

(No Model.)

W. F. KINTZING.
TENSION DEVICE FOR LOOM SHUTTLES.

No. 566,689.

Patented Aug. 25, 1896.

Fig. 1.

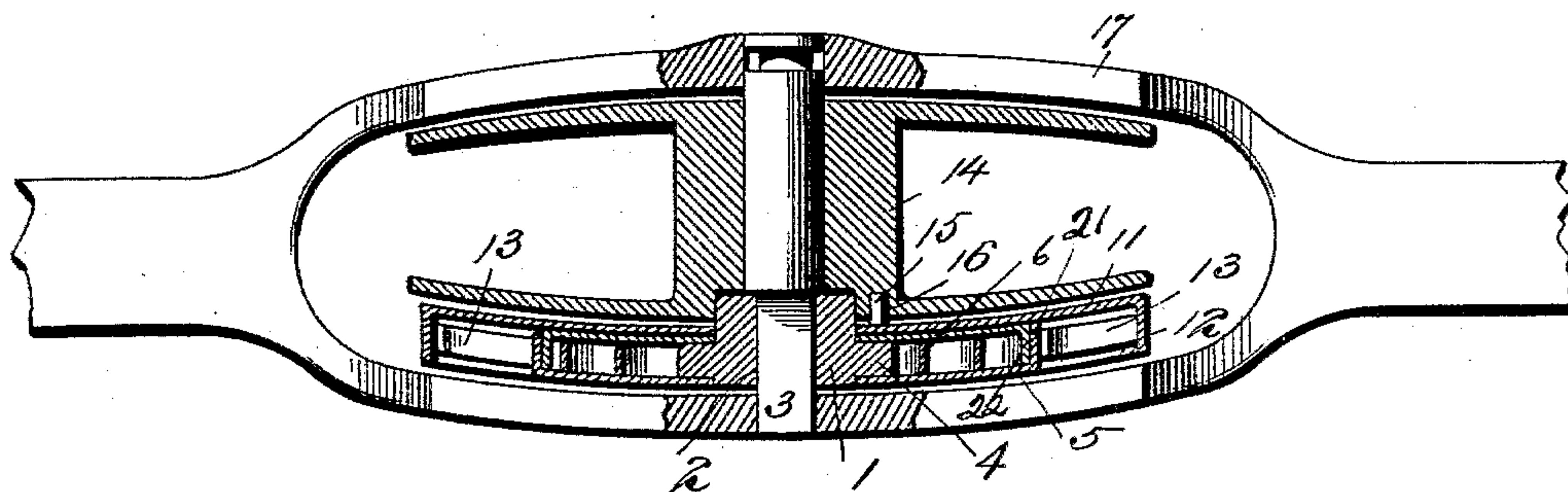


Fig. 2.

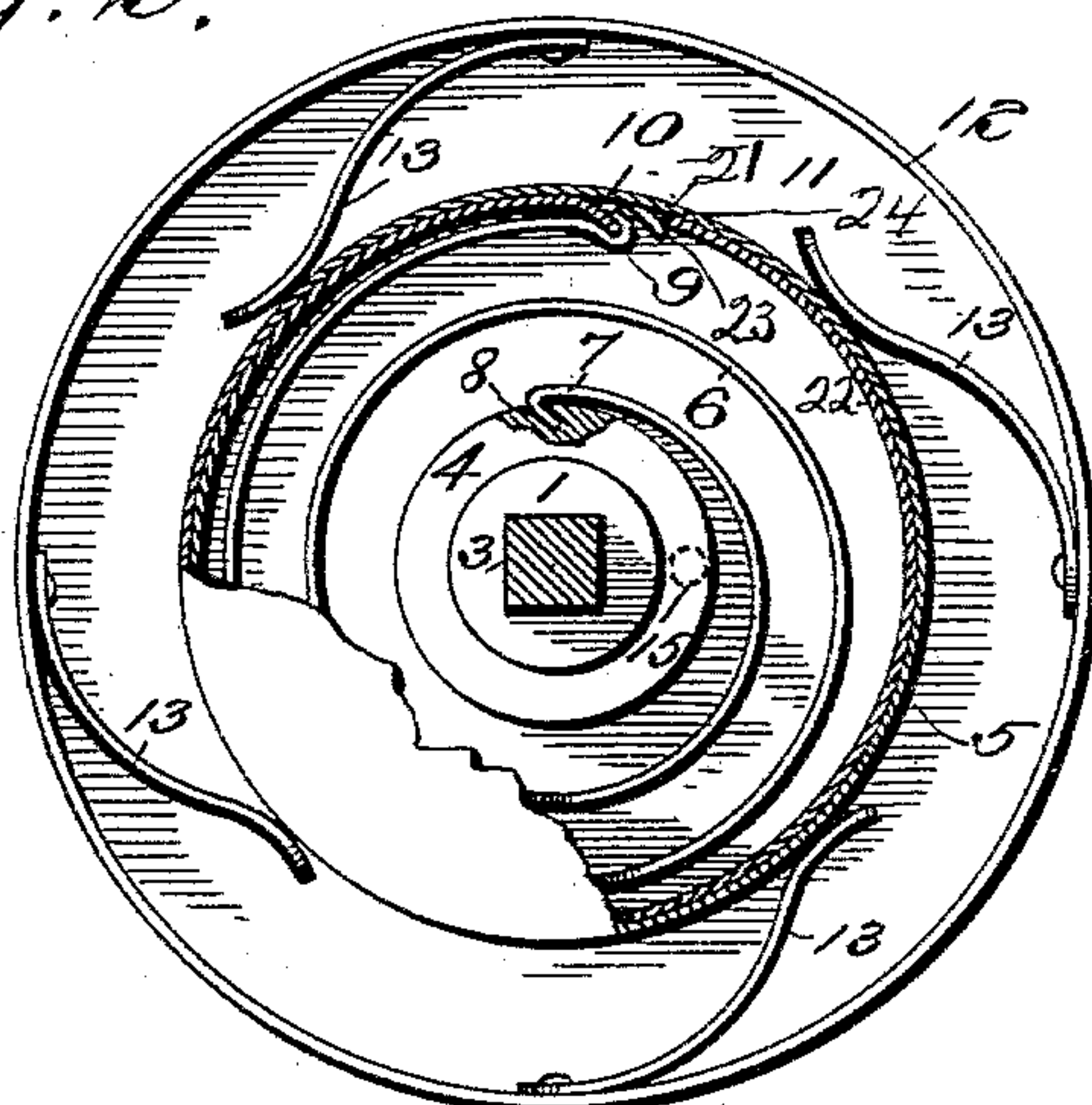
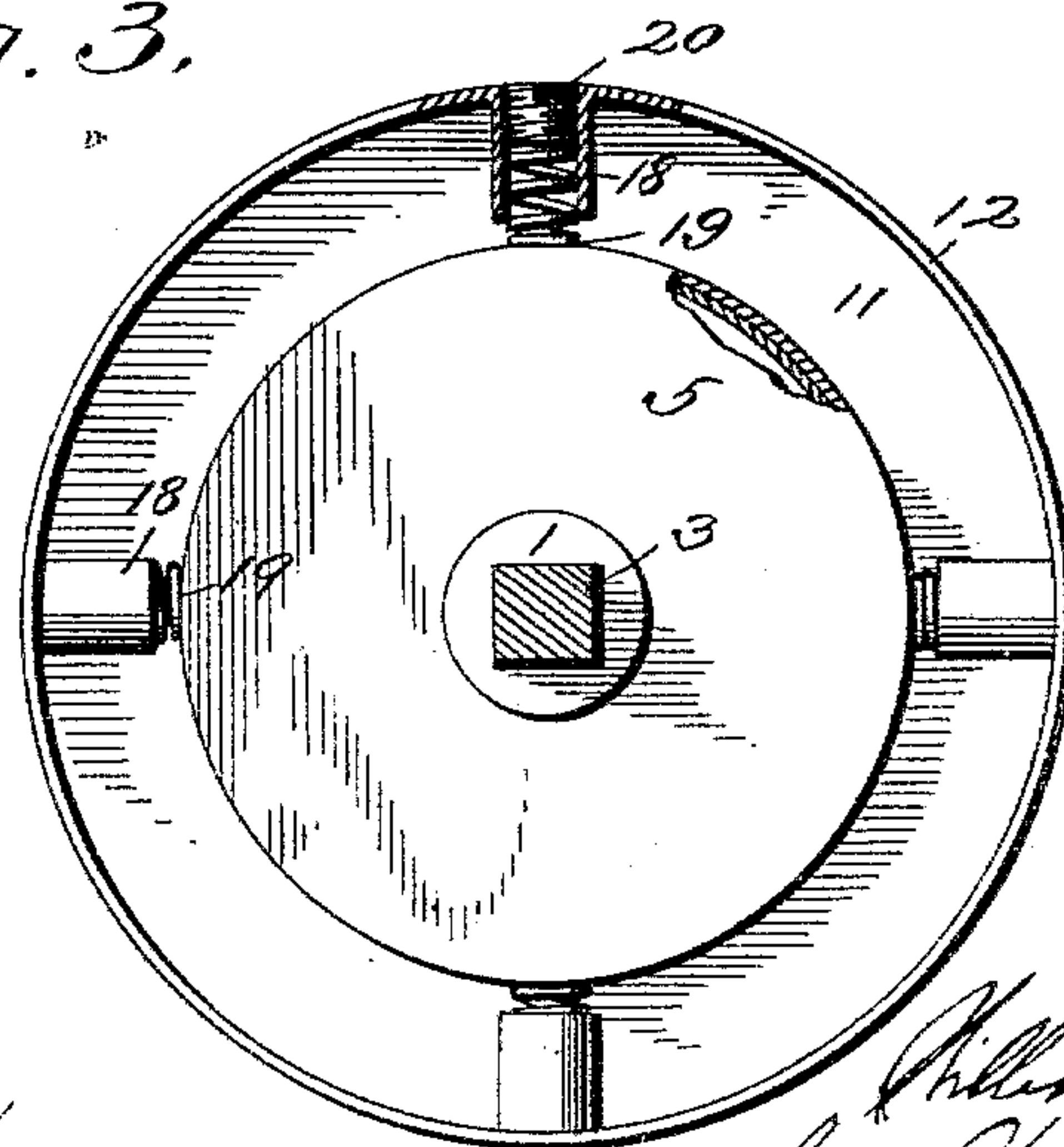


Fig. 3.



Witnesses

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WILLIAM F. KINTZING, OF GLEN ROCK, PENNSYLVANIA.

TENSION DEVICE FOR LOOM-SHUTTLES.

SPECIFICATION forming part of Letters Patent No. 566,689, dated August 25, 1896.

Application filed January 14, 1896. Serial No. 575,520. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. KINTZING, a citizen of the United States, residing at Glen Rock, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Tension Devices for Loom-Shuttles; 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 figures of reference marked thereon, which form a part of this specification.

My invention relates to tension devices for loom-shuttles; and it has for its object to provide an improved construction with a view of simplifying the same in construction and operation. Heretofore devices have been in use for taking up the slack in the wire after the shuttle has made its effective stroke, but said tension devices are open to objections, which need not be particularly specified.

My invention will be hereinafter particularly described and its mode of operation specified, and the novel features will be particularly defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a horizontal section through the device applied to a shuttle and bobbin. Fig. 2 is a side elevation of the device with parts in section. Fig. 3 is a side elevation of a modified form of tension springs with parts in section.

In the drawings the numeral 1 designates a hub, preferably formed of cast metal and formed with an angular-shaped aperture 2, designed to receive an angular portion of the spindle 3, upon which the bobbin is free to turn, so that the hub will be held stationary by said spindle. Upon the periphery of the hub 1 is formed a flange 4, which preferably is made to extend clear around the hub.

The numeral 5 designates a shell of sheet metal or other material, the free ends of which fit on opposite sides of the peripheral flange 4, by which it is held to place and which will serve as a guide for the shell as the latter is revolved around the hub. Within the shell is placed a coiled spring 6, one end of which is connected to the peripheral flange

4, for instance, by a hook 7 on the end of the spring engaging a notch 8 in the peripheral flange, as illustrated, or otherwise, and the other end is connected to the inside face of the periphery of the shell, for instance, by a hook 9 at the end of the wire engaging a notch 10 on the inside of the shell or otherwise as may be found convenient.

A metallic plate 11, having at its periphery a laterally-extending flange 12, is fitted to the hub 1 so as to turn thereon, the central portion of the plate being formed with an opening through which the hub may project and so as to permit the plate to revolve upon the hub. To the inside of the laterally-extending flange 12 of the plate 11 are attached any desired number of spring arms or fingers 13, the free ends of said arms or fingers bearing against the periphery of the shell 5, the tension of said arms or fingers being sufficient to cause the shell to revolve by frictional contact of the fingers therewith as the plate 11 is revolved, so that by thus turning the shell the spring within the same will be wound up until the tension thereof is slightly more than the tension of the spring-fingers, after which the spring-fingers will slide upon the periphery of the drum, while the plate 11 continues to be revolved, said fingers, however, continuing to hold the shell from backward rotation against the tension of the coiled spring within the shell. The plate 11 is provided on its face next to the bobbin 14 with a pin 15, which enters an opening 16 in the bobbin, so that the bobbin and the plate will be connected together in a manner that will cause it to revolve with the bobbin as the wire is unreeled from the bobbin. In operation the bobbin and the plate 11, which is around the hub 1, are connected together by the pin 15, and the bobbin and tension device then placed within the shuttle 17 and the spindle 3 passed through the bobbin and the hub 1. Now, as the wire is drawn from the bobbin in the movement of the shuttle, the plate 11 is turned with the bobbin, and the spring arms or fingers 13, by reason of their frictional contact with the shell 5, cause the shell to turn and wind up the spring inside the shell until the tension thereof is slightly more than the tension of said fingers, after which the plate continues to revolve with the bobbin and the fin-

gers slide or slip upon the periphery of the shell while the shuttle is making the remainder of its stroke. The tendency of the spring in the shell under tension is to prevent the bobbin from being revolved so fast as to create slack in the wire, and the slack which is usually caused by the momentum of the shuttle as it reaches the end of its stroke is immediately taken up by the recoil of the spring in the shell, which causes the plate 11 and the bobbin connected thereto to revolve in a backward direction, so as to wind up the slack on the bobbin. This construction enables the loom to be run faster than otherwise, because the wire is always under tension. The device is of few parts, simple in its arrangement, and not liable to get out of order.

Instead of spring fingers or arms of the form shown in Fig. 1 of the drawings, I may employ springs of the form illustrated in Fig. 3 of the drawings. In this modified form I will have tubes or sockets 18 projecting inwardly from the flange 12 of the plate 11, and in these tubes or sockets will place spiral springs 19, whose inner ends will bear against the periphery of the shell 5. These springs will be held in place and their tension regulated by means of adjusting-nuts 20, screwed into the tubes or sockets and made to bear against the upper ends of the springs. By adjusting these nuts the springs beneath the same will be caused to bear with greater or less tension against the periphery of the shell, and in that way the tension on the shell can be regulated. The other parts of the device will be constructed as already described.

The shell 5 is preferably made in two parts, with a flange 21 on one part overlapping a corresponding flange 22 on the other part and the two held together by a lip 23, formed from one part and entering a notch or cut-out portion 24, formed in the other part, as shown in Figs. 1 and 2.

Having described my invention and set forth its merits, what I claim is—

1. A tension device for loom-shuttles comprising a bobbin-spindle, a hub to receive the bobbin-spindle and non-rotatably secured thereto, a shell rotatable upon said hub, a spring within the shell having one end at-

tached thereto and the other end to the hub, a plate rotatable upon the hub and having springs bearing against the periphery of said shell, and means for connecting said plate to a bobbin so as to revolve therewith, substantially as and for the purposes described.

2. A tension device for loom-shuttles comprising a bobbin-spindle, a hub to receive the bobbin-spindle and provided with a peripheral flange and non-rotatably secured to the spindle, a shell rotatable upon said hub and fitting on opposite sides of said flange so as to be guided in its rotation by the flange, a spring within the shell having one end connected thereto and the other end to the hub, a plate rotatable upon the shell and provided with springs bearing against the periphery of said shell, and means for connecting said plate to a bobbin so as to revolve therewith, substantially as and for the purposes described.

3. In a tension device for loom-shuttles, the combination of a bobbin-spindle, a hub to receive a bobbin-spindle and non-rotatably secured thereto, a plate provided with means for connecting the bobbin thereto, a frictional bearing-surface between said plate and hub, a spring intermediate of said frictional bearing-surface and the hub and connected to both, and a spring bearing against said frictional bearing-surface and connected with said plate, substantially as and for the purposes described.

4. In a tension device for loom-shuttles, the combination of a bobbin-spindle, a hub to receive the bobbin-spindle and non-rotatably secured thereto, a frictional bearing-surface encircling said hub, a spring connecting said bearing-surface and hub, a plate provided with means for connecting the bobbin thereto, a spring connected to said plate and bearing against said bearing-surface, and means for adjusting the tension of said spring, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM F. KINTZING.

Witnesses:

J. B. SWEITZER,

I. J. YOUNG.