

G. W. WOLFE.  
VEHICLE WHEEL BEARING.

Patented Aug. 25, 1896.

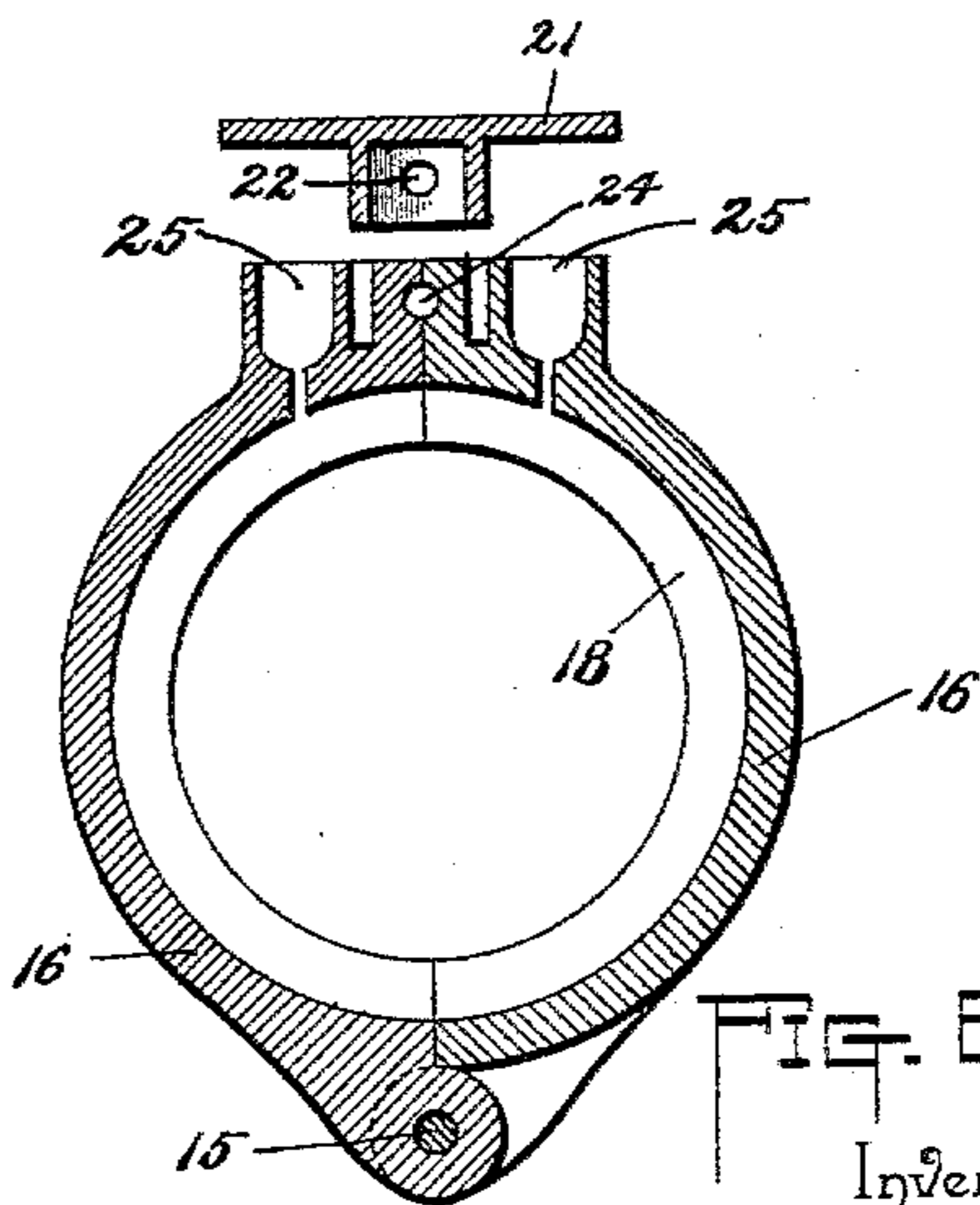
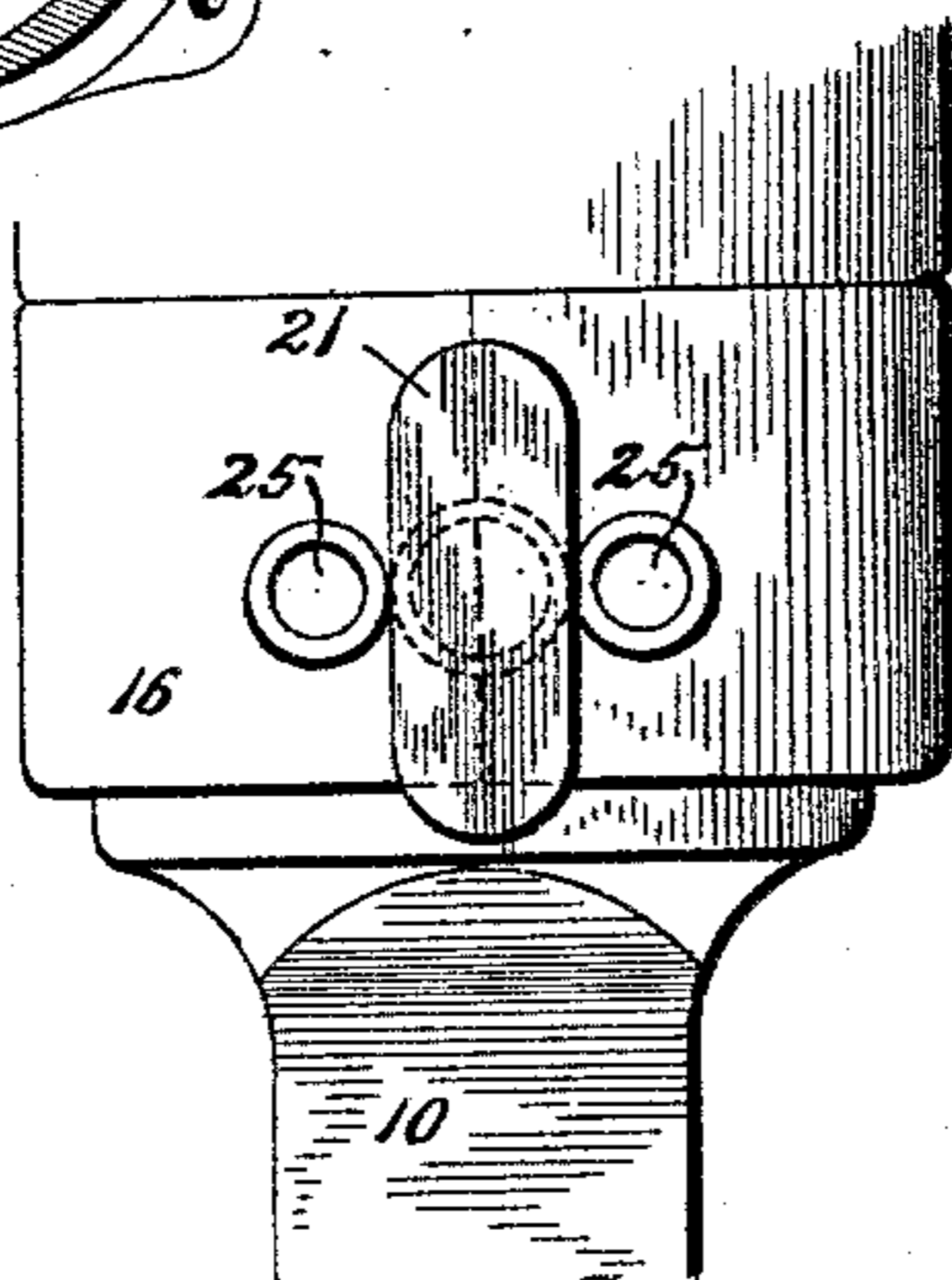
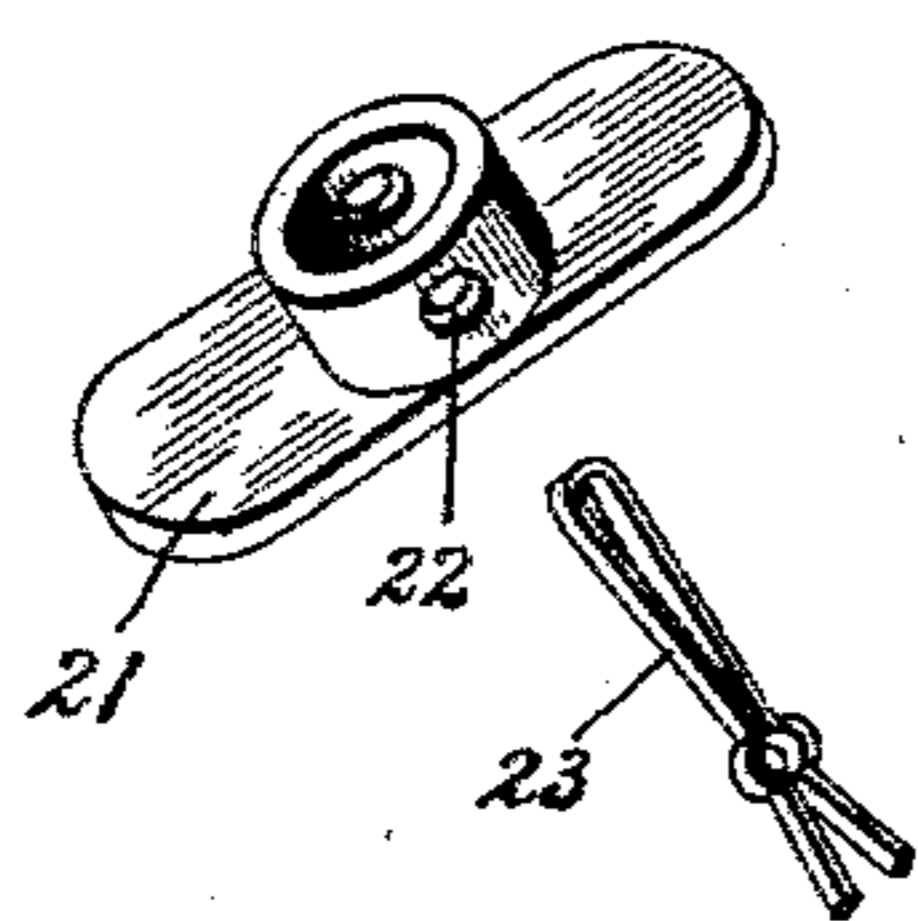
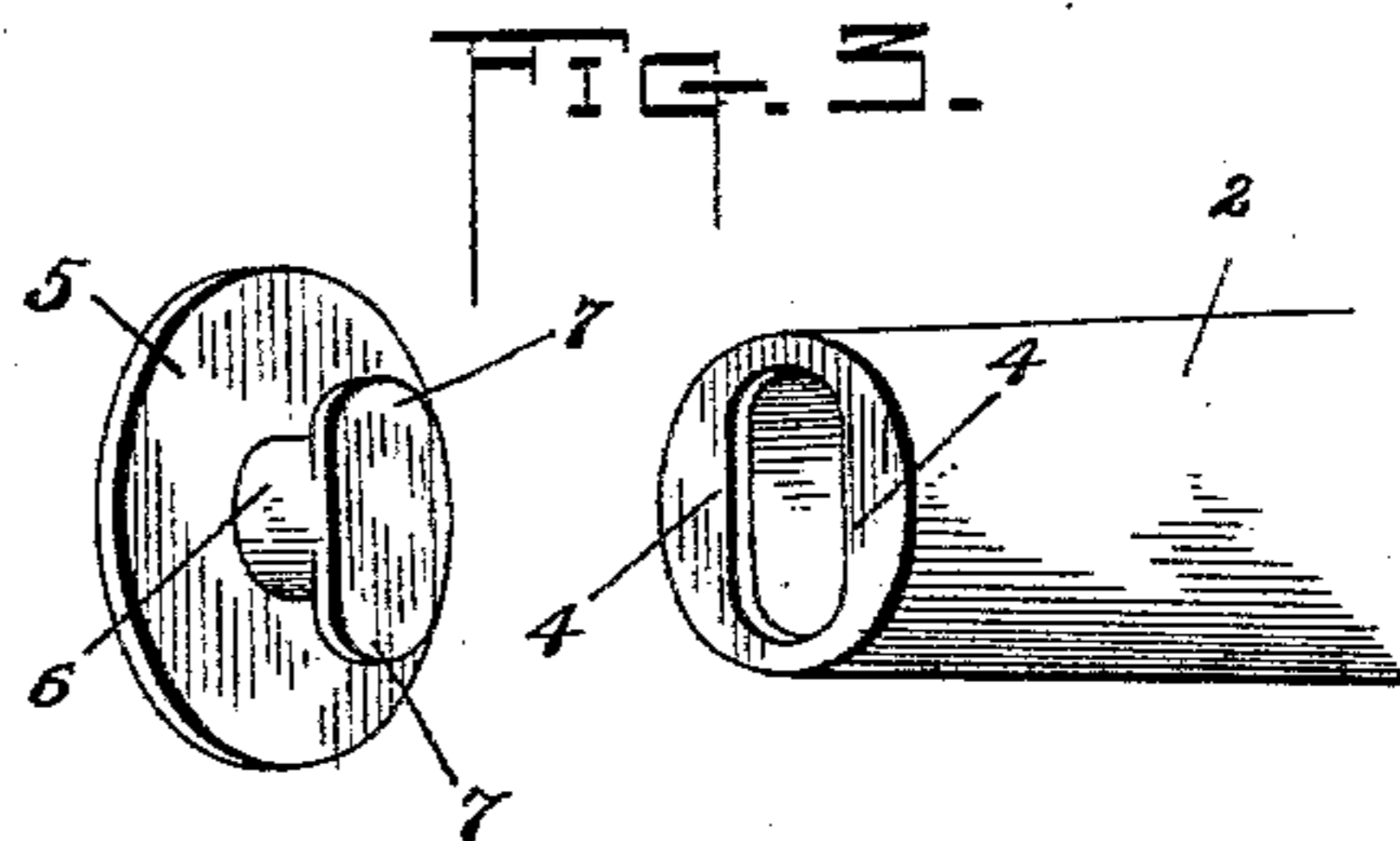
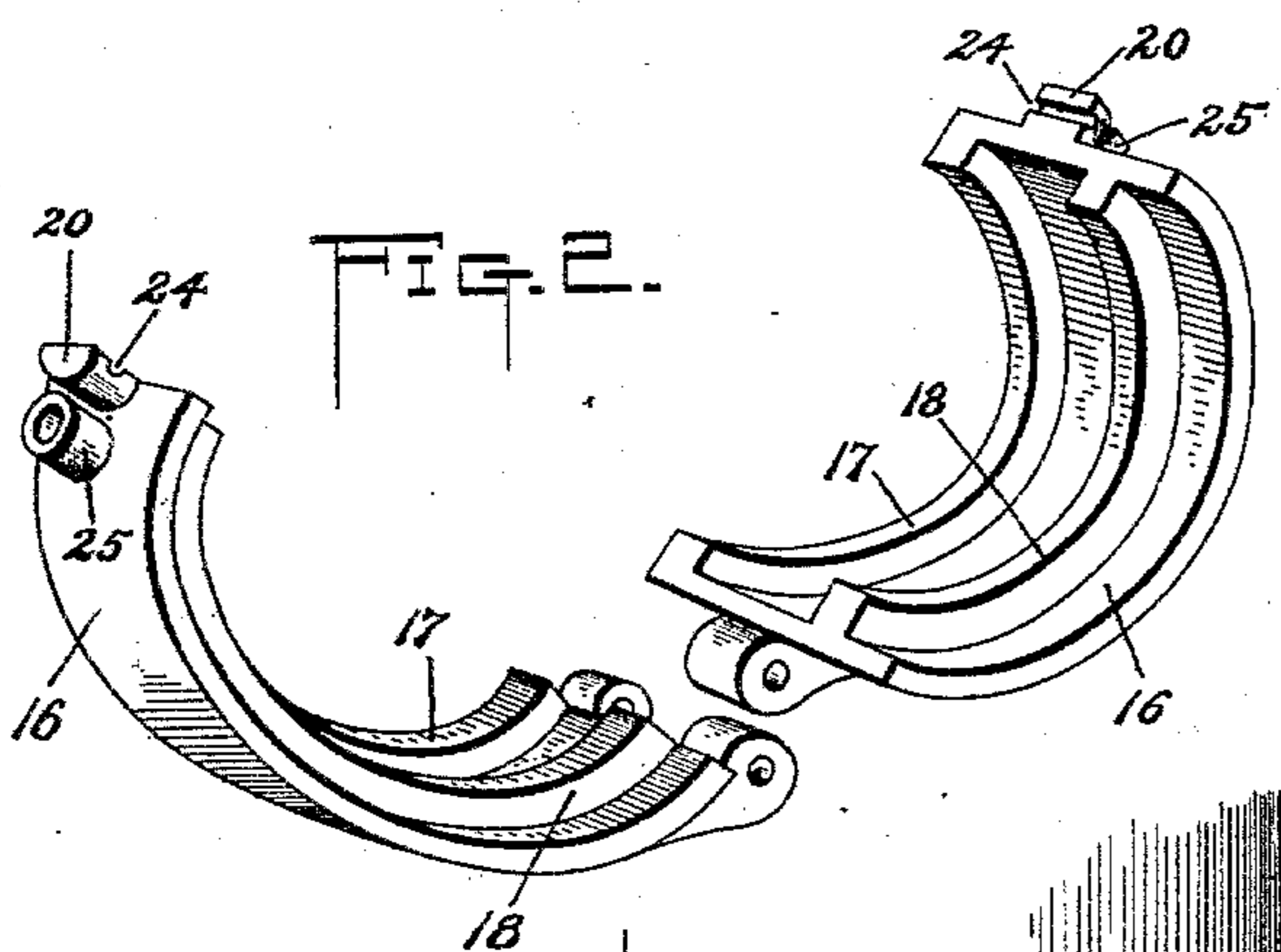
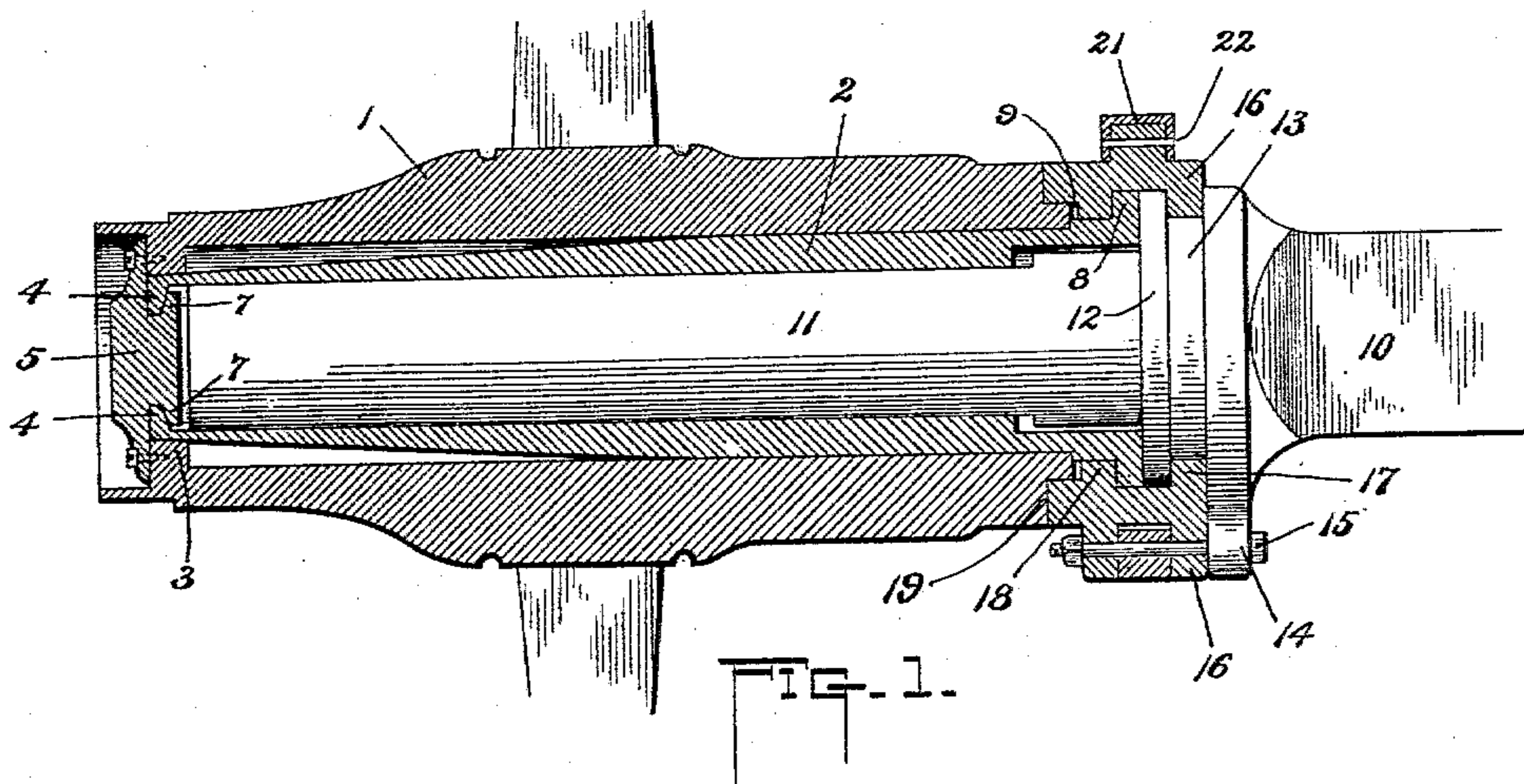


Figure 4.

Fig. 5.

**F. E. B.**

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# UNITED STATES PATENT OFFICE.

GEORGE W. WOLFE, OF NORTH BALTIMORE, OHIO, ASSIGNOR OF ONE-HALF  
TO N. BEDALL, OF SAME PLACE.

## VEHICLE-WHEEL BEARING.

SPECIFICATION forming part of Letters Patent No. 566,706, dated August 25, 1896.

Application filed February 14, 1896. Serial No. 579,280. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. WOLFE, a citizen of the United States, residing at North Baltimore, in the county of Wood and State of Ohio, have invented a new and useful Vehicle-Wheel Bearing, of which the following is a specification.

This invention relates to an improvement in vehicle-wheel bearings, and the object in view is to provide an improved form of axle-spindle, axle-box, &c., whereby the usual retaining-nut and washer may be dispensed with and the wheel held upon the spindle by means of a sectional locking-collar, which, in addition to its function of locking the parts together, will effectively exclude all dust, dirt, and other foreign matter, and also act as a medium for supplying lubricating material to the bearing.

The invention also has for its object to provide an improved device by means of which the axle-box is retained within the vehicle-hub and adapted to be instantly detached, when required.

With the above objects in view the invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section through a wheel-hub, showing the improved axle-box and spindle, &c. Fig. 2 is a detail perspective view of the sectional collar. Fig. 3 illustrates in perspective the outer end of the axle-box detached and the circular dust-plate and lock which engage therewith. Fig. 4 is a similar view of the oil-cup cover and its retaining spring-pin. Fig. 5 is a detail plan view of the same applied to the locking-collar. Fig. 6 is a transverse vertical section through the locking-collar in line with the oil-cups.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the accompanying drawings, 1 designates a wheel-hub, in which is fitted the axle-box 2. The hub 1 is provided near its outer end with an inwardly-projecting annular flange 3, within which fits snugly the

outer end of the axle-box 2, the extremity of the axle-box and the outer surface of said annular flange 3 being substantially in the same plane. The axle-box is left open at its outer end, with the exception of two segmental webs 4, arranged diametrically opposite and having straight parallel inner edges. Within the outer end of the hub is fitted a circular dust plate or cap 5, the same being permanently attached by means of screws or other suitable fastening devices, fastened, preferably, into the flange 3 and holding the dust-cap firmly thereto. Upon its inner face the cap or plate 5 has an inwardly-extending central stud or hub portion 6, corresponding, substantially, in shape to the opening in the outer end of the axle-box and provided with oppositely-extending shoulders 7, which are adapted to be engaged with and behind the segmental webs 4 of the axle-box when the latter is introduced into the hub and given a quarter-turn. The axle-box may not afterward be withdrawn without giving the same a quarter-turn, so as to bring the opening in the outer end thereof into registry with the shouldered hub 6 of the dust-cap.

At its inner end the axle-box 2 fits tightly within the corresponding end of the hub; but the axle-box projects beyond the inner end of the hub and is formed with a circumferential or annular flange 8, located at such distance from the hub as to establish a depression or groove 9 between the flange 8 and the hub proper. The axle 10 is formed with the usual spindle 11, fitting within the axle-box, and is also formed with a circumferential flange 12, corresponding in diameter to the flange 8 and adapted to abut against the same when the wheel-hub is in place, as shown in Fig. 1. The axle is also provided with a groove 13, just inside of the flange 12, and is further provided with a depending lug 14, through which passes a pin or bolt 15, upon which the two sections of the improved locking-collar are fulcrumed. The sections 16 of the locking-collar are each semicircular in form, and each comprises upon its inner surface an outer segmental flange 17, adapted to enter the groove 13 of the axle, and another segmental flange, 18, adapted to enter between the flange 8 of the axle-box and the

wheel-hub. When the collar is closed, the circumferential flanges 8 and 12 are confined between the flanges 17 and 18 of the collar, and the wheel is thus held securely upon the axle. The collar or its sections 16 are also extended laterally a sufficient distance to enter an annular rabbet 19 in the inner end of the hub, thus giving a finished appearance to the joint and also more effectively excluding foreign matter. The collar-sections are provided at their lower portions with inter-lapping perforated ears, as shown, which receive the fulcrum bolt or pin 15 above referred to, and said sections are provided at their upper portions with half-studs 20, which when brought together form a cylindrical stud adapted to receive, pivotally, a cap 21. This cap comprises a hollow hub adapted to fit over the stud 20 and lock the collar-sections together, and said hub is provided with opposite perforations 22, through which a spring-pin 23 may be passed, the said pin also passing through notches 24 in the meeting edges of the half-studs 20. By removing the spring-pin 23 and the cap 21 the sectional collar may be detached, after which the wheel may be removed from the spindle. It is not, however, necessary to remove the wheel in order to lubricate the bearing, as the lubricating material may be introduced through oil-cups 25, arranged one on each side of the divided stud 20. These cups communicate with the interior of the collar, as shown in Fig. 6, and their upper edges are flush with the corresponding edge of the stud 20, adapting them to be covered by the oppositely-projecting longitudinal extensions of the cap 21 when the latter is turned in position to be locked by pin 23. At the same time the cap may be turned, as in Fig. 5, to lubricate the spindle without unlocking the collar-sections.

The construction above described provides a very efficient and convenient manner of securing wheels upon their spindles and also axle-boxes within their hubs, and at the same time it will be seen that dust, dirt, and all foreign matter are effectively excluded from the bearing and the lubricating material prevented from escaping, thus adding materially to the durability and life of the spindle and axle-box.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What I claim is—

1. The combination with a wheel-hub, of a dust cap or plate closing the outer end thereof and permanently attached thereto, and an axle-box removably fitted in the hub, the said

dust cap or plate and axle-box being provided, one with a hub portion having radial shoulders and the other with webs or shoulders which coöperate with the shoulders on the first part for locking the axle-box in place, substantially as described.

2. A wheel-hub having its outer end closed by a dust-cap fixedly attached thereto and provided with an inwardly-extending hub portion having radial shoulders, in combination with an axle-box having its outer end formed to receive said radial shoulders and provided itself with webs or shoulders which coöperate with the shoulders of the dust plate or cap to lock the axle-box in place, substantially as described.

3. The combination with a wheel-hub, of an axle-box removably fitted therein and provided at its inner end with a circumferential flange, an axle provided with a similar flange, and a locking-collar embracing said flanges for holding the same together, the said collar being made in substantially equal halves or sections fulcrumed on the axle and provided at their free ends each with a half-stud, a cap removably fitted over said half-studs and locking the free ends of the sections together, and means for preventing the displacement of said cap, substantially as described.

4. The combination with a wheel-hub and the axle-box therein, of a locking-collar embracing shoulders on the hub and axle for locking the same together, said collar being made in substantially equal halves or sections fulcrumed at one end on the axle and provided at or near their free ends with oil-cups, and a cap removably fitted to said oil-cups and adapted to lock the free ends of said sections together, substantially as described.

5. The combination with a wheel-hub and the axle upon which the same is mounted, of a locking-collar embracing shoulders upon the hub and axle for locking the same together, the said collar being made in two sections fulcrumed at their lower ends upon the axle and provided at their upper ends each with a half-stud, a cap removably fitted over the stud and adapted to lock the swinging ends of the collar-sections together and also to permit lubricating material to be introduced to the cup, and provision for retaining said cap in place, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE W. WOLFE.

Witnesses:

N. BEDALL,

GEO. W. EWING.