

No. 733,207.

PATENTED JULY 7, 1903.

G. F. HUTCHINS.

STOP MECHANISM FOR NEEDLE MOTION OF LOOMS.

APPLICATION FILED JUNE 20, 1902.

NO MODEL.

Fig 1

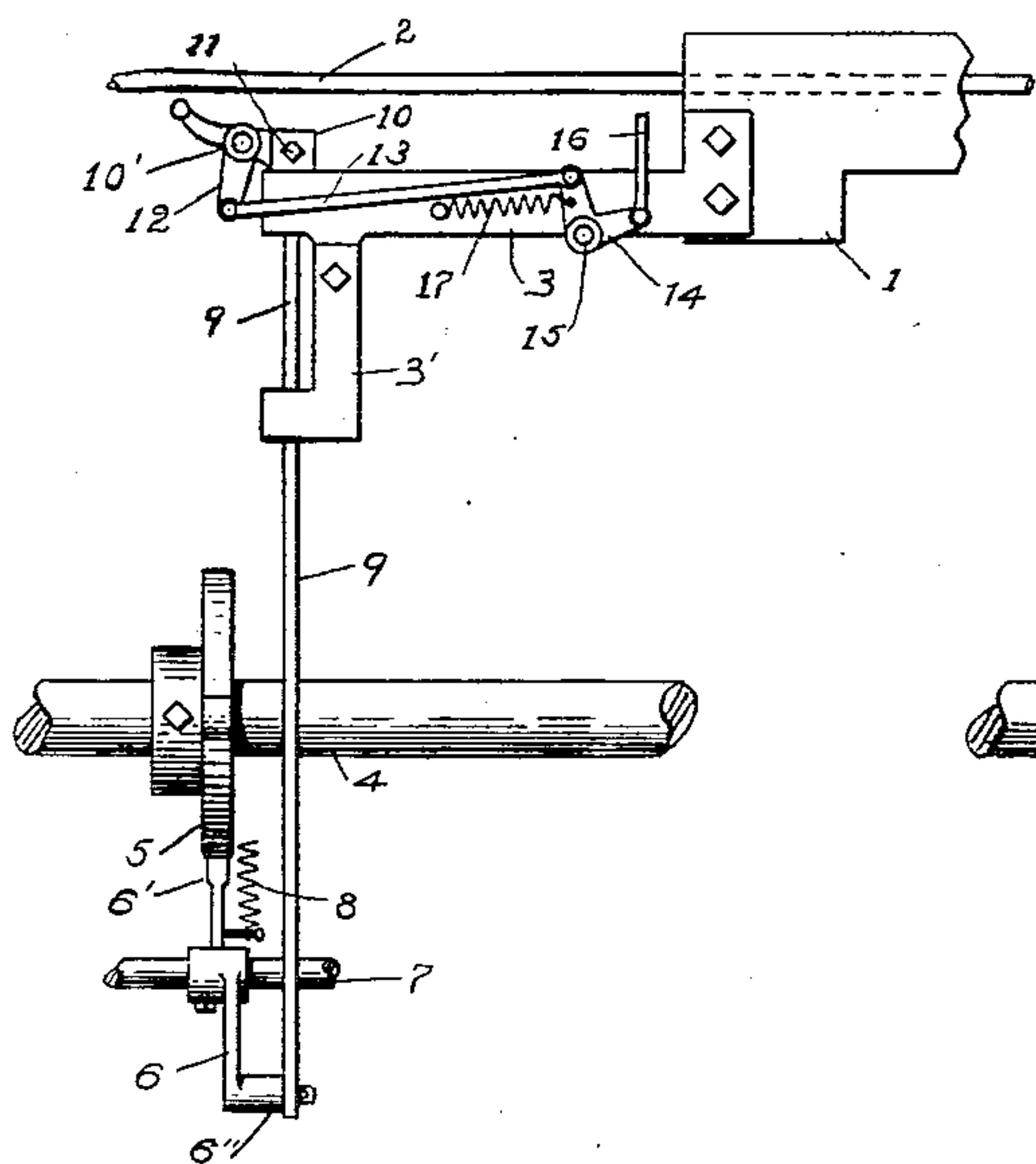


Fig 2.

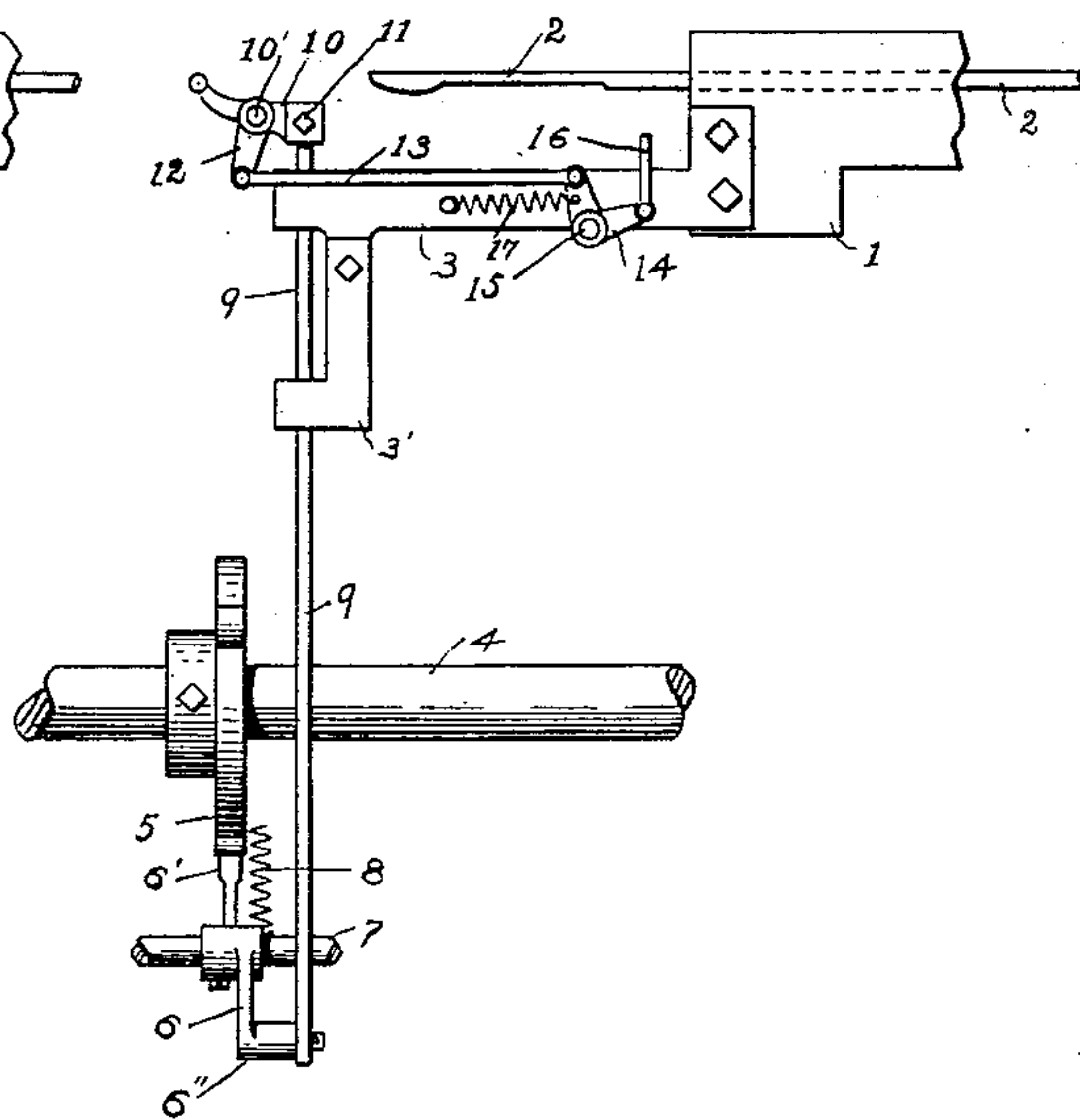


Fig 3

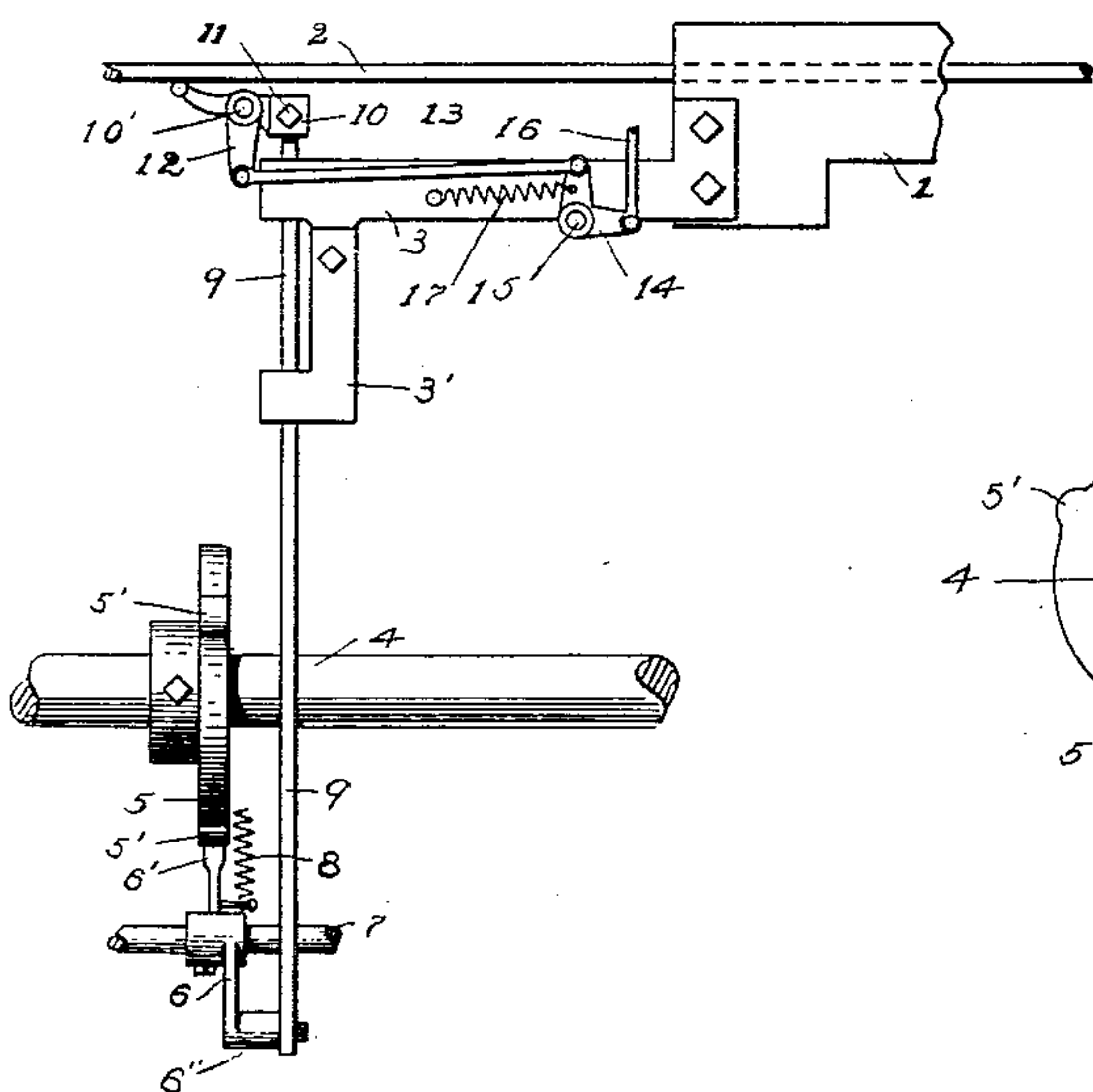
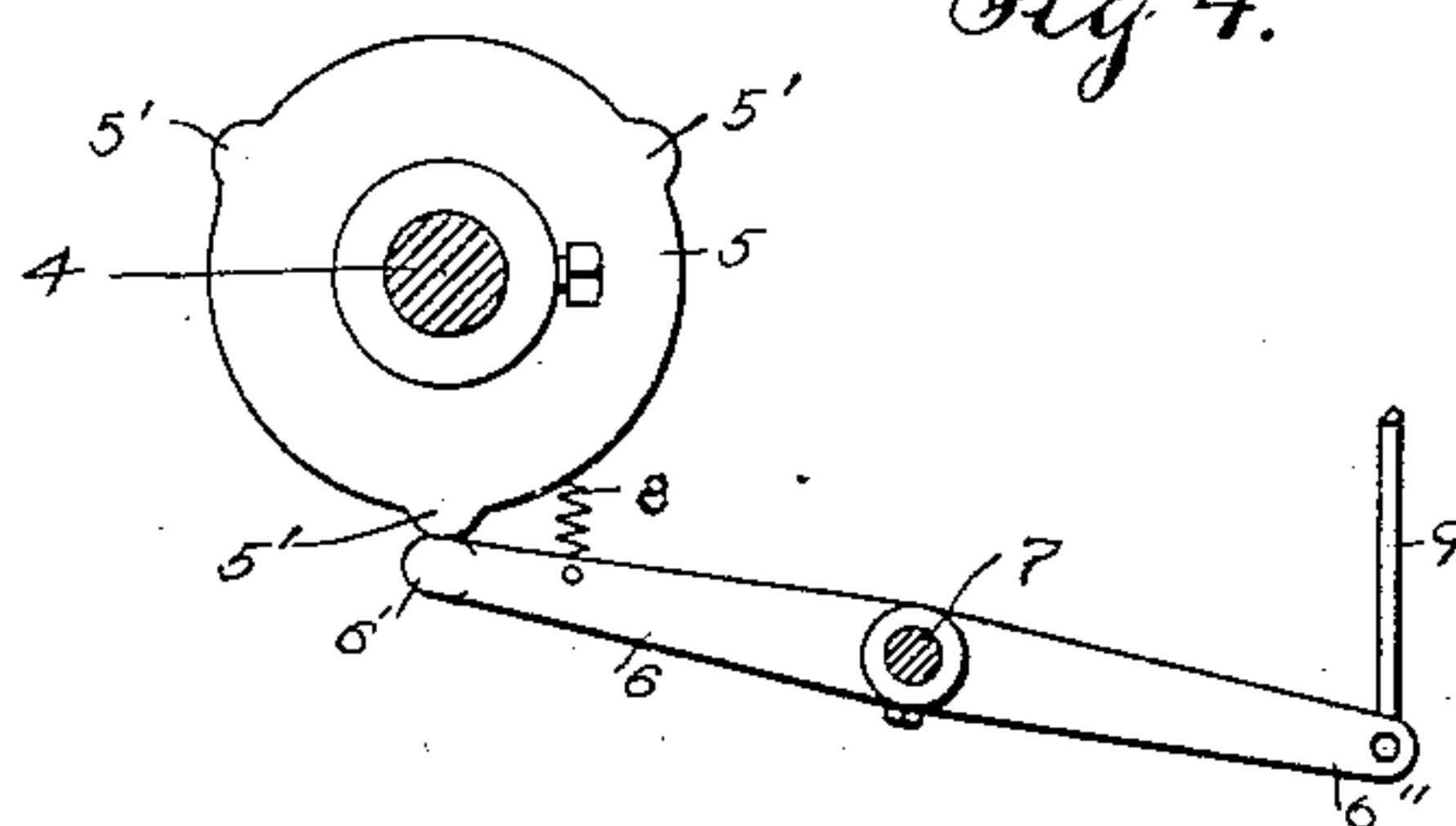


Fig 4.



Witnesses
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STOP MECHANISM FOR NEEDLE-MOTION OF LOOMS.

SPECIFICATION forming part of Letters Patent No. 733,207, dated July 7, 1903.

Application filed June 20, 1902. Serial No. 112,504. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. HUTCHINS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Stop Mechanism for Needle-Motion of Looms, of which the following is a specification.

My invention relates to the needle-motion of looms for weaving pile fabrics, such as Moquette or Axminster carpets or rugs, in which in weaving wide fabrics, as rugs, a long needle must be used, which is inserted through the shed and then withdrawn in the well-known way, and my invention more particularly relates to a supplemental mechanism adapted to be used in connection with the needle-motion above referred to to automatically indicate to stop the loom in case the needle for any reason is not fully withdrawn from the shed on the beating up of the lay in the normal operation of the loom. If the needle remains in the shed upon the beating up of the lay, it will break out the warp-threads and will do a great deal of damage before the loom will be stopped.

The object of my invention is to provide a supplemental mechanism of simple construction and operation to be used in connection with the needle-motion referred to to automatically indicate to stop the loom in case the needle for any reason is not fully withdrawn from the shed on the beating up of the lay in the normal operation of the loom.

By means of my supplemental mechanism, which consists, preferably, of a movable lever or finger which extends in the path of the needle and has a positive motion at regular intervals to cause it to engage the needle if the needle extends over it on the beating up of the lay and be moved and operate through co-operating mechanism, which may be of any ordinary and well-known construction, mechanism for stopping the loom as the lay beats up.

I have shown in the drawings my mechanism and the needle of the needle-motion detached sufficient to illustrate the nature of my invention and enable those skilled in the art to which my invention belongs to make and use the same.

Referring to the drawings, Figure 1 is a front view of my stop-indicating mechanism, showing the same in its inoperative position and the needle in its inward position extending into the shed. Fig. 2 shows the opposite position of the mechanism shown in Fig. 1 with said mechanism in its operative position and the needle in its outward position or fully withdrawn from the shed. Fig. 3 corresponds to Fig. 2, but shows the needle in its inward position extending in the shed and engaging the indicating mechanism to cause it to operate, through coacting mechanism not shown, to stop the loom; and Fig. 4 is a section through the driving-shaft on line 4 4, Fig. 2, looking in the direction of arrow *a*, same figure.

In the accompanying drawings, 1 is the end of the raceway for the needle 2. The raceway 1 is supported in a horizontal plane on stands (not shown) in any ordinary way. To the end of the raceway 1 is attached a bracket or stand 3, which extends out from the end of the raceway in a horizontal plane and acts to support the parts of my indicating mechanism.

4 is a driven shaft, on which is fast a disk or circular plate 5, having in this instance three cam-surfaces 5' on its periphery. A lever 6 is centrally mounted and fast on a rock-shaft or rod 7, and one end 6' of said lever is adapted to engage the periphery of the cam-disk 5 and is held in engagement therewith in this instance by a spring 8, attached at one end to said lever 6 and at its other end to a stationary part. (Not shown.) The lever 6 has pivotally attached to its opposite end 6'' the lower end of a vertically-moving rod 9. The upper end of the rod 9 has bearings in the downwardly-extending portion 3' of the stand 3 and has fast thereon a collar 10, adjustably secured thereto by a set-screw 11.

Upon a side projection 10' on the collar 10 is pivotally supported in this instance an angle-lever 12, one arm of which has a knob or side projection thereon adapted to extend under and in the path of the needle 2, and the other arm of said lever 12 is connected by a link or connector 13 with one end of an arm of the angle-lever 14, pivoted on a stud

15 on the stand or bracket 3. The other arm of the angle-lever 14 has pivotally attached thereto the lower end of a connector 16, which is connected with mechanism (not shown) to
 5 stop the loom when the connector 16 is moved downwardly. A spring 17, attached at one end to the angle-lever 14 and at its other end to the stand 3, acts to hold the pivoted lever 12 in its raised position and also the connector
 10 16 in its raised position.

In the operation of the loom and the needle-motion with which my indicating mechanism is adapted to be used there are three beats of the lay to every revolution of the
 15 cam-disk 5. In the normal operation of the loom the position of the cam-disk 5 relative to the lever 6 is such that as the needle 2 enters and is withdrawn from the shed the periphery of the cam-disk 5 between the cam-surfaces 5' will travel on the end of the lever
 20 6, as shown in Fig. 1, and the rod 9, carrying the pivoted or indicating lever 12, will be stationary; but just as the needle 2 is fully withdrawn from the shed on the forward beat of the lay the cam-surface 5' will engage the lever 6
 25 and rock said lever and raise the rod 9 and the lever 12 with said rod, as shown in Fig. 2, so that the upper end of said lever 12 will extend in the path of the needle 2. If for any reason
 30 the needle 2 is not fully withdrawn from the shed on the forward beat of the lay, the raising of the rod 9 and the indicator-lever 12 thereon, as above described, will cause the upper end of the lever 12 to engage the needle 2,
 35 extending over it, and the engagement of the lever 12 with the needle will, through connector 13, move the angle-lever 14 against the action of the spring 17 and move down the connector 16, as shown in Fig. 3, and
 40 through coacting mechanism (not shown) stop the loom.

It will be understood that the details of construction of my improvements (shown in the

drawings and above described) may be varied, if desired.

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

1. In a needle-motion of a pile-fabric loom, the combination with the needle, of a device
 50 adapted to be moved into the path of the needle and to be engaged and tilted by the needle, if the needle remains in the shed on the beating up of the lay, said device through co-operating mechanism acting to stop the loom,
 55 substantially as shown and described.

2. In the needle-motion of a pile-fabric loom, a lever or arm adapted to be moved into the path of the needle and engage and be turned
 60 by the needle, if it is not withdrawn from the shed on the beating up of the lay, and stop the loom through coöperating mechanism, substantially as shown and described.

3. In a needle-motion for pile-fabric looms, the combination with a needle, a tiltable arm
 65 or lever, means for moving said arm or lever into the path of the needle to engage a part of said arm or lever with the needle and cause the arm or lever to be tilted by such engagement, and means connected to said arm or
 70 lever to cause the loom to stop when the needle is not withdrawn from the shed.

4. In a needle-motion for pile-fabric looms, the combination with the needle of a tiltable
 75 arm or lever, a vertically-movable rod on which said arm or lever is pivotally mounted and by which it is raised and lowered to and from the path of the needle, means for moving said rod, and devices connected to said
 80 arm or lever for stopping the loom when the arm or lever engages the needle and is tilted thereby.

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Witnesses:

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