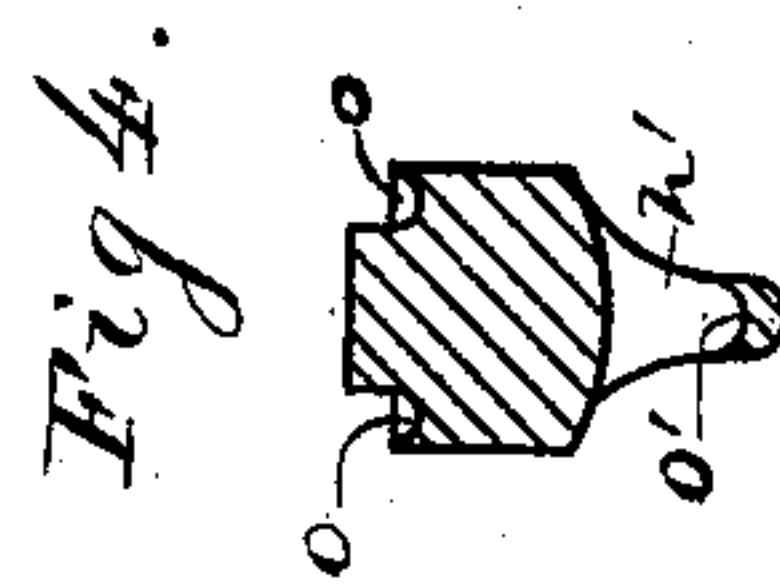
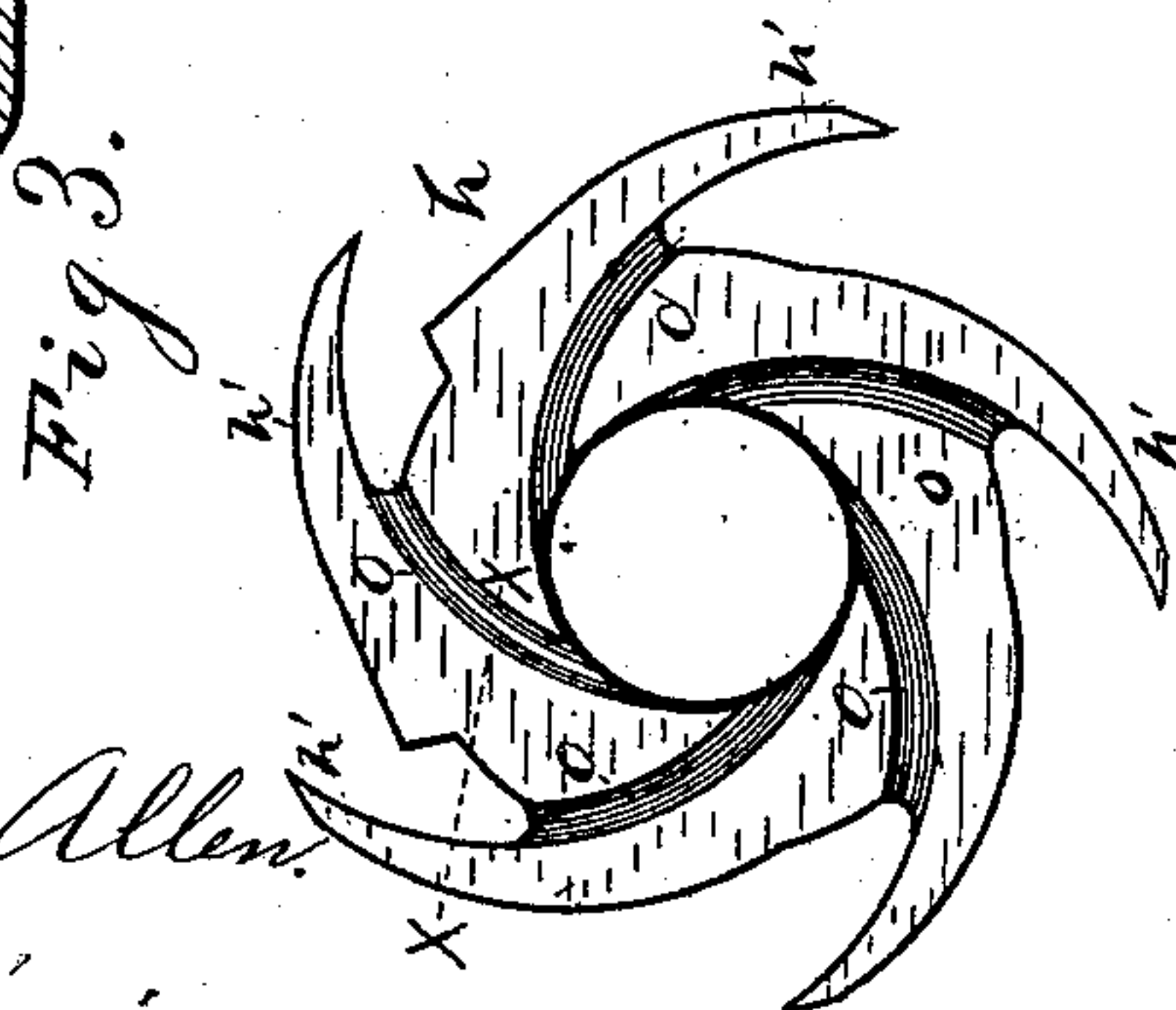
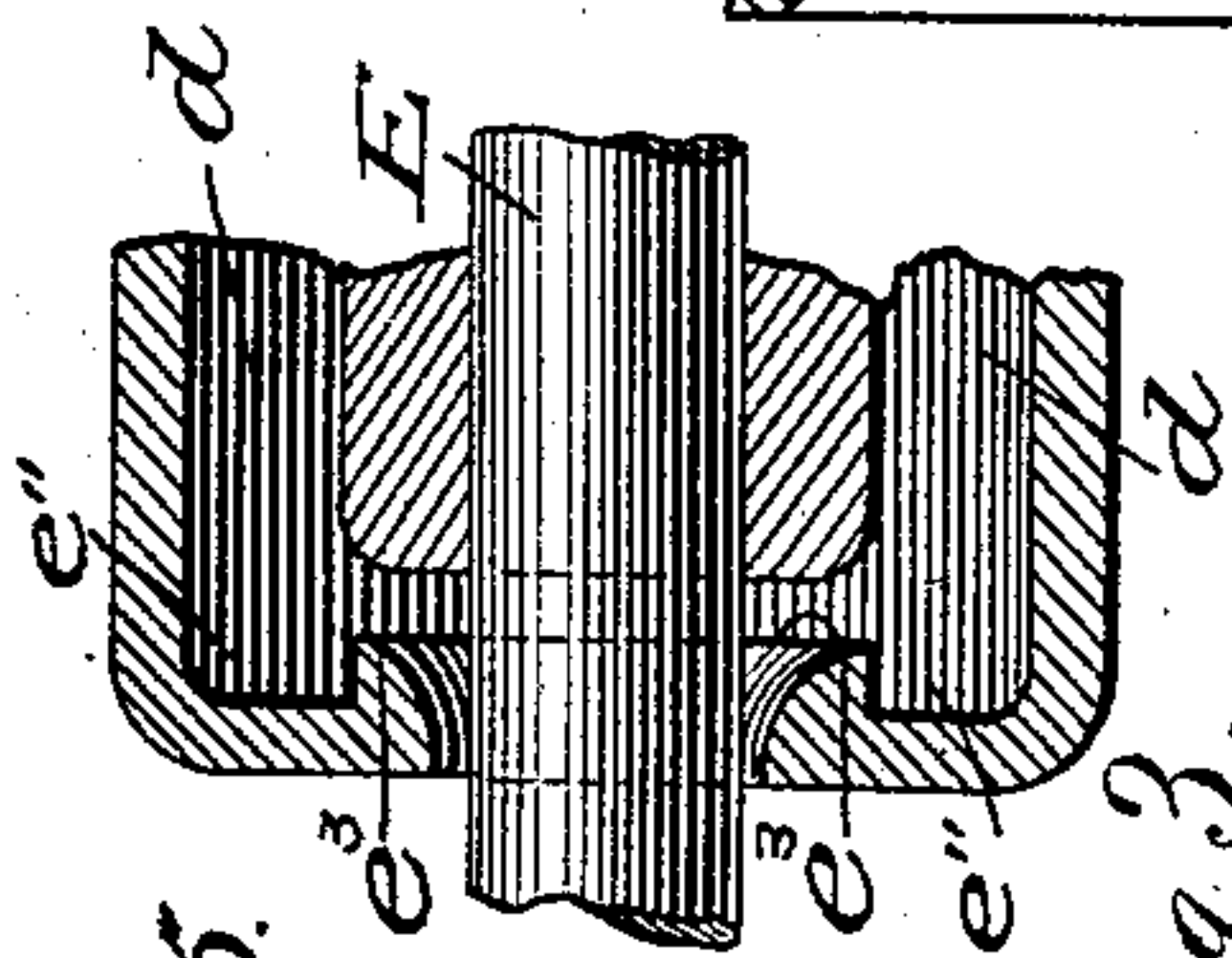
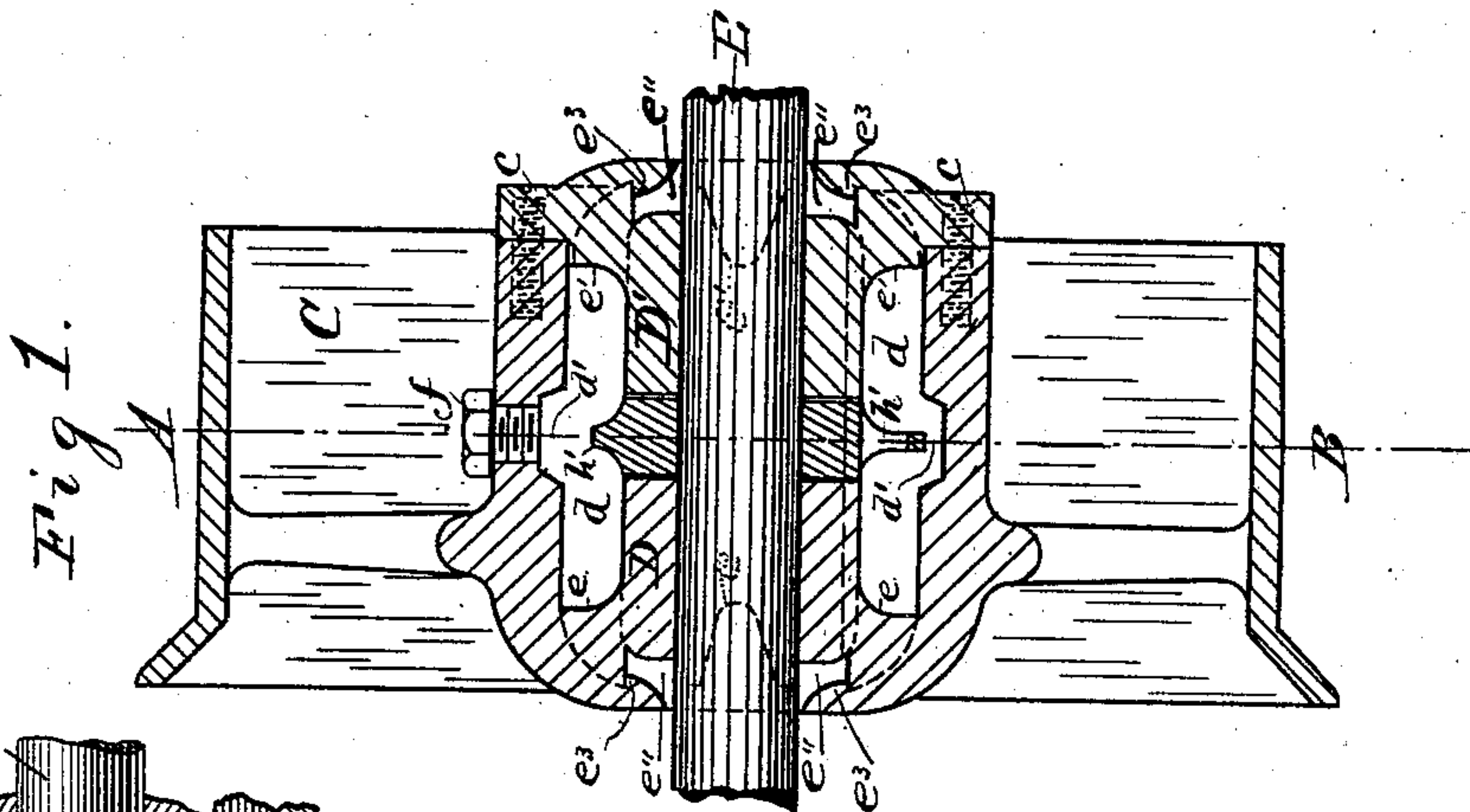
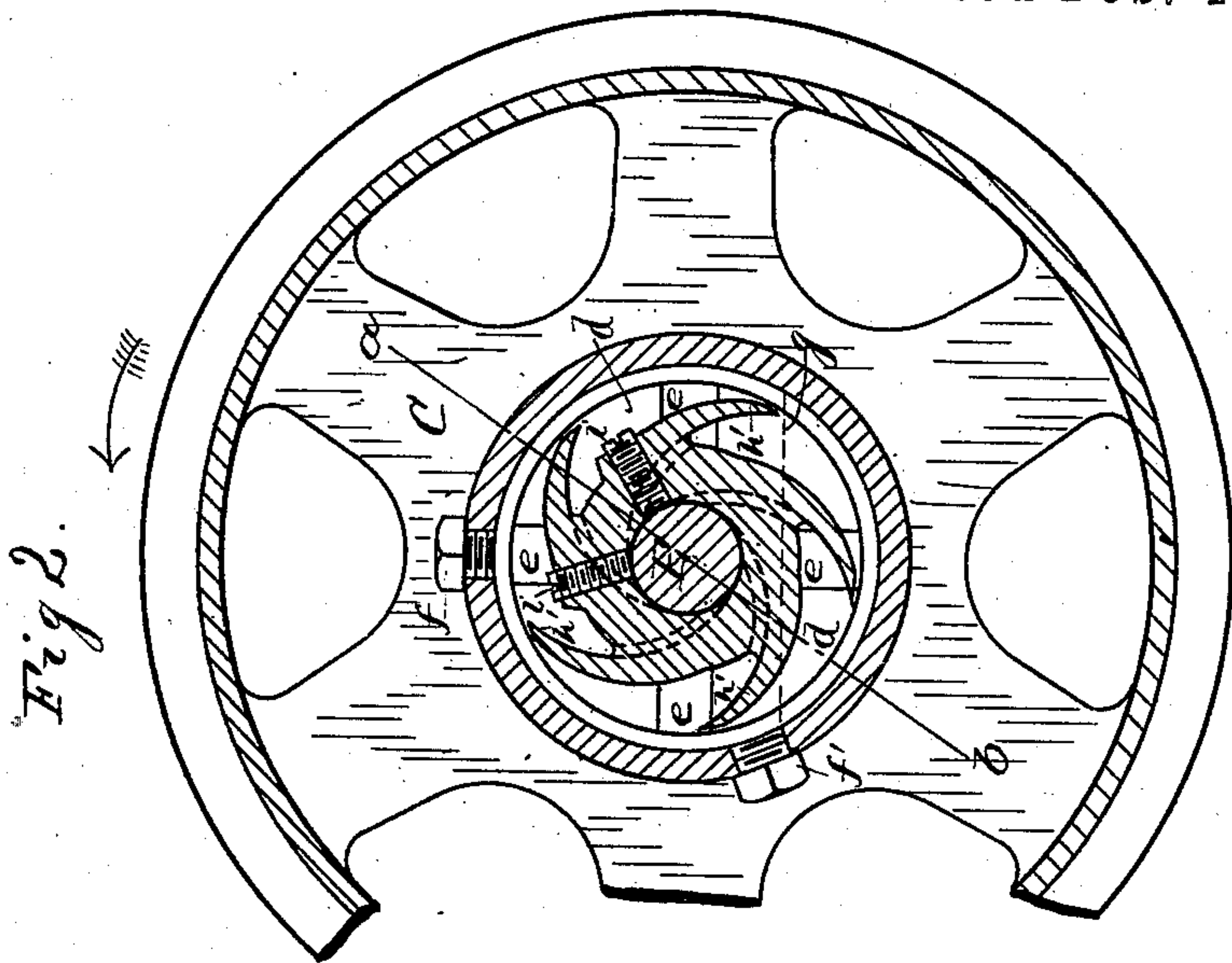


(No Model.)

W. H. FRITZ.
SELF OILING PULLEY.

No. 534,556.

Patented Feb. 19, 1895.



WITNESSES:

Lester L. Allen¹²
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INVENTOR

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BY

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UNITED STATES PATENT OFFICE.

WILLIAM H. FRITZ, OF DAYTON, OHIO, ASSIGNOR OF TWO-THIRDS TO
ORLANDO P. McCABE AND GEORGE R. DECKER, OF SAME PLACE.

SELF-OILING PULLEY.

SPECIFICATION forming part of Letters Patent No. 534,556, dated February 19, 1895.

Application filed October 12, 1894. Serial No. 525,741. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. FRITZ, of Dayton, county of Montgomery, State of Ohio, have invented a new and useful Improvement in Pulleys; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to new and useful improvements in pulleys.

The object of the invention is to provide a pulley from which there is absolutely no leakage of the oil, and which has a capacity for keeping the shaft well oiled while in motion, regardless of the rate of speed at which said pulley is running.

Referring to the annexed drawings forming a part of the application, Figure 1, is a horizontal section of the improved pulley; Fig. 2, a section of the pulley on the line A—B of Fig. 1; Fig. 3, a side elevation of the oiling ring; Fig. 4, a section on the line $x-x$ of Fig. 3; Fig. 5, a section on the line $a-b$ of Fig. 4; the oiling ring removed.

In the detailed description, similar letters of reference indicate corresponding parts in the several views.

(C) designates the pulley. The hub or bearing portion thereof is formed in two parts, (D) and (D'), the former being an integral part of the pulley, while the latter, (D') is detachably secured to said pulley by means of set screws (c). Between the inner ends of said parts (D) and (D') there is an intervening space for the oil ring or arrester, and the pulley is constructed in the manner described in the foregoing to enable said oil ring to be inserted therein.

(d) designates an annular oil chamber formed around the hub, and (d') is an annular channel which forms part of said chamber.

(e) and (e') designate, respectively, interior strengthening lugs and oil deflectors on the ends of the parts (D) and (D') of which there are four on each part, occupying positions diametrically opposite each other. These

lugs are beveled downwardly from their inner horizontal surface, and their functions are to strengthen the parts (D) and (D'), and to give the oil a tendency to flow to the chamber (d) from the ends of said chamber, which ends are partitioned or divided into four parts or spaces (e'') by said lugs (e) and (e'). The oil is readily returned to the more central part of the chamber (d) by these lugs.

(e³) designates a flange that forms the inner terminal of the spaces (e''), and extends around the inner points of the lugs (e) and (e'). This flange forms an annular ledge or shoulder that arrests the oil when draining from the uppermost portion of the parts (e³), and thereby prevents the oil from dripping from the pulley.

(f) designates a screw which closes an opening that leads to the oil chamber (d) and through which the oil is fed. (f') designates a similar screw that closes an opening, also leading to said chamber, the object of which is to afford means for discovering when a sufficiency of oil has been fed to the chamber. The surface line of the oil is indicated by (g), Fig. 2. When this line is reached, the oil will drip through the opening which is normally closed by said screw.

(h) designates an oiling ring having a plurality of curved prongs (h') integral parts of the ring. This ring is made rigid on the shaft (E) by means of set screws (i) between the inner ends of the sections (D) and (D'); there being sufficient clearance between said parts (D) and (D'), and the ring, to avoid friction. When in an operative position the ring will be on a vertical plane with the channel (d').

(o) designates concaved channels (shown in dotted lines in Fig. 2) on both sides of the prongs, and extending from the point where said prongs leave the hub portion of the ring, to the axis thereof. (o') designates a similar channel in the inner surface of said prongs as is clearly shown in the cross section, Fig. 4. These oil channels form runs through which the oil is returned to the axis of the pulley or shaft as it is thrown outwardly by centrifugal force.

The means herein shown and described are effectual, and never fail to keep the shaft

supplied with the lubricant, while there is sufficient remaining in the chamber to be acted upon.

As herein-before stated, the pulley alone
5 revolves, the oiling ring remaining stationary with the shaft. As said pulley revolves, centrifugal force acting in a well known manner, will have the effect of driving the oil away from the shaft; the prongs (h') will arrest and throw back a portion of the oil thus
10 affected, and cause it to gravitate through the oil runs (o) and (o') back to the axis of the pulley. The two uppermost prongs will effectually accomplish this. The object of
15 constructing the ring with a greater number of these prongs, is to insure a constant and uninterrupted return of the oil to the shaft while the pulley is running. Observing the positions of the two uppermost prongs in Fig.
20 2, it will be readily seen that the oil arrested by them will run downwardly to the center. The force imparted to the oil due to its sudden arrest, will have the effect of driving it through said channels quickly. Looking at
25 Fig. 1, it will be noted the oil ring is on a line coincident with the channel (d'). As the oil is reduced in quantity, it will gradually be confined to this channel, and acted upon by the prongs of the oil ring, until the smallest
30 quantity remains in the chamber. The arrow, Fig. 2, indicates that the pulley revolves in a direction opposite to that in which the prongs (h') point, which is essential in order to allow the latter to perform their functions.
35 The device can be used with equally as good results on a variety of wheels, such as trolleys, sheaves, &c., and on a spindle or

other bearings. When used as a bearing it is only necessary to reverse the positions of the prongs in mounting the ring. In this
40 event the revolving spindle will carry the ring with it. When the ring is mounted on the shaft in either event, the prongs (h') should project into the channel (d') a sufficient distance to act upon the smallest quan-
45 tity of oil in said channel. This is accomplished by springing said prongs into the channel after the ring has been placed in position.

Having fully described my invention, I
50 claim—

In a pulley, the combination with a stationary shaft, of a hub, the inner portion of which consists of sections (D) and (D'), one
55 of said sections being detachable, an oil chamber (d) in said hub, strengthening lugs and oil deflectors (e) and (e') on the ends of said sections which divide the ends of the chamber (d) into spaces (e''), a flange (e^3) between
60 the inner points of the lugs (e) and (e'), an oiling ring having a plurality of prongs (h') with oil runs therein, said oiling ring adapted to occupy a position between the inner ends
65 of the sections (D) and (D'), whereby means are provided for arresting the oil and returning it to the shaft, and for obviating a leakage of the oil from the pulley, substantially as herein shown and described.

In testimony whereof I have hereunto set my hand this 5th day of October, 1894.

WILLIAM H. FRITZ.

Witnesses:

R. J. MCCARTY,
L. L. ALLEN.