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PATENTED JULY 25, 1905.

F. O'DONNELL.
STOP MOTION FOR LOOMS.
APPLICATION FILED NOV. 21, 1904.

3 SHEETS—SHEET 1.

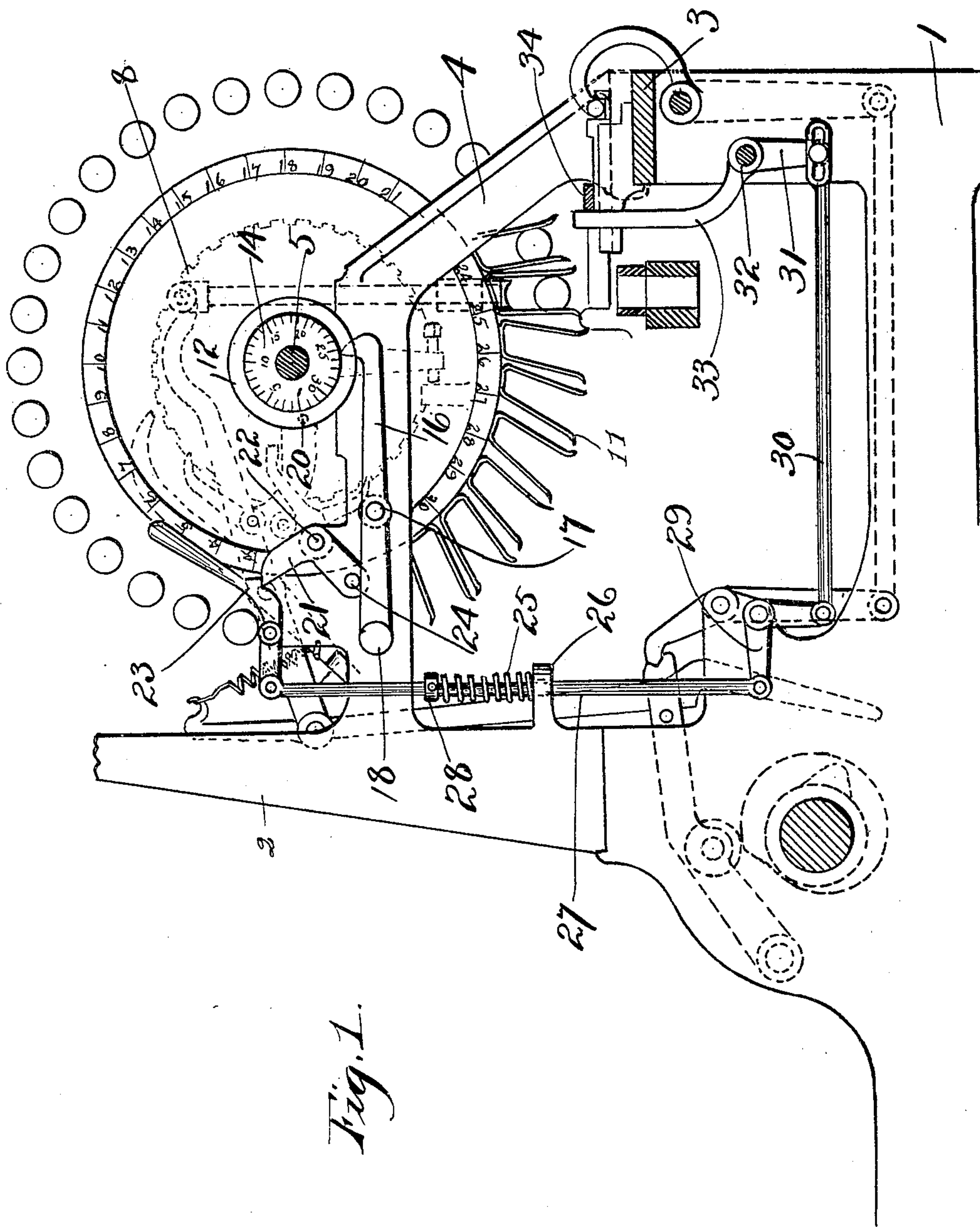


Fig. 1.

Witnesses

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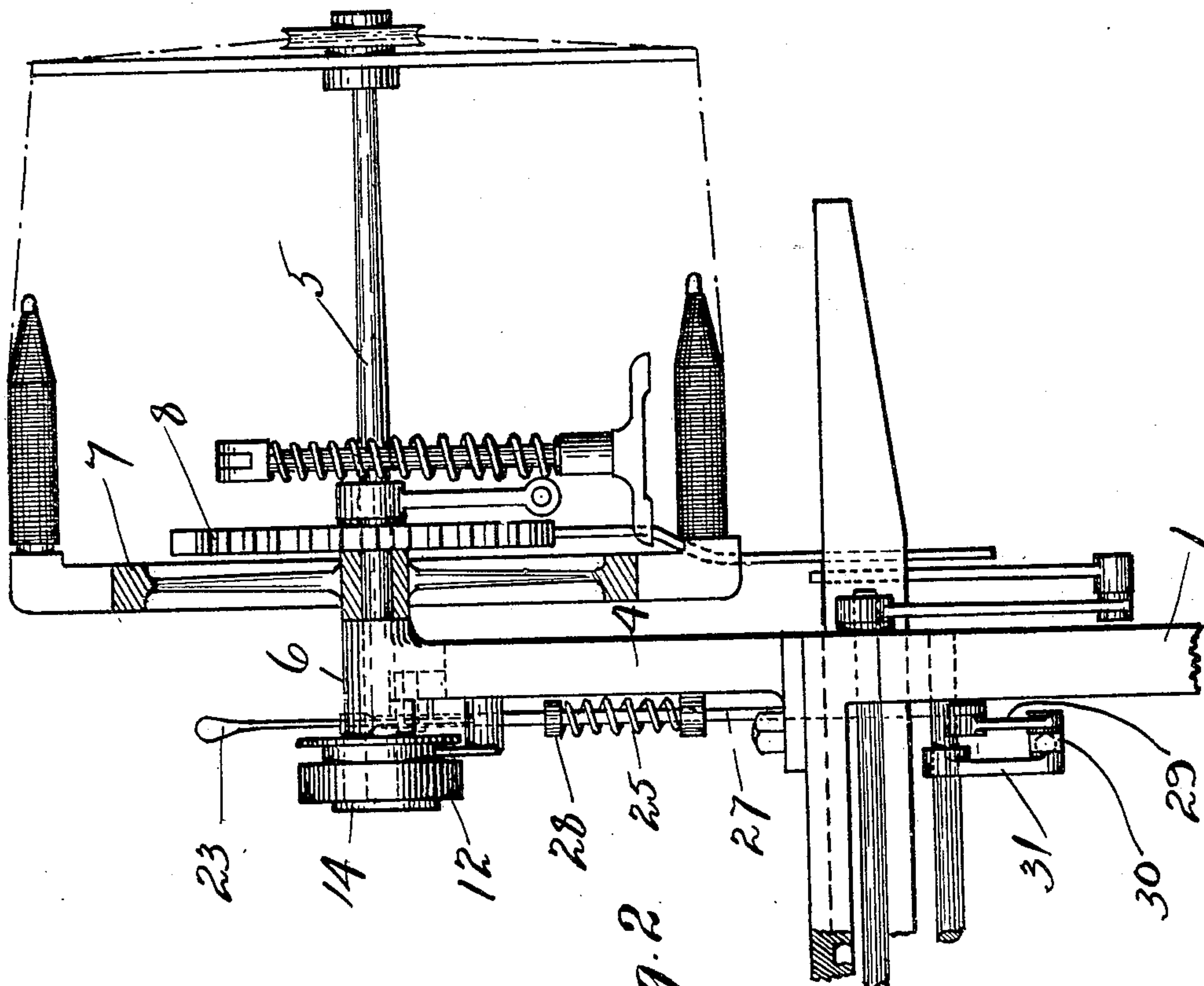


Fig. 2.

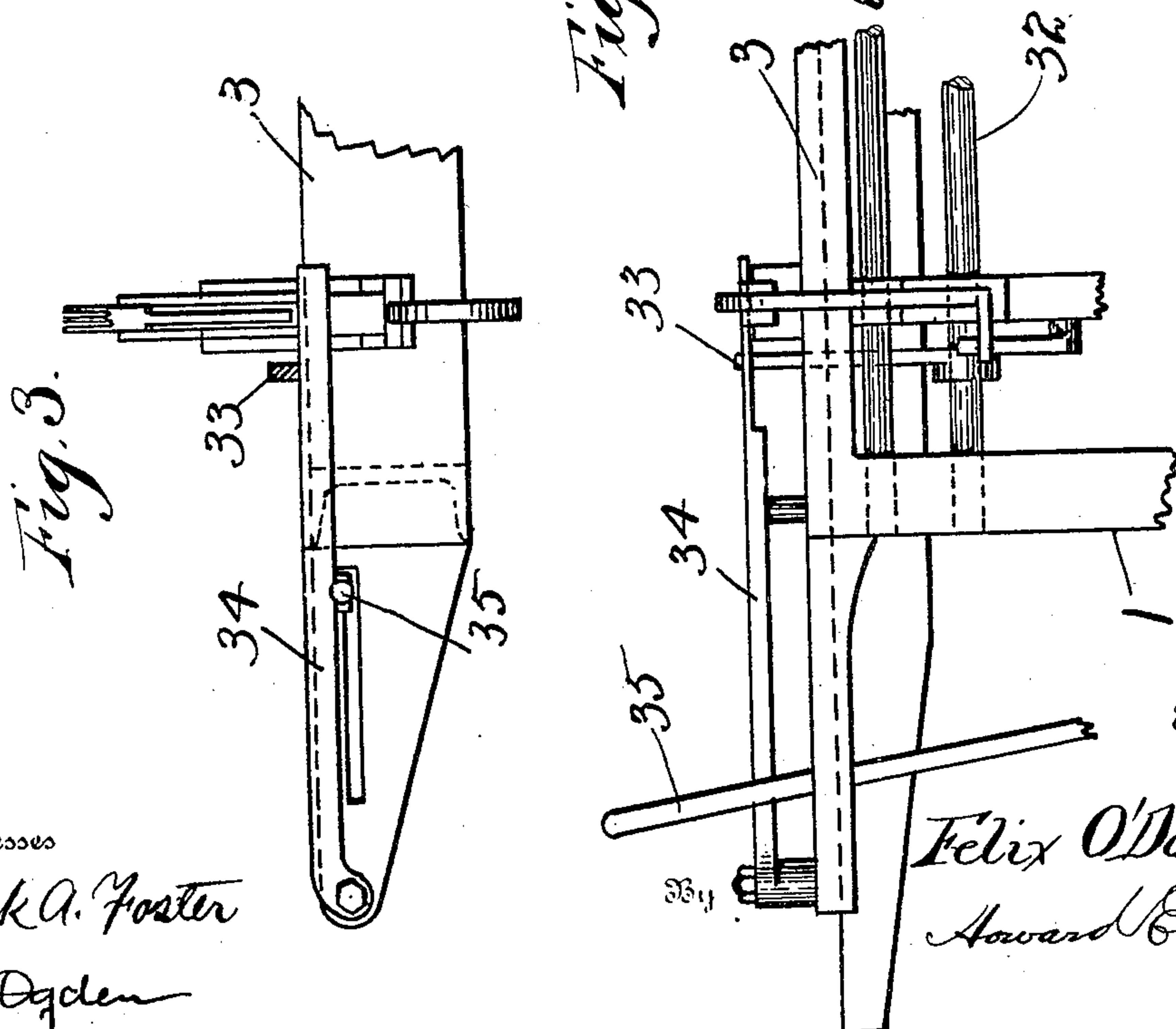


Fig. 3.

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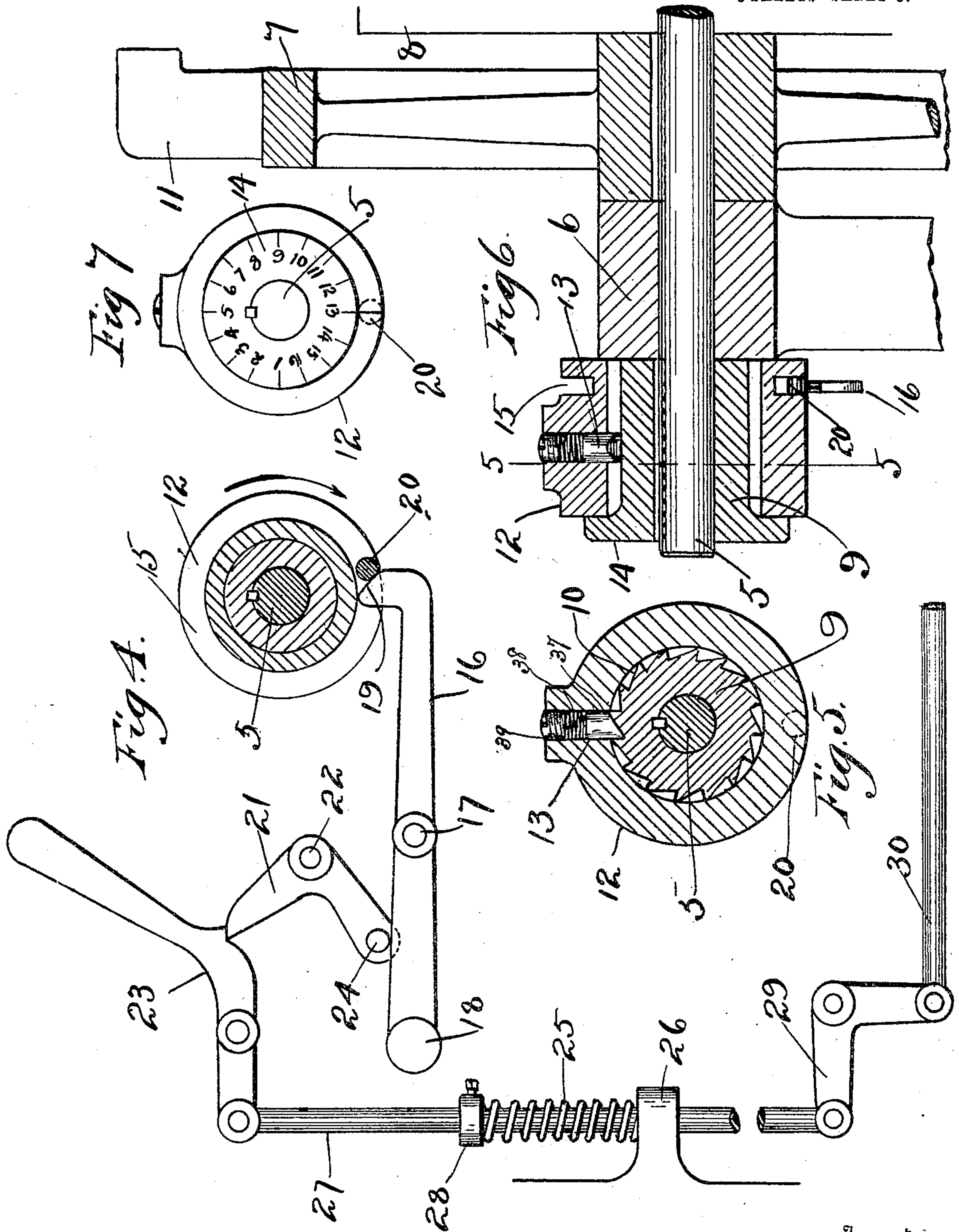
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UNITED STATES PATENT OFFICE.

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STOP-MOTION FOR LOOMS.

No. 795,364.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed November 21, 1904. Serial No. 233,775.

To all whom it may concern:

Be it known that I, FELIX O'DONNELL, a resident of the city of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Stop-Motions for Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to stop-motions for weft-replenishing looms, and has for its object to produce a stop-motion that may be attached to the weft-replenishing mechanism and set so as to stop the loom automatically when the last cop has been discharged from the cop-carrying wheel or when said wheel arrives at any predetermined position in the course of a revolution.

The invention consists of other novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the appended claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

In the drawings, Figure 1 is a side elevation of part of the loom and replenishing mechanism, illustrating the stop mechanism attached to the cop-carrying wheel. Fig. 2 is a front elevation of a portion of the loom and replenishing mechanism, showing the stopping mechanism attached thereto. Fig. 3 is a plan view of a portion of the breast-beam, showing a portion of the mechanism for throwing off the starting-lever to stop the loom. Fig. 4 is an enlarged view of the tripping mechanism. Fig. 5 is a sectional end view of the ratchet on line 5 5 of Fig. 6, showing the spring-actuated pawl engaging the teeth in the hub. Fig. 6 is a central longitudinal section showing the tripping device connected to the outer end of the shaft on which is mounted the cop-carrying wheel. Fig. 7 is an end view of the hub and its adjusting-ring, showing and indicating figures on the flange of said hub, by which figures the ring may be set to stop the loom at any predetermined position.

Referring to the drawings, at 1 1 are the end frames of the loom, and 2 is a portion of the loom-arch, which is supported from said frames.

3 is the breast-beam connecting the two end frames together.

At 4 is the framework on which is mounted the weft-replenishing mechanism. At 5 is the shaft journaled at 6 in said frame, to which shaft is fixed the cop-carrying wheel 7 and its ratchet-wheel 8 on one side of the bearing and the adjustable tripping-stop mechanism on the opposite side of said bearing. This tripping device is constructed of a flanged hub 9, keyed to the shaft 5. The periphery of this hub is cut with ratchet-teeth 10, the number of these teeth corresponding with the number of cop-holders 11 on the cop-carrying wheel 7, and these teeth are lined off and numbered on the face of the flange 14. (See Fig. 7.) Mounted on this hub is the adjustable ring 12, in which is held the spring-actuated pawl 13, that engages the teeth of the hub. This pawl works in a hole 37 in the ring and is pressed downward by the spring 38, which spring is held in position by the screw-plug 39. Near one edge of this ring is an annular groove 15 to receive and guide the end of the tripping-lever 16. This tripping-lever is pivoted at 17 to the loom-frame or any convenient place and weighted at its outer end 18, so as to hold up the end that engages the groove. This end is beveled back at 19, so that it may be forced down by the tripping-pin 20, that is set across the said groove for this purpose, as it comes in contact with this beveled end of said lever in the course of its revolution.

The latch 21 is pivoted at 22, its upper end engaging and retaining the lever 23, while the lower end of said latch is supported through the pin 24 by the tripping-lever 16, against which said pin rests. When said latch is withdrawn from the lever 23, the spring 25 (one end of which rests on the lug 26) acts on the rod 27 through the collar 28 to force it up, and through the knee-lever 29, connection 30, lever 31, shaft 32, and arm 33 the knock-off lever 34 is actuated to throw the stopping-lever 35 out of engagement with its usual retaining-notch and allow it to spring back and stop the loom. This stopping device may be applied to any rotary cop-carrying mechanism and is not confined to any particular type.

The operation of the mechanism is further described as follows: The rotary cop-carrying wheel to which my device is attached is of the type shown and described in my pending application, Serial No. 224,853, and it may be con-

structed and operated in any desired manner. It has heretofore been found necessary for the operator of this class of looms to constantly watch the same when in operation, so as to stop it when the last cop has been transferred from the carrier-wheel to the shuttle in order to prevent the transferring mechanism from operating at each stroke of the loom, thus preventing racking or unnecessary wear and tear on the transferring mechanism. My device is of a very simple construction, which may be connected in any convenient manner to the rotating cop-carrying wheel. It may be connected to the wheel and set to stop the loom at any predetermined point or at the transferring of any particular cop, it usually being set, however, to stop the loom after the last cop has been transferred into the shuttle. To simplify the setting of the tripping mechanism, I have numbered each cop-retainer on the wheel, as shown in Fig. 1, and I have also numbered the ratchet-teeth in the hub, the numbers appearing on the face of the hub at 14, as shown in Figs. 1 and 7. The number of said ratchet-teeth must correspond exactly with the number of cop-holders on the wheel. In order to set the device so that it will operate at the positioning of any given cop, the ring 12, that carries the spring-pressed pawl and also the tripping-pin 20, is turned around by hand on the hub until the indicating-mark opposite the said pin registers with the number of the cop-carrier at which the loom is to be stopped. For instance, if it is desired to stop the loom after cop No. 10 has been transferred into the shuttle the collar 12 is rotated on the hub until the said indicating-mark registers with No. 10 on the flange 14. The pawl 13 will then engage a tooth on the opposite side of the hub and retain the ring in this set position to rotate with the cop-carrying wheel. Then as the said wheel turns step by step as one cop after another is transferred therefrom into the shuttle this tripping-pin 20 finally reaches the position shown in Fig. 4, where it comes in contact with the inclined end of the tripping-lever 16, forces it down, and withdraws the latch 21 from under the lever 23 and through the mechanism described above throws off the stopping-lever and the loom is instantly and automatically stopped.

This mechanism is extremely simple and practical in construction, easily attached to the loom, and obviates the necessity of constant watchfulness on the part of the attendant, thereby enabling him to operate more machines, and effectually prevents unnecessary wear and tear of the weft-replenishing mechanism.

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

1. In a device of the character described,

means for carrying cops to be transferred into a shuttle, and means connected to said cop-carrier for automatically stopping the loom at any predetermined point in the movement of the carrier.

2. In a device of the character described, rotary means for carrying the cops to be transferred into the shuttle, and means for stopping the loom including an adjustable tripping device, said device being connected to said cop-carrier to engage and operate said stopping means.

3. In a device of the character described, rotary means for carrying the cops to be transferred into the shuttle, a stop-lever, means arranged to operate said stop-lever, means to hold said operating means normally out of engagement with said stop-lever, and means connected with the cop-carrier for operating the connecting mechanism to actuate the stop-lever to stop the loom.

4. In a device of the character described, rotary means for carrying the cops to be transferred into the shuttle, a stop-lever, means arranged to operate said stop-lever, a latch to hold said latter means normally out of engagement with said stop-lever, and means connected with the cop-carrier for tripping said latch and causing said stop-lever to be operated to stop the loom.

5. In a device of the character described, rotary means for carrying the cops to be transferred into the shuttle, a stop-lever, spring-actuated connections arranged to operate said stop-lever, a latch to hold said connection normally out of engagement with said stop-lever, and means connected with the cop-carrier for tripping said latch and causing said stop-lever to be operated to stop the loom.

6. In a device of the character described, rotary means for carrying the cops to be transferred into the shuttle, a stop-lever, means arranged to operate said stop-lever, a latch to hold said latter means normally out of engagement with said stop-lever, and adjustable means connected to said cop-carrier which may be set at any desired position relative to the cops on the carrier-wheel to trip said latch when said cop-carrier is at any predetermined point in its revolution and cause the stop-lever to be operated to stop the loom.

7. In a device of the character described, rotary means for carrying the cops to be transferred into the shuttle, a stop-lever, means arranged to operate said stop-lever, a latch to hold said latter means normally out of engagement with said stop-lever, a hub connected to said cop-carrier, a ring adjustably mounted on said hub, means for holding said ring in any desired position on said hub, and means in said ring for tripping said latch and causing said stop-lever to be operated to stop the loom.

8. In a device of the character described, rotary means for carrying the cops to be transferred into the shuttle, a stop-lever, means

arranged to operate said stop-lever, a latch to hold said latter means normally out of engagement with said stop-lever, a hub connected to said cop-carrier, a ring adjustably mounted on said hub, a pawl in said ring and ratchet-teeth in said hub by which said ring may be set and held in any desired position on said hub, and means in said ring for causing said latch to be tripped and causing said stop-lever to be thrown off to stop the loom.

9. In a device of the character described, rotary means for carrying the cops to be transferred into the shuttle, a stop-lever, means arranged to operate said stop-lever, a latch to hold said latter means normally out of engagement with said stop-lever, a hub connected to

said cop-carrier, ratchet-teeth on said hub, the number of said teeth corresponding to the number of cop-retaining points in said wheel, a ring adjustably mounted on said hub and containing a spring-actuated pawl, and means in said ring for causing said ratchet to be tripped and through the stop-lever operating connections to stop the loom.

In testimony whereof I have hereunto set my hand this 12th day of November, A. D. 1904.

FELIX O'DONNELL.

In presence of—

HOWARD E. BARLOW,
E. I. OGDEN.