

No. 671,847.

Patented Apr. 9, 1901.

F. P. WHITE.
LUBRICATING AXLE.

(Application filed Sept. 5, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

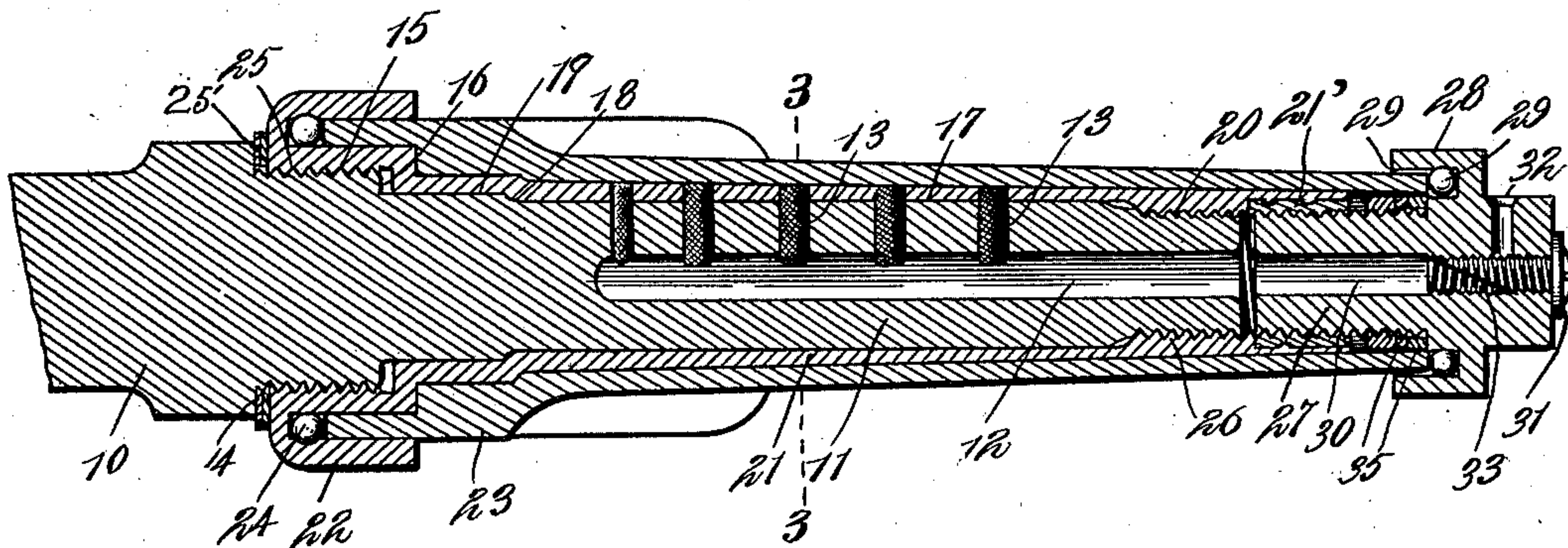


Fig. 3.

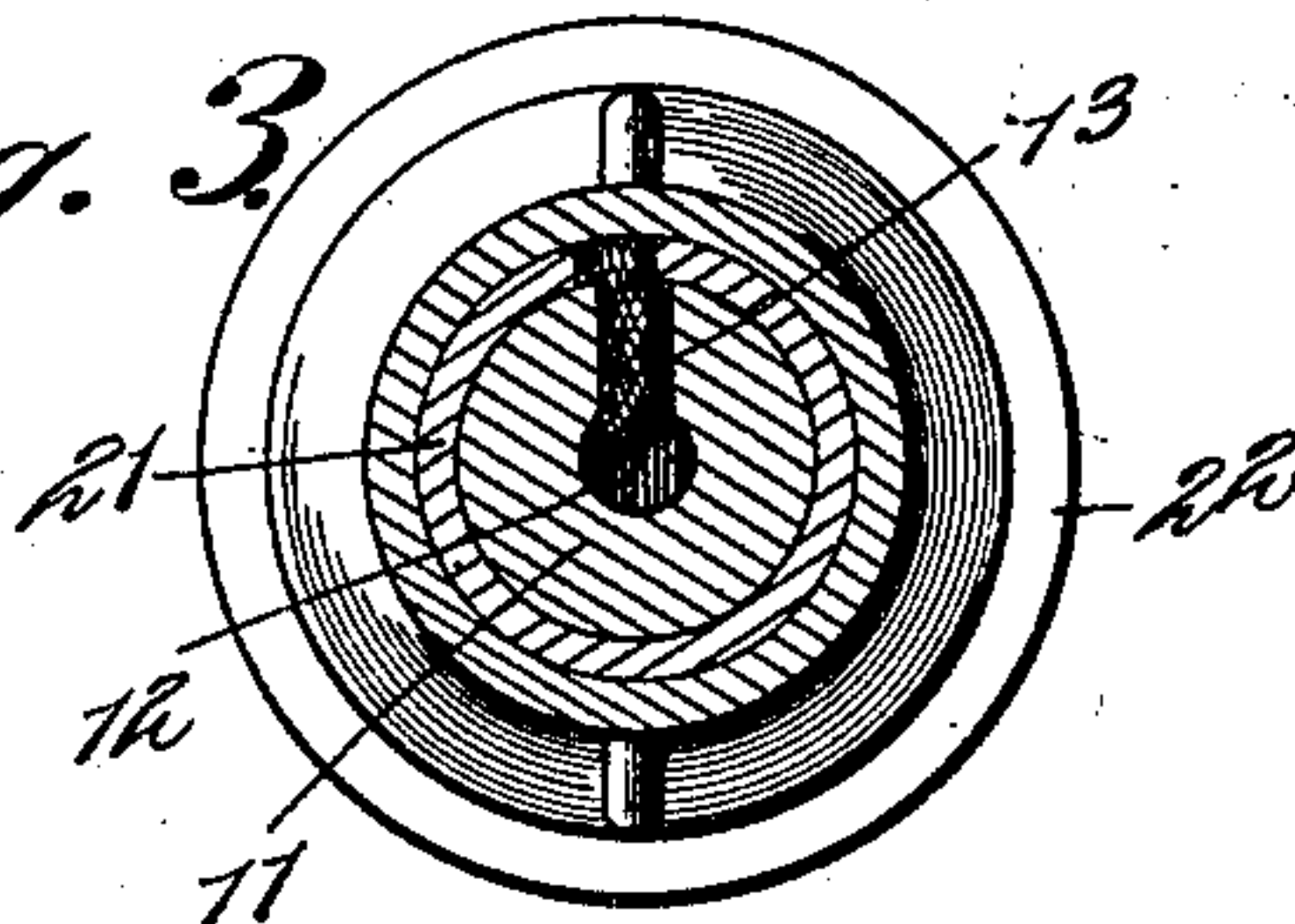


Fig. 2.

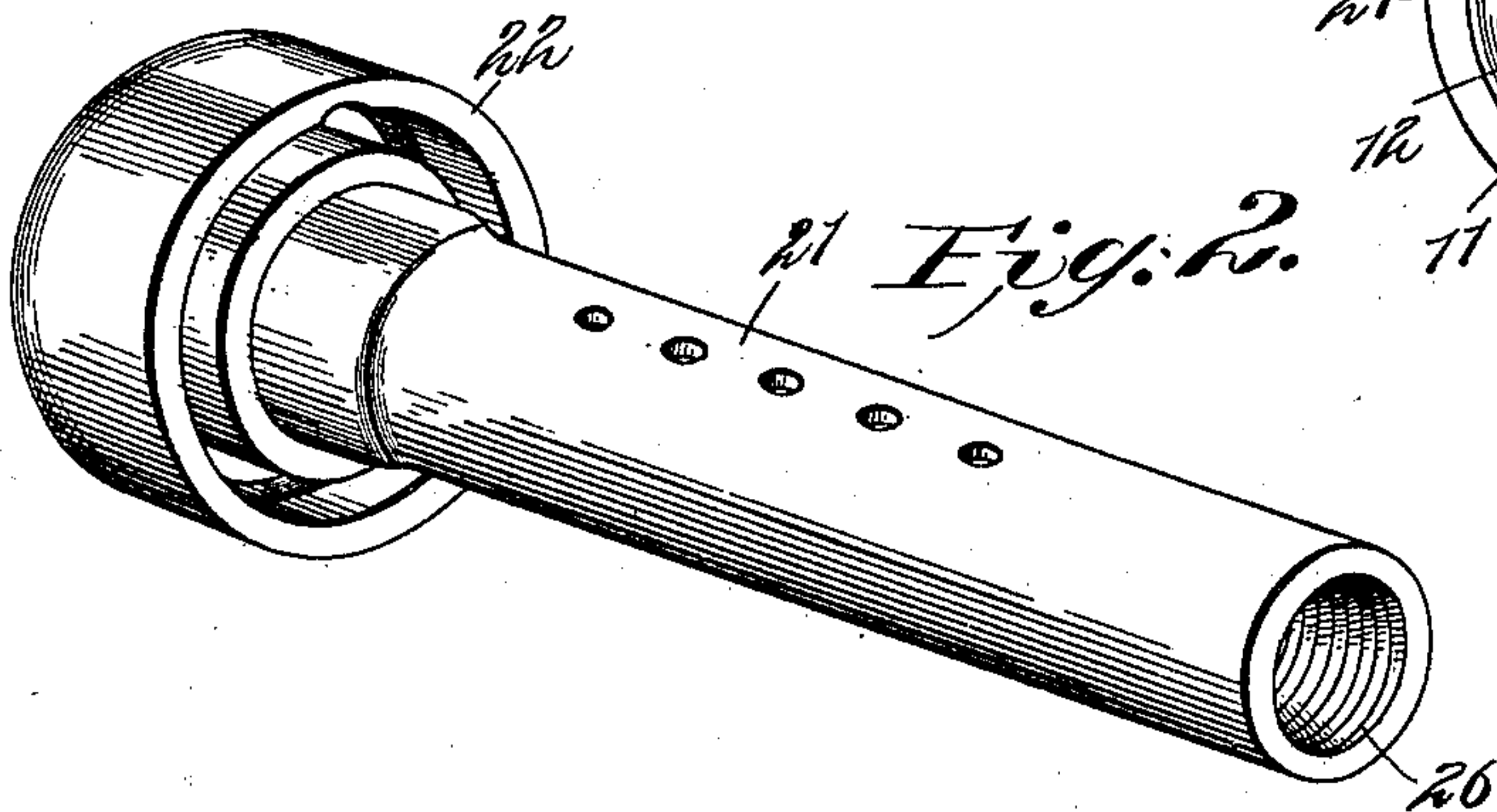
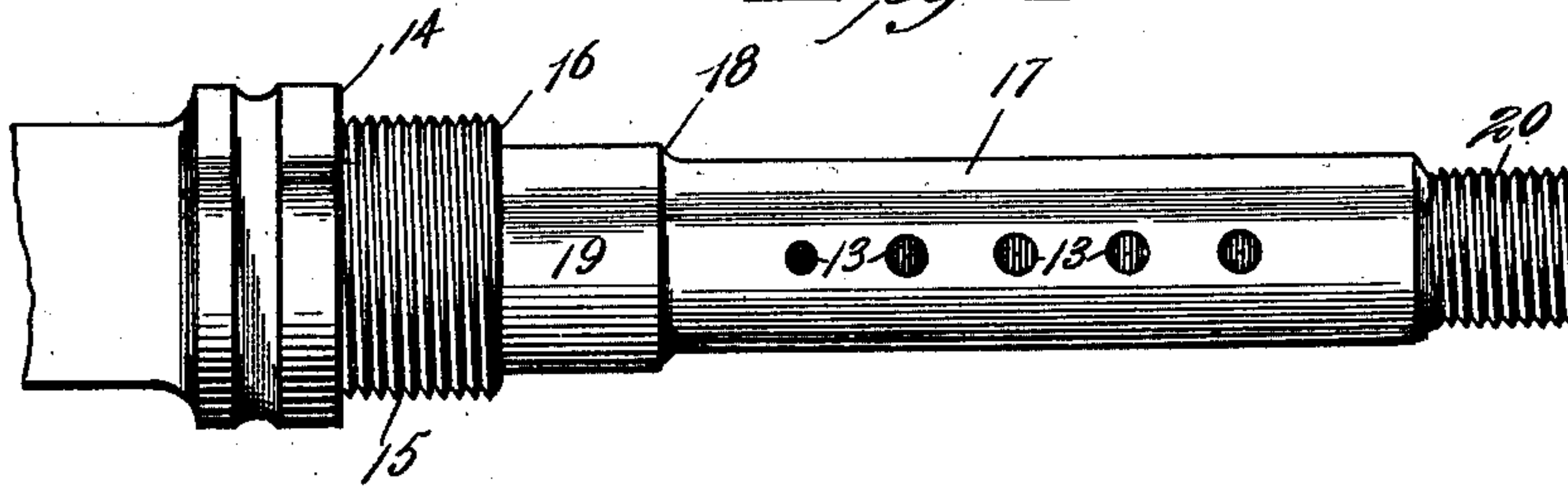


Fig. 4.



Witnesses

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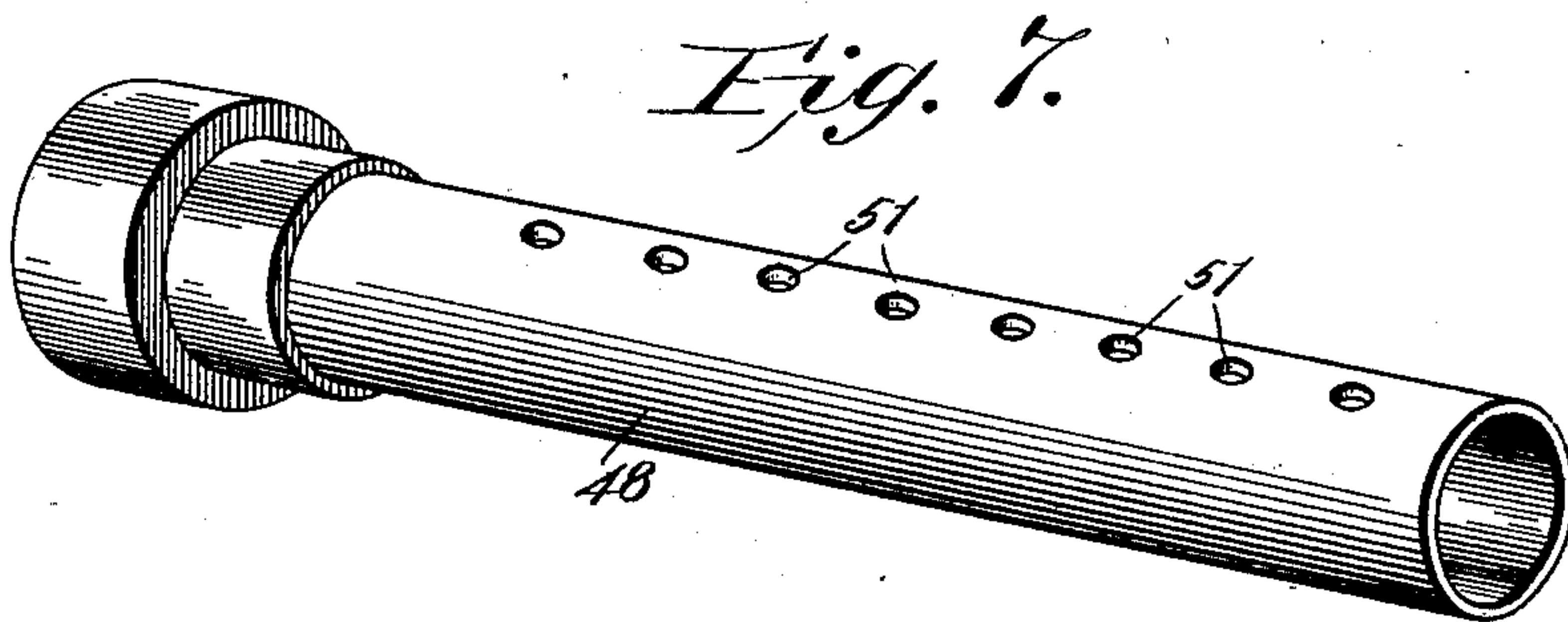
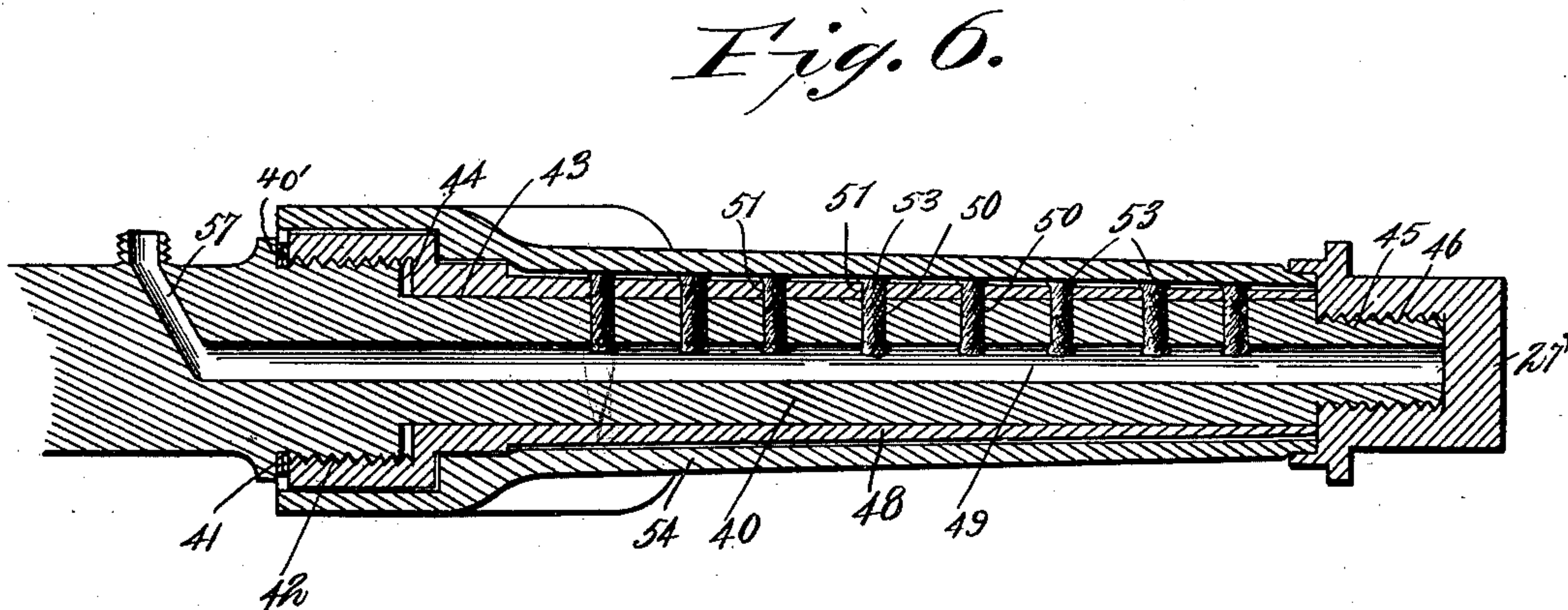
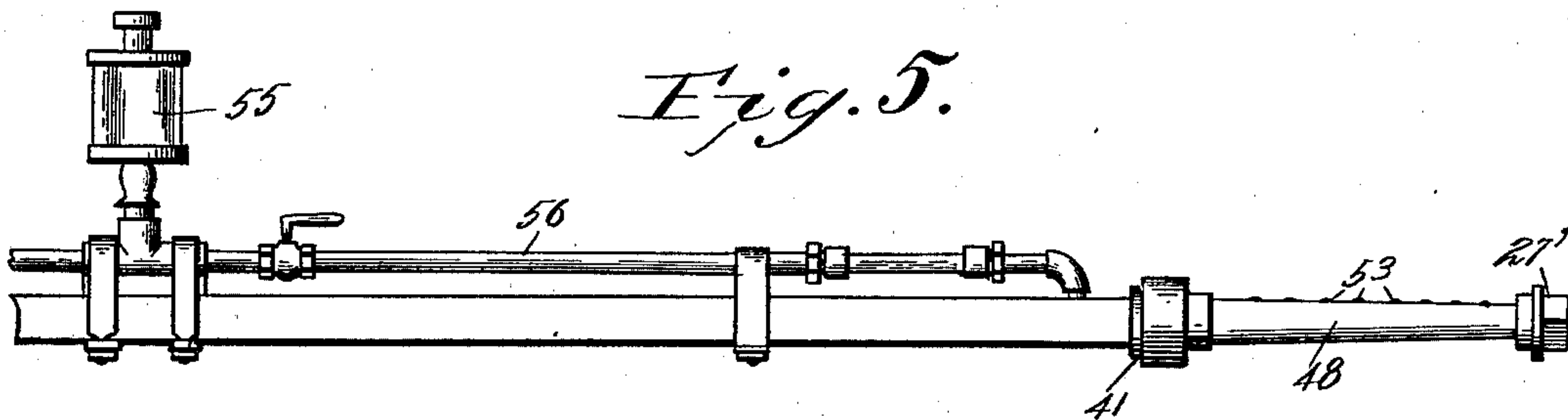
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2 Sheets—Sheet 2.



Witnesses

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UNITED STATES PATENT OFFICE.

FRANKLIN P. WHITE, OF SHALLOTTE, NORTH CAROLINA.

LUBRICATING-AXLE.

SPECIFICATION forming part of Letters Patent No. 671,847, dated April 9, 1901.

Application filed September 5, 1900. Serial No. 29,111. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN P. WHITE, a citizen of the United States, residing at Shal-
lotte, in the county of Brunswick and State of
5 North Carolina, have invented a new and use-
ful Lubricating-Axle, of which the following
is a specification.

This invention relates to vehicle-axles in
general, and more particularly to the axles of
10 carriages and wagons; and it has specific ref-
erences to means for lubricating the bearing-
surfaces of the skein and box, the object of
the invention being to provide a construction
wherein there will be a reservoir from which
15 the lubricant is fed by means of wicks, a
further object being to provide means for
holding these wicks against displacement.

An additional object of the invention is to
provide a simple and efficient means for sup-
20 plying or permitting the supply of lubricant
to the reservoir, further objects and advan-
tages of the invention being evident from the
following description.

In the drawings forming a portion of this
25 specification, and in which like numerals of
reference indicate similar parts in the several
views, Figure 1 is a central longitudinal sec-
tion of one form of the invention in which the
lubricant is supplied to the reservoir through
30 the box-securing nut. Fig. 2 is a perspective
view showing the skein of the axle. Fig. 3
is a section on line 3 3 of Fig. 1, a wick being
shown in elevation. Fig. 4 is a top plan view
showing the spindle of the axle with the
35 skein removed. Fig. 5 is a side elevation
showing one end of an axle equipped with a
different means for supplying lubricant to
the reservoir. Fig. 6 is a sectional view
taken longitudinally of the spindle, skein,
40 and box of the axle shown in Fig. 5. Fig.
7 is a perspective view of the skein shown in
Fig. 6.

Referring now to the drawings, and more
particularly to Figs. 1 to 4 thereof, 10 repre-
45 sents the body portion of a vehicle-axle, and
11 the spindle at one end thereof, the spin-
dle in the present instance having a longitu-
dinal recess 12 in its end, forming a reservoir
for a lubricant, and communicating with this
50 reservoir through the upper side of the spin-
dle are perforations 13.

At the base of the spindle 11 is formed a

shoulder 14 of usual form, and adjacent to
this shoulder the spindle is threaded, as
shown at 15, and beyond the threaded por- 55
tion the spindle is reduced in diameter to
form a second shoulder 16, and is then fur-
ther reduced in diameter, as shown at 17, to
form a third shoulder 18, the portion between
shoulders 16 and 18 being indicated at 19 60
and the shoulder 18 being concaved. The
extremity of the spindle 11 is further reduced
and is provided with screw-threads 20, the
portions of the spindle of different diameters
being all slightly tapered. 65

Upon the spindle 11 is disposed a skein 21,
the outer surface of which is tapered from
its base toward its outer end, said skein hav-
ing an annular flange 22 at its inner end pro-
vided with an annular groove to receive the 70
inner end of the wheel-box 23, which is dis-
posed upon the skein, a series of balls 24 be-
ing disposed within the groove between the
bottom thereof and the inner end of the box
to receive the thrust of the latter. The outer 75
end of the box projects beyond the outer end
of the skein, as shown.

The interior of the skein has a varied di-
ameter to conform to the exterior shape of
the spindle upon which it is fitted, the ends 80
of the skein having internal threads 25 and
26 for engagement with the threads 15 and
20 to draw the skein onto the spindle. The
outer end of the skein extends beyond the
outer end of the spindle, and engaged with 85
the threads 20 thereof is a nut 27, having a
radial flange 28, provided with an annular
groove 29, in which is received the outer end
of the box 23. Balls 29' are disposed in the
groove 29, between the bottom thereof and 90
the outer end of the box to receive outward
thrust of the latter. The nut 27 acts to close
the outer end of the skein and has a central
axial passage 30 therethrough, with the outer
end of which is engaged a screw-plug 31. A 95
radial passage 32 is formed in the nut 27 ex-
terior to the flange 28 thereof and communi-
cates with the passage 30, and the screw-plug
31 has a helically-disposed slot 33 in its pe-
riphery and extending through the inner end 100
thereof, this slot terminating short of the
outer end of the plug, whereby when the
plug is turned to one position it may register 70
with passage 32 and communicate it with the

passage 30, and when turned further will move from register. When in register, oil may be forced into the reservoir 12 through the passages 30 and 32 to feed through the wicks to the inner surface of the box, and when turned from registry waste of oil will be prevented. Washers 35 are disposed upon the nut between the flanges thereof and the outer end of the skein, inside of the box, and prevent passage of oil that may follow the threads. Washers 25' are disposed between the shoulder 14 and the inner end of the skein, so that when the skein is screwed into place these washers are compressed, and the frictional engagement of the parts is sufficient to hold the skein against accidental unscrewing. The rotation of the wheel on the skein as the vehicle to which it is applied moves forwardly is such as to tend to screw the skein farther onto the spindle.

In Figs. 5, 6, and 7 of the drawings there is shown a modification of the invention in which the spindle 40 is similar to the spindle above referred to. At the rear end of the spindle 40 is formed an annular flange 41, and adjacent to which are screw-threads 42, the spindle beyond these threads being reduced in diameter, as shown at 43, to form a shoulder 44. The extremity 45 of the spindle is further reduced and is provided with threads 46 to receive a common form of axle-nut 27'. A skein 48 is disposed upon the spindle and is formed interiorly to conform to the spindle, having interior threads at its inner end for engagement with the threads 42 to hold the skein in place. A longitudinal recess 49 is formed in the spindle, and leading thereto through the upper face of the spindle are perforations 50, with which are adapted to register the perforations 51, formed in the skein. The recess 49, which is adapted to be closed by the nut 27', forms an oil-reservoir, and through the perforations in the spindle and skein are passed wicks 53, which are adapted to dip into the oil in the reservoir and to supply it by capillary action to the inner face of the wheel-box 54, which is disposed upon the axle-skein. When the wicks are in place, they are locked against displacement by slightly rotating the skein with respect to the spindle in the same manner as illustrated in Fig. 3 in connection with the first form of the invention described. In this form of the invention the oil is supplied to the reservoirs, of which there is one for each axle-spindle of the vehicle, from oil-cups 55, one of which is secured to each axletree. From the cup 55 (shown in the drawings) there leads a supply-pipe 56 to a passage 57, which communicates with the rear end of the reservoir, the oil running from the cup through the pipe and passage to the reservoir from which it is supplied to the bearing in the manner above described.

It will be understood that in practice various other modifications of the invention may

be made and that any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

Washers 40', corresponding to washers 25', above described, are disposed between the shoulder 41 and the inner end of the skein for a like purpose.

The skein in each instance is formed of Babbitt or other suitable friction metal and is normally without threads, the threads thereof being cut by screwing it onto the threads of the spindle.

In Fig. 1 the skein 21 has an iron or other similar metal bushing 21', which carries the threads with which the nut 27 is engaged. The skein is cast around the bushing, which latter has recesses therein, as shown, into which the metal may run to hold the bushing against rotation or displacement in any other direction.

What is claimed is—

1. A lubricating-axle comprising a hollow spindle having an opening leading to the inclosure thereof, a skein upon the spindle and having an opening for registration with the opening of the spindle, a wick in the registering openings, the skein being rotatable upon the spindle constructed and arranged to clamp the wick against displacement, and means for holding the skein in its clamping position.

2. A bearing member comprising two elements one of which contains a reservoir and both of which have openings leading to the reservoir when in alinement, wicks disposed in the openings and entering the reservoir, one of the elements being movable with respect to the other constructed and arranged to grip the wick and hold it against displacement, and means for holding said element in its clamping position.

3. The combination with a hollow spindle having perforations leading to the inclosure thereof, of a skein having threaded engagement with the spindle, the outer end of the skein being interiorly threaded and projected beyond the outer end of the spindle, said skein having also perforations for alinement with the perforations of the spindle, wicks in the alining perforations, a nut engaged with the interior of the skein and having a feed-passage for supplying lubricant to the reservoir, and means for preventing exit of the lubricant through the feed-passage.

4. In a lubricating-axle, the combination with a spindle having a reservoir therein, of a nut for closing the reservoir said nut having a passage leading to the reservoir and having a second passage intersecting the first passage, and a screw engaged with the first passage and having a groove in its periphery and leading through its inner end, said groove being disposed for registration with the second passage at times to permit access therefrom to the reservoir.

5. The combination with a hollow spindle

having perforations leading to the inclosure thereof, of a skein adjustably mounted upon the spindle and projecting beyond its outer end, said skein having perforations for alignment with those of the spindle, wicks disposed in the perforations, a nut having threaded engagement with the outer end of the skein to close the reservoir, said nut having a passage through the nut leading to the inclosure of the spindle and having a second passage intersecting the first-named passage, and a screw engaged with the first passage and having a groove in its periphery and extending

through its inner end, said groove being disposed to register with the second passage at times as the screw is rotated, to communicate the second passage with the inclosure of the spindle. 15

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

FRANKLIN P. WHITE.

Witnesses:

JOHN McLAURIN,
C. C. LOUGHLIN.