

(No Model.)

W. B. & M. R. FARRAR & N. A. CLARK.
SELF LUBRICATING SHELL ROLLER.

No. 597,968.

Patented Jan. 25, 1898.

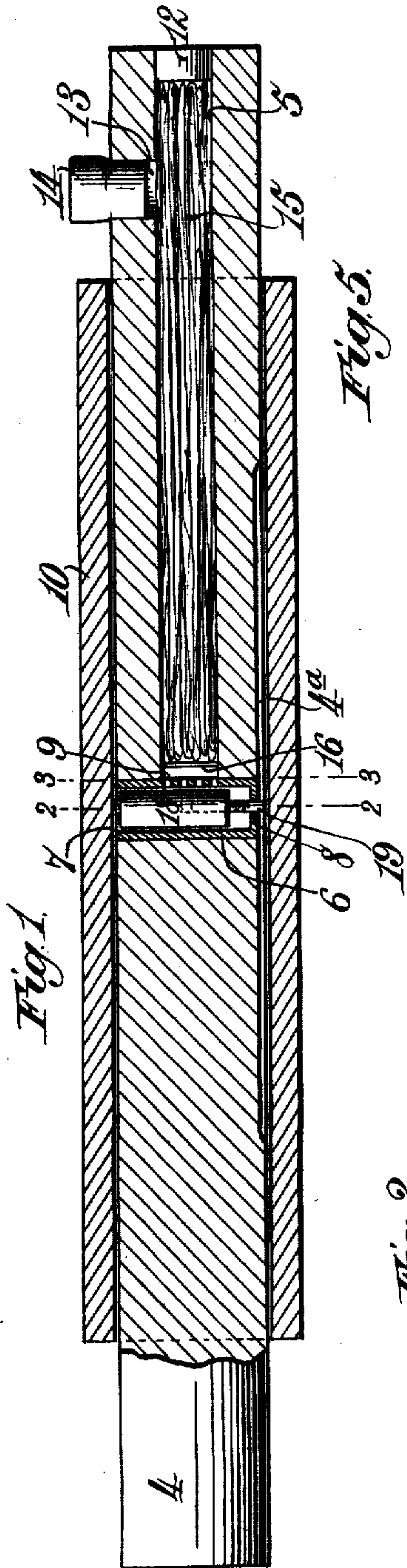


Fig. 1.

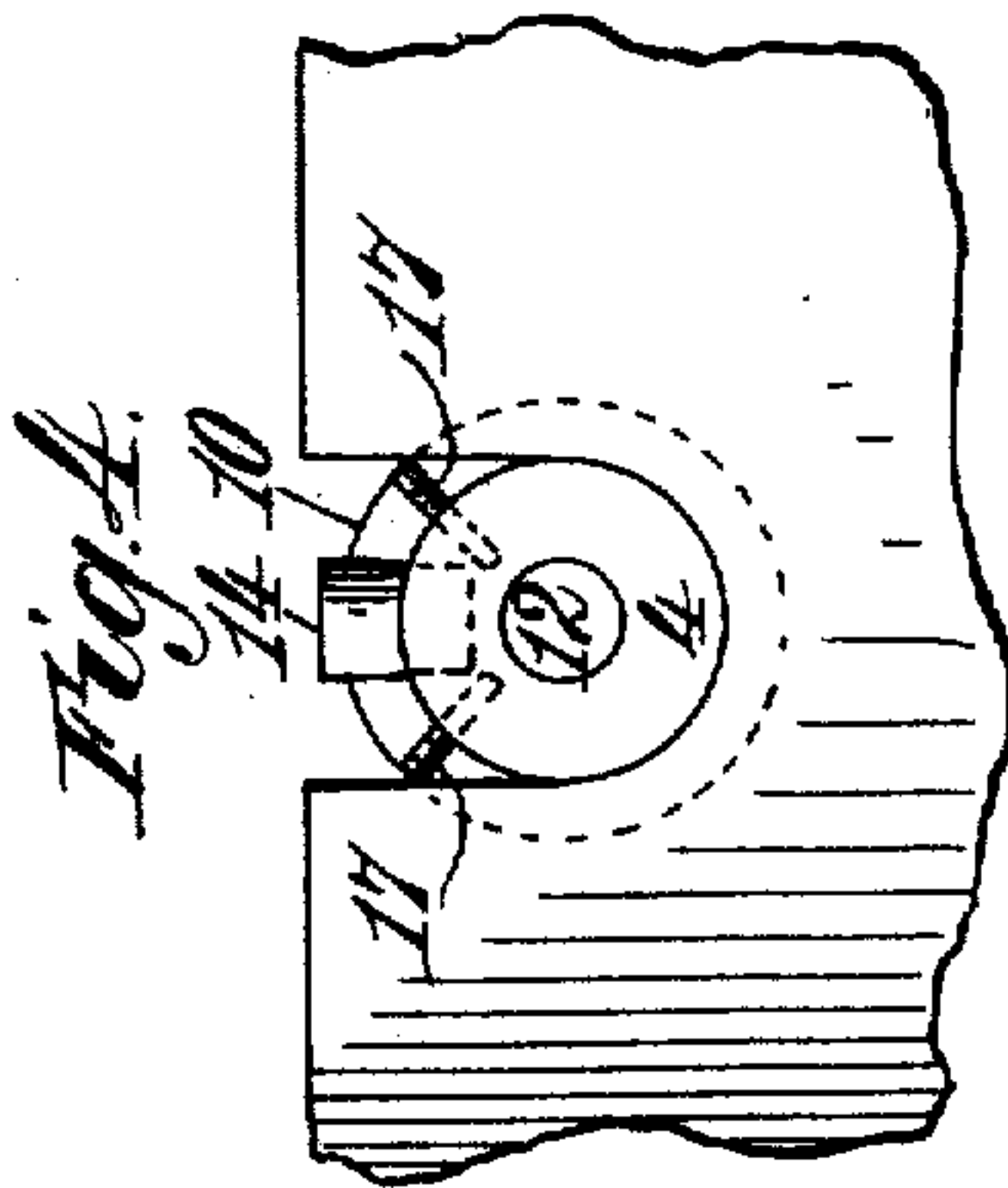
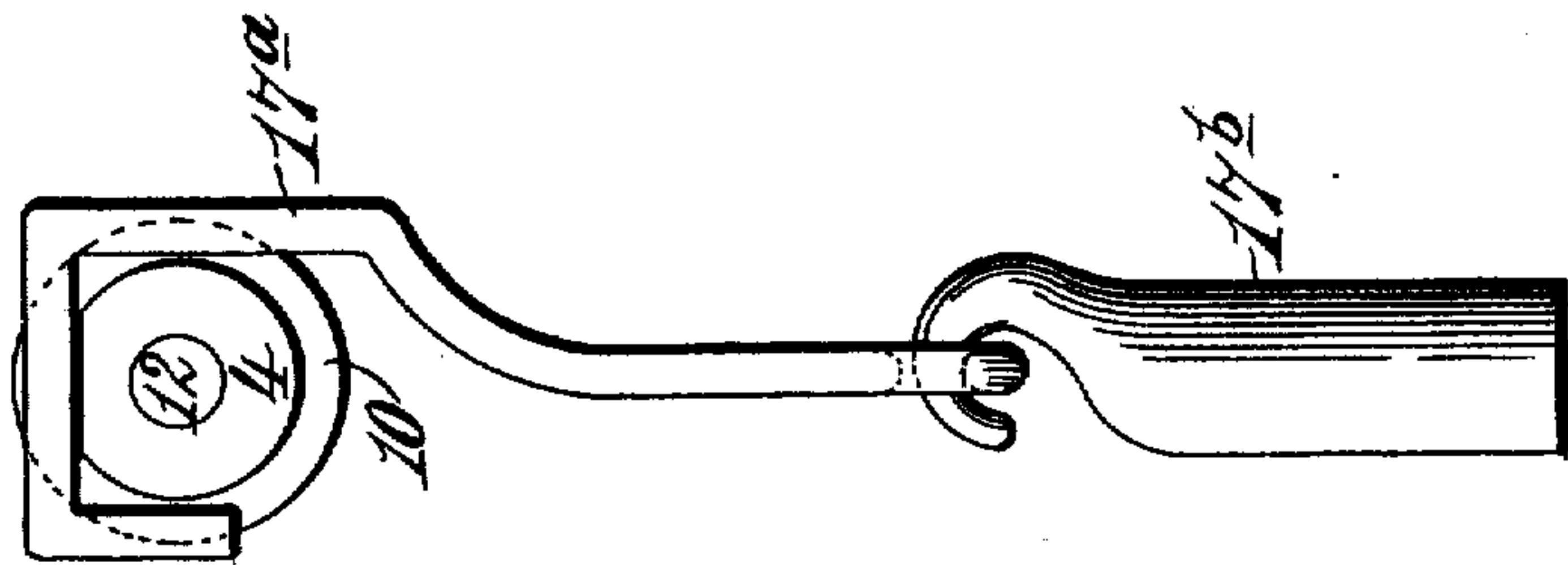


Fig. 4.

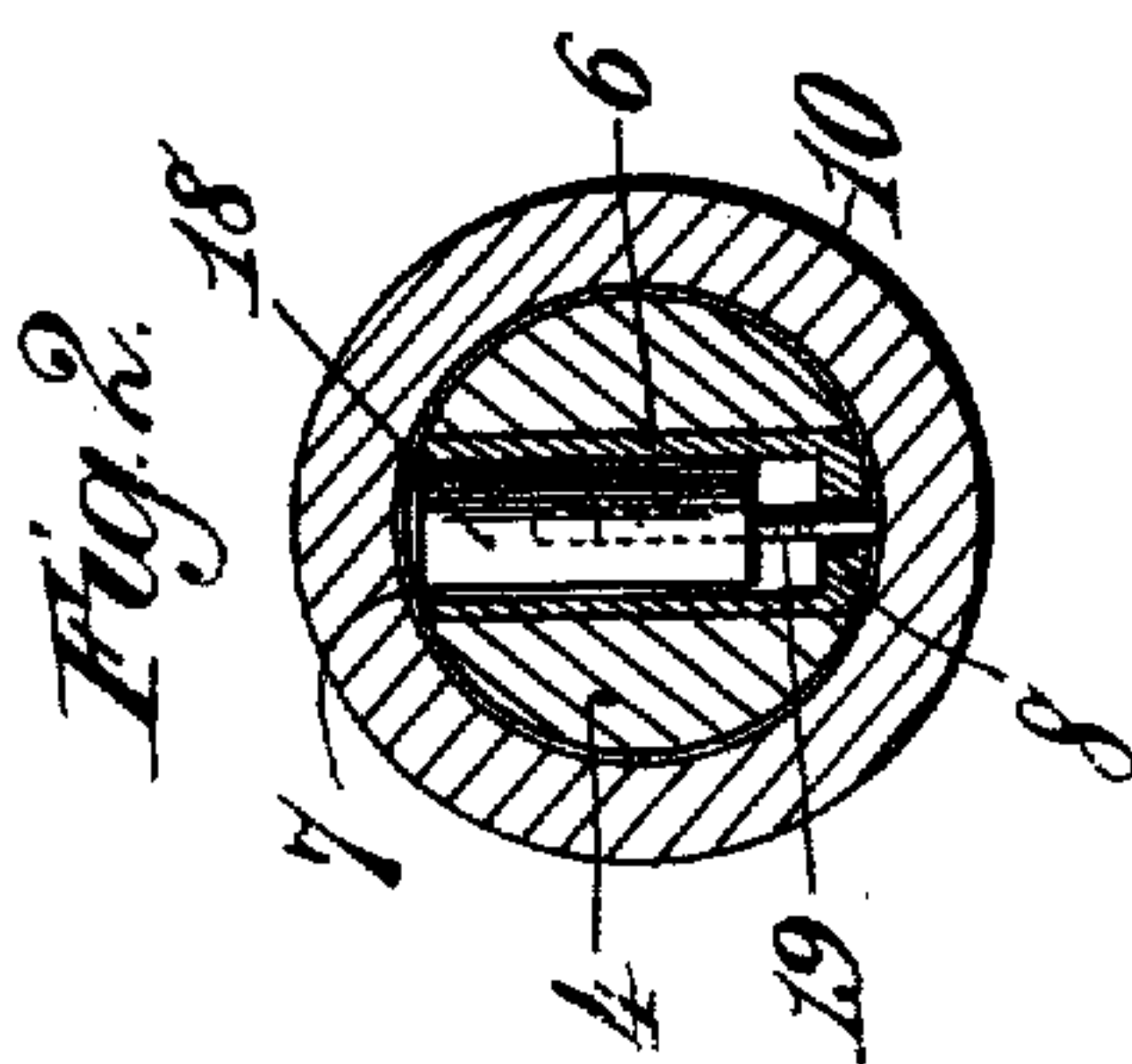


Fig. 2.

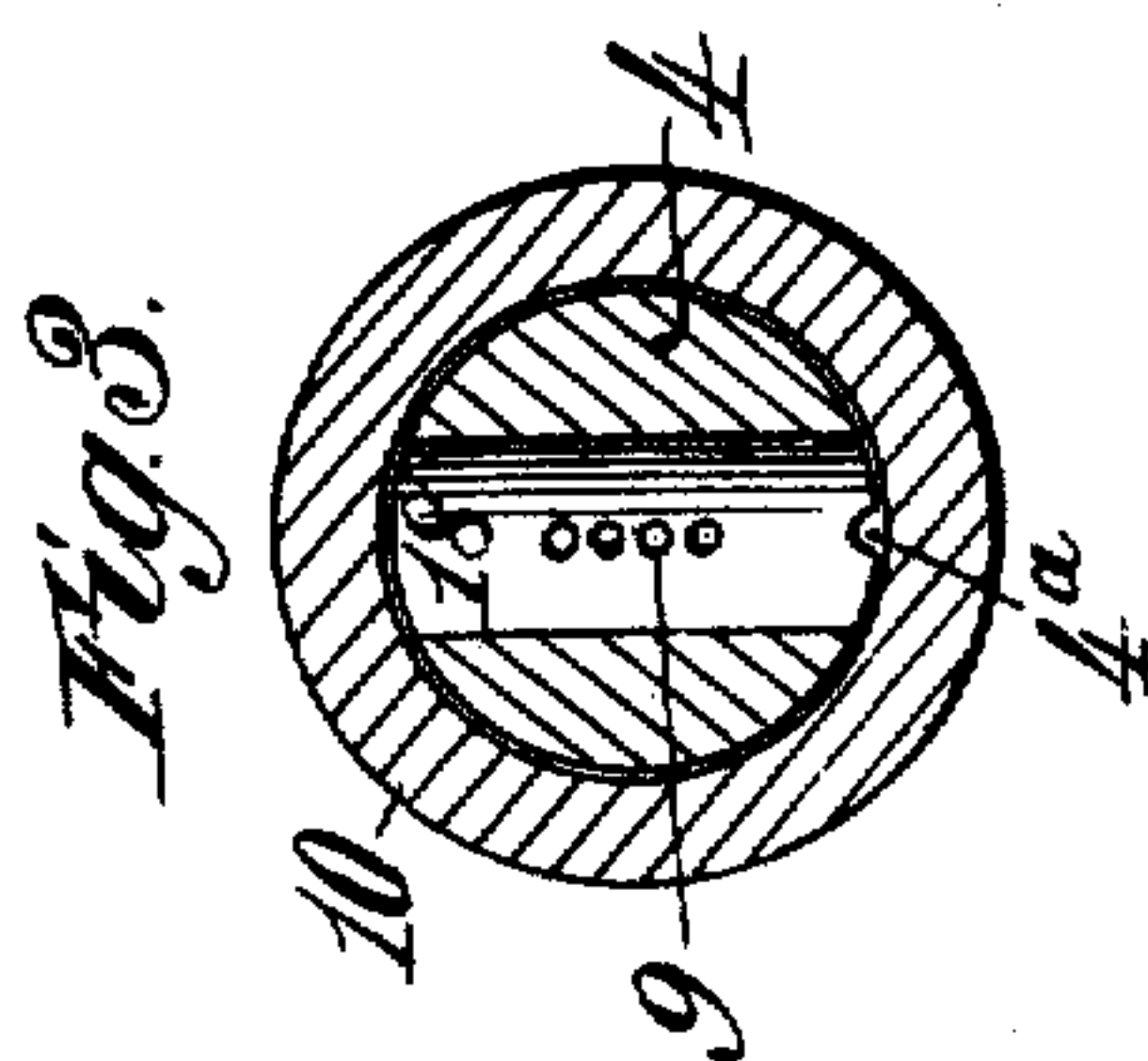


Fig. 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

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SELF-LUBRICATING SHELL-ROLLER.

SPECIFICATION forming part of Letters Patent No. 597,968, dated January 25, 1898.

Application filed September 25, 1897. Serial No. 653,052. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM BINGHAM FARRAR, MONT ROYAL FARRAR, and NEILL ALEXANDER CLARK, citizens of the United States, residing at Greensborough, in the county of Guilford and State of North Carolina, have invented new and useful Improvements in Self-Lubricating Shell-Rollers, of which the following is a specification.

This invention relates to that type of shell-rollers employed in cotton-factories, woolen-mills, and other places wherein roller shells or sleeves of metal rotate upon metal arbors or shafts mounted in racks or supports and held down in their bearings by weights. These rollers require to be lubricated or oiled more or less frequently, and ordinarily this is inconvenient and troublesome to accomplish and involves the loss of time, in that the arbors or shafts require to be removed from their bearings, the roller shells or sleeves slipped therefrom, the parts wiped and lubricated or oiled, and then reassembled in operative position.

The object of our present invention is to provide a new and improved self-lubricating shell-roller of such construction that it is never necessary to remove the arbor or shaft or the roller shell or sleeve for lubricating or oiling purposes.

To accomplish this object, the invention consists, essentially, in the combination of a roller shell or sleeve, an arbor or shaft having a longitudinal bore extending about half its length and a transverse passage leading from the bore, and an agitator-pin located in the transverse passage-way and having a shank extending through the arbor or shaft to make contact with the internal surface of the roller shell or sleeve, so that when the arbor or shaft is held stationary and the roller shell or sleeve is rotated the shank will be acted upon in such manner as to more or less rapidly jar or vibrate the shank and pin for the purpose of accurately feeding from the interior of the arbor or shaft exactly the quantity of lubricant or oil required to preserve the parts in the proper condition for smooth running, while leakage of the lubricant or oil or the supply of a superfluous quantity of the

same to the contacting surfaces of the roller shell or sleeve and the arbor or shaft is effectually prevented.

The invention is illustrated by the accompanying drawings, in which--

Figure 1 is a longitudinal central sectional view of the new and improved shell-roller. Fig. 2 is a transverse sectional view taken on the line 2 2, Fig. 1. Fig. 3 is a transverse sectional view taken on the line 3 3, Fig. 1, looking at the perforated part of the tubular socket in which the agitator-pin is located. Fig. 4 is a detail end elevation showing the manner in which the arbor or shaft is mounted in a rack or support and is prevented from rotating, and Fig. 5 is a detail end elevation showing a modification of the means for preventing the arbor or shaft rotating.

In order to enable those skilled in the art to make and use our invention, we will now describe the same in detail, reference being made to the drawings, wherein--

The numeral 4 indicates an arbor or shaft drilled or otherwise provided with a longitudinal bore 5, leading from one end thereof to about the middle of its length, so that while about one half of the length of the arbor or shaft is tubular the other half may be solid, as shown in Fig. 1. The arbor or shaft is also drilled or otherwise constructed about the middle of its length with a transverse orifice in which is inserted a tubular metal socket 6, having one end open, as at 7, and the other end provided with a diaphragm containing a small opening 8. The side of the tube presented to the main body of the bore 5 is constructed with a plurality of small perforations 9, designed to permit the passage of lubricant or oil contained in the bore 5 into the tubular socket, from which it may flow in minute particles through the opening 8 into a longitudinal oil-distributing groove 4^a, formed in the under side of the arbor or shaft. The tubular portion of the arbor or shaft is provided in its outer end with a plug 12, which serves to close the bore, and near this plug the arbor or shaft is constructed with a transverse supply-orifice 13, closed by a removable and replaceable stopper 14 for supplying the lubricant or oil to the bore 5.

This bore may contain a filling of absorbent material 15—such as raw cotton, thread, or sponge—which will be thoroughly saturated with the lubricant or oil. If this absorbent filling is employed, it is advisable to provide the bore 5, at a point in proximity to the perforated part 9 of the tubular socket 6, with a cross-pin or a wire-gauze disk 16 to prevent the perforation being closed and also to prevent the absorbent filling from interfering with the motion of the agitating-pin should the tubular socket 6 be dispensed with.

The arbor or shaft is in practice mounted in a rack or support and is held against rotating or turning while the roller shell or sleeve rotates thereupon. The arbor or shaft may be held against rotating or turning through the medium of two inclined pins 17, Fig. 4, which bear against the vertical walls of the bearing provided in the rack or support to receive the arbor or shaft or through the medium of a stirrup 17^a, having a weight 17^b at its lower end and constructed with a flattened surface resting against a flattened surface 17^c, formed on the upper side of one end of the arbor or shaft, as shown in Fig. 5.

The bore 5 constitutes an oil-reservoir, which is supplied with the proper quantity of lubricant or oil through the supply-orifice 13, which, as before stated, is closed by the removable and replaceable stopper 14.

The tubular socket 6 contains a loose agitating device composed of a pin 18, having a shank 19, which passes freely through the orifice 8 in one end of the socket. The extremity of the shank 19 makes contact with the internal surface of the roller shell or sleeve 10, and when the latter rotates upon the arbor or shaft the transversely-movable pin and the shank will be more or less rapidly jarred or vibrated, and thus cause the lubricant or oil to flow in minute particles through the orifice 8 into the longitudinal oil-distributing groove 4^a, by which means the correct quantity of lubricant will be supplied to the arbor or shaft and the roller shell or sleeve for maintaining these parts in the best condition for smooth running.

The shank 19 is screw-threaded and screwed into the pin 18, so that the shank is lengthwise adjustable to compensate for wear at the end which contacts with the internal surface of the roller shell or sleeve.

The lubricant or oil will pass from the bore 5, which constitutes the oil-reservoir, through the perforations 9 into the tubular socket 6, and the rapid vibrations of the agitating-pin, which are of course limited in extent, serve to accurately feed the proper quantity of lubricant or oil to the oil-distributing groove 4^a, the construction being such that the feeding of a superfluous quantity of lubricant or oil is effectually prevented, while the parts are properly lubricated without any attention from an attendant other than supplying the oil-reservoir with the lubricating substance.

The present invention provides novel, sim-

ple, efficient, and economical means for automatically lubricating shell-rollers and entirely avoids the inconvenience, trouble, and loss of time incident to removing the arbors or shafts from their bearings, detaching the roller shells or sleeves, wiping and oiling the parts, and then reassembling them each time lubrication may be considered necessary.

Having thus described our invention, what we claim is—

1. A shell-roller, comprising an arbor or shaft having a longitudinal bore for a part of its length, constituting an oil-reservoir, and a transverse passage-way leading from the bore to the periphery of the arbor or shaft, an agitator located in said transverse passage-way, and a shell or sleeve rotating upon the arbor or shaft, substantially as described.

2. A shell-roller, comprising a roller-shell, an arbor or shaft having a longitudinal bore for a part of its length, constituting an oil-reservoir, and a transverse passage-way communicating with said bore, and an agitator located in said passage-way and having a shank projecting through the arbor or shaft and making contact with the internal surface of the shell or sleeve, substantially as described.

3. A shell-roller, comprising a roller-shell, an arbor having a longitudinal bore for a part of its length, constituting an oil-reservoir, and a transverse orifice, a tubular socket arranged in the transverse orifice and having a perforated portion by which oil from the said oil-reservoir can pass into said socket, and an agitating-pin located in the socket and having a shank extending through the arbor and making contact with the internal surface of the roller-shell, substantially as described.

4. A shell-roller, comprising an arbor or shaft having a longitudinal bore for a part of its length, constituting an oil-reservoir, and a transverse passage-way leading from the bore to the periphery of the arbor or shaft, an agitating-pin arranged in said passage-way and having a shank extending through the arbor or shaft and making contact with the internal surface of the roller-shell, an absorbent material arranged in the oil-reservoir, and a device fixed in the reservoir in juxtaposition to the agitator-pin, to prevent the absorbent material reaching the pin, substantially as described.

5. A shell-roller, comprising a roller-shell, an arbor having a longitudinal bore for a part of its length, constituting an oil-reservoir, and a transverse passage-way communicating with said bore, and an agitating-pin located in said passage-way and having a lengthwise-adjustable shank projecting through the arbor and making contact with the internal surface of the roller-shell, substantially as described.

6. A shell-roller, comprising a roller-shell, an arbor having a longitudinal bore for a part of its length, a transverse orifice, a tubular socket arranged in the transverse orifice and

having a perforated portion by which oil from the reservoir can pass thereinto, and an agitating-pin located in the socket and having a lengthwise - adjustable shank extending 5 through the arbor and making contact with the internal surface of the roller-shell, substantially as described.

7. A shell-roller, consisting of a roller-shell, an arbor having a longitudinal bore for a 10 part of its length, a transverse orifice, and a longitudinal oil-distributing groove in its periphery, a tubular socket arranged in the transverse orifice and having a perforated portion for the passage of oil, and an agitating 15 device located in the socket and extending through the arbor to make contact with the internal surface of the roller-shell.

8. The combination with a rest or support, of a shell-roller consisting of a roller-shell, an

arbor or shaft arranged in the rest or support 20 and having a longitudinal bore and a transverse passage-way communicating with said bore, means for preventing the arbor or shaft rotating or turning and an agitator located in 25 said passage-way and having a shank projecting through the arbor or shaft and making contact with the internal surface of the shell or sleeve, substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses. 30

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Witnesses:

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