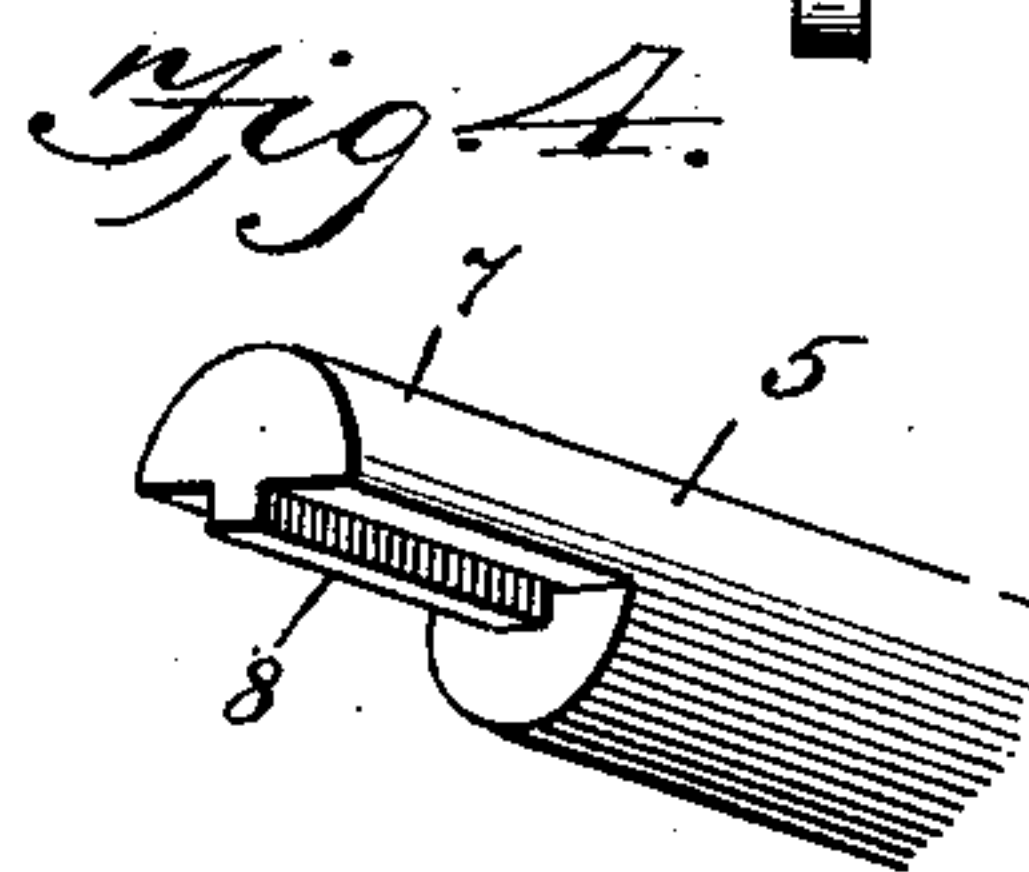
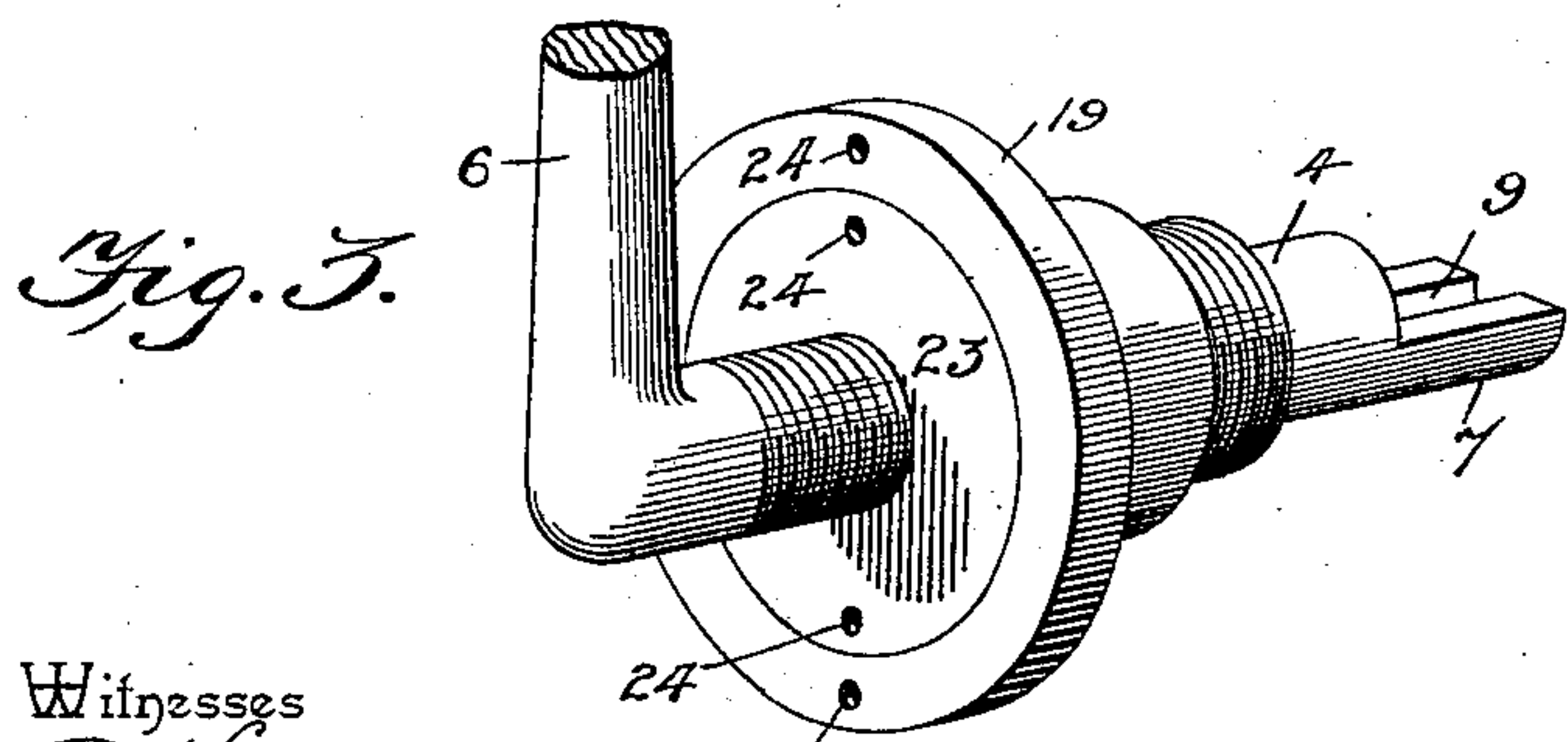
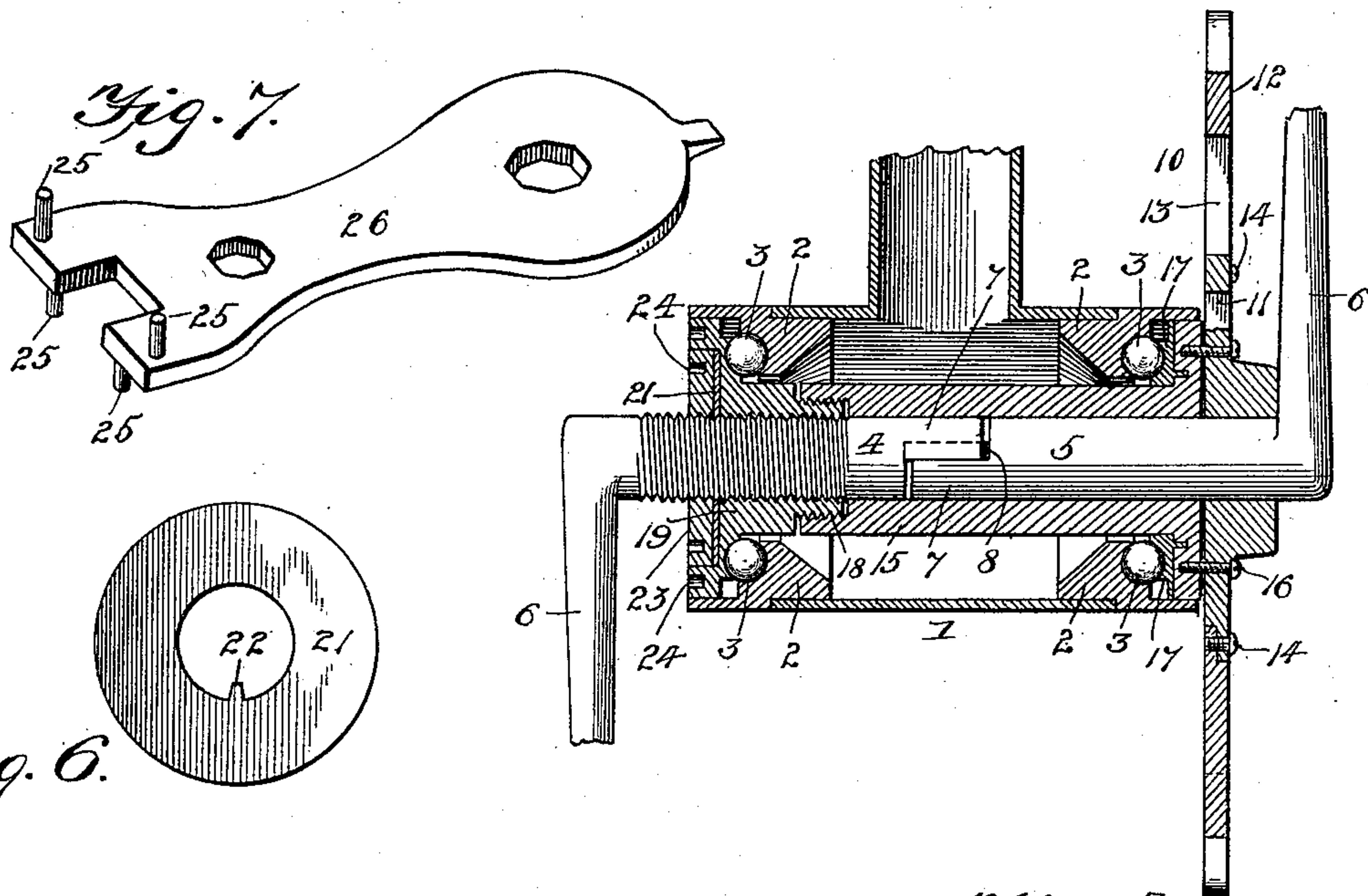
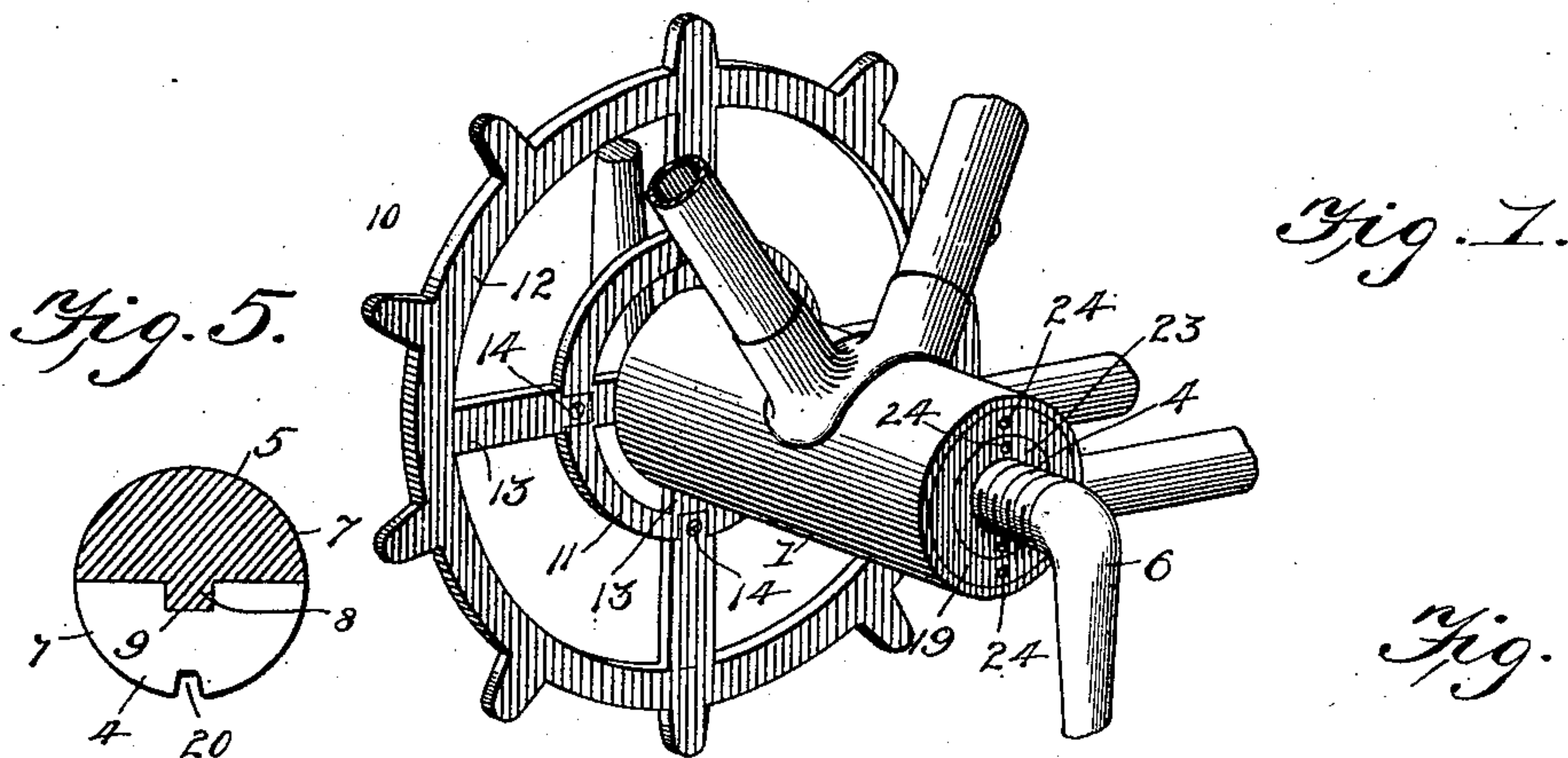


(No Model.)

S. W. HYATT.
CRANK FASTENING FOR BICYCLES.

No. 582,530.

Patented May 11, 1897.



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL W. HYATT, OF GREERSVILLE, OHIO.

CRANK-FASTENING FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 582,530, dated May 11, 1897.

Application filed January 6, 1896. Serial No. 574,462. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL W. HYATT, a citizen of the United States, residing at Greersville, in the county of Knox and State of Ohio, have invented a new and useful Crank-Fastening for Bicycles, of which the following is a specification.

This invention relates to an improvement in bicycles, and refers particularly to the means for securing and detaching the cranks thereof.

The object of the present invention is to provide an improved form of coupling by means of which the opposing cranks and the divided portions of the crank-axle formed integrally with the crank may be united within the crank-axle box and readily disconnected and removed when occasion requires.

The invention also has for its object to adjust the bearing or take up wear therein simultaneously with the coupling or fastening of the cranks.

Other objects and advantages of the invention will appear in the course of the subjoined description.

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 embodied in the claim.

In the accompanying drawings, Figure 1 is a perspective view of a bicycle crank-axle box, illustrating the application of the present invention. Fig. 2 is a sectional view taken longitudinally through said box. Fig. 3 is a detail perspective view of one of the shaft-sections and its crank, showing also the adjusting-cone and crank-fastening device. Fig. 4 shows the end formation of the other shaft-section in perspective. Fig. 5 is a cross-section through the interlocking ends of the shaft-sections. Fig. 6 is a plan view of the tongued washer. Fig. 7 is a perspective view of the operating spanner and wrench.

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

Referring to the drawings, 1 designates the crank-axle box of a bicycle, which is in the form of a hollow cylinder and provided at each end with rigidly-attached ball-cups 2, in which are mounted the usual antifriction-

balls 3. The crank-axle is divided centrally or in proximal relation to its center and comprises two sections 4 and 5, each of which has formed upon or attached to its outer end one of the machine-cranks 6. These shaft-sections are inserted in the bearing-box from opposite ends, and the contiguous inner ends of said sections are each cut away in such manner as to leave semicylindrical lapping portions 7, which taken together or lapped one upon the other form a complete cylinder, as shown in Fig. 5. One of such overlapping semicylindrical ends has extending longitudinally of its flat surface a tongue or rib 8, and the contiguous end of the adjoining section is provided in its corresponding flat surface with a longitudinal groove or depression 9, in which the said tongue or rib is received, as clearly shown in the last-named figure. The interlocking inner ends of the shaft-sections are so disposed with relation to the cranks 6 that the latter will project in opposite directions when the shaft-sections are clutched or interlocked.

One of the shaft-sections 5 carries the fixed sprocket-wheel 10, which comprises a number of spokes or a web 11 and a rim 12, detachably secured thereto, the said rim having inwardly-extending ears 13, through which suitable screws or fastening devices 14 extend into the spokes or web 11. This construction provides for the removal of the rim without the necessity of detaching the cranks in case the rim becomes injured or broken and admits of the substitution of a new rim.

15 designates a sleeve which surrounds and incloses the interlocked ends of the shaft-sections and is secured to the sprocket-wheel 10 by means of screws or other fastenings 16, whereby the sleeve is caused to rotate with the sprocket-wheel and forms in effect a part thereof. The sleeve 15 also carries a ball-cone 17, forming a seat for the antifriction-balls 3 at that side of the bearing. The opposite end of the sleeve 15 is hollowed out, as at 18, and internally screw-threaded to receive the threaded inner end of an adjusting-cone 19. This adjusting-cone is provided with a central bore, and the same is screw-threaded, so that it may be screwed upon and adjusted longitudinally of the shaft-section 4, as clearly shown in Fig. 2. The antifriction-

tion-balls 3 are confined between the adjusting-cone 19 and the ball-cup 2 at that end of the bearing. The adjusting-cone is screwed inward until the bearings are sufficiently tight, and at the same time, by reason of the engagement of the adjusting-cone with the shaft-section 4 and its engagement also with the sleeve 15, it will be seen that the shaft-sections will be firmly coupled together and prevented from longitudinal displacement.

In order to prevent the unscrewing of the adjusting-cone 19, the shaft-section 4 is formed with a longitudinal groove 20, and a washer 21 surrounds said shaft and is provided with an inwardly-extending tongue 22, which enters the groove 20, whereby said washer is prevented from rotating or turning upon the shaft, while being permitted to slide longitudinally thereof. An annular nut 23 also surrounds the shaft-section 4 outside of the washer 21, and both the nut 23 and adjusting-cone 19 are provided in their exterior surfaces with diametrically-opposed sockets 24 for the reception of the pins or studs 25 of a wrench or spanner 26, whereby the same may be adjusted. After the adjusting-cone has been turned to the desired position the washer 21 is slid longitudinally into contact therewith and the nut 23 then screwed inward with sufficient force to bind the same firmly against the said washer, thereby forming an efficient nut-lock for preventing the unscrewing of the adjusting-cone 19. When it is desired to detach the cranks, with the aid of the spanner or wrench the nut 23 is unscrewed, the washer 21 is slid outward, and the adjusting-cone 19 unscrewed until it is disconnected from the sleeve 15, whereupon the shaft-sections with their attached cranks are capable of being moved out of engagement as to their contiguous inner ends and entirely removed from the crank-axle box.

From the foregoing description it will be apparent that a very simple and efficient de-

vice is obtained, providing for the removal of the cranks when necessary, and that wear may be taken up in the bearing simultaneously with the coupling together of the shaft-sections on the cranks.

It will be observed that when the cranks and their shaft-sections are detached from the machine the coupling and adjusting means are removed with them, and there are consequently no nuts or other parts to become lost or misplaced.

It will be apparent that 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.

Having thus described the invention, what is claimed as new is—

In a crank-fastening for cycles, the combination with the crank-axle box, of a crank-axle made in separate sections each of which carries a crank at its outer end, the contiguous ends of said sections being formed to interlock, a sprocket-wheel fast on one of said sections, a sleeve secured to said sprocket and surrounding said section and also embracing a portion of the other section, an adjusting-cone having a threaded engagement with said other section and with the sleeve, a slide-washer on said section having a tongue-and-groove engagement therewith and arranged outside of the adjusting-cone, and a jam-nut on said section arranged outside of said washer and adapted to be screwed up against the same, whereby the adjusting-cone is prevented from unscrewing, substantially as and for the purpose specified.

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

SAMUEL W. HYATT.

Witnesses:

ADAM STITZLIM,
IDA C. HYATT.