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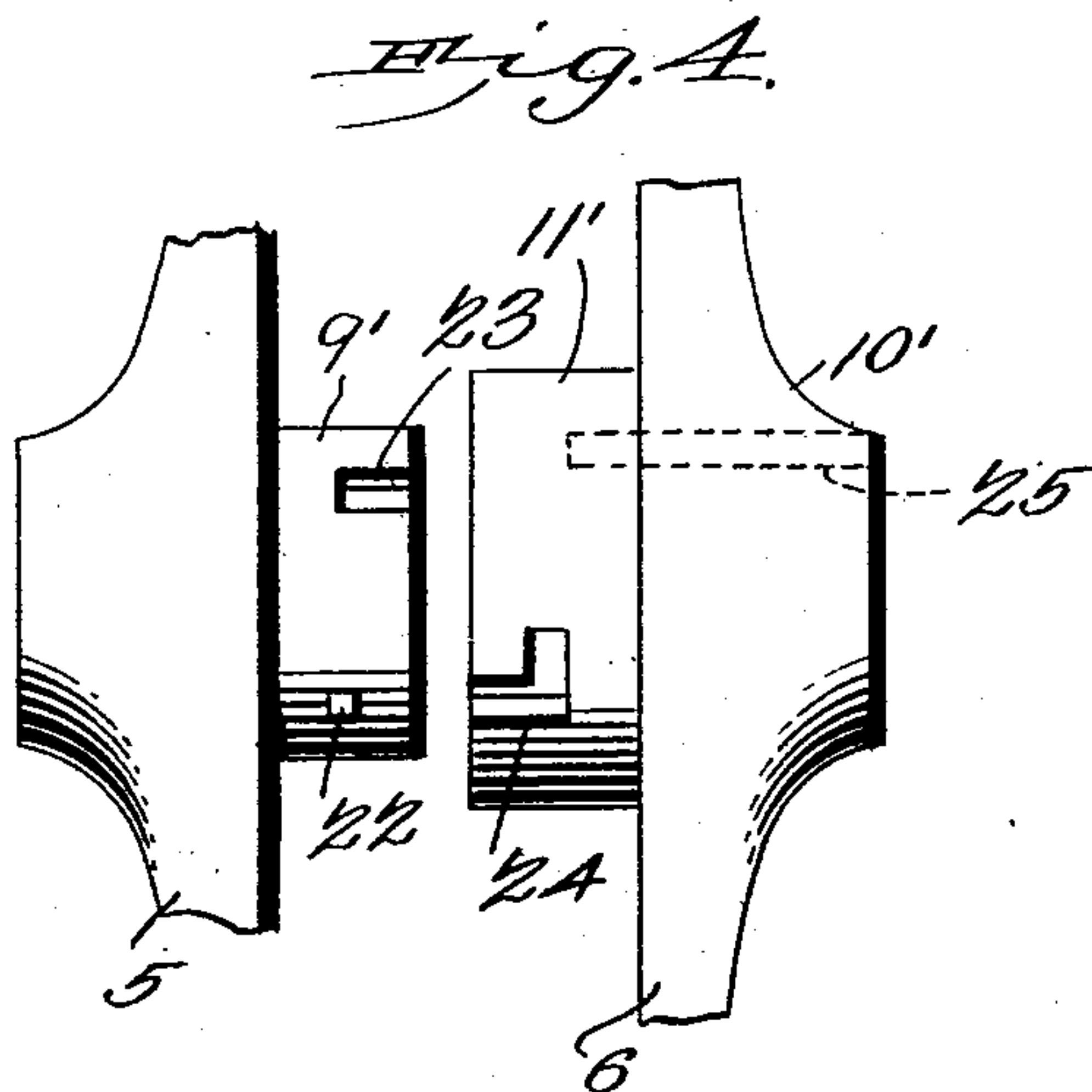
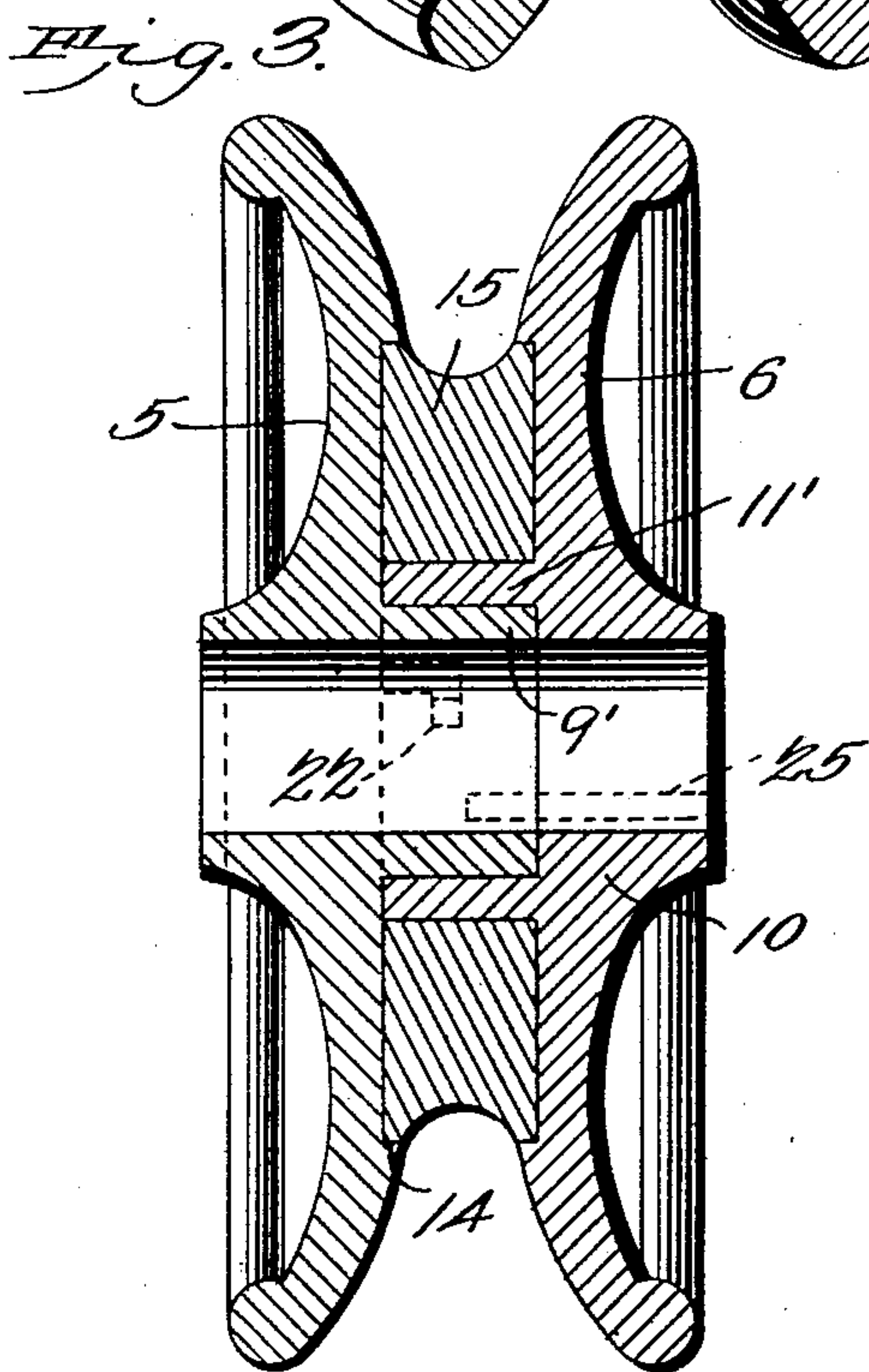
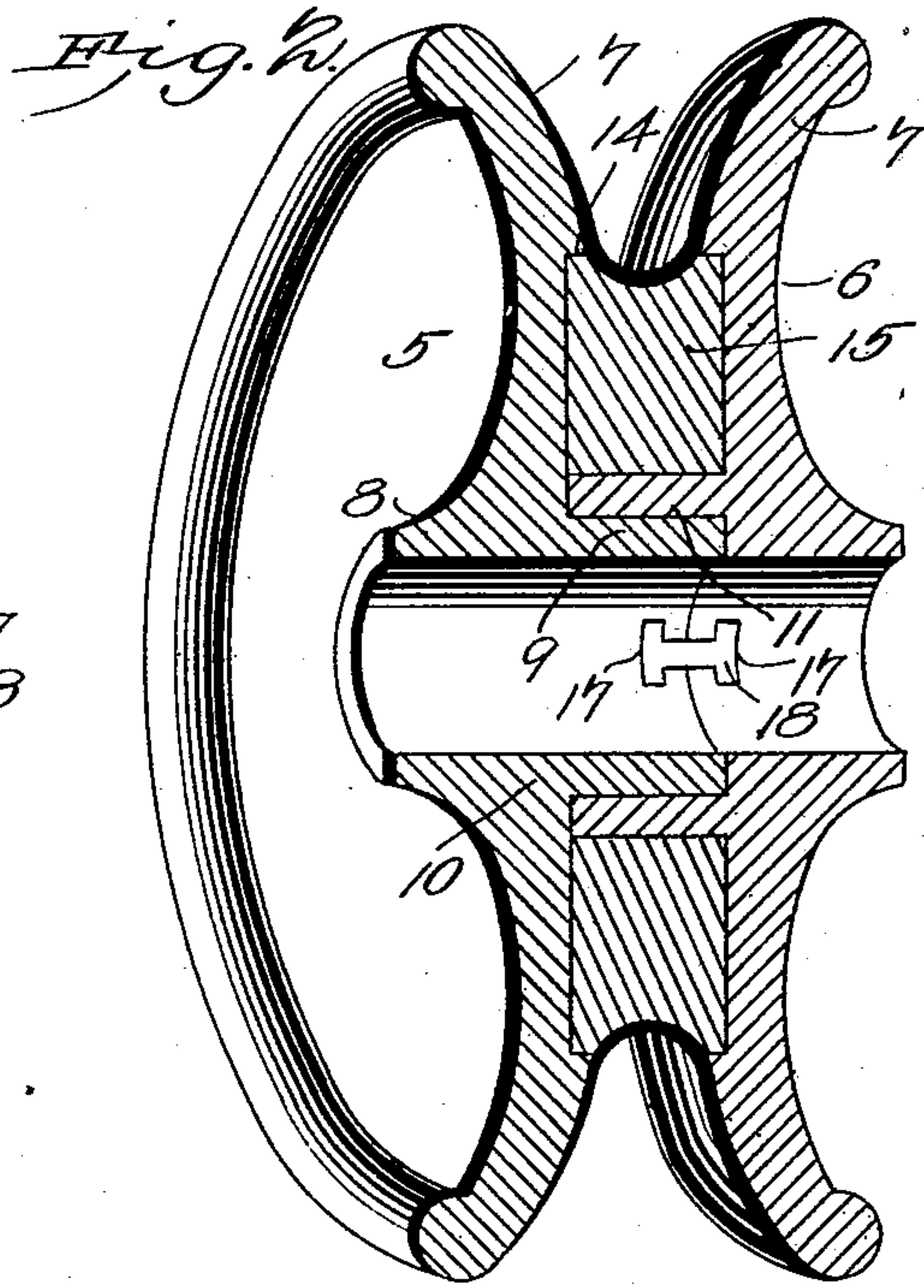
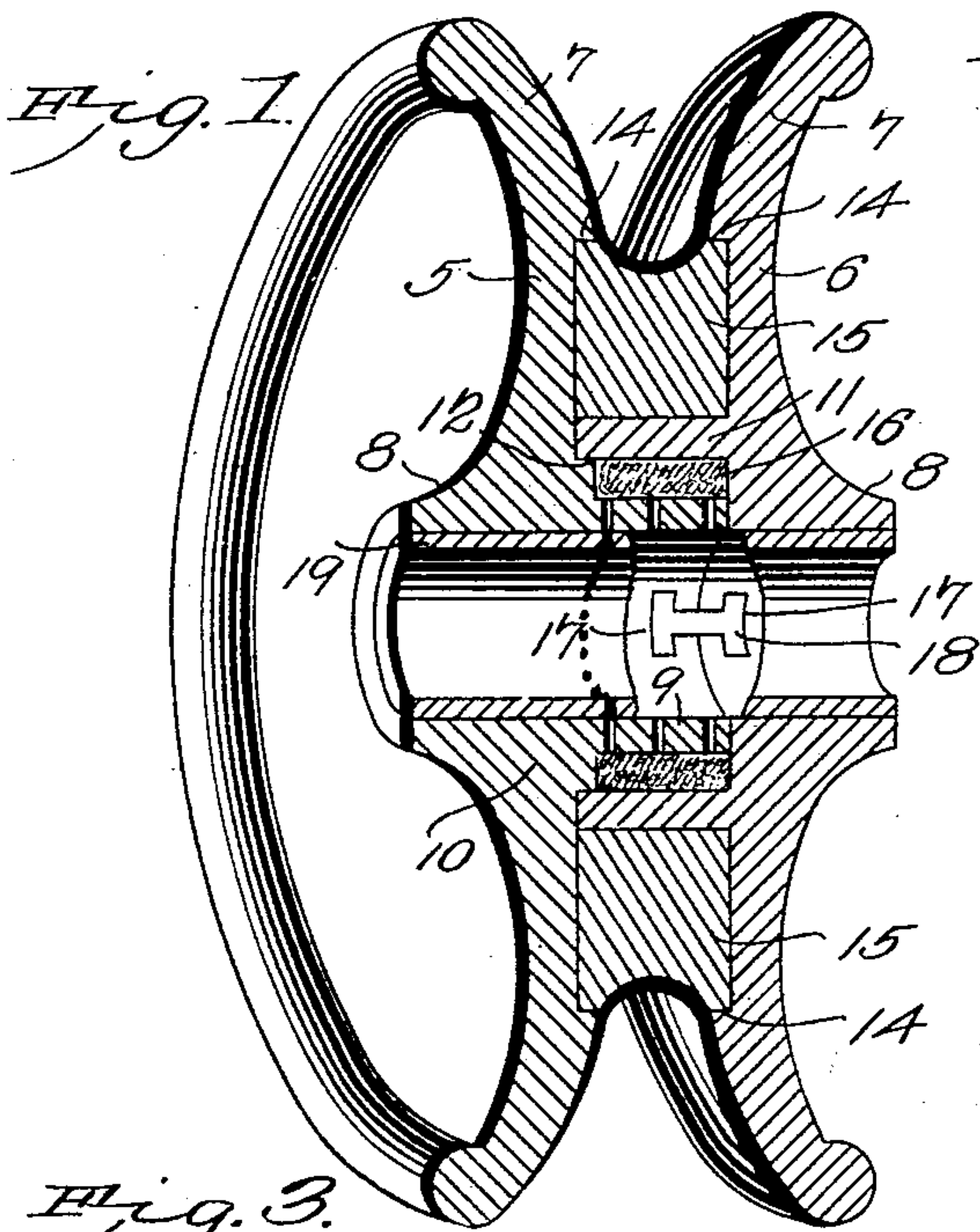
PATENTED FEB. 17, 1903.

T. McWILLIAMS.
TROLLEY WHEEL.

APPLICATION FILED APR. 12, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
E. J. Newell
John C. Parker

T. McWilliams, Inventor
by *C. A. Snowles*
Attorneys

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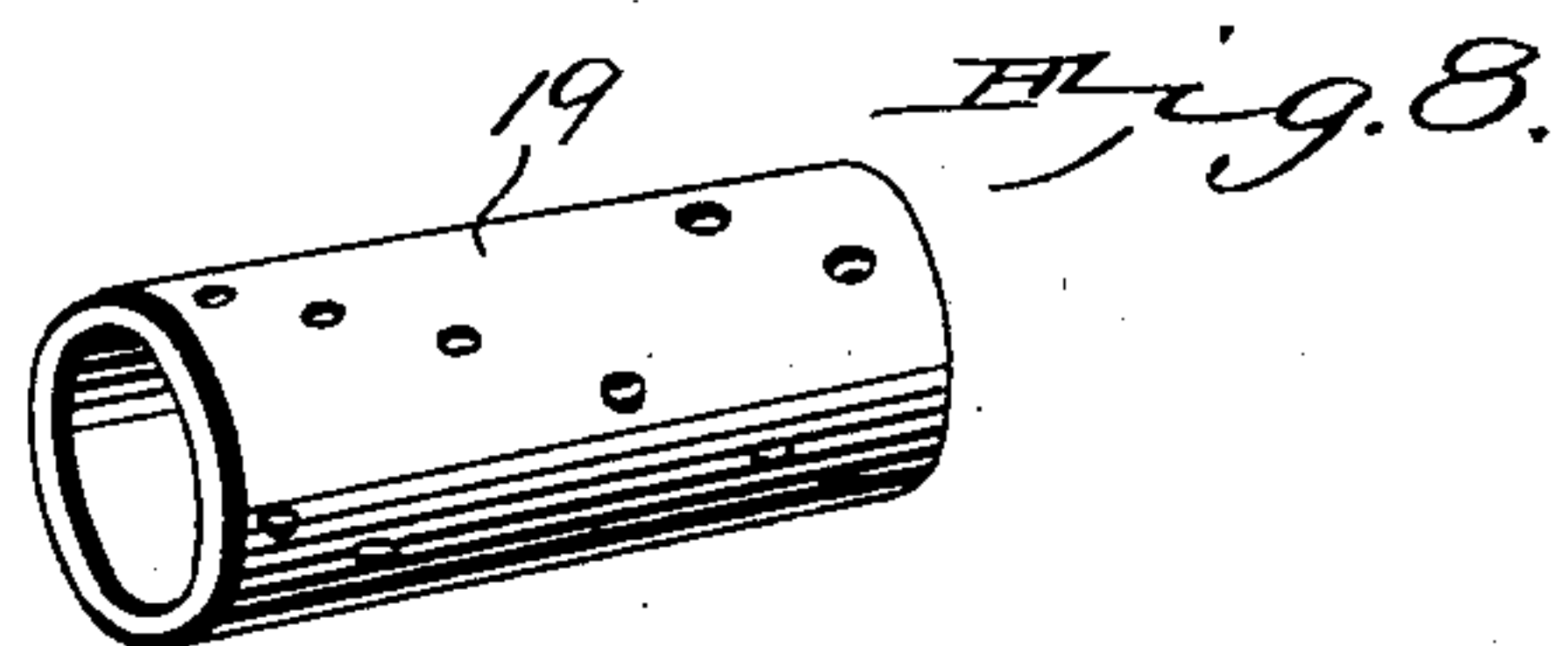
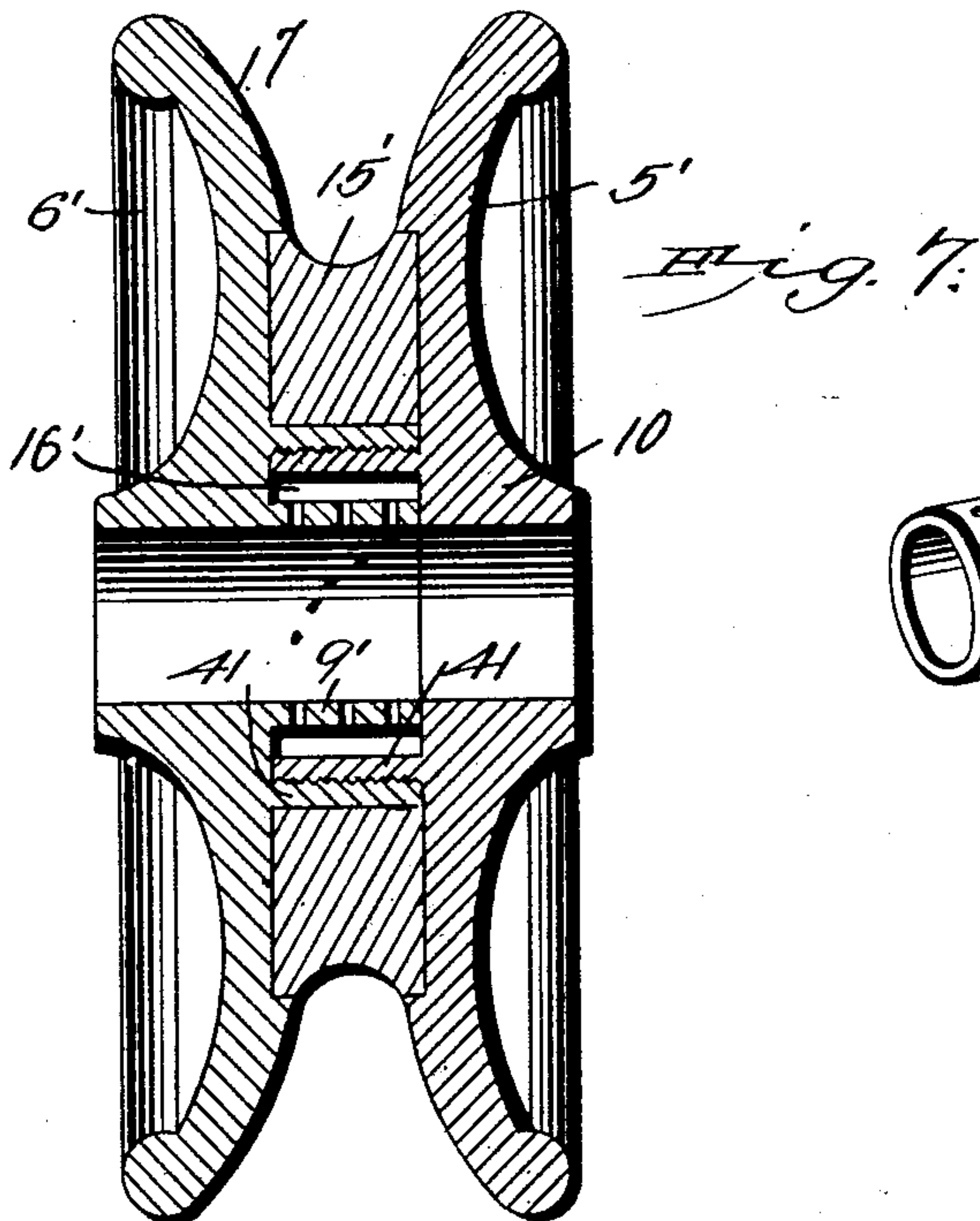
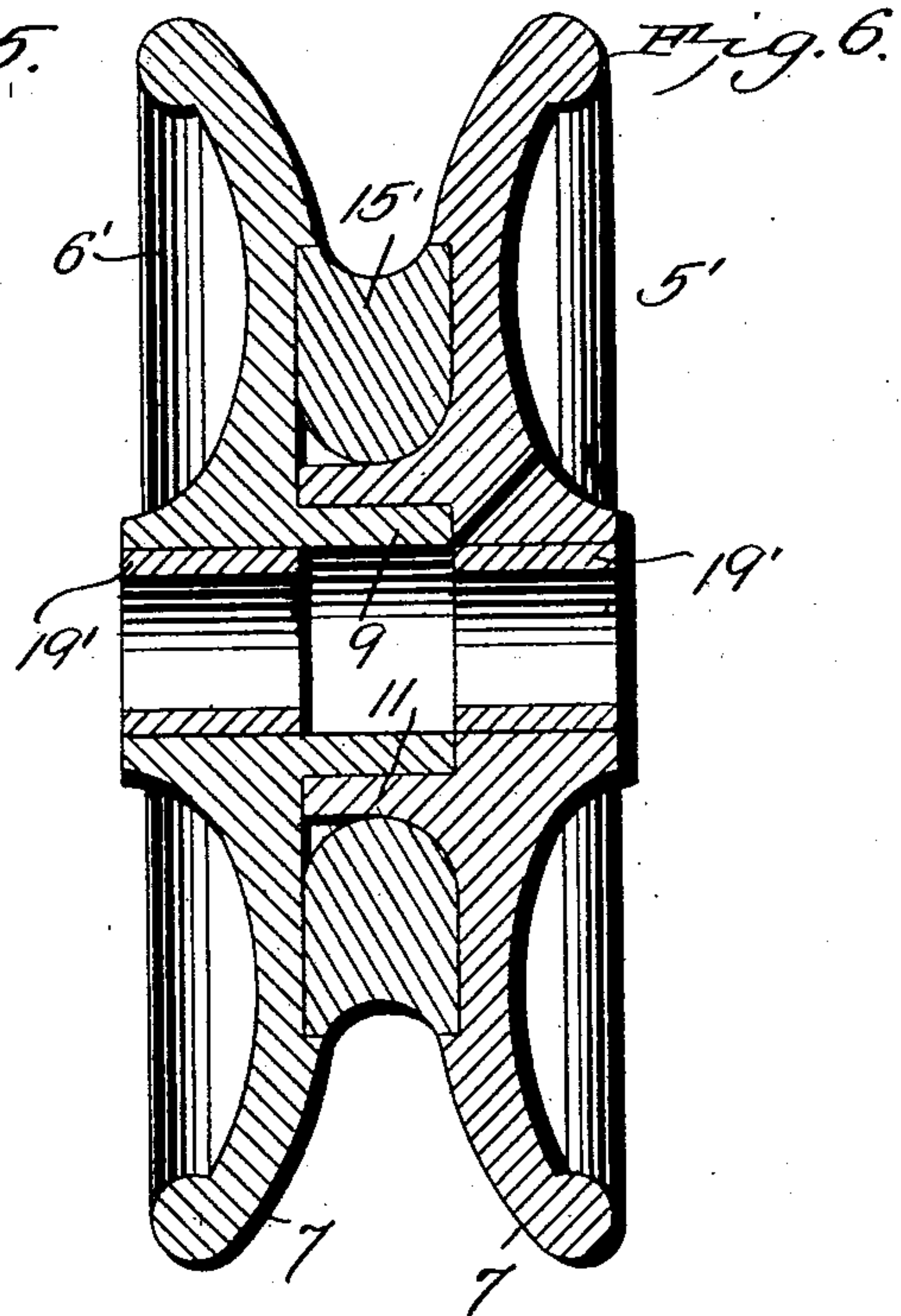
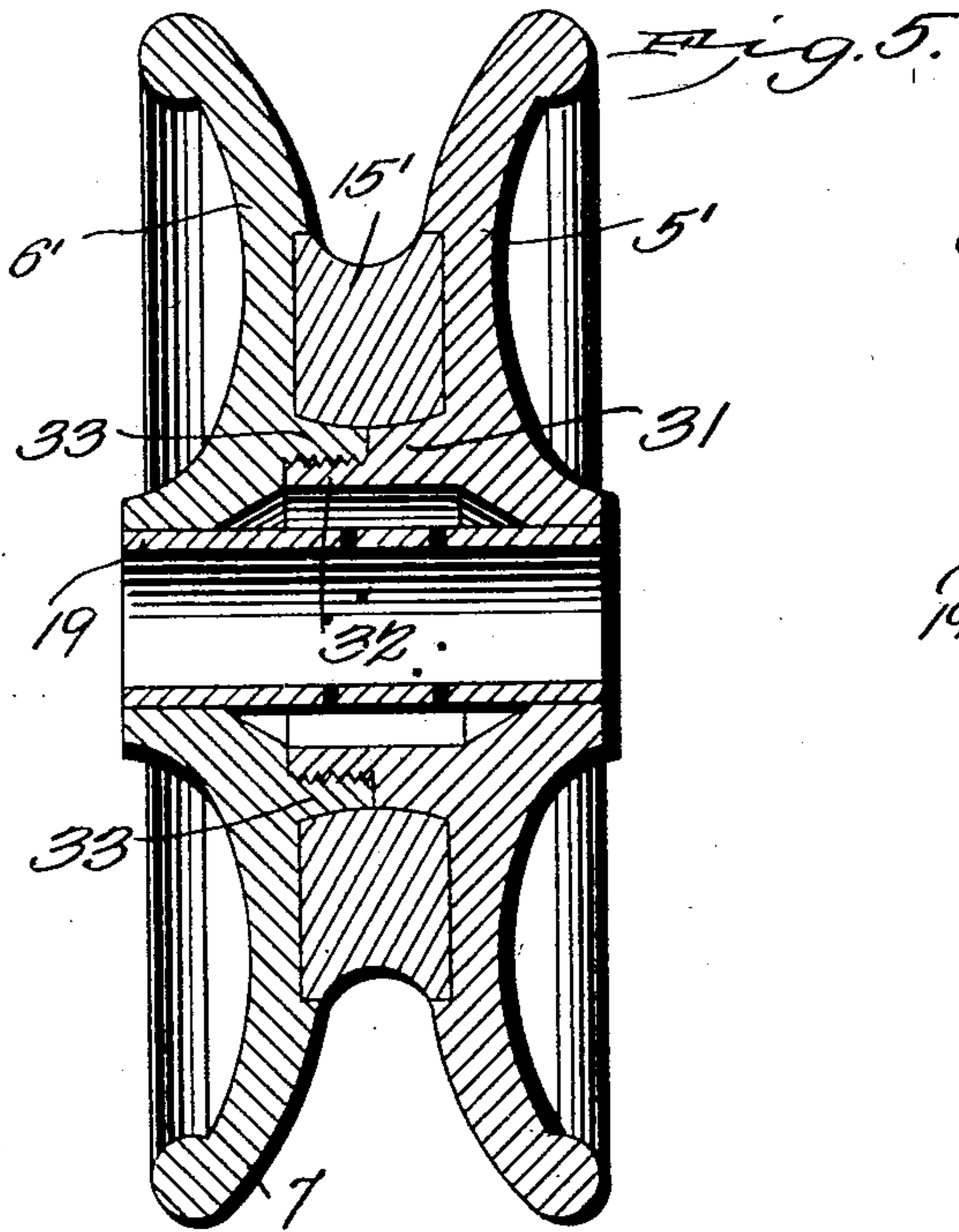
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T. McWILLIAMS.
TROLLEY WHEEL.

APPLICATION FILED APR. 12, 1902.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses
E. J. Stewart
Jno E. Parker

T. McWilliams, Inventor.
by *Chas. Snow & Co.*
Attorneys.

UNITED STATES PATENT OFFICE.

THOMAS MCWILLIAMS, OF KINGS PARK, NEW YORK, ASSIGNOR OF ONE-HALF
TO JOHN J. CUSICK, OF KINGS PARK, NEW YORK.

TROLLEY-WHEEL.

SPECIFICATION forming part of Letters Patent No. 720,612, dated February 17, 1903.

Application filed April 12, 1902. Serial No. 102,621. (No model.)

To all whom it may concern:

Be it known that I, THOMAS MCWILLIAMS, a citizen of the United States, residing at Kings Park, (Long Island,) in the county of Suffolk and State of New York, have invented a new and useful Trolley-Wheel, of which the following is a specification.

My invention relates to certain improvements in trolley-wheels, and has for its principal object to provide an improved form of sectional trolley-wheel in which the parts may be readily assembled or disassembled for the purpose of renewing that portion of the periphery of the wheel which makes contact with the current-conducting wire.

A further object of the invention is to provide improved means for securing the sections of the wheel together, so that they may be firmly held without the employment of auxiliary bolts and nuts.

A still further object is to provide a wheel of a self-lubricating nature, the hub portion of the wheel being provided with an oil-reservoir of a size sufficient to contain all the lubricant required during the life of the removable wearing-ring.

A still further object of the invention is to so construct the side flanges or guiding members that any wear which may occur in these portions of the wheel will not in any manner interfere with the proper fitting of a new wear-ring or impair the efficiency of the wheel as a whole.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the drawings, Figure 1 is a sectional perspective view of a trolley-wheel constructed in accordance with my invention, a portion of the inner bushing being broken away in order to more clearly illustrate the connection between the parts. Fig. 2 is a similar view, the wheel illustrated being of simple construction and without the lubricant-reservoir shown in Fig. 1. Fig. 3 is a sectional elevation of a modified construction of the wheel, showing a bayonet-joint fastening. Fig. 4 illustrates details of the construction

of wheel shown in Fig. 3. Fig. 5 is a sectional perspective view of a further form of wheel embodying the invention, the parts in this instance being connected together by interengaging screw-threads. Fig. 6 is a sectional elevation of the hub portion of a wheel, illustrating a modified arrangement of the oil-reservoir. Fig. 7 illustrates a further modification of the wheel. Fig. 8 is a detail perspective view of a form of bushing which may be employed in a self-lubricating wheel.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The trolley-wheels in ordinary use for overhead electric roads are formed of a single piece of brass casting and being of comparatively small diameter soon become worn from contact with the current-conducting wire, the groove being cut down to such an extent that the peripheral flanges often make contact with the cross-wires used to support the current-conductor. When the wheel is thus worn, it must be discarded and replaced by a new one. In order to avoid the expense incurred in the constant employment of entire wheels, I have devised a sectional wheel in which the portion making contact with the current-conducting wire is in the form of a readily-removable ring, which may be replaced at very small expense.

Referring to the drawings, 5 and 6 represent the side disks of the trolley-wheel, having outwardly-flaring flanges 7, which serve to guide the wheel and keep the central grooved portion of the periphery in contact with the trolley-wire. In the construction illustrated in Fig. 1 the disk member 5 has an enlarged hub portion 8 and is provided with a laterally-extending integral sleeve or flange 9. The cup member 6 is provided with a hub 10 and has an integral flange 11, the inner end of which bears against the adjacent face of the disk 5 and is properly supported by an annular flange or shoulder 12. The inner face of each side disk is recessed to form an annular flange or shoulder 14 of a width sufficient to withstand wear from occasional contact with the side of the current-conducting wire. Between the two disks is placed a wearing-ring 15, the inner surface

of the ring fitting snugly on the flange 11 and its sides extending within the recesses formed in the inner faces of the disk. During the manufacturing of the ring its periphery is slightly concaved, as shown, in order to receive the current-conducting wire and prevent any undue contact of the disks with the sides of the wire. The space between the sleeves or flanges 9 and 11 is filled with a suitable lubricant 16, which may be in the form of an oil or grease or a filling of sponge or waste saturated with oil, the inner sleeve or flange 9 being perforated in any suitable manner to permit the passage of the lubricant. In the inner surface of the sleeve or flange 9 and the adjacent portion of the hub 10 are formed T-shaped slots 17 for the reception of an H-shaped locking-key 18, which serves to prevent independent rotative or longitudinal movement of the disks. When the three members of the wheel have been assembled and the lubricant introduced, they are locked together by the key 18, and a suitable perforated bushing 19 is then driven in order to hold the key in place and to form a smooth bearing member for the wheel. With a wheel constructed in this manner a worn ring 15 can be readily removed and a new wearing-ring put in its place at but slight expense. The disks or flange members 5 and 6 will last for an indefinite period and are discarded only when the shoulders 14 are worn away from contact with the sides of the trolley-wire, such wearing occurring only on roads having a large number of curves or where the trolley-wire is not arranged directly above the center of the traffic-rails.

The construction may be simplified to some extent by reducing the diameter of the flange 11, as illustrated in Fig. 2, the flange in this case fitting directly on the periphery of the collar 9 and affording a stronger support for the wearing-ring and at the same time permitting the employment of a thicker and heavier wearing-ring in a wheel of the same diameter. In this case, however, the omission of the lubricant-reservoir makes it necessary to oil the bearing-surfaces by hand.

In the construction shown in Fig. 3 the sleeve or flange 9' is provided with a projecting lug 22 and a short slot 23, the lug 22 being adapted to fit in an L-shaped flange in the sleeve 11', the construction being similar to that of the ordinary bayonet-joint and forming a means for readily uniting or separating the disk member. When the parts of the wheel shown in Fig. 3 are assembled, a locking-key is inserted through a keyway 25 in the hub 10', the end of the key projecting into the slot 23 and locking the two members together in such manner as to prevent independent circumferential movement, while lateral play is prevented by the engagement of the lug 22 in the segmental portion of the receiving-slot 24.

In the construction shown in Fig. 5 the disk member 5' is provided with an inwardly-

projecting flange 31, having a reduced bayonet portion 32 for the reception of internal threads formed in a flange 33 on the inner side of the disk member 6'. The internal diameter of the flange 31 is greater than the external diameter of the bushing 19 and the hub portions of the disks, thus forming a lubricant-reservoir which may be filled before the bushing is fully in place. As the inwardly-projecting flange 33 comes into contact with the shoulder of the flange 31 at a point about midway of the wheel, a wearing-ring 15', having a convexed inner face, may be employed, the increased thickness of the ring adding to the durability and strength of the structure.

Fig. 6 illustrates a further modification, in which the bushing 19' is formed in two separated sections, the space between said sections forming a reservoir in which graphite or an oil-saturated sponge or piece of waste may be placed. A construction of this kind is especially useful in connection with a wheel of the character shown in Fig. 2, although it may be employed in connection with any of the various forms of wheels shown in the other figures of the drawings.

Fig. 7 illustrates a further modification of the invention, combining the features of construction illustrated in Figs. 1 and 5. In this construction the collar 9' is perforated, and the two disk members are provided with flanges 41, having interengaging screw-threads. The oil-reservoir 16' is disposed between the collar 9' and the inner of the two threaded flanges.

The bushing 19 may be of any ordinary construction and is provided with perforations or openings of any desired size or contour to permit the passage of lubricant to the spindle or shaft on which the wheel is supported.

The device is susceptible of various other modifications, and while the construction herein described, and illustrated in the accompanying drawings is the preferred form it is obvious that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, what I claim is—

1. The combination in a trolley-wheel, of the disk members having inwardly-projecting annular flanges and provided with recesses in their adjacent inner faces, a peripherally-grooved wear-ring carried by the flanges and seated within the recesses, means for locking the two sections to each other, and a bushing for holding such locking means in position, substantially as specified.

2. A trolley-wheel comprising in combination, a pair of recessed disks having inwardly-projecting annular flanges arranged to form an oil-reservoir, the inner flange being perforated for the passage of oil from the reservoir, a peripherally-grooved wear-ring seated within the recesses of the disks and supported

by the outer of the annular flanges, a key for locking the disks to each other, and a bushing serving to support said key in locking position, substantially as specified.

- 5 3. A trolley-wheel comprising in combination, a pair of disks having annular recesses in their adjacent inner faces, hubs forming part of said disks, a tubular sleeve 9 carried by one of said disks and provided with a
10 T-shaped slot and the adjacent hub of the opposite disk being provided with a similar slot, a flange forming part of said opposite disk and adapted for contact with the sleeve-

carrying disk, a wear-ring mounted on said flange and seated within the recesses of the disks, an H-shaped key adapted to the T-shaped slots, and a bushing serving to hold said key in locking position. 15

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses. 20

THOMAS McWILLIAMS.

Witnesses:

JOHN F. KELLY,
JOHN J. CUSICK.