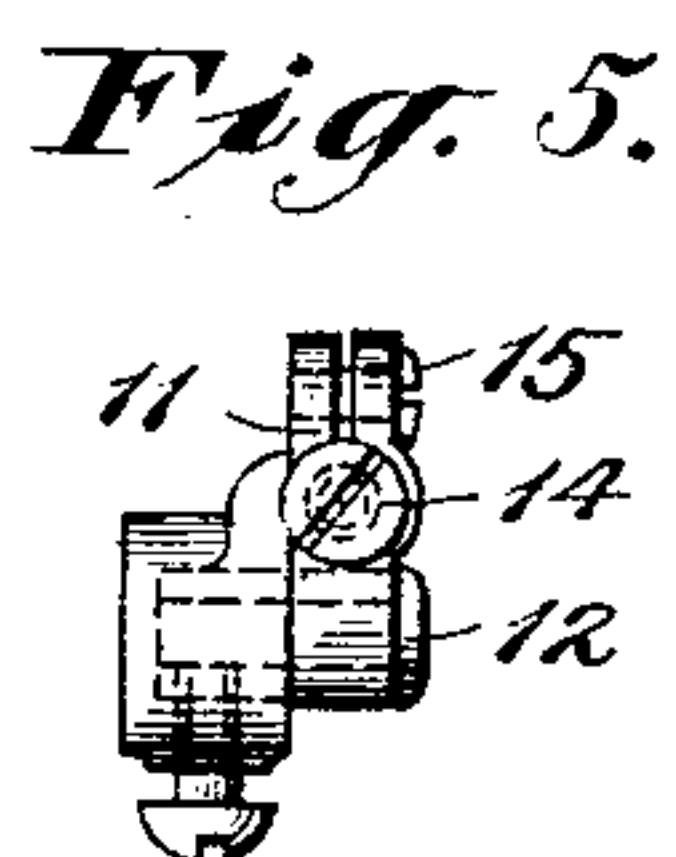
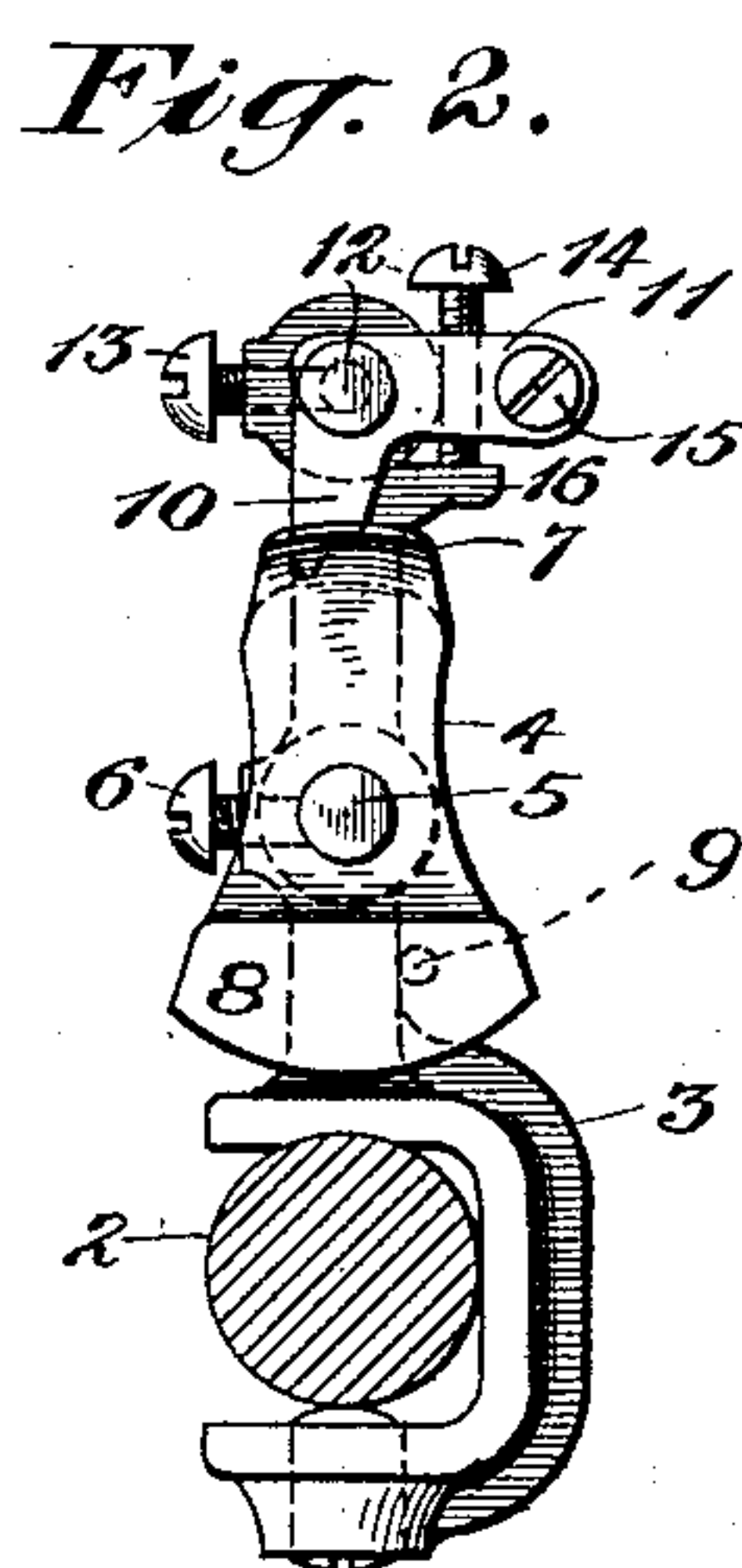
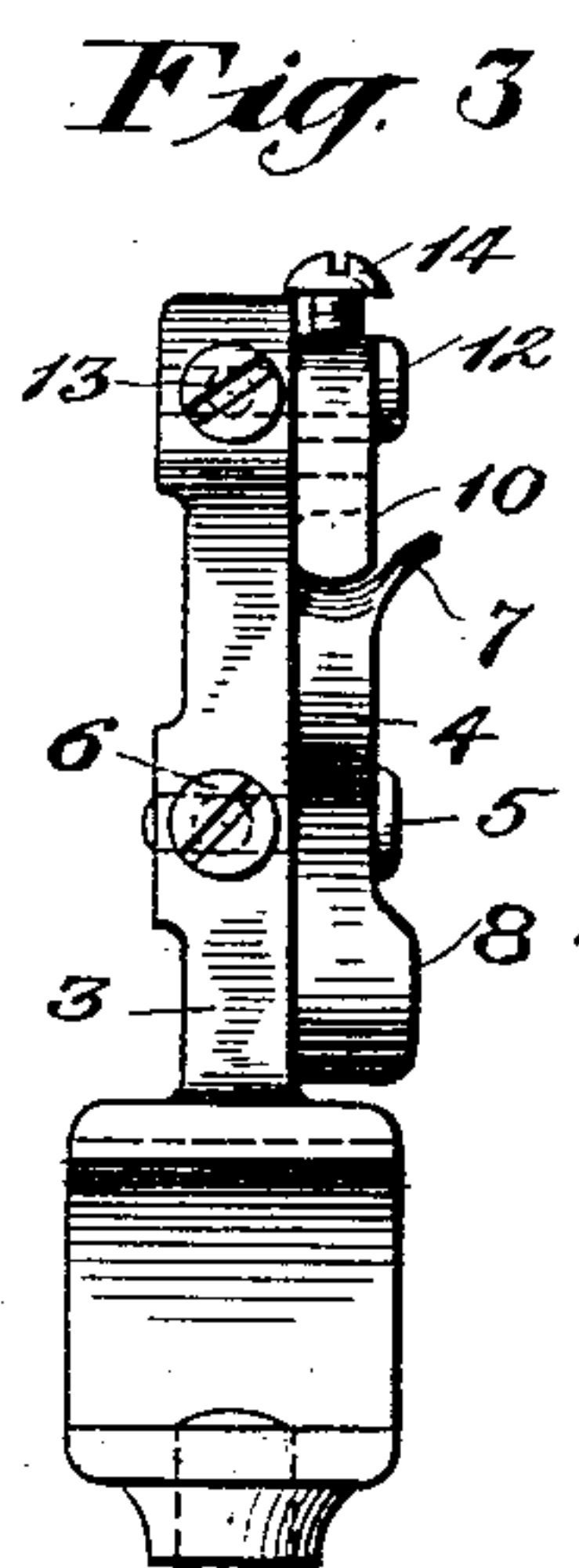
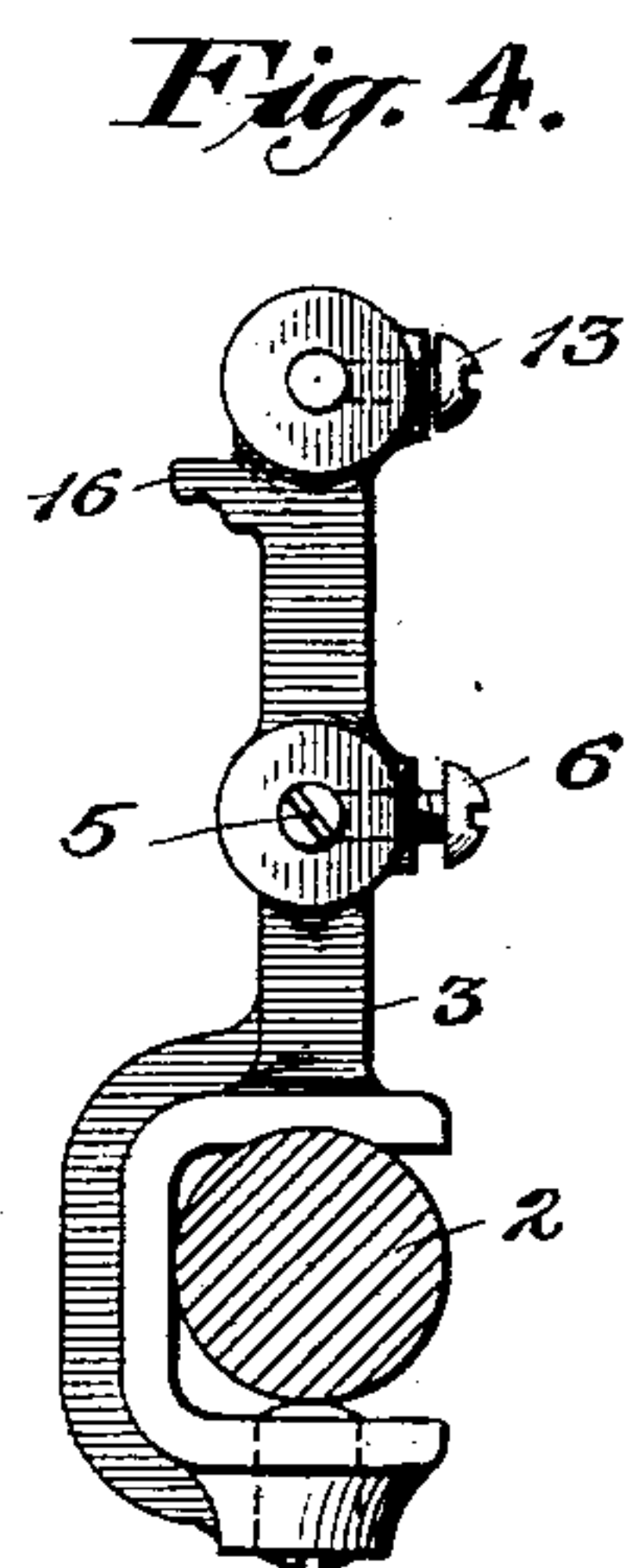
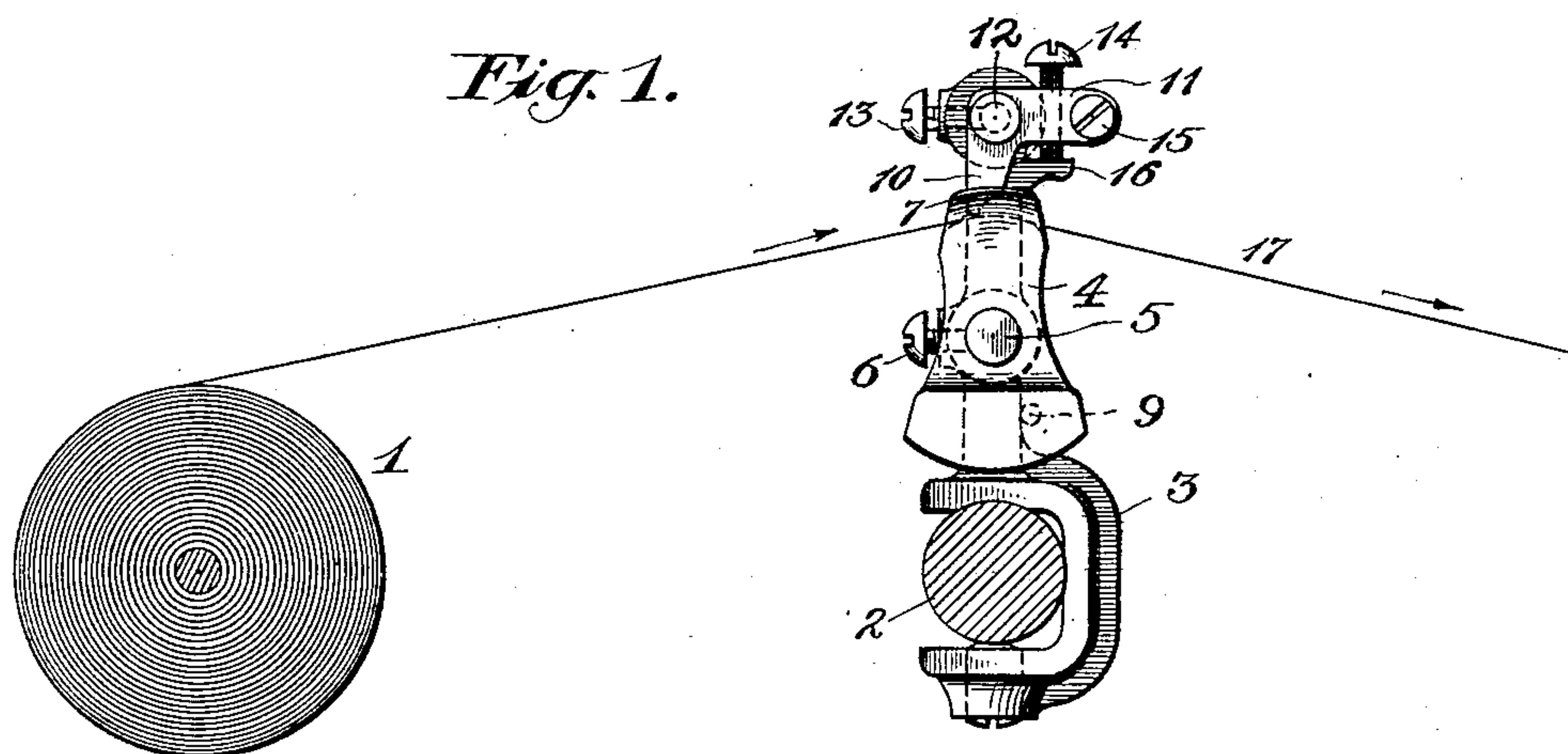


No. 750,850.

PATENTED FEB. 2, 1904.

P. HARDMAN.
KNOT CATCHING DEVICE.
APPLICATION FILED SEPT. 29, 1902.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

PETER HARDMAN, OF WILLIMANTIC, CONNECTICUT.

KNOT-CATCHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 750,850, dated February 2, 1904.

Application filed September 29, 1902. Serial No. 125,181. (No model.)

To all whom it may concern:

Be it known that I, PETER HARDMAN, a citizen of the United States, residing at Willimantic, Windham county, and State of Connecticut, have invented certain new and useful Improvements in Knot-Catching Devices, of which the following is a full, clear, and exact description.

My invention relates to knot-catching and thread-clearing devices.

The object of this invention is to provide a simple and effective machine to be used to detect knots and other imperfections in thread. In use when a knot in the thread which is being guided through the device reaches the latter it operates to stop or break the thread at that point and prevents the knotted portion being fed to winding, spooling, or doubling machines with which this device is usually employed. It is obvious that this machine is not necessarily limited to use with the particular machines mentioned.

In the drawings, Figure 1 is a side elevation of my knot-catching device as it appears in operation. Fig. 2 is a similar view of the machine when not in use. Fig. 3 is a front elevation. Fig. 4 is a view of the frame of the machine, the view being taken on the opposite side from that illustrated in Figs. 1 and 2. Fig. 5 is a view of the top of the machine. Fig. 6 is a detail of construction.

1 is a spool or bobbin of thread.

2 is a stationary bar which provides one means of support for the thread-catching device.

3 is a frame one portion of which may be suitably secured to the bar 2.

4 is a pivotally-mounted guide member supported by the frame 3 and having a U-shaped groove or thread-passage, as shown in Fig. 3.

5 is a pivotal support for the guide member 4, the same being by preference specially formed. As shown in Fig. 6, that portion of the stud or pivot 5 which directly supports the guide 4 is eccentric to the end portion which projects into the frame.

6 is a set-screw carried by a frame, one end of which may be caused to bear against the end of the pivot-stud 5, so as to lock it in any desired position. Obviously by turning the

pivot-stud 5 the eccentric bearing for the guide member 4 will cause the said guide member to be elevated or depressed, whereby its adjustment may be effected. The upper end of the guide member 4 is suitably channeled or grooved, as best seen in Fig. 3, and adjacent to the groove is a lip or flange 7, which facilitates the introduction of the thread in the channel or groove in which the thread is guided.

8 is a counterweight at the lower end of the guide member to cause it to normally assume the position indicated in the drawings.

9 is a stop borne by the guide member 4, the function being to check its swing in one direction and prevent the upper end of the guide from following the thread, the friction or engagement of which might rock it out of its operative position. The stop, however, does not prevent the guide member 4 from being tilted in an opposite direction so that the operator might free the same from any waste that might clog it.

10 is a pivotally-mounted gate one end of which is shaped to correspond with the guide channel or groove in the guide member 4, as best seen in Fig. 3.

11 is a counterweight connected to said gate 10, preferably at an angle thereto.

12 is a pivot on which the gate is mounted, the said pivot taking into a part of the frame 3.

13 is a set-screw for the pivot member 12.

14 is an adjusting-screw passing through a threaded opening in the counterweight 11, as best seen in Figs. 1 and 2. As shown in Fig. 5, this counterweight 11 may have a slot in it, so that by means of a screw 15 the adjusting-screw 14 may be locked in the desired position after it has been properly adjusted.

16 is a shoulder on the frame 3, against which the lower end of the adjusting-screw 14 may bear. As will be apparent from the drawings, by varying the position of the adjusting-screw 14 the gate member 11 may be allowed to swing open to any desired extent to permit the operator to vary the size of the thread-passage between the lower end of the gate and the channeled portion of the guide member 4.

17 is a thread passing from the spool or bob-

bin 1 over the guide to any desired destination, the thread-passage being formed between the channeled portion of the guide member and the gate. The gate should be so adjusted as
 5 to afford a passage between its lower end and the bottom of the channel substantially equal to the diameter of the thread. It is now apparent that if there is a knot in the thread when
 10 the thread reaches the gate 11 it will swing the same down toward the guide member 4 and practically close the passage between said gate and guide member 4. If, however, the thread is of the proper diameter throughout,
 15 and it will run freely through the guide to its destination.

It will be observed from the dotted line in Figs. 1 and 2 that the guide-channel is preferably rounded, so as to present a curved surface over which the thread may run without
 20 being abraded or otherwise injured. It will be observed also that the pivotal center for the gate is so placed that the swinging action of the gate will cause the end of the same to
 25 approach or move away from the surface of the guide for the reasons stated.

Manifestly the particular construction shown in the drawings may be modified in a variety of ways without departing from the
 30 spirit and scope of this invention.

What I claim is—

1. In a knot-catching and thread-clearing device, a guide or base provided with a U-shaped groove through which the thread is
 35 led, a clearing or catching device in the form of a swinging gate arranged above or opposite the bottom of said groove, the end of the gate being shaped to correspond to the U-shaped groove in the guide or base to provide
 40 a broad thread-passage of the same width from one end of the thread-passage to the other end of said thread-passage, and of uniform size according to the adjustment and position of
 45 the gate, and means for holding the said end of said gate normally away from the bottom

of said groove, said gate being free to swing back and close said groove when a knot or the like in the thread engages said gate.

2. A knot-catching and thread-clearing device comprising in its construction a pivotally-mounted guide or base for the purpose specified having a short bearing-support for the thread, said support being provided with a U-shaped groove through which the thread is led, a pivotally-supported gate, means for
 55 normally holding the end of the gate forward of a line intersecting the axes of said guide and gate to form a passage for the thread between the end of said gate and said guide, said gate being free to swing back and close
 60 said passage when a knot or the like in the thread encounters the same.

3. In a knot-catching and thread-clearing device, a pivotally-mounted guide or base for the purpose specified provided with a U-
 65 shaped groove, a pivotally-mounted gate arranged above and opposite the bottom of said guide-groove, means for holding the free end of the gate forward of a line intersecting the axes of said base and gate and an adjusting
 70 device for varying the forward position of the end of said gate whereby the space or passage between the end of said gate and said guide-groove may be varied in size at will.

4. In a knot-catching and thread-clearing
 75 device, a guide having a U-shaped groove therein through which the thread passes, a gate arranged above and adjacent to the bottom of said groove and means for normally
 80 holding the gate free of said guide member, said gate being arranged to close the thread-passage when a knot in the thread encounters the same.

Signed at Willimantic, Connecticut, this 25th day of September, 1902.

PETER HARDMAN.

Witnesses:

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DWIGHT A. LYMAN.