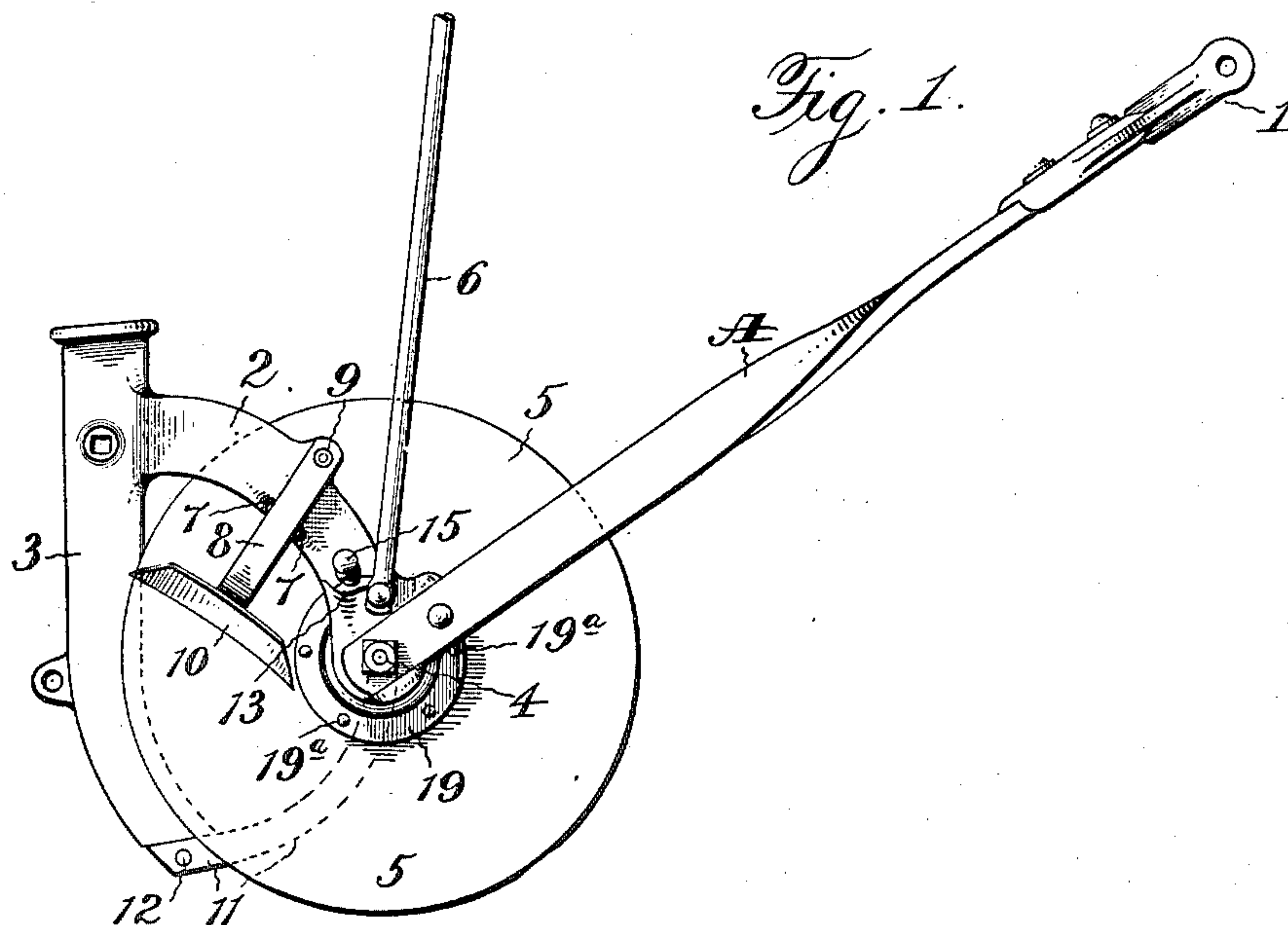
Patented Oct. 16, 1900.

W. A. VAN BRUNT.
GRAIN DRILL.

(Application filed Mar. 19, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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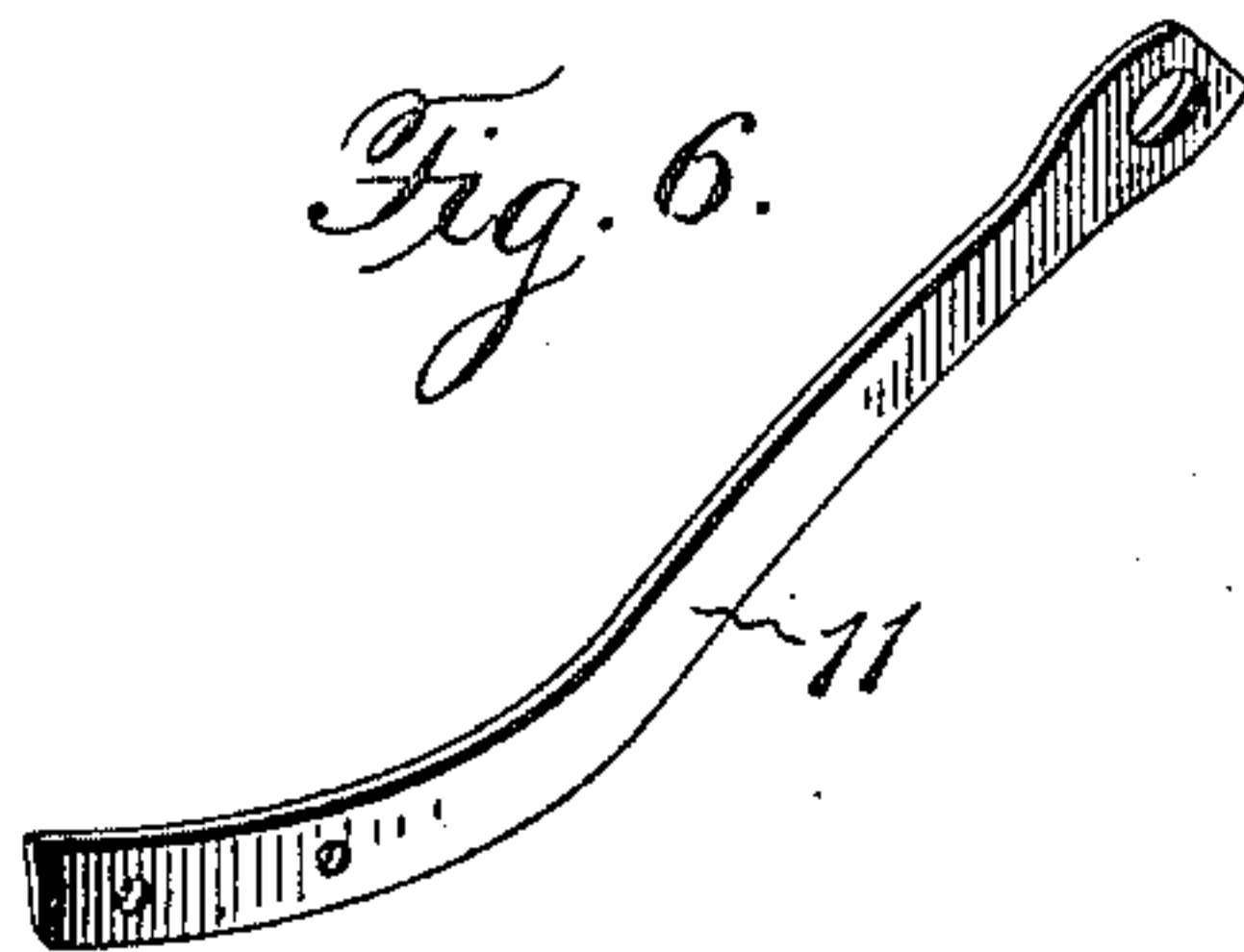
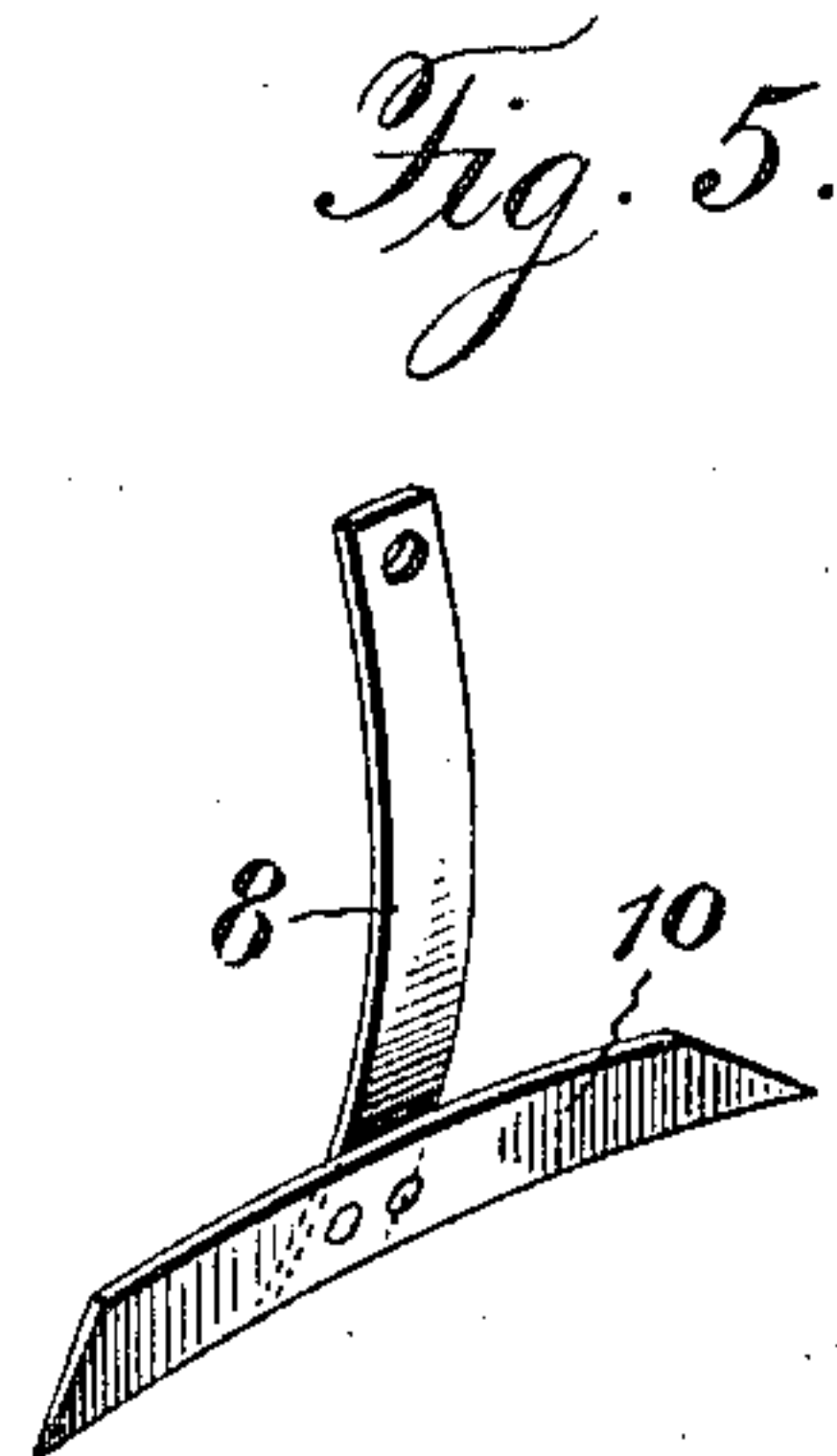
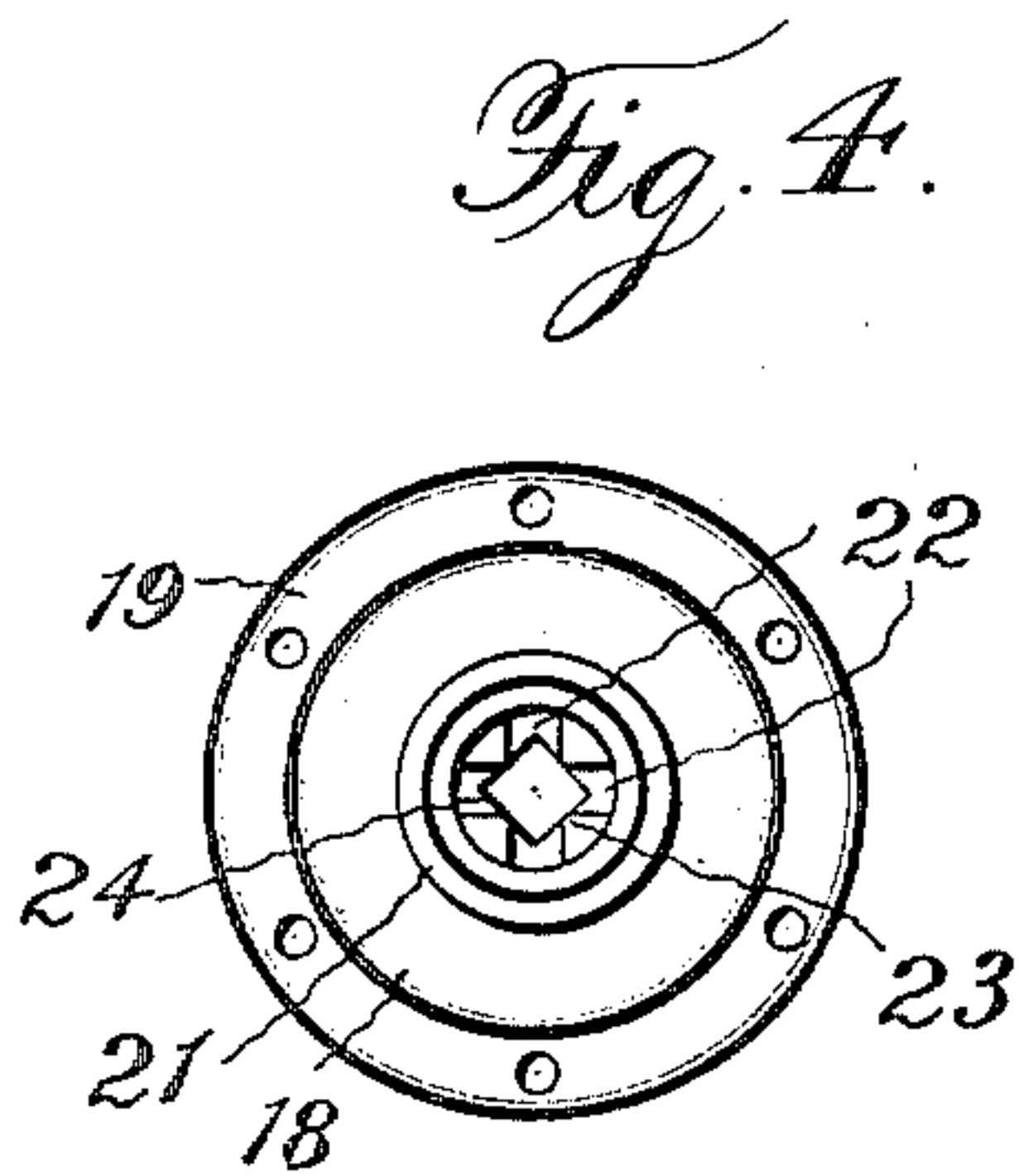
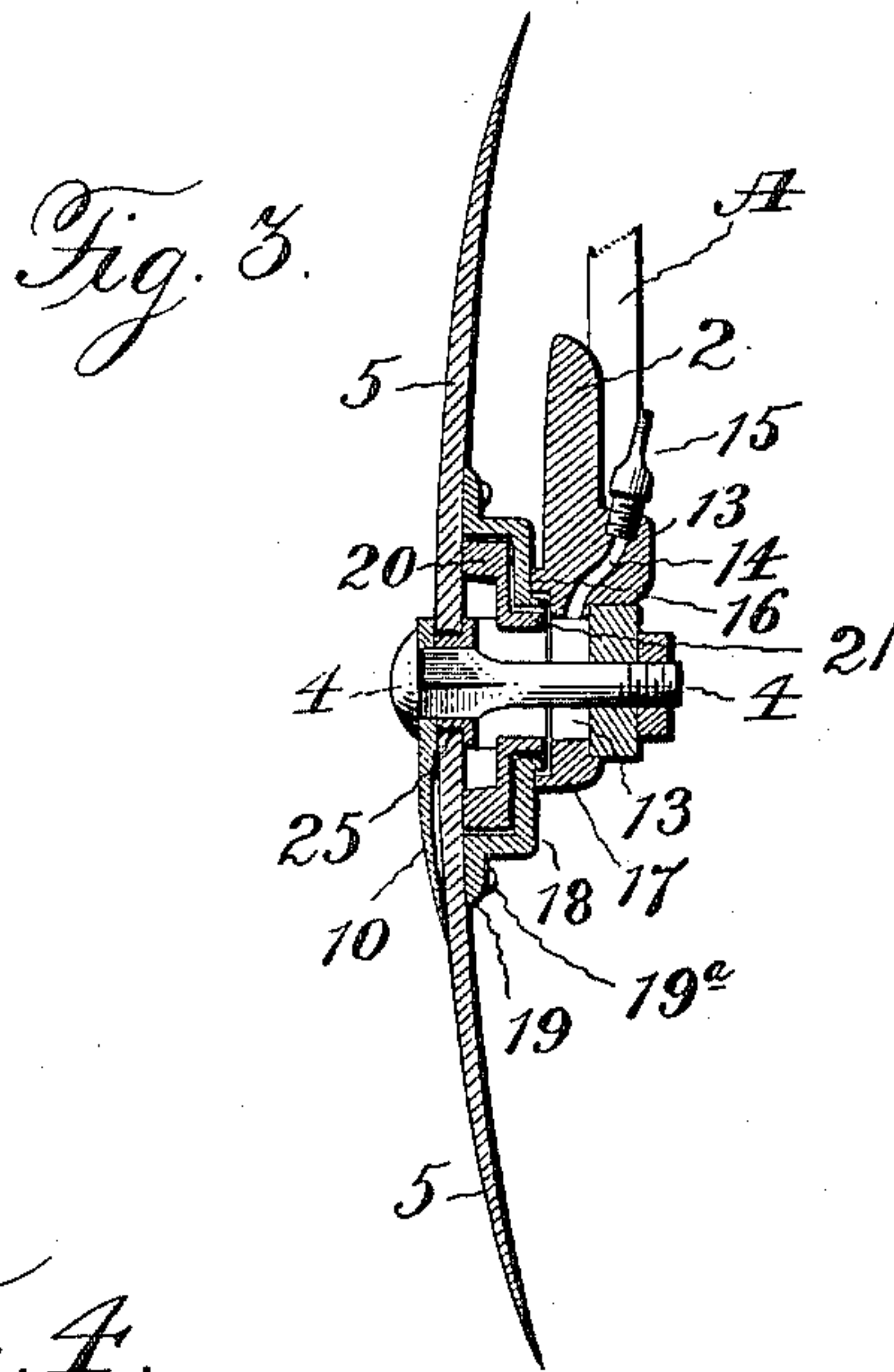
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3 Sheets—Sheet 2.



Witnesses

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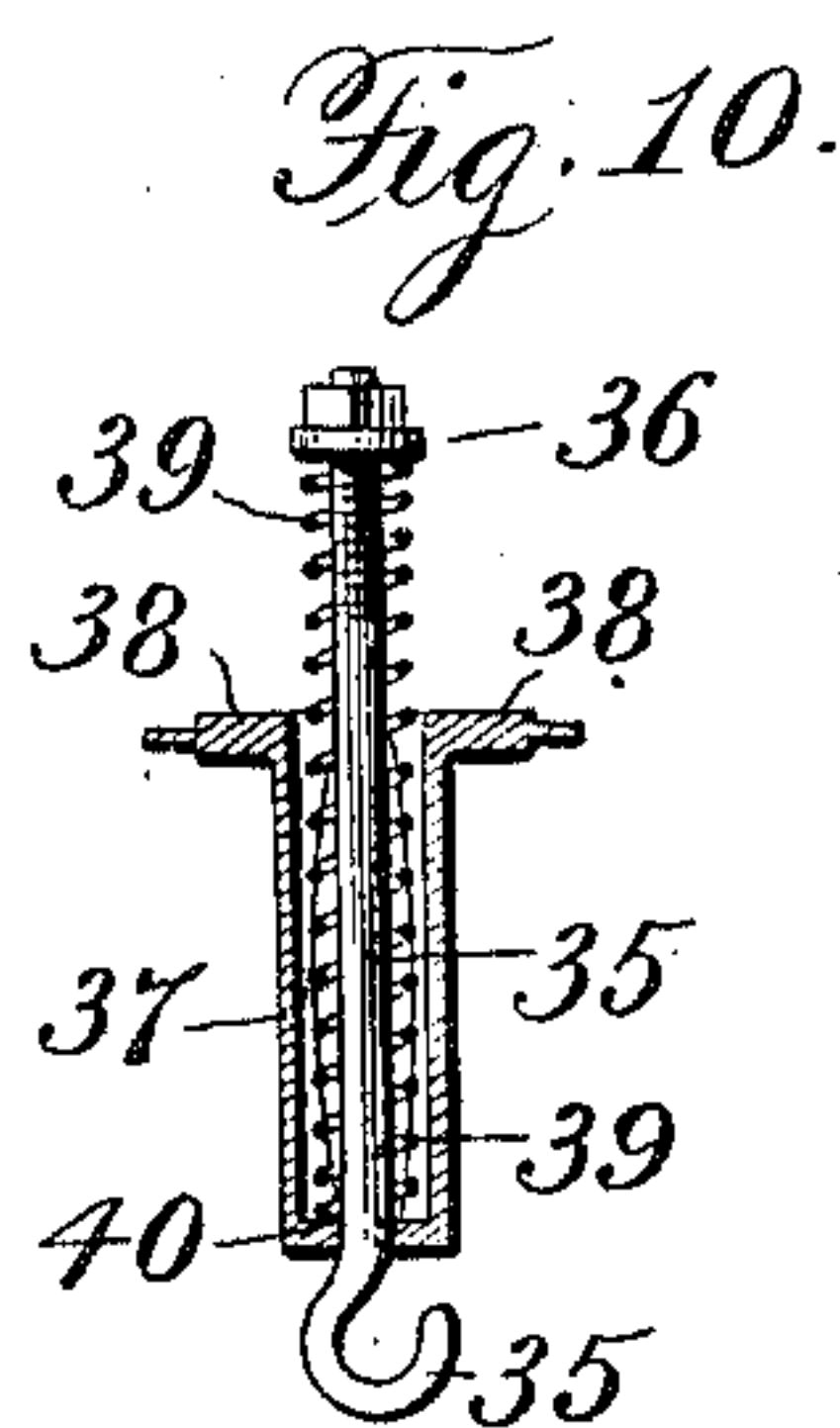
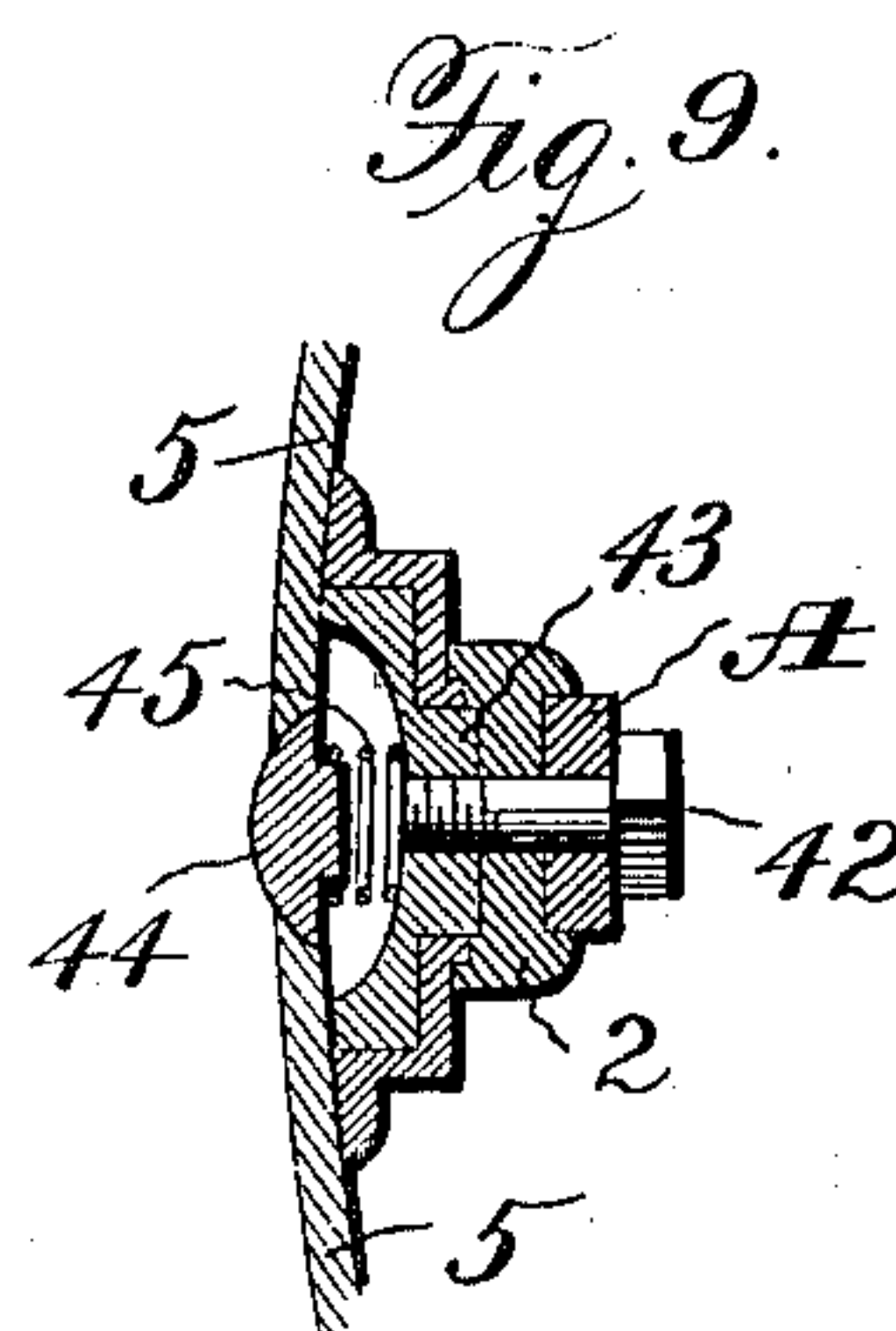
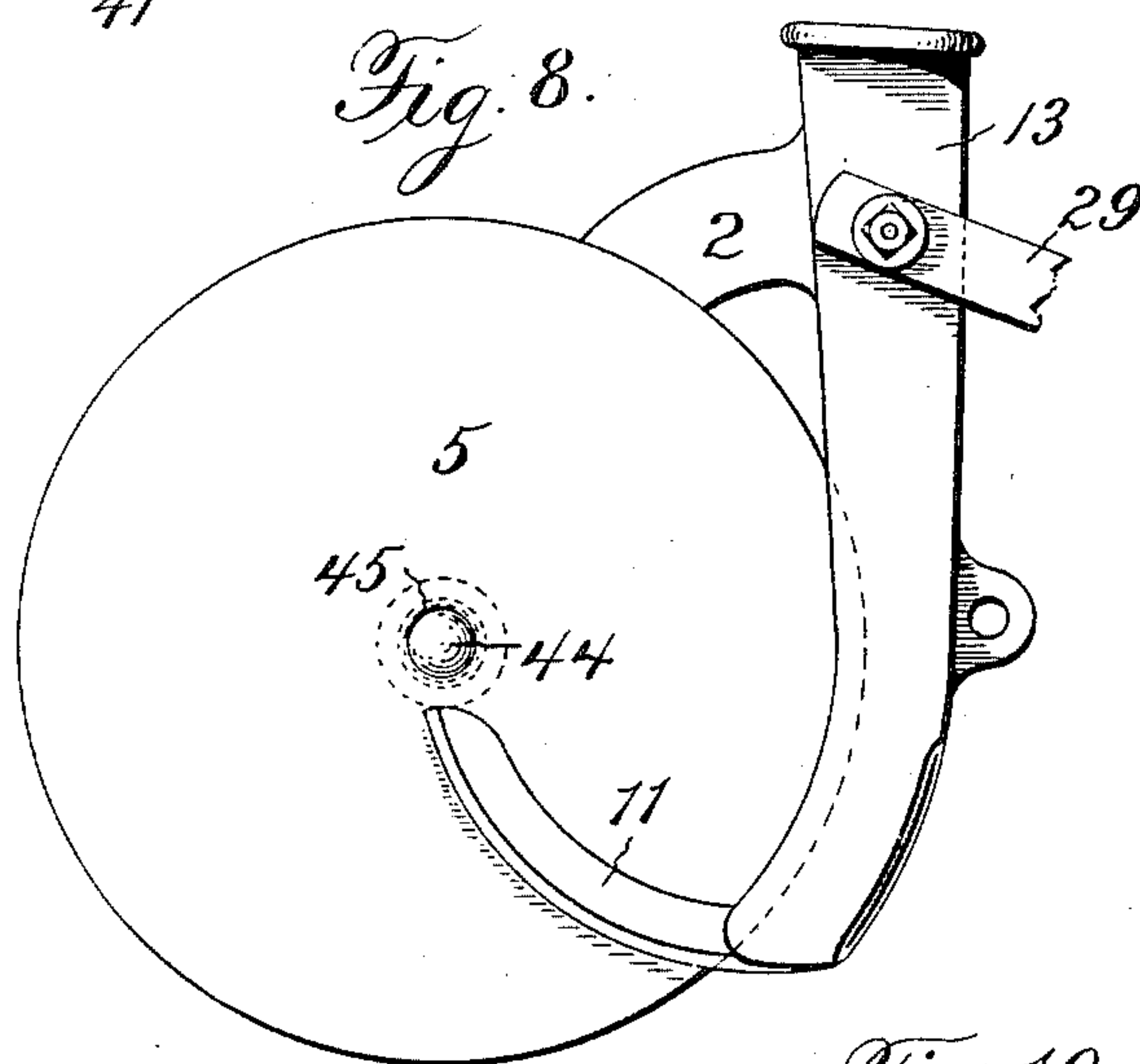
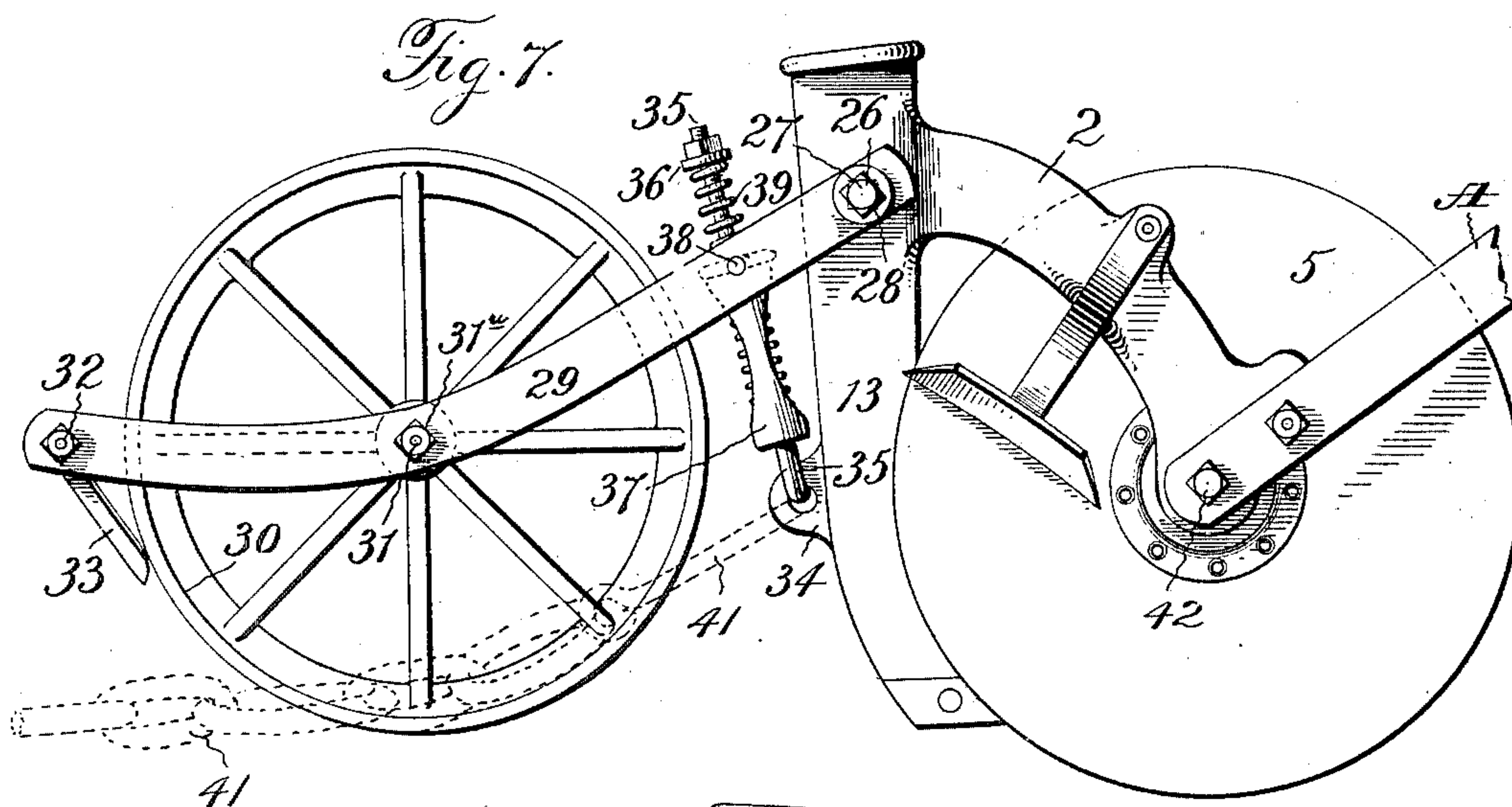
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(No Model.)

3 Sheets—Sheet 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLARD A. VAN BRUNT, OF HORICON, WISCONSIN.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 659,881, dated October 16, 1900.

Application filed March 19, 1900. Serial No. 9,261. (No model.)

To all whom it may concern:

Be it known that I, WILLARD A. VAN BRUNT, a resident of Horicon, in the county of Dodge and State of Wisconsin, have invented certain new and useful Improvements in Grain-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 invention relates to an improvement in grain-drills, and is especially related to a disk furrow-opener and means for conducting the grain into the furrow, an object of the invention being to provide a disk furrow-opener with improved lubricant-retaining bearing, which will also serve to greatly economize space.

A further object is to provide means for obviating the liability of the several parts clogging up, and thus failing to properly perform their various functions.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figures 1 and 2 are views in elevation from opposite sides, illustrating my improvements. Fig. 3 is a view in transverse section of the same. Fig. 4 is a view in elevation of the bearing removed. Figs. 5 and 6 are detached views of the scrapers 10 and 11, respectively. Figs. 7 and 8 are views in side elevation from opposite sides, showing a slightly-modified form of my improvements with cooperating parts attached. Fig. 9 is a view in transverse section through the modified form of bearing, and Fig. 10 is a detail view of the means for holding the press-wheel in contact with the ground.

A represents a drag-bar, preferably formed of a single bar of iron having a quarter-twist, so as to join a head 1 at one end, by which it is pivotally attached to the main frame of the machine, while the other end of said drag-bar is secured to a forwardly-projecting arm 2, integral with the upper portion of the boot 3, and said arm 2 and bar 1 are provided with alined holes for the passage of a bolt 4 to secure the disk 5 in place. A lifting-rod 6 is

secured at one end to the arm 2, near the forward end thereof, and is provided at its upper end with any approved operating mechanism (not shown) for raising and lowering the boot and disk, and said arm 2 is provided between its ends with lugs 7, between which is disposed a spring-arm 8, secured to the arm 2 by means of a bolt 9 and carrying at its free end a scraper 10, held against the concave face of disk 5 by the spring tension of the arm 8.

A scraper 11 is secured on the bolt 4 on the convex side of the disk 5 and curves downward and rearward and is secured to the toe of the boot 3 by rivets 12 or other approved means and is sharpened or beveled along its front edge and held in firm contact with the convex face of the disk to effectually clean the same and prevent the collection of dirt and trash to interfere with the operation of the drill. It will thus be seen that the boot 3, connected to the bolt 4 on opposite sides of the disk by means of the arm 2 and scraper 11, is supported at both its upper and lower ends, and hence insures its proper position to drop the grain at the rear edge of the disk, which being placed at an angle to the line of draft of the machine will make a furrow in which the grain is deposited by the boot.

The forward end of the arm 2 is made with an oil or lubricant chamber 13, through which the bolt 4 passes, and a duct 14 communicates with said chamber 13 and is normally closed by a threaded plug 15, screwed into the upper threaded end of said duct, and the inner face of the arm 2 is provided, around the outlet of the chamber 13, with a circular flange 16, in which is disposed a circular flange or shoulder 17 around an opening in one side of a cup-shaped casing 18, which latter is provided with a peripheral perforated flange 19, secured to the concave face of the disk 5 by means of rivets 19^a or other approved means. A circular bearing-block 20 is mounted in the cup-shaped casing 18 and is made on one side with a circular enlargement 21, having a bearing in the outer open face of the casing and disposed against the arm 2 and communicating with the lubricant-chamber 13, and is made with an opening 22, preferably in the form of a Maltese cross, having flattened bearing-points 23, coinci-

dent with an angular opening 24 in a circular enlargement 25 on the opposite side of the bearing-block 20 and disposed in an opening in the disk. The angular opening 25 is adapted to receive the angular portion of bolt 4 to lock the bearing-block against rotary movement, hence permitting the cup-shaped casing 18, carried by the disk, to rotate freely around the same, and it will be seen that the lubricant in the chamber 13 will pass between the circular enlargement 21 and the flange 17 and be conveyed down into the cup-shaped casing 18 and be fed to the bearing, and owing to the fact that the cup-shaped casing 18 extends below the lubricant-chamber the lubricant will be retained in said casing and not run out when the machine is not in use, as is the case with all other devices of similar character now on the market.

In Figs. 7, 8, and 9 I have shown the boot with cooperating parts attached thereto, and in these views I have illustrated a modified form of bearing and scraper, as will more fully hereinafter appear.

Countersunk bolts 26 are disposed in angular openings 27 in opposite sides of the boot 3, near the top thereof, and on said bolts 26 are pivotally secured, by means of nuts 28, rearwardly-projecting parallel arms 29, between which is mounted a press-wheel 30, supported on a bolt 31, passing through alining holes in said arms and secured in place by a nut 31, the extreme rear end of the arms being connected by a bolt 32, on which a scraper 33 for said wheel 30 is supported.

An eye 34 is provided on the rear edge of the boot 3, near the lower end thereof, and the hooked end of an upwardly-projecting rod 35 is disposed therein and is provided on its upper end with screw-threads for the reception of a nut 36. An open-work tube 37 is disposed on the rod 35 and is provided, near its upper end on diametrically-opposite sides, with lugs 38, disposed in alining holes in the arms 29. A coiled spring 39 is mounted on the rod 35 in the tube 37 and bears at its upper end against the nut 36 and at its lower end against an internal shoulder 40 in the lower end of the tube 37 to hold the wheel 30 with yielding pressure against the ground, or instead of providing a presser-wheel I might connect a cover-chain 41 to the eye 34, as shown in dotted lines.

Instead of securing the end of the scraper 11 on the bolt 4 I might simply secure one end of the same to the toe of the boot and permit its own spring tension to hold it in contact with the convex face of the disk, as shown in Fig. 8.

In the modified form of bearing shown in section in Fig. 9 a bolt 42 is passed through a hole in the drag-bar and screwed into a threaded opening in the bearing-block 43, which latter is hollowed out on its side against the disk 5. The disk 5 is provided centrally with an oil-inlet opening normally closed by

a semispherical head of a button 44, and a spring 45 is disposed between the button and bearing-block 43 to hold the button against the disk to prevent the entrance of dirt or grit therein, but which can be readily pushed inward a sufficient distance to permit the bearing to be filled or partially filled with lubricant, which latter will, owing to the shape of the bearing, be retained therein, as has been explained heretofore.

In practice the furrow-openers are arranged in gangs crosswise of the line of draft of the machine about six inches apart, with the concave side of one disk facing the convex side of its neighbor and all set at a suitable angle to the line of draft of the machine to open a furrow, the soil being moved to one side and raised by the concave side of the disk. At times, owing to the condition of soil or rapidity with which the machine is moved, the soil banks up against the opposite furrow-opener, and, owing to the prevalence of the landsides, conduits, shields, drag-bars, and journal-fastenings in all previous machines, which more or less cover the convex side of the disk, the soil and clods are not agitated by the rotary motion of the disk and the furrow-opener cannot freely get rid of trash and clods.

The gist of my invention, aside from the lubricant-retaining journal, consists in exposing a greater amount of the disk-surface for agitating the soil by its rotary motion than heretofore and so arranging a scraper that the boot may be extended to the bottom of the furrow and all liability of trash gathering upon it be removed; also, locating the boot where the rotation of the disk carries the soil away from it instead of packing against it, and, also, so constructing the boot that within itself is formed an inclosed conduit between the top and point of discharge at the bottom. Disk furrow-openers as usually made depend upon one side of the disk to conduct the seed to the furrow. In this class of furrow-openers mud is liable and does get in between the disk and the adjacent seed-wall, causing trouble and imperfect work. The adjacent wall or landside and the conduit as formerly arranged are a serious menace to the furrow-openers shaking off and getting rid of clods and trash.

Various other slight changes than those above mentioned might be resorted to in the general form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I would have it understood that I do not wish to limit myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a boot, of an arm projecting forwardly and downwardly from the upper portion of said boot and offset lat-

erally therefrom, and a disk mounted at the end of said arm so as to be disposed between the arm and the boot.

2. The combination with a boot, of an arm projecting forwardly and downwardly from the upper portion of said boot and offset laterally therefrom, and a disk mounted at the end of said arm so as to be disposed between the arm and the boot and a scraper attached to said arm and engaging the concave face of the disk.

3. The combination with a concavo-convex disk and a boot disposed adjacent to the convex face of the disk, of an arm projecting forwardly and downwardly from the upper portion of the boot and offset therefrom so as to be disposed adjacent to the concave face of the disk, a bearing for the disk at the end of said arm, and a scraper for the convex face of the disk secured to the toe of the boot.

4. The combination with a boot, an arm projecting therefrom, a concavo-convex disk and a bearing for said disk at the end of the arm, of a scraper carried by said arm and engaging the concave face of the disk, and a scraper secured to the toe of the boot and engaging the convex face of the disk.

5. The combination with a boot, and a disk disposed to one side and having its bearing forwardly of the boot, of a scraper secured to the toe of the boot and projecting forwardly and upwardly therefrom and in engagement with the convex face of the disk.

6. In a drill, the combination with a disk, of a cup-shaped casing secured to the disk, a circular bearing-block disposed between the disk and said cup and inclosed by the latter and means for holding said circular bearing-block against movement.

7. In a drill, the combination with a disk having an opening therein, of a cup-shaped

casing secured to the disk, a circular bearing-block in the casing, and a spring-pressed button inclosed in the casing and adapted to close the opening in the disk.

8. In a drill, the combination with a concavo-convex disk having a central opening, of a casing secured centrally to the concave side of the disk, a circular bearing-block in said casing, a button of larger diameter than the hole in the disk, and a spring disposed between the block and button to hold the latter in position to close the opening in the disk.

9. The combination with a drag-bar, a boot and an arm on said boot secured to the drag-bar, of a disk, a cup-shaped casing secured to said disk and having the chamber therein extending below the axial support of the disk, a circular bearing-block inclosed within said casing and means for retaining lubricant in said casing and excluding dirt and grit.

10. In a grain-drill, the combination with a boot, rearwardly-extending bars pivoted at their forward ends to the upper portion of said boot and a press-wheel mounted between said bars, of a tube pivotally mounted at its upper end between said bars, a rod passing freely through said tube and attached at its lower end to the lower portion of the boot, and a spring having a bearing at one end in the bottom of the tube and a bearing at the upper end of the rod for the other end of said spring.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLARD A. VAN BRUNT.

Witnesses:

H. W. LANGE,
H. MARSH.