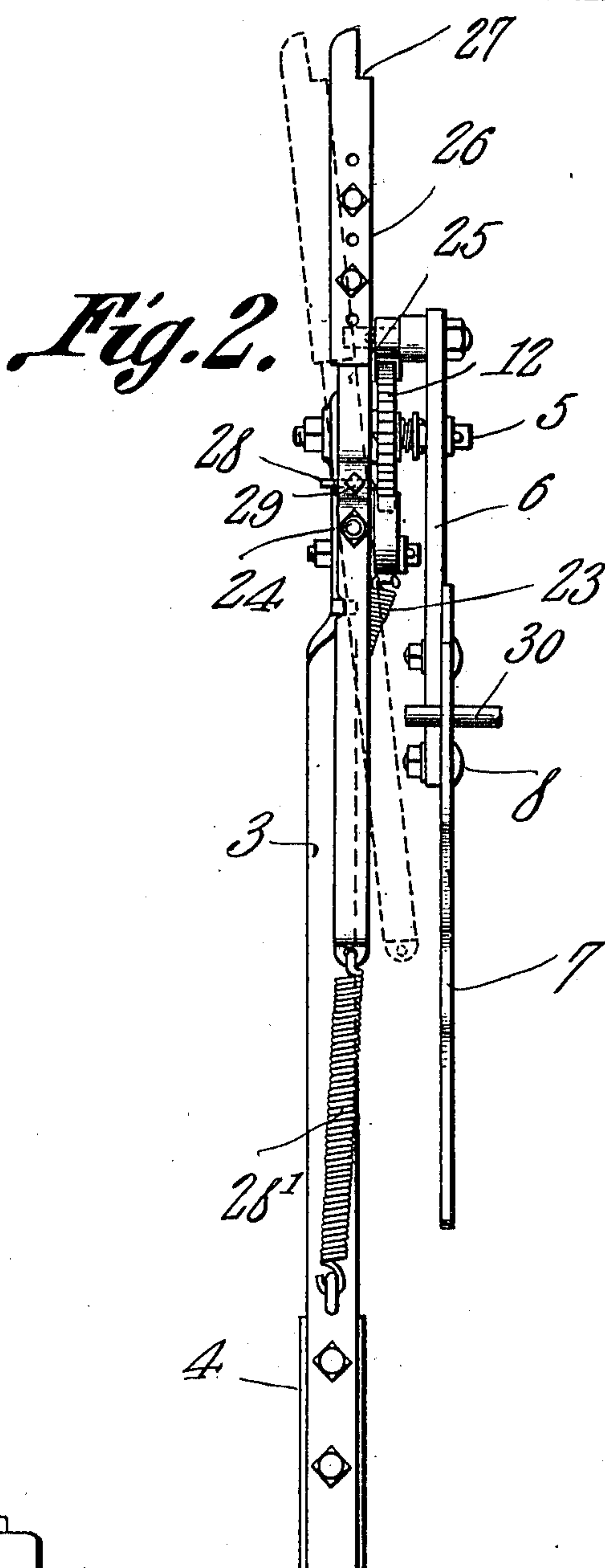
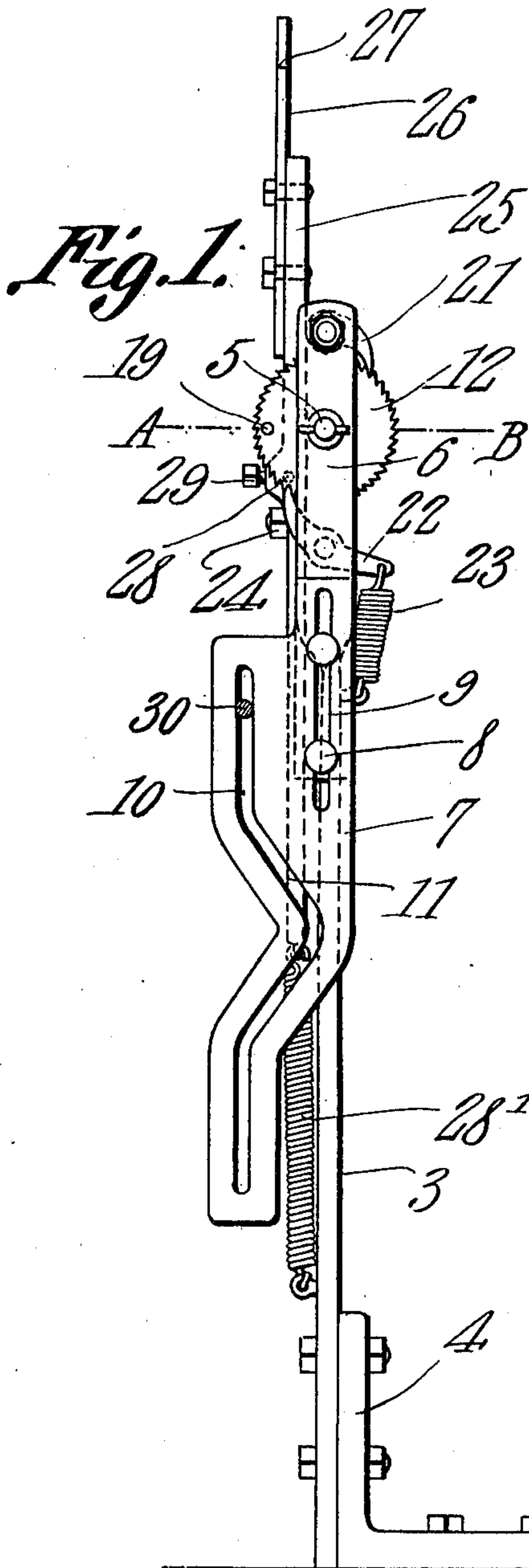


G. R. KINDRICK.
SLUBBER, INTERMEDIATE, AND FINE FRAME DOFF GOVERNOR.
APPLICATION FILED MAR. 31, 1910.

970,060.

Patented Sept. 13, 1910.

2 SHEETS—SHEET 1.



Witnesses

E. J. Hunt
F. J. Chapman

George R. Kindrick Inventor

By *Cashow & Co.* Attorneys

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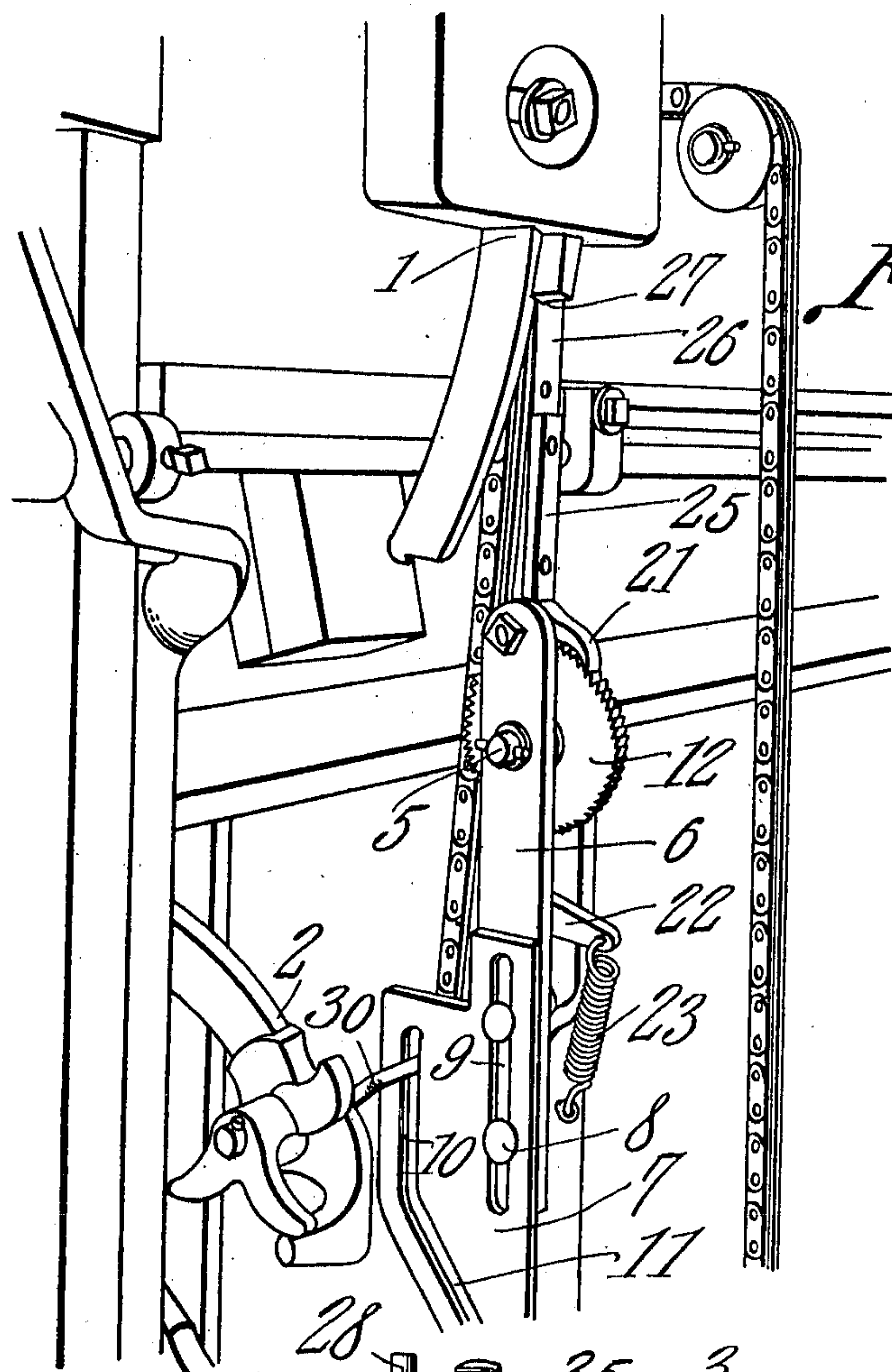


Fig. 3.

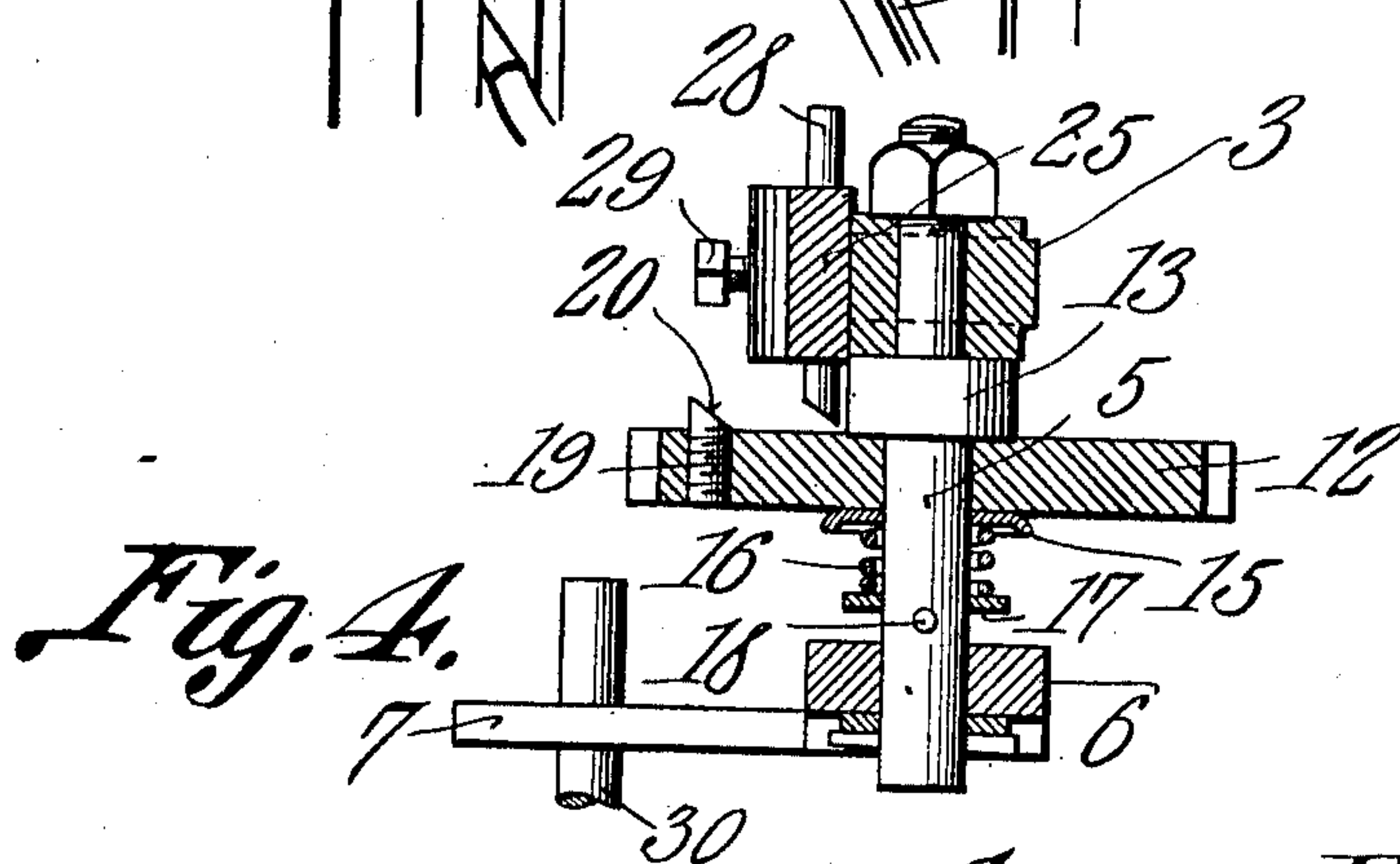


Fig. 4.

Witnesses

E. J. Chapman
J. J. Chapman

George R. Kindrick
Inventor.

by

C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

GEORGE ROBERT KINDRICK, OF SPRAY, NORTH CAROLINA.

SLUBBER, INTERMEDIATE, AND FINE FRAME DOFF-GOVERNOR.

970,060.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed March 31, 1910. Serial No. 552,614.

To all whom it may concern:

Be it known that I, GEORGE R. KINDRICK, a citizen of the United States, residing at Spray, in the county of Rockingham and State of North Carolina, have invented a new and useful Slubber, Intermediate, and Fine Frame Doff-Governor, of which the following is a specification.

This invention has reference to improvements in doff governors being designed to cause the same sized bobbins to be produced on every doff and on all frames of the same size which run the same hank roving. This results in causing the succeeding frame to creel evenly though roving may be used from several preceding frames in one creel.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings forming a part of this specification, in which drawings,—

Figure 1 is an elevation of the governor forming the subject matter of the present invention. Fig. 2 is an elevation of the structure shown in Fig. 1 but viewed from a position at right angles to the showing of Fig. 1. Fig. 3 is a perspective view of the upper portion of the governor with so much of a slubbing machine as is necessary to show the relation of the governor thereto. Fig. 4 is a section on the line A—B of Fig. 1 but drawn to a larger scale.

A portion of a slubbing machine is illustrated in Fig. 3, but the only part which need be referred to is the knock-off lever 1 of the slubber and a reciprocating member 2. These are common parts of existing machines and need no description.

The governor forming the subject matter of the present invention is a structure designed to be secured by screws or bolts to the floor or a suitable support beneath the frame of the slubber so as to hold the knock-off lever of the slubber against action except at predetermined times when such lever is released automatically.

The governor comprises an upright frame or standard 3 which may be formed with or have secured to it a foot or base 4 designed to be attached to the floor upon which the frame of the slubber is supported. Near the upper end of the frame or standard there is secured an arbor 5 having mounted on the end remote from the standard a lever 6 to the lower end of which is secured a plate 7 by means of bolts 8 extending

through a slot 9 in the plate so that the plate 7 may be secured in any position of longitudinal adjustment with relation to the lever 6 permitted by the length of the slot 9 and the position of the bolts 8. The plate 7 is provided with an elongated slot 10 having an angular portion 11 displaced to one side of the longitudinal plane of the slot so that the end portions of the slot are in line one with the other while the intermediate portion is composed of two like angularly related parts merging into the end portions of the slot and meeting immediately.

Mounted on the arbor 5 is a ratchet wheel 12 held on the arbor between a collar 13 and washer 15 which latter is held against one face of the ratchet wheel 13 by a spring 16 surrounding said arbor and held in place by a washer 17 and pin 18 which latter traverses the arbor. By this means the ratchet wheel 12 is held against accidental movement on the arbor but may be rotated thereon by the application of a suitable power. The ratchet 12 carries a pin or stud 19 having a beveled end 20 projecting beyond one face of the ratchet wheel near the periphery thereof.

The upper end of the lever 6 extends above the arbor 5 for a sufficient distance and there carries a pawl 21 shown as a gravity pawl, but it will be understood that if desired this pawl may be urged actively by a suitable spring. The pawl 21 is in operative relation with the teeth of the ratchet wheel 12 so that when the lever 6 is turned about the arbor 5 in one direction the pawl will engage the wheel 12 and rotate it a suitable distance and when the lever 6 is rocked in the other direction the pawl will ride idly over the teeth of the ratchet wheel.

Mounted on the post or support 3 is a pawl 22 in position to engage the teeth of the ratchet wheel 12 and operate as a back-stop pawl therefor. This pawl is under the normal control of a spring 23 one end of which is attached to the pawl at the end remote from that engaging the ratchet wheel and the other end of the spring is attached to the post or support 3. Pivoted to the post or support 3 by means of a pivot pin or bolt 24 is a lever 25 extending upward above the top of the post or support 3 and there carrying an adjustable member 26 having a shoulder 27 at its upper end, the

said member 26 being adjustable longitudinally of the lever 25. The other end of the lever is under the normal control of the spring 28 fast at one end to the lower end of the lever and at the other end to the post or support 3, the tendency of the spring being to maintain the lever 25 in substantial alignment with the post or support 3. The lever 25 carries a pin 28 having one end beveled for engagement with the beveled end 20 of the stud 19 and this pin is held to the lever 25 by a set screw 29 so as to be readily adjusted to different positions.

The relation of the pin 28 to the stud 19 is such that at every revolution of the ratchet wheel 12 the stud 19 will ride against the beveled end of the pin 28 and so force the shoulder end of the lever extension 26 to one side, the pin 28 being on the same side of the pivot bolt or pin 24 as is the shoulder 27.

The movable member 2 of the machine carries a pin 30 engaging in the slots 10, 11. So long as the pin 30 is at either end of the slot 10 the plate 7 and with it the lever 6 is held in the inactive position but as soon as the pin reaches one inclined portion 11 of the slot 10 then the plate 7 and the lever 6 are turned about the arbor 5 as a pivot in a direction, considering the pin 30 to be moving downward from the upper end of the plate, to cause the pawl 21 to actively engage the ratchet wheel 12 and turn the same a distance equal to the length of one tooth and as soon as the other portion 11 of the slot is reached the lever 6 is returned to its original position, the pawl 21 riding idly over the teeth of the ratchet wheel.

In the operation of the machine to which the attachment of the present invention is applied the member 2 reciprocates through a vertical path, and there is caused the winding of a layer upon a bobbin on each movement of the member 2 in either direction. The winding of the material on the bobbin continues so long as the weight member 1 is in the elevated position and when this member drops the winding ceases.

With the attachment forming the subject matter of the present invention the weight member 1 is upheld by engagement with the shoulder 27 of the extension 26 of the lever 25, this shoulder overriding the weight. On each complete movement of the pin 30 in either direction with the member 2 the ratchet wheel 12 is moved a distance of one tooth and this movement continues until the pin 19 is brought into engagement with the pin 28 when the lever 25 is moved by the cam action of the beveled end 20 of the stud 19 with the beveled end of the pin 28 and the shoulder 27 is moved from under the weight member 1 and the latter falls, thus throwing off or stopping the winding of the material on the bobbins. Since the

ratchet 12 is moved a distance of one tooth for each layer produced upon the bobbins and since the ratchet wheel must make one complete rotation in order to cause a movement of the lever 25 sufficient to carry the shoulder 27 from engaging relation to the weight member 1, it follows that the number of layers produced on a bobbin will depend upon the number of teeth in the ratchet wheel 12. By varying this number of teeth and correspondingly varying the throw of the lever 6 the ratchet wheel 12 may be given a complete rotation on a lesser or greater number of oscillations of the lever 6 and a correspondingly lesser or greater number of layers will be produced on the bobbins. By this means there will always be produced on the bobbins a predetermined number of layers and therefore the succeeding frame will creel evenly though the roving be used from several preceding frames in the one creel.

The doff governor after having been once applied and adjusted needs no further attention and does not require winding or setting since it works entirely automatically. The power required to operate it is so small as to be unnoticeable in the operation of the machine. In order to reset the device it is only necessary to elevate the weight member 1 when the shoulder portion 27 of the extension 26 of the lever 25 will move under the weight member in engaging relation thereto, being constrained to this movement by the spring 28.

The doff governor, being driven exclusively by the carriage is independent of changes caused by fractional variations in the weight of the material treated, or by weather or other conditions.

What is claimed is:—

1. A doff governor comprising an upright standard or support, a lever mounted at the upper end thereof and adapted to retain a throw-off mechanism in operative position, a ratchet wheel carried by the standard below the pivot point of the lever, a projecting member on the ratchet wheel adapted to cause a movement of the lever to release the throw-off mechanism, a pawl lever on the standard below the ratchet wheel for actuating the latter step by step, and means on the pawl lever responsive to reciprocatory movement to rock said pawl lever.

2. In a device of the character described, a standard or support, an upholding member thereon adapted to retain a throw-off mechanism in operative position, a ratchet wheel carried by the standard, a projecting member on the ratchet wheel adapted to cause the upholding member to release the throw-off mechanism, a pawl lever on the standard for actuating the ratchet wheel step by step, and a member on the pawl lever having an elongated slot with a lateral di-

vergence and a reciprocatory member engaging said slot and imparting a rocking movement to the pawl lever by its travel along said slot.

5 3. In a device of the character described, a standard or support, an upholding member thereon adapted to retain a throw-off mechanism in operative position, a ratchet wheel carried by the standard, a projecting
10 member on the ratchet wheel adapted to cause the upholding member to release the throw-off mechanism, a pawl lever on the standard for actuating the ratchet wheel step by step, an adjustable slotted plate on
15 the pawl lever with the slot elongated and provided with a central lateral divergence, and a reciprocatory member engaging the slot and operating to cause a rocking of the pawl lever.

20 4. In a device of the character described, a standard or support, a lever mounted thereon and constrained toward one position, said lever being provided at one end

with a shoulder, a ratchet wheel on said standard provided with a projecting member adapted to engage the lever and move the same against its constraining means, another lever mounted on the standard and provided with a pawl in operative relation to the ratchet wheel, and a slotted member
25 adjustable lengthwise of the lever and carried thereby, the slot in said member being elongated in the direction of the length of the member and provided with a lateral divergence, and a reciprocatory member
30 adapted to said slot and operating to rock the lever on movement lengthwise of said slot along the side divergence of said slot.
35

In testimony that I claim the foregoing as my own, I have hereto affixed my signature
40 in the presence of two witnesses.

GEORGE ROBERT KINDRICK.

Witnesses:

J. F. P. JONES,
DORSIE W. JONES.