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D. McTAGGART.

LUBRICATING DEVICE FOR LOOM SHUTTLES.

APPLICATION FILED DEC. 31, 1900.

NO MODEL.

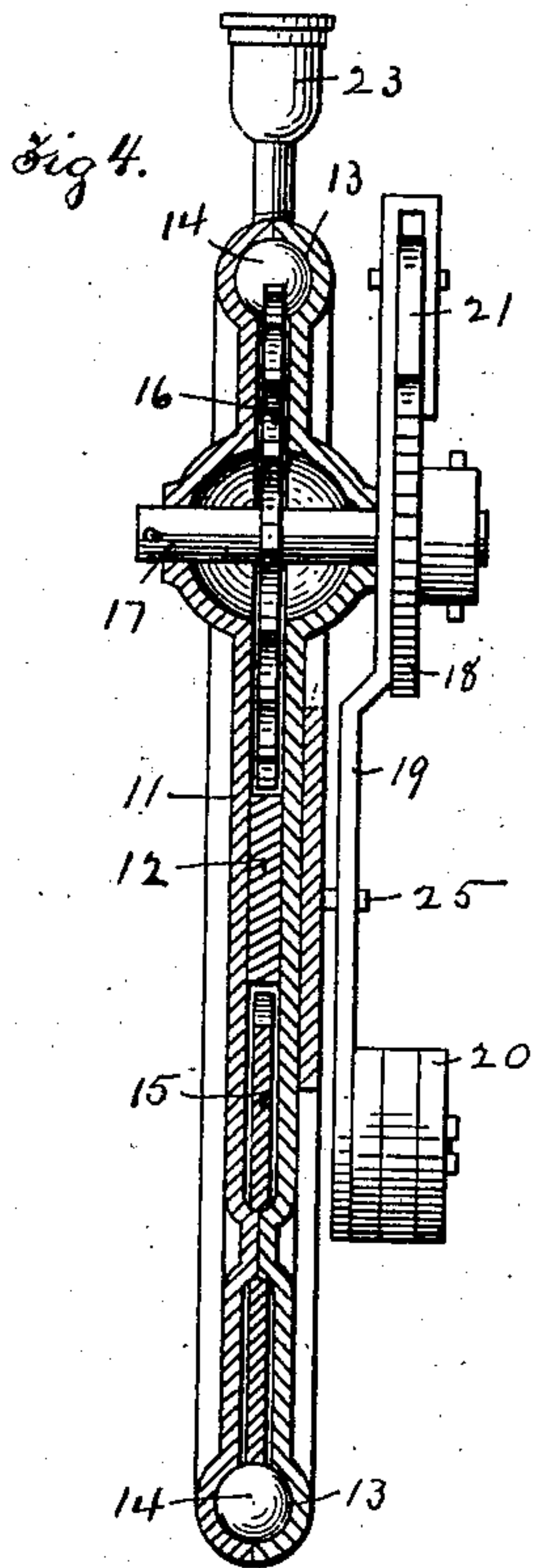
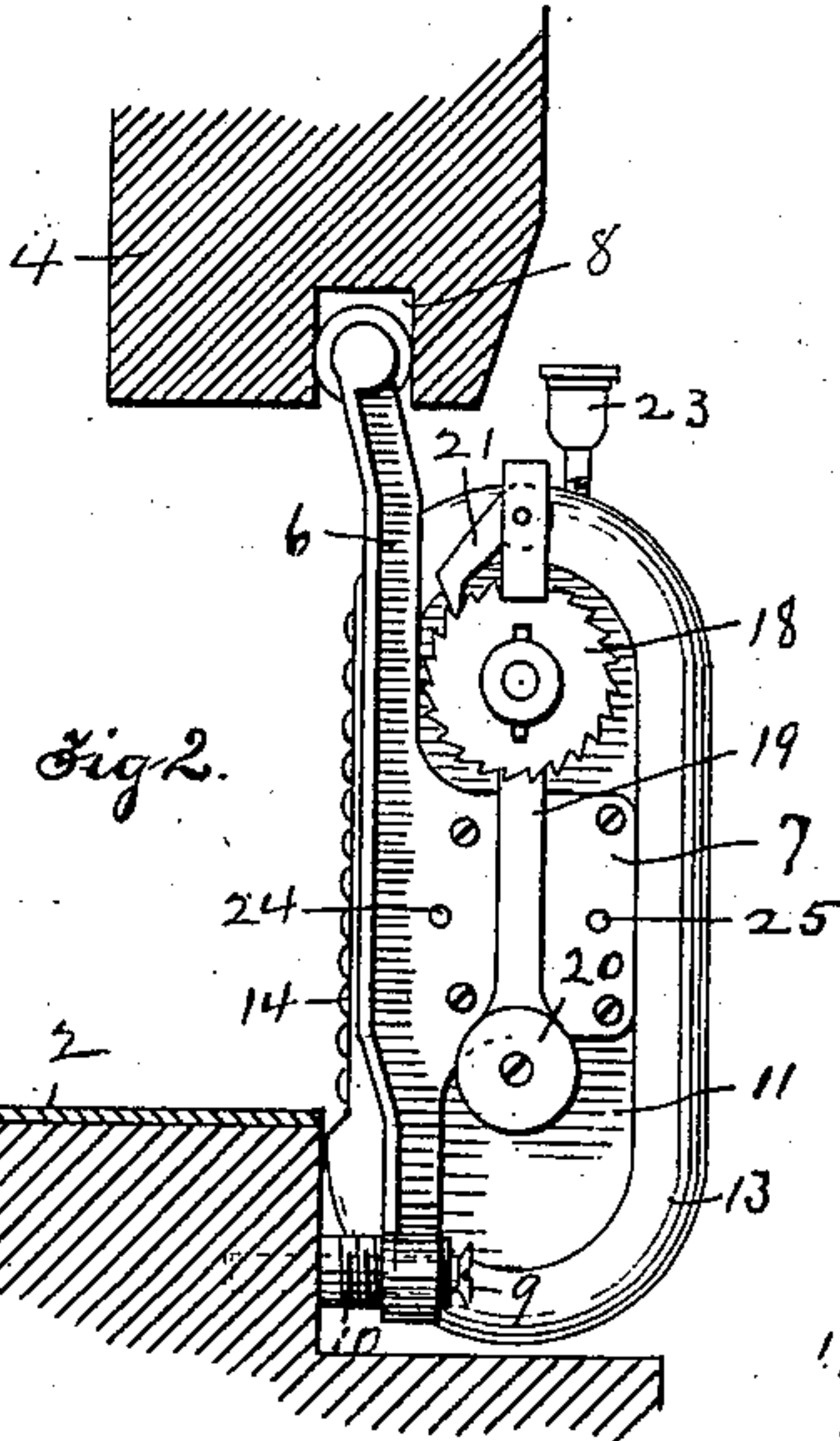
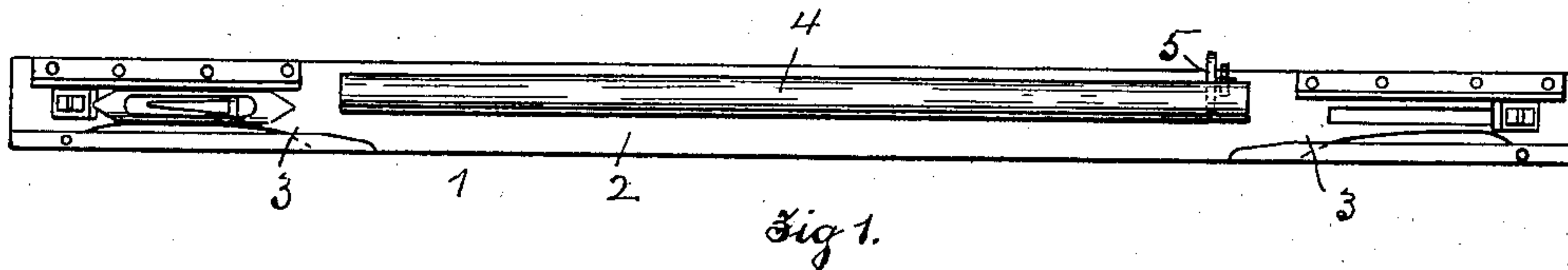


Fig. 5.

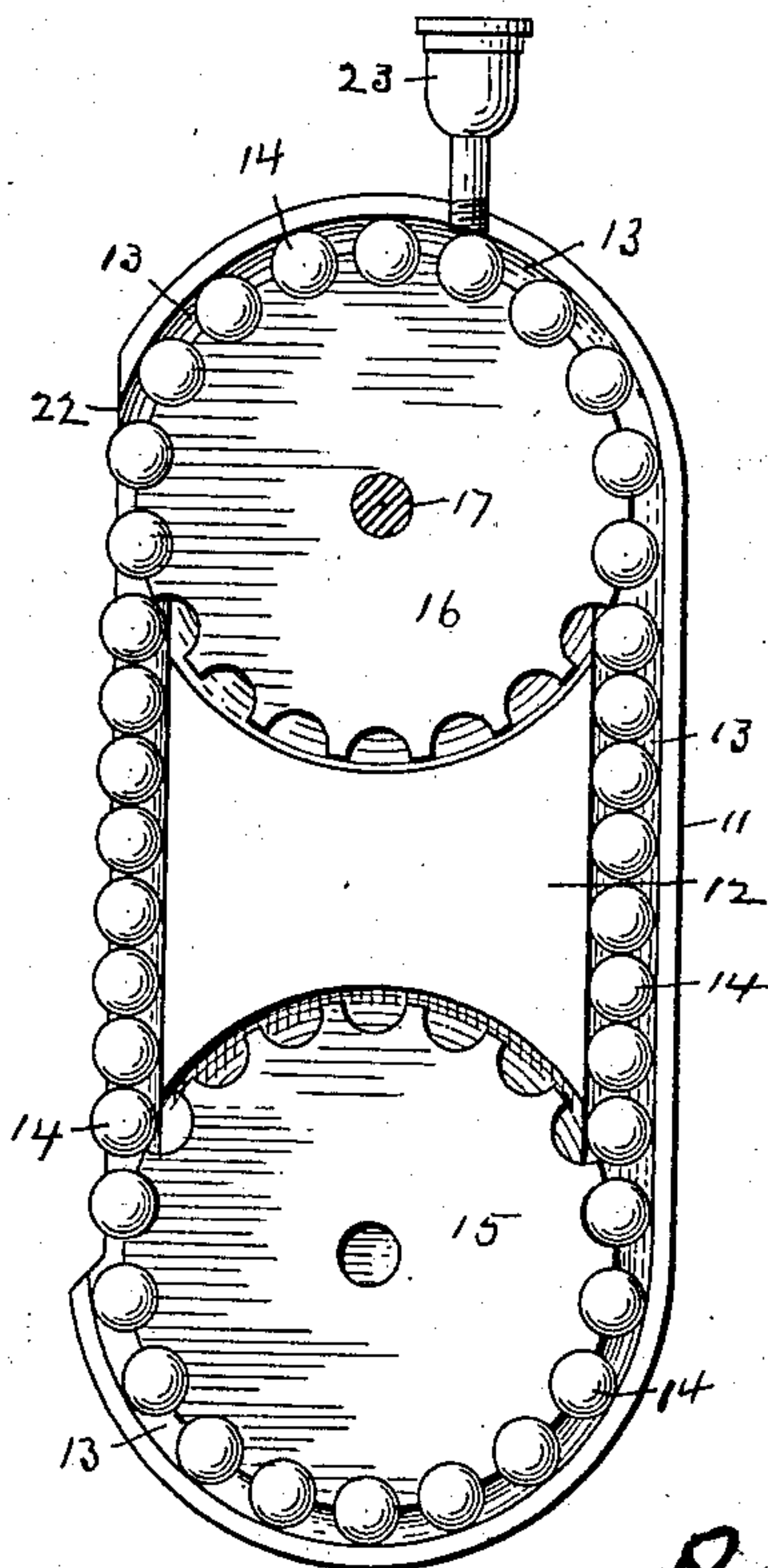


Fig. 3.

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LUBRICATING DEVICE FOR LOOM-SHUTTLES.

SPECIFICATION forming part of Letters Patent No. 746,131, dated December 8, 1903.

Application filed December 31, 1900. Serial No. 41,572. (No model.)

To all whom it may concern:

Be it known that I, DAVID McTAGGART, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Lubricating Device for Loom-Shuttles, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

Figure 1 represents a top view of a loom-lathe, showing the shuttle-boxes, the raceway, and the position of my lubricating device thereon. Fig. 2 is a side elevation of my shuttle-lubricating device, a portion of the lathe and hand-rail being shown in sectional view. Fig. 3 is a front view of my lubricating device. Fig. 4 is a central vertical sectional view, and Fig. 5 is a side view with one side of the shell or case removed in order to disclose the row of lubricating-balls and the sprocket-wheel for moving the same.

Similar reference-figures refer to similar parts in the different views.

My present invention relates to a device for lubricating the rear side of a shuttle in its flight across the raceway of the lathe in order to facilitate its movement by reducing the friction between the back of the shuttle and the reed. Shuttles have sometimes been lubricated by hand by wiping the back of the shuttle with oily waste previous to the insertion of the shuttle in the loom; but so far as I am aware no device has ever been employed for the regular and systematic lubrication of the back side of the shuttle during the operation of weaving. In order to lubricate the shuttle during its flight across the lathe in the operation of weaving, it is necessary to use a very minute quantity uniformly distributed over the rear side of the shuttle and renewed only to supply its waste by evaporation, and the application must not impede the flight of the shuttle. I accomplish the successful lubrication of the shuttle under these conditions by means of the device hereinafter described, and shown in the accompanying drawings, the novel features being set forth in the annexed claims.

Referring to the drawings, 1 denotes the lathe of a loom having a raceway 2, shuttle-boxes 3 3, and a hand-rail 4, between which and the lathe the reed (not shown) is held in

the usual and well-known manner. My lubricating device 5 is preferably located near one end of the raceway, as shown in Fig. 1, and is supported by a bar 6, having a flange 7, to which the device is attached. The bar 6 has its upper end inserted in a groove 8 in the hand-rail 4, and its lower end is attached by a screw 9 to the lathe 1. The screw 9 passes through a sleeve 10, provided with an external screw-thread entering a screw-threaded hole in the lower end of the bar, with the inner end of the sleeve bearing against the side of the lathe, thereby enabling the lower end of the bar 6 to be adjusted relatively to the lathe, so as to bring the lubricating-balls of the device into the path of the shuttle, as hereinafter described. Attached to the flange 7 is a shell or case 11, preferably consisting of two halves, which are duplicates of each other, and united by a central plate 12, to which the halves of the shell or case 11 may be riveted or otherwise attached. The shell or case 11 is provided along its edge with a cylindrical groove or track 13, cylindrical in its cross-section, for a series of lubricating-balls 14, which are caused to travel along the track 13 by means of the sprocket-wheels 15 and 16. The lower sprocket-wheel 15 rotates upon a bearing formed within the shell or case 11, and the upper sprocket-wheel 16 is attached to a shaft 17, journaled in the shell 11, the sides of which are expanded at this point to increase the distance between the bearings of the shaft 17. Attached to the shaft 17 is a ratchet-wheel 18, and capable of swinging freely upon the shaft 17 is a vibrating lever 19, which is loaded at its lower end by the weights 20 and carries at its upper end a pivoted pawl 21, engaging the ratchet-wheel 18. The lever 19 is caused to vibrate like a pendulum on the shaft 17 by the swinging motion of the lathe and to impart by the pawl 21 an intermittent rotary movement to the shaft 17 and the sprocket 16, thereby causing the row of balls 14 to travel with a slow intermittent movement along the track 13. The opposing edges of each half of the shell or case 11 are closely fitted together or soldered to prevent the escape of oil, and the front edge of the case 11 is cut away at 22 to allow the row of balls as they pass the cut-away portion of the shell to come into contact with

the rear side of the shuttle in its flight across the raceway of the lathe.

The operation of my lubricating device is as follows: Having adjusted the shell or case 5 11 upon the lathe in order to bring the row of projecting balls slightly into the path of the shuttle, I fill the lower portion of the shell or case with oil, which may be entered through an oil-cup 23, so that as the row of balls 14 10 are moved along the shell by the rotation of the sprocket-wheel 16 they will become covered with oil, a small quantity of which will be wiped off by the contact of the rear side of the shuttle as it is thrown across the lathe. 15 The oil will thus be applied to the shuttle in parallel lines determined by each point of contact of the shuttle with the periphery of each of the balls extending into its path, and as the balls in contact with the shuttle are 20 free to rotate in any direction they offer but little resistance to the flight of the shuttle. As the lathe swings back and forth in beating up the weft in the usual manner a swinging movement will be imparted to the lever 25 19, causing it to vibrate between the studs 24 and 25 and by means of the pawl 21 impart an intermittent motion to the sprocket-wheel 16, thereby changing the balls in contact with the shuttle and causing them to successively 30 pass through the reservoir of oil in the bottom of the shell or case 11.

I have shown in the accompanying drawings what I consider a preferable form of construction of a shuttle-lubricating device; but 35 I do not wish to confine myself to the construction therein shown.

So far as I am aware it is broadly new to provide the lathe of a loom with a lubricating device arranged in the path of the shuttle whereby the shuttle is automatically lubricated during the operation of weaving. 40

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a loom, the combination with the lathe 45 of a shuttle-lubricating device supported upon said lathe and arranged to present lubricating material to the shuttle as it passes from one end of the raceway to the other, whereby lubricating material is applied to

the rear side of the shuttle, substantially as 50 described.

2. The combination with the lathe of a loom, of a shuttle-lubricating device consisting of a case, or shell, and a series of balls covered with lubricating material held by said shell, 55 or case, and projecting into the path of the shuttle, substantially as described.

3. The combination in a shuttle-lubricating device of a shell, or case, provided with a track for a series of balls, and having one 60 side cut away to expose the balls to the contact of the shuttle, a series of balls in said track, means to move said balls along said track, and an oil-reservoir for the lubrication of the balls, substantially as described. 65

4. The combination with a loom-lathe, of a shell or case containing an oil-reservoir and having a track for a series of balls, of a series of balls held in said track, means for moving said balls through said oil-reservoir 70 and successfully bringing them into the path of the shuttle, and means for adjustably attaching said shell or case to the lathe, substantially as described.

5. The combination with the lathe of a loom, 75 of a shell, or case, having an endless track, a series of balls held in said track, an oil-reservoir including a section of said track, a sprocket-wheel engaging a portion of the balls in said series, and means for rotating said 80 sprocket-wheel and imparting a movement to said series of balls, substantially as described.

6. The combination with the lathe of a loom, 85 of a shell, or case, an endless track for a series of balls, a series of balls in said track, a sprocket-wheel inclosed in said case and engaging the balls in said series, a shaft carrying said sprocket-wheel, a ratchet-wheel on said shaft, a pivoted lever arranged to be 90 swung by the movement of the lathe, and a pawl carried by said lever and engaging said ratchet-wheel, substantially as described.

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