

No. 875,618.

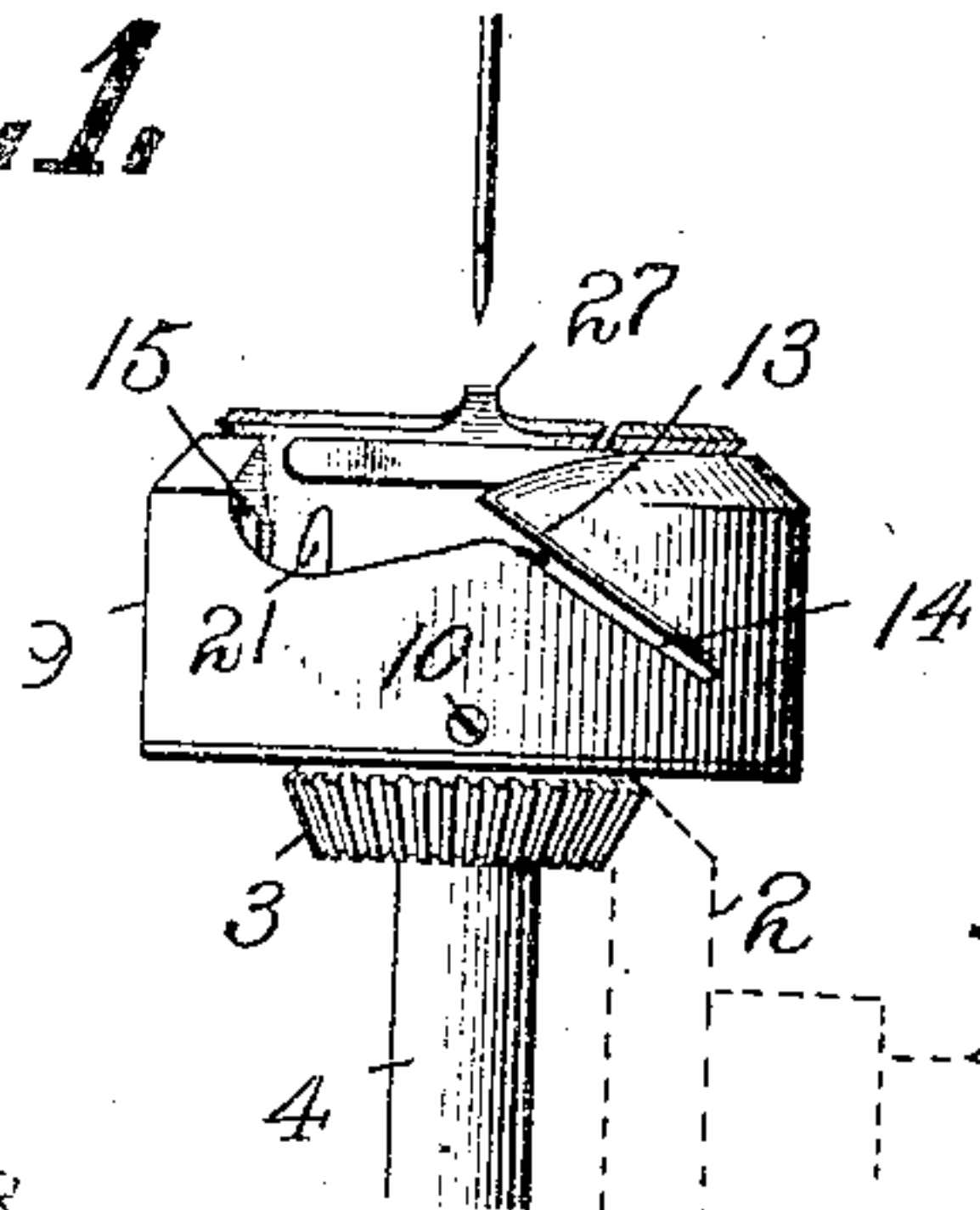
PATENTED DEC. 31, 1907

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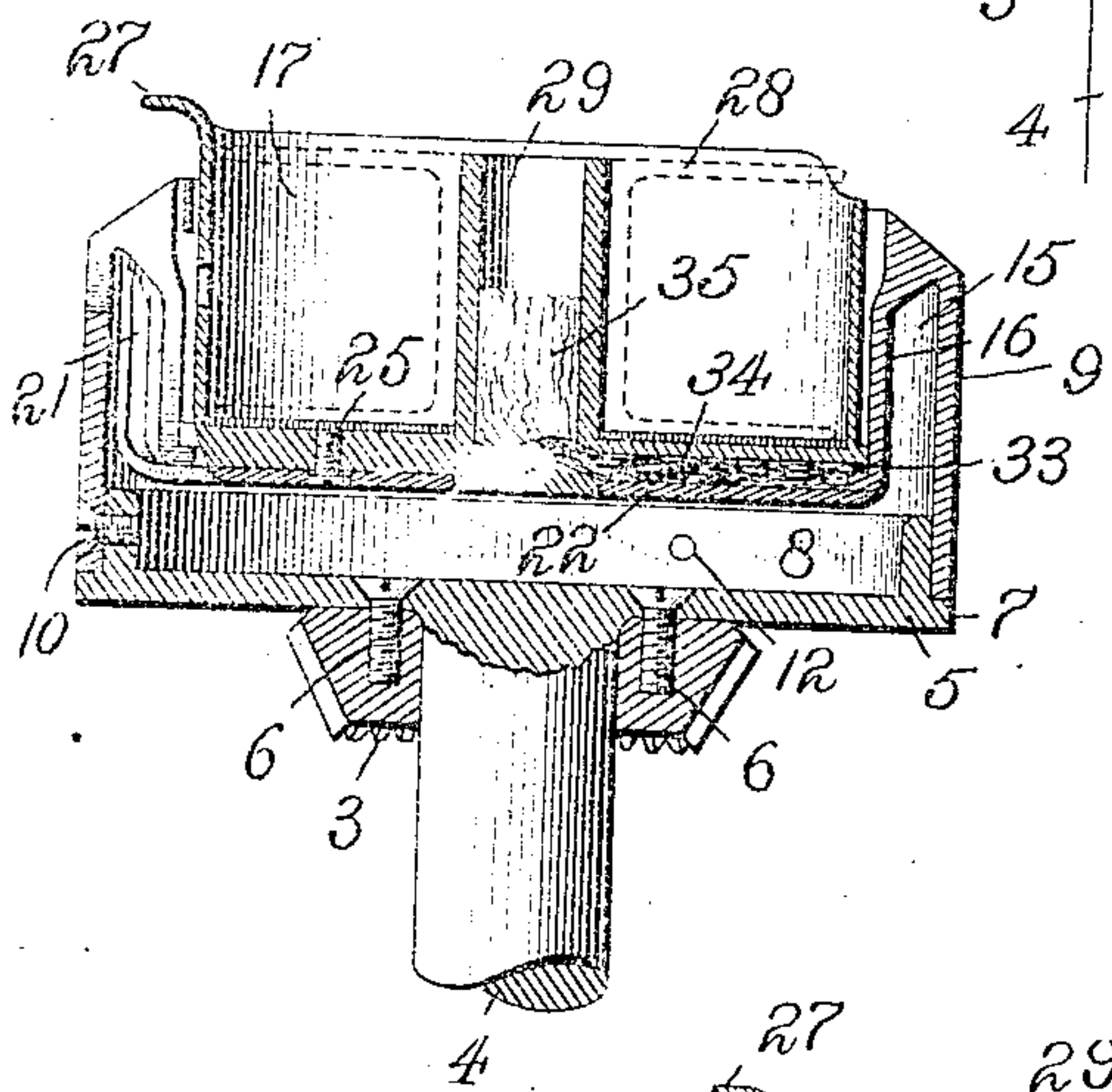
LUBRICATOR FOR SEWING MACHINE LOOPER MECHANISMS.

APPLICATION FILED OCT. 26, 1903. RENEWED NOV. 18, 1907.

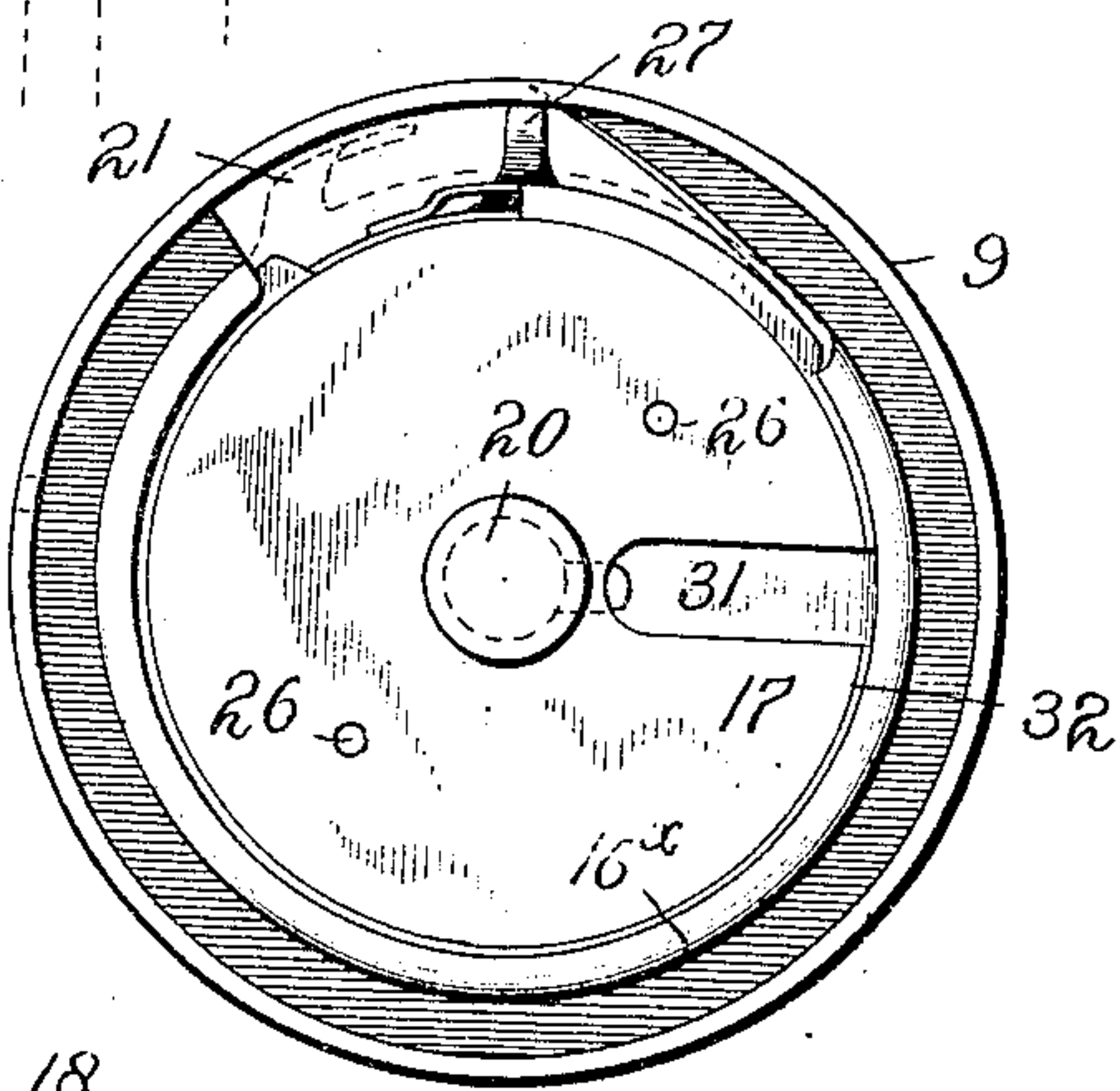
*Fig. 1.*



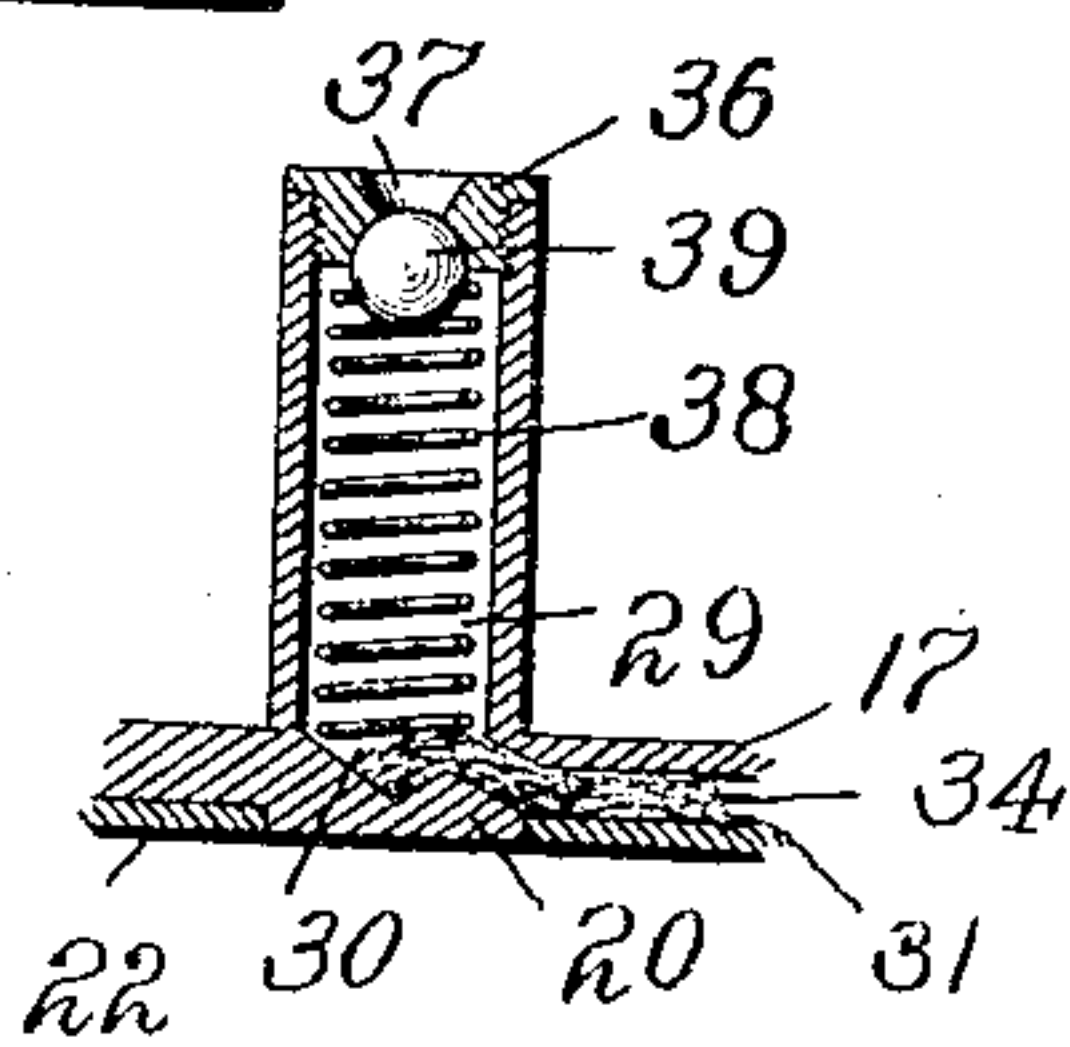
*Fig. 2.*



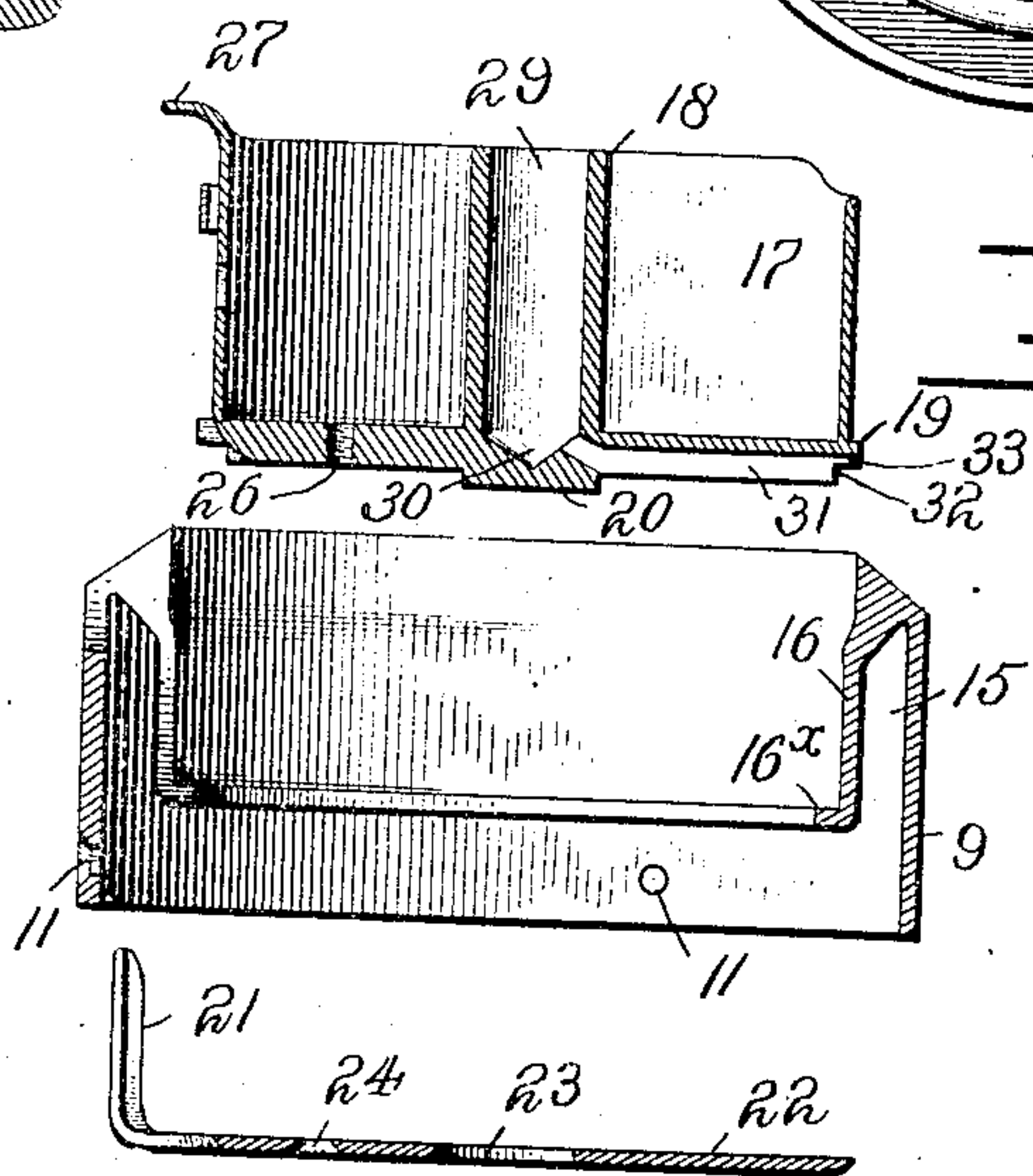
*Fig. 3.*



*Fig. 5.*

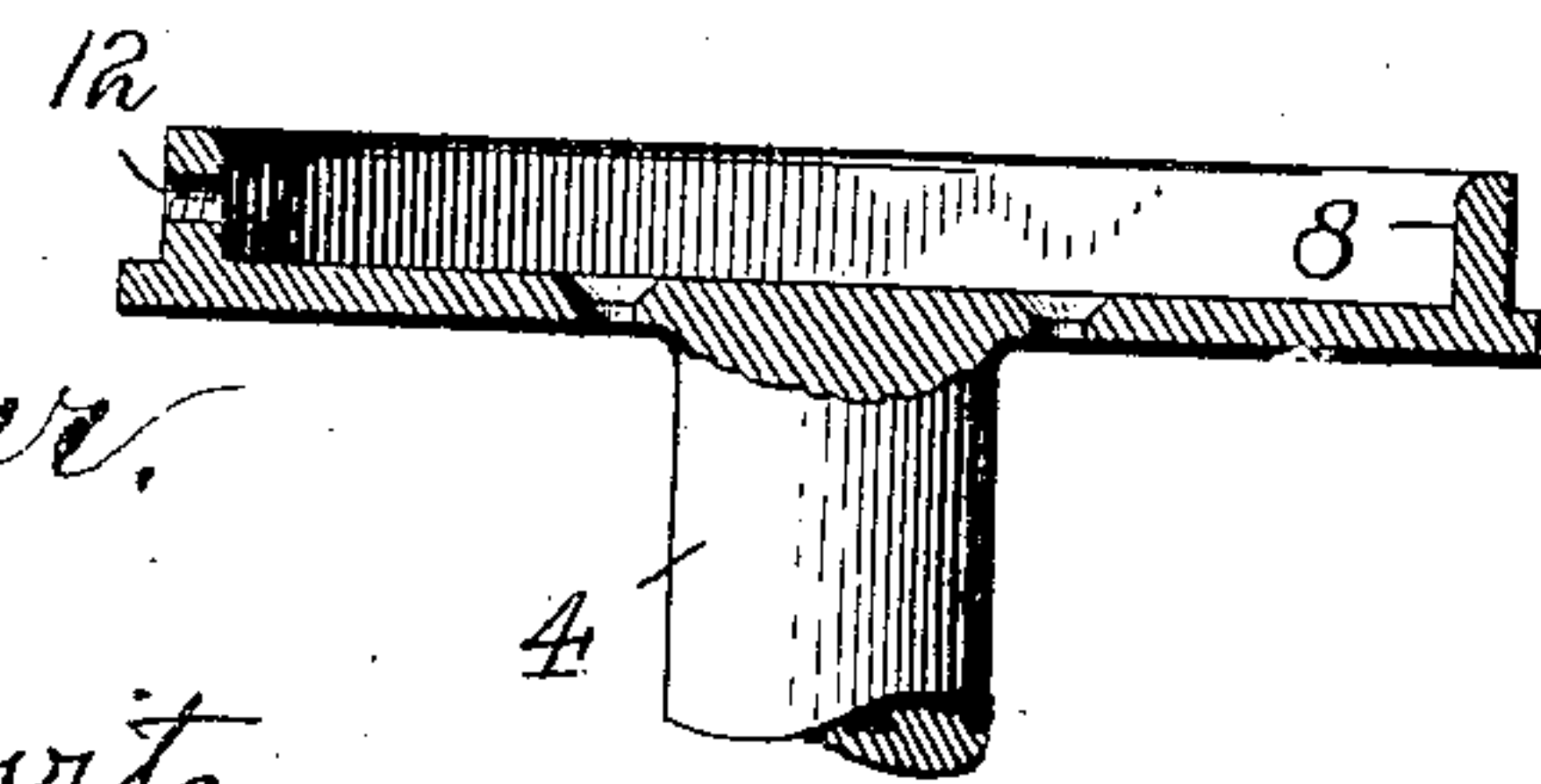


*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

WILLIAM N. PARKES, OF BROOKLYN, NEW YORK.

## LUBRICATOR FOR SEWING-MACHINE-LOOPER MECHANISMS.

No. 875,618.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed October 26, 1903. Serial No. 178,630. Renewed November 18, 1907. Serial No. 402,741.

*To all whom it may concern:*

Be it known that I, WILLIAM N. PARKES, a citizen of the United States, residing in Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Lubricators for Sewing-Machine-Looper Mechanisms, of which the following is a description.

This invention relates to sewing machines of the lock-stitch class, and particularly to lubricators for the bobbin-case or holder thereof.

In certain types of lock-stitch machines the bobbin-case or holder is held from circular movement while the looper is given circular movement, either rotary or oscillatory. In this type of machines the bobbin-case or holder is in some manner supported or carried by the looper, but is usually held in the latter by means of a race or groove, a rib or flange being formed on the case or holder which runs in said groove, as for example in the well-known Wheeler & Wilson rotary hook machines; or the bobbin-case or holder is formed in two parts which, when connected, form a groove in which a flange formed on the looper runs, as for example in my patent covering stitch-forming mechanism granted June 9, 1903, and numbered 730,692. As the bobbin-case does not turn with the looper or hook, there is, of course, friction between the case or holder and the looper or hook in the race formed by and between them. Under any speed at which the machine may be run, it becomes desirable to keep this race lubricated and with the high speed now demanded by the trade, it is a very important factor in the production of an easy and rapidly running looper mechanism. It will be obvious that while it is quite important to keep this race oiled or lubricated, it is also very important not to oil the thread and to keep the lubricant away therefrom.

In the Willcox & Gibbs high-speed machine, there is a ratio in speed of three-to-one between the looper and the needle; in the Wheeler & Wilson, #61 high-speed machine, there is a ratio in speed of two-to-one between the looper and the needle; and in my high-speed machine above mentioned, there is a ratio in speed of two-to-one between the looper and the needle. Thus, it will be seen that if these machines are run at the rate of 3,000 or more stitches per minute, as they are in operating upon certain

kinds of work, there will be a speed of 9,000 revolutions per minute in the Willcox & Gibbs hook and a speed of 6,000 revolutions per minute in the hook or looper of the Wheeler & Wilson and of my machine. As the bobbin-cases or holders are held from turning with the hooks, it is readily seen that it is important to keep the race, referred to, oiled or lubricated to prevent heating and wear. Putting oil in this race by squirting it directly therein, or by having an oil well in the hook which leads to the race, are objectionable for various reasons, among which may be mentioned the following: When the race is lubricated from without, much of the oil or other lubricant is lodged on and too much oil reaches the hook, the result being that the oil is thrown off, it overflows on to the parts of the hook or bobbin-case with which the loop of needle-thread contacts, thus soiling the thread; when an oil well is formed in the hook, the well is revolved therewith, passing all around the case, and the result being that parts of the latter are oiled which should not be, viz., those parts over which the loops of needle-thread pass, resulting in oiling and soiling the thread; also when the latter kind of lubricating device is employed, the oil is thrown or forced out of the well, or if the well should be closed it would be inconvenient to get the oil into it; furthermore, when the oil is in a well formed in a hook, the centrifugal force, produced by the rapid movement of the looper or hook causes the oil to flow away from the race at the time when it is most needed therein.

It is an object of my invention to overcome all the difficulties above mentioned with respect to the old structures and the old methods for lubricating the race between the looper and the bobbin-case or holder.

It is another object of my invention to provide a simple and convenient means whereby a lubricant may be caused to reach the race, to provide an effective means for lubricating said race, and produce a lubricating device which is suitable for the majority of looper mechanisms and which will not have any of the objectionable features above enumerated.

In my looper mechanism the race is oiled by means of a well which is formed in the center of the bobbin-case or holder, a channel leading therefrom to the race, and the lubricant being led from the well to the race.



by means of a wick or other device suitable for the purpose. The bobbin-supporting post is utilized for the well and a channel or conduit is extended from the bottom thereof to the race. Means are provided for preventing the escape of oil from the well and to prevent lint, dust and other objectionable substances from reaching the lubricant.

With the above objects in view, and others which will appear during the course of this description, my invention consists in the parts, features and combinations hereinafter described and claimed.

Referring to the drawings: Figure 1 is a front elevation of my looper mechanism having embodied therein my invention; Fig. 2 is a vertical central section of the looper mechanism, showing the structure of the lubricating device; Fig. 3 is a bottom plan view of the looper and the bobbin-case, with the inner or secondary hook removed in order to show the channel or conduit for leading the lubricant to the race; Fig. 4 is an enlarged vertical sectional view of the parts of the looper mechanism detached, but in assembling relation; and Fig. 5 is a vertical sectional view of a portion of the bobbin-case illustrating another form of means for carrying out my invention.

The driving shaft for the looper mechanism is indicated by dotted lines in Fig. 1; 1 being the driving shaft, 2 the bevel-gear on the end thereof, which meshes with the bevel-pinion 3, carried by the looper shaft 4, the upper end of which is provided with the disk 5, through which screws 6, extend into said pinion 3, to retain the same in connection with the looper shaft. The disk 5, is provided with a lateral flange 7, and a vertical extension 8, forming a seat for the reception of the rim or outer wall 9 of the looper, the latter being secured to the vertical extension 8, by means of screws 10, extending through apertures 11, in the rim 9, and apertures 12 in the extension 8, thus securing the looper body to the driving disk. The looper is provided with the hook 13, inclined throat 14, and vertical concentric groove 15, the latter being formed between its wall or rim 9, and the wall 16, depending within the body of the looper and provided with the flange 16<sup>x</sup> extending laterally into the chamber of the looper and located a distance above the bottom of said chamber.

The bobbin-case is indicated by 17, is provided with the central tubular spindle 18, the lateral circular shouldered flange 19, and the central boss 20. A secondary hook 21, is projected at a right angle to its supporting plate 22, which latter is provided with a central aperture 23, for the reception of boss 20, and with one or more apertures 24, for the reception of screws 25, which pass there-through and into apertures 26, in the bottom of the bobbin-case for the purpose of securing

the plate 22 to the bottom of the bobbin-case. When the parts are together as shown in Fig. 2, a groove is formed between the bottom of the bobbin-case and the secondary hook-plate 22, forming a race or track for the reception of flange 16<sup>x</sup>, extending laterally from the wall 16 of the looper. This construction suspends the bobbin-case above the bottom of the looper as shown in Fig. 2. The bobbin-case is provided with a finger or extension 27 which, as usual, engages a stationary device on the bottom of the throat or bed-plate, to prevent circular movement of the bobbin-case during the operation of the looper. The bobbin is indicated in dotted lines at 28.

The lubricating device consists of the well 29 in the spindle 18, the bottom of which well is shown as conical at 30, and from the bottom thereof the groove 31, is extended to the edge of the flange 19. The bottom of the bobbin-case and the attached plate 22 complete and form the conduit 31, for the purpose of leading the lubricant from the well 29, to the race 32, in which the flange 16<sup>x</sup> of the looper runs. It will be noted that the plate 22 forms a close and tight connection at the bottom of the race while the top of the conduit adjacent the race does not fit the flange 16<sup>x</sup> closely, as shown at 33, Fig. 2. This prevents the oil from leaking at the bottom and enables the flange 16<sup>x</sup> to be properly lubricated.

Preferably, I locate in the conduit 31, a wick 34, which extends from the race 32, to the well 29, and which will absorb the lubricant and conduct the same from the well to the race. In the well I provide a means to prevent the lubricant from overflowing or to prevent dust or other particles getting into the well. For this purpose I may provide a packing 35, which will not only absorb and retain the lubricant in the well, but will also act as a filter and prevent foreign matter reaching the wick 34, this construction being shown in Fig. 2. Or, I may provide a valve as shown in Fig. 5, the same consisting of the screw-threaded and flanged-cap 36, which is provided with a suitably shaped central aperture 37, and which screws into the upper end of the spindle 18, which is provided with screw-threads for the purpose. Within the well 29, a coiled expansion spring 38 is located, the same resting at its lower end upon the bottom of the well and supporting at its upper end a ball 39, which accurately fits in a seat in the cap 36. This produces an automatically closing ball-valve; and oil may be inserted in the well 29, by depressing the ball 39, with the nozzle of the oiler, and when sufficient lubricant has been placed in the well the ball will automatically close the aperture 37, thus preventing foreign substances getting into the lubricant or well.

From the above exposition of my inven-



tion it will be seen that I have provided a simple and effective means for lubricating the race between the looper and the bobbin-case. By utilizing the spindle or bobbin

5 supporting post for the well, I am enabled to dispose the lubricating device in such manner that the same will have no movement which will produce the objections above set forth caused by throwing or scattering the lubricant; and by placing the lubricating device in the bobbin-case or holder and leading the lubricant directly out between the bobbin-case and the looper, only such parts as are directly in contact to form the race are oiled and the parts of the case and looper around or over which the loop of the needle-thread passes are prevented from being oiled and thus soiling the thread.

By forming the conduit 31 on the bottom of the case and by having the cap which closes the groove detachable, it will be seen that the wick located in the conduit can be of sufficient size so that when the plate 22 is set in place the wick will be squeezed and by this means the supply of lubricant to the race may be regulated so that only the required or desired amount of oil will flow to the race. Moreover, by locating the well 29 in the bobbin supporting spindle or post, it will be seen that quite a large supply of lubricant can be had which will last a very long time. However, by centralizing the oil well as in my construction, I find that a very small quantity of oil will keep the race well lubricated for several days.

In practice I fill the well with a sponge or piece of waste which serves as a means for filtering the oil and for preventing any dirt from getting into the race, and I provide a wick of sufficient length and size to enable substantial compression thereof to be made when the cap is applied to thereby regulate the amount of oil supplied to the race.

The central location of the well makes it very convenient for the insertion of oil and when the bobbin-case is disposed in a horizontal plane as illustrated in my construction it is desirable to close the opening in the well as described.

It will be obvious that the looper mechanism may be arranged in other than a horizontal plane and when arranged to operate in a vertical plane it will be understood that the device shown in Fig. 5 will be desirable to close the inlet to the oil well. The ball-valve mechanism shown is a simple and effective means for the purpose.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A looper mechanism comprising a looper having an internal flange, a bobbin-case formed of a plurality of parts between which a race is produced in which runs the said flange, a lubricating device carried by

the bobbin-case including a conduit for conveying the lubricant to the race, said conduit being formed by and between the said parts of the bobbin-case.

2. A looper mechanism comprising a circularly moving looper, a bobbin-case held from circular movement, means forming a race between the looper and the bobbin-case, an oil well located centrally of the bobbin-case and means for conveying the oil from the well to the race.

3. A looper mechanism comprising a looper and a bobbin-case, means between the two for producing a race, a lubricating device carried by one of the parts, and means for regulating the amount of flow of the lubricant to the race including a portion of the race forming means.

4. A looper mechanism for sewing machines comprising a looper and a bobbin-case; means between the two producing a race; a stationary device for lubricating the race, including a well for holding the lubricant; and means for closing the well to prevent foreign substances from reaching said race through said device.

5. A looper mechanism comprising a looper, a bobbin-case, means forming a race between the looper and the bobbin-case, and a lubricating device, cooperating with said race, having means for constantly and automatically leading a lubricant to the race while the looper is in and out of motion.

6. A looper mechanism comprising a looper, a bobbin-case, means forming a race between the looper and bobbin-case, an automatic lubricating device for constantly leading a lubricant to the race while the looper is in and out of motion, and means for regulating the flow of the lubricant.

7. A looper mechanism comprising a looper, a bobbin-case, means forming a race between the looper and the bobbin-case, an automatic lubricating device for leading a lubricant to the race, and means for regulating and maintaining the constant flow of the lubricant to the race while the looper is in and out of operation.

8. A looper mechanism comprising a looper, a bobbin-case, means forming a race between the looper and the bobbin-case, and a lubricating device carried by the bobbin-case having a disposition such that the lubricant is applied constantly to the race while the looper is in and out of operation.

9. A looper mechanism comprising a looper working on a vertical axis, a bobbin-case, means forming a race between the looper and bobbin-case and supporting the latter in a horizontal plane, and a lubricating device carried by the bobbin-case and having a disposition such that by gravity the lubricant will be conveyed to the race.

10. A looper mechanism comprising a looper; a bobbin-case; means forming a race



between the looper and bobbin-case; and a stationary lubricating device, connecting with said race, having means whereby it may constantly supply said race with lubricant while the looper is in and out of operation.

11. A looper mechanism comprising a looper, a bobbin-case, means forming a race between the looper and the bobbin-case, an oil-well carried by the bobbin-case, and means for conveying oil across the bottom of the bobbin-case from the well to the race.

12. A looper mechanism comprising a circularly moving looper, a bobbin-case, held

from circular movement, means forming a race between the looper and the bobbin-case, an oil-well carried by the bobbin-case, and means for conveying the oil from the well to the race.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM N. PARKES.

Witnesses:

CHAS. McC. CHAPMAN,  
M. HERSKOVITZ.