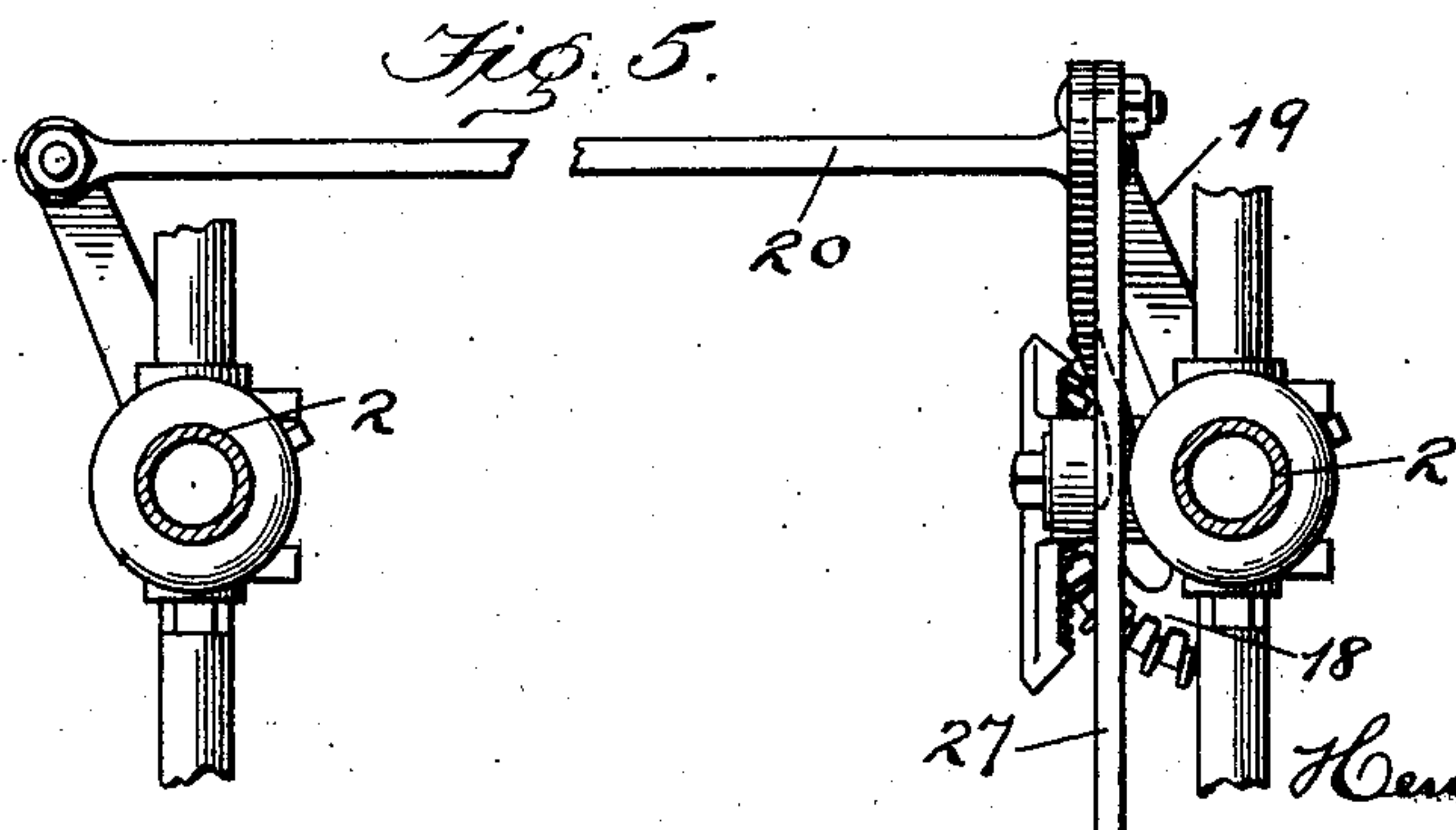
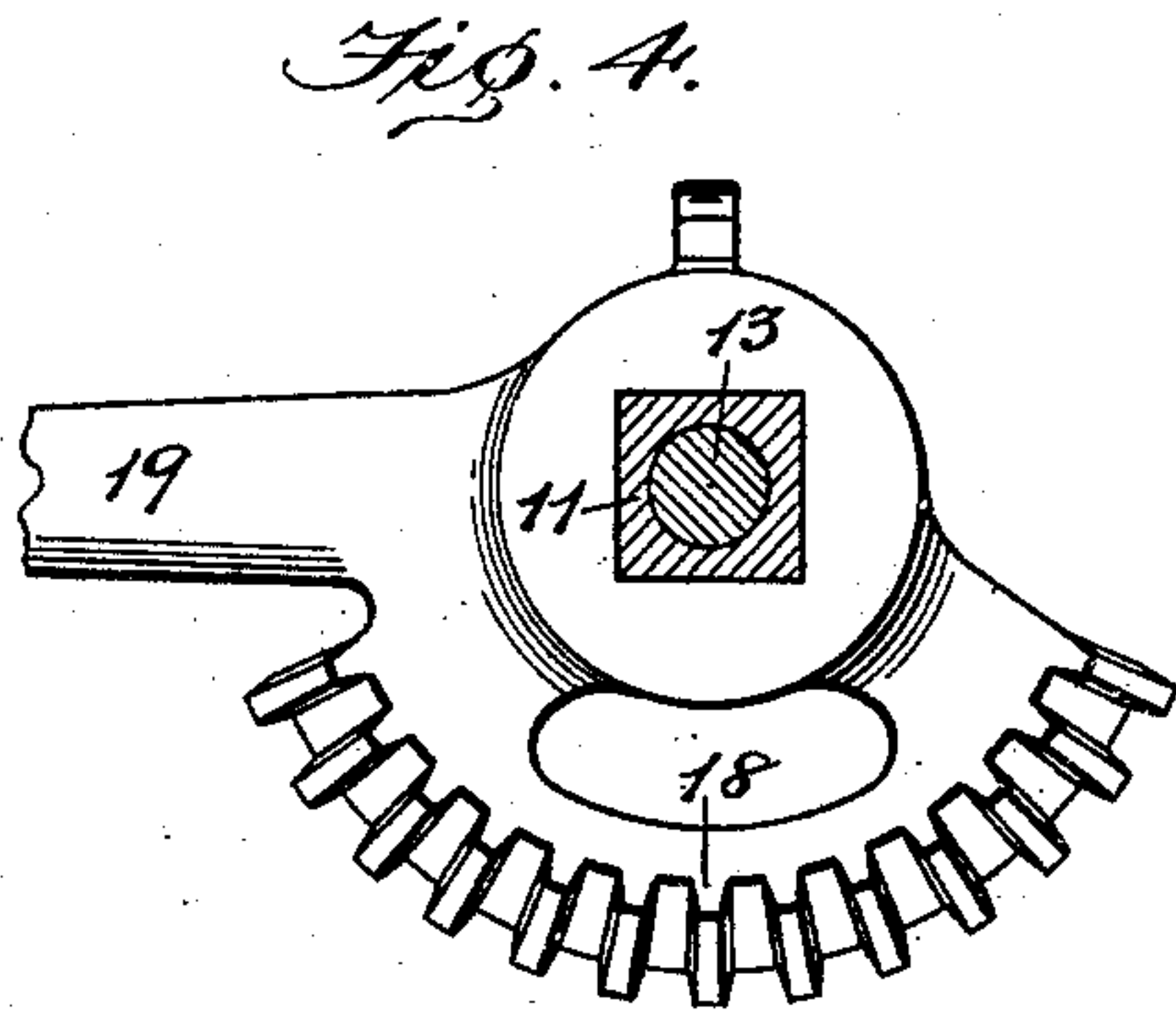
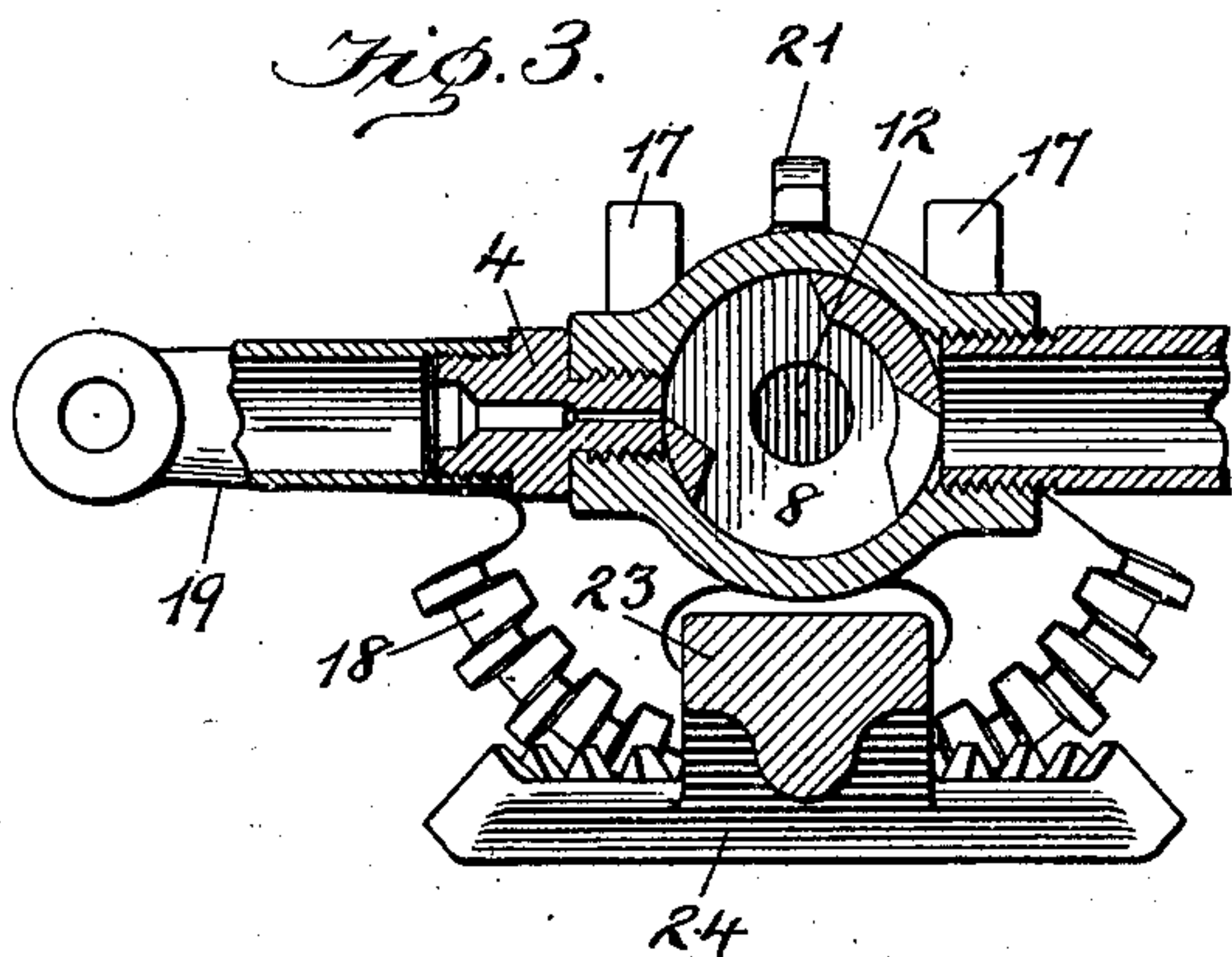
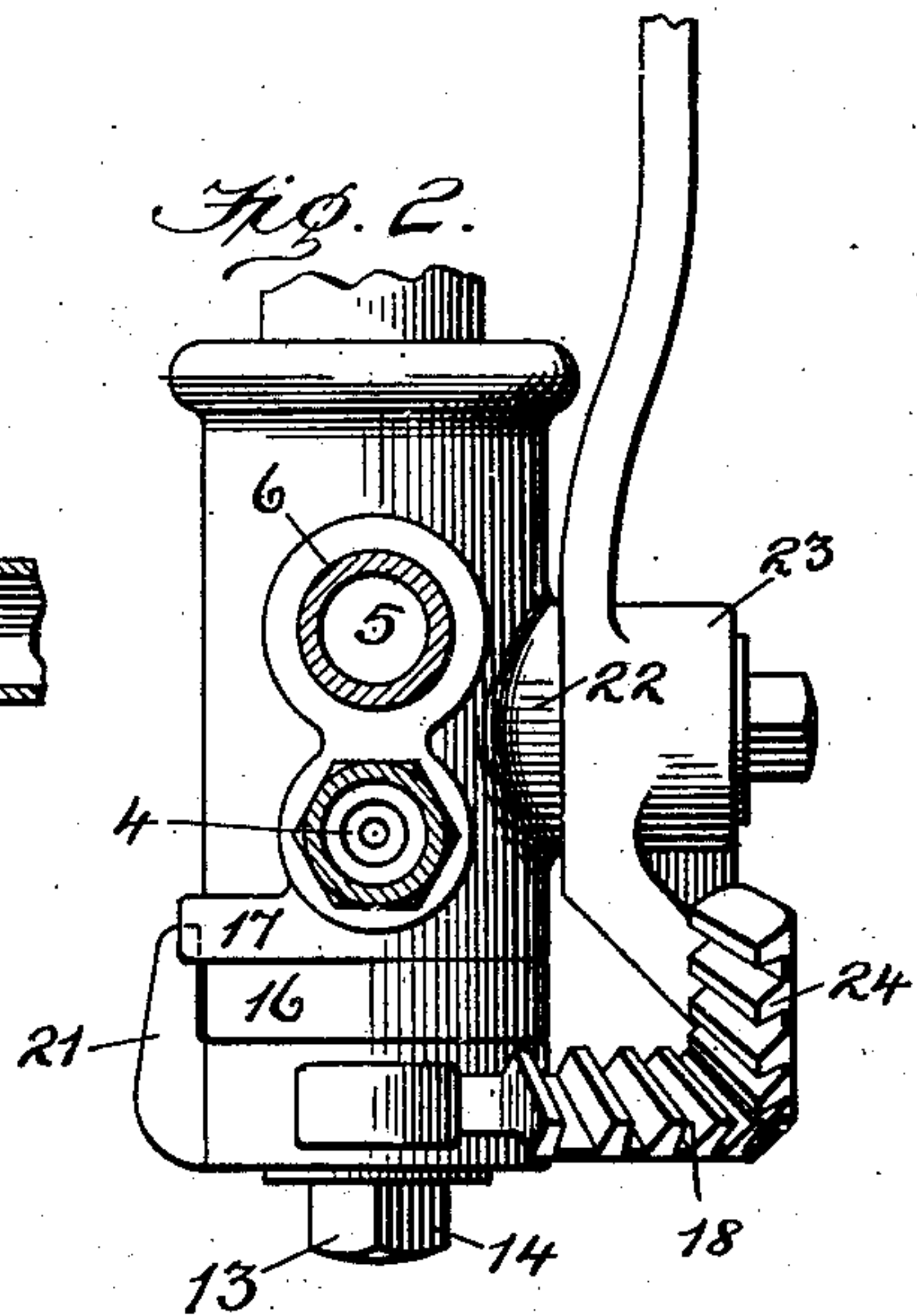
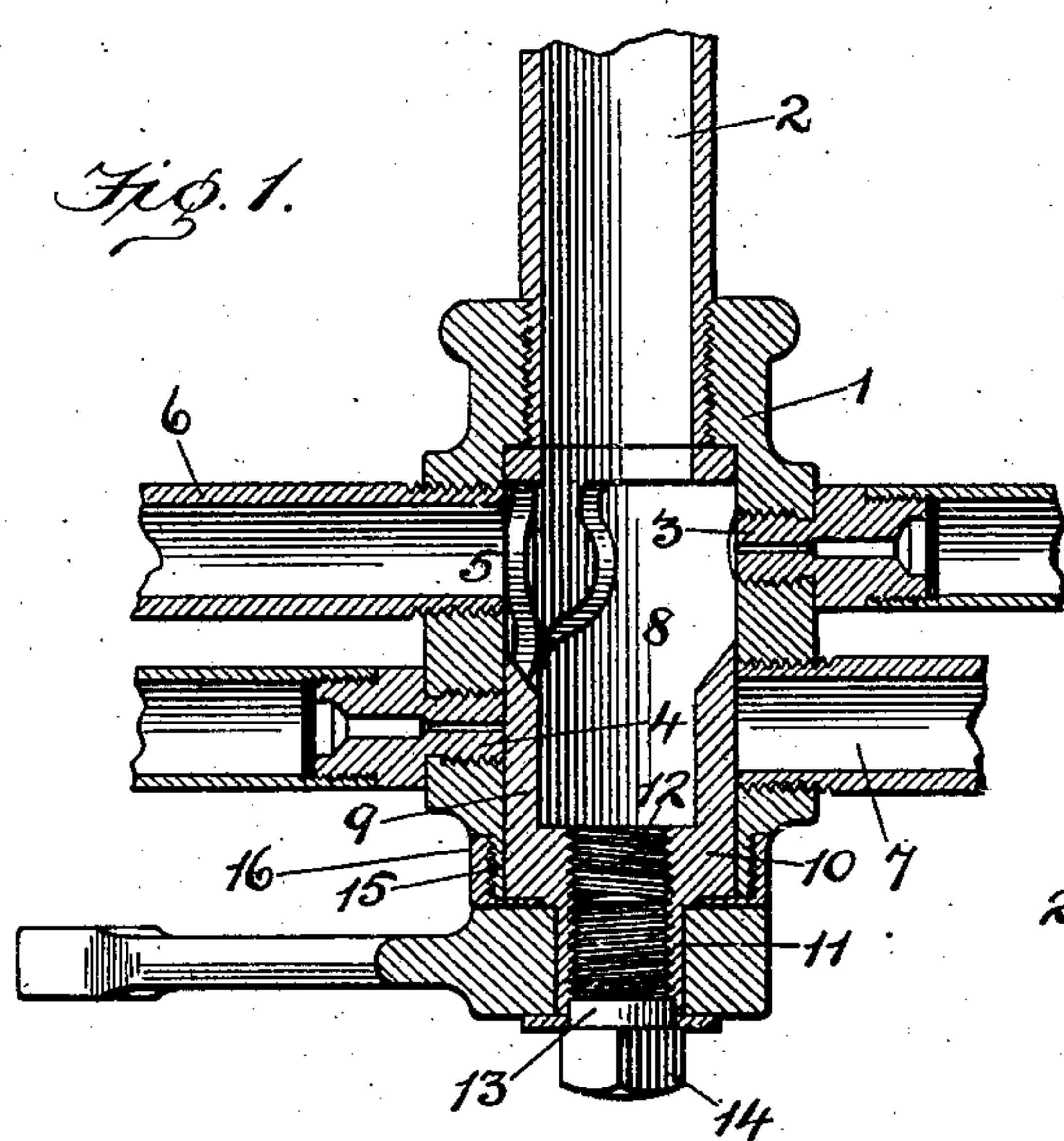


No. 865,941.

PATENTED SEPT. 10, 1907.

H. RAU, JR.
PNEUMATIC TRACK SANDER.
APPLICATION FILED JULY 31, 1906.



Witnesses

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HENRY RAU, JR., OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-FOURTH TO WILLIAM H. RHINE AND ONE-FOURTH TO GEORGE EDWIN DEMUTH, OF BALTIMORE, MARYLAND.

PNEUMATIC TRACK-SANDER.

No. 865,941.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed July 31, 1906. Serial No. 328,511.

To all whom it may concern:

Be it known that I, HENRY RAU, JR., a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Pneumatic Track-Sanders, of which the following is a specification.

This invention relates to improvements in pneumatic track sanders and is especially designed for use in a form of sander in which the communication between the sand-box and the forward and rear sand tubes is controlled by a single valve so that when the valve is in position to allow sand to escape through one tube it will also have a position to prevent the escape of sand through the other tube or tubes.

The present invention has among its objects to improve the construction of the devices for operating the valve and the devices for limiting the movement of the latter in the valve casing, and has for its further object to provide an improved construction for preventing the escape of sand at the lower end of the casing.

The present invention is shown in connection with the device illustrated in Patent No. 798,060 granted to me August 22nd 1905 and is an improvement on the structure shown therein.

The invention is illustrated in the accompanying drawings in which,—

Figure 1 illustrates a central vertical section of the sander. Fig. 2, an elevation of the same. Fig. 3, a horizontal sectional plan view,—the section being taken on the line 3—3 of Fig. 1. Fig. 4, a bottom plan view of the segment gear at the lower end of the sander, and Fig. 5, a top plan view of the sander at opposite sides of the locomotive boiler and the improved lever mechanism for operating the same.

Referring to the drawing by numerals as in my patent above referred to, 1, designates the sander casing whose upper end is provided with a threaded opening into which one end of the sand-supply pipe, 2, enters. This pipe is in communication with any suitable sand receptacle, such as the usual sand-box on the locomotive boiler.

The sander-casing is provided with two air-supply nozzles 3 and 4. One of these nozzles, 3, has position in the side of the casing near the upper end thereof while the other nozzle, 4, has position near the lower end of the casing and at the side diametrically opposite from the nozzle, 3. In practice the outer threaded ends of these nozzles are connected to separate air-supply pipes which extend to a point in the cab or within reach of the engineer or motorman, who by means of suitable valves may permit compressed air from a reservoir to pass to either of said nozzles as desired.

Diametrically opposite the nozzle, 3, the casing is provided with a sand outlet, 5, in which one end of a

sand-distributing tube or pipe, 6, enters. This pipe, 6, leads from the casing to a point in front of the drivers and terminates near the rail.

A sand-discharge pipe, 7, also enters the casing at a point diametrically opposite the lower nozzle, 4, and this latter pipe extends from said casing to the rear of the drivers and also terminates at a point adjacent the rail.

On the interior the casing is provided with a chamber, 8, which extends from the sand-supply pipe, 2, to a point below the sand-discharge pipe, 7, and the air-supply nozzles, 3, and, 4, are in communication with said chamber.

A valve, 9, has position within said chamber, 8, and said valve has an exterior shape to conform to the shape of the chamber. In the present instance the chamber is circular and the valve is also circular on its exterior.

The valve is provided with a circular base, 10, which, in the present instance is provided with a downwardly-projecting central stem, 11, having a central passage, 12, and a screw-plug, 13, at the lower end of said passage having a square or angular head, 14, for a purpose to be presently described.

The screw-plug and central passage are provided for the sake of convenience in emptying the chamber, 8, prior to the removal of the valve for any purpose.

In so far as described the device accords in all essential particulars with the device shown in my patent heretofore referred to, but the means employed to retain the valve in position and to operate the valve in the casing, differ from and are improvements over those in said patent.

The lower end of the valve casing is provided with exterior screw-threads, 15, and a cup-shaped collar, 16, fits over said lower end of the casing and is also provided with interior screw-threads which engage the exterior threads on the casing. The bottom of the collar projects beneath the valve and supports the latter in the casing, as clearly shown in Fig. 1, but in no way interferes with the rotation of said valve in the casing. By providing this means for holding the valve in position it has been found that the sand can not work its way out of the chamber, 8, as it did in the device of my said patent. The valve casing is also provided with two projecting lugs, 17, which form a stop to limit the rotation of the valve as will presently be explained.

A segment gear, 18, is fitted over and rigidly connected to the stem, 11, at the lower end of the valve, 9, and said gear projects laterally at the bottom of the casing and is provided with an arm, 19, to which a connecting bar, 20, is attached for a purpose presently to be described.

A stop-lug, 21 is carried on the segment gear and

said lug projects between the lugs, 17, on the valve-casing and by contact with the latter serves to limit the rotation of the valve within the casing.

The side of the valve casing is provided with a boss, 22, and an operating lever, 23, is pivoted to said boss.

The lower end of this operating lever is provided with a segment gear, 24, which oscillates in a vertical plane and which meshes with the gear, 18, on the lower end of the valve to impart movement to the latter. The upper end of this operating lever is pivotally connected to a rod, 27, which latter extends to a point in the cab where it may be operated by the engineer.

It will be understood that in practice two casings and sand distributing valves are provided on each locomotive,—one for the driving wheels at each side, and that the two sanders are connected so as to be operated simultaneously by means of the bar, 20.

When it is desired to apply sand to the rails, the engineer will operate the rod, 27, and throw the operating lever, 23, to the desired position. The operation of the levers will cause the segment gears to be rotated so as to turn the valve to open the desired outlet and the admission of the air into the chamber will drive the sand through the outlet that has been opened. By the employment of gears to operate the valve instead of a crank as in my said former patent the oscillation of the valve is accomplished with much more ease especially when the sand in the chamber has begun to cake and get hard.

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

1. A pneumatic track-sander comprising a valve casing having a sand storage chamber and a plurality of sand-discharge openings; a sand supply-pipe communicating with said storage chamber; a valve in said chamber and controlling the sand discharge openings therein so as to open one at a time; a rack movable with the valve; a gear meshing with the valve rack; an air inlet in said chamber, and means for operating the gear.

2. A pneumatic track-sander comprising a valve casing having a sand storage chamber with a sand discharge opening; a sand supply pipe communicating with said

storage chamber; a valve in said chamber; a rack movable with said valve; a gear meshing with the valve rack; an air inlet in said chamber and means for operating the gear.

3. A pneumatic track-sander comprising a valve casing having a sand storage chamber with a sand discharge opening; a sand supply pipe communicating with said storage chamber; a hollow valve in said storage chamber through which the sand may pass to the discharge opening in the casing; a rack movable with the hollow valve; a gear meshing with the valve rack; an air inlet, and means for operating the gear.

4. A pneumatic track-sander comprising a valve casing having a sand storage chamber with a plurality of sand-discharge openings; a plurality of air nozzles entering the chamber; a valve in said chamber and capable of oscillating therein to open one sand discharge opening at a time; a rack on the exterior of the chamber and moving with said valve, a segment gear carried at the side of the casing and meshing with the rack of the valve, and means for operating the gear.

5. A pneumatic track-sander comprising a casing having a chamber with sand-discharge openings; an air-nozzle entering the chamber; an oscillating valve in said chamber; a cup-collar engaging the casing and projecting beneath the valve; a gear on the valve; a gear carried by the casing and meshing with the valve gear, and means for operating said gears.

6. A pneumatic track-sander comprising a casing having a chamber with sand-discharge openings; an air nozzle in said chamber; an oscillating valve; means coacting between the casing and the valve to limit the movement of the latter; a gear carried by said valve; a gear meshing with the valve gear, and means for operating said gears.

7. A pneumatic track sander comprising a casing having a chamber with sand-discharge openings; an air-nozzle in said chamber; an oscillating valve in said chamber; a cup-collar engaging the casing and in which the valve turns; lugs projecting from the casing; a gear carried by the valve; a lug on the gear and projecting between the lugs on the casing; a gear meshing with the valve gear, and means for operating said gears.

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

HENRY RAU, JR.

Witnesses:

G. FERDINAND VOGT,
CHARLES B. MANN, JR.