W. KAISLING.

GOVERNOR FOR CALLING DEVICES.

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1,371,248.

Patented Mar. 15, 1921.

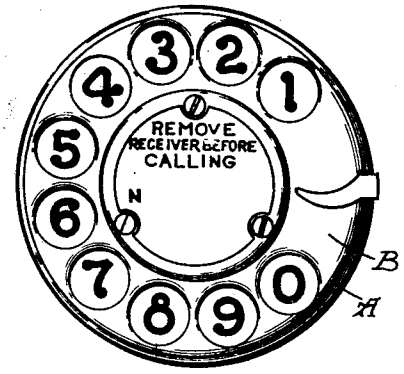

Fig. 1.

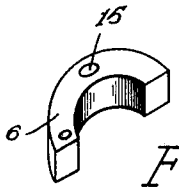

Fig. 5.

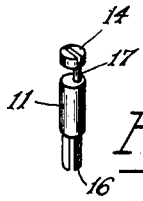

Fig. 6.

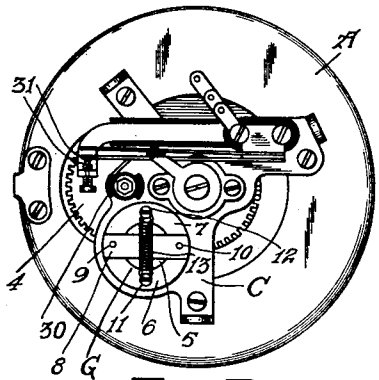

Fig. 2.

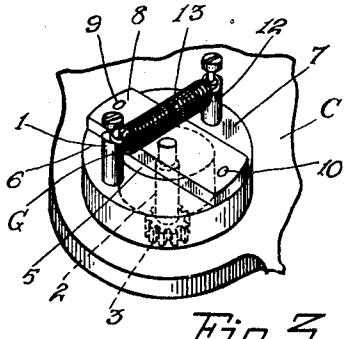

Fig. 3.

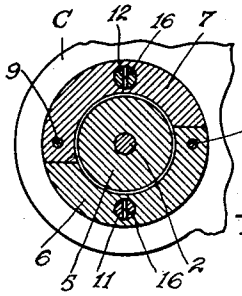

Fig. 4.

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UNITED STATES PATENT OFFICE.

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GOVERNOR FOR CALLING DEVICES.

1,371,248. Specification of Letters Patent. Patented Mar. 15, 1921.

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To all whom it may concern:

Be it known that I, WILLIAM KAISLING, a citizen of the United States of America, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Governors for Calling Devices, of which the following is a specification.

My invention relates to governors, and has to do more particularly with governors for use in connection with automatic calling devices, such devices as are commonly employed in automatic and semi-automatic telephone systems for controlling the automatic switches which are located at the central office and are used for establishing connections between calling and called subscribers' lines.

In the accompanying drawings, I have illustrated my governing device connected to an automatic calling device, but it is to be understood that I do not wish to limit its use to such as it is adapted for use in connection with many other devices. This application is a divisional application of Letters Patent No. 1,262,352 for Calling devices, issued April 9, 1918.

In the present automatic telephone systems in use, especially those commonly known as two-wire systems, it is necessary to maintain the speed of the calling device constant as a slight change of the speed of the device will affect the slow-acting relays at the central office, causing an incorrect operation of the same.

One of the objects of my invention is to provide a governing device which may readily be adjusted without the use of specially designed adjusting tools, and which when once adjusted remains in such adjustment. My invention embodies all desirable features and advantages in a simple, efficient and economical manner; these features and advantages will be more clearly brought out in the ensuing specification and in the appended claims.

Referring now more particularly to the accompanying drawing in which I illustrate the governor device in the different views operatively associated with a calling device, and in which views like reference characters indicate like parts, and in which—

Figure 1 is a face view of the calling device;

Fig. 2 is a rear view of Fig. 1;

Fig. 3 is a perspective view of the governor mechanism;

Fig. 4 is a sectional view of the governor mechanism;

Fig. 5 is a perspective view of the governor weights, and

Fig. 6 is a perspective view of one of the tension adjusting pins of the governor.

As my invention relates more particularly to the governing device, a full description of the mechanism and operation of the calling device shown in the accompanying drawings will not be given, but only such description as is necessary for a full and complete understanding of the governor mechanism, reference being had to the said United States Letters Patent mentioned if a more complete description of the operation of the calling device is desired.

Referring now more in detail to my invention as illustrated, the calling device associated with the governor mechanism comprises a main mounting plate A which supports the calling device mechanism, a fingerhold actuating member B, and a bridge plate C for supporting parts of the calling device.

The governor mechanism G comprises the shaft 2 which has a pinion 3 formed integrally with it, the said pinion meshing with the gear wheel 4 of a train of gearings which operatively connects the governing mechanism to the motive power of the calling device. A member 5 is staked to the bridge plate C and serves as a bearing for the shaft 2 and also as a bearing surface for the weighted members 6 and 7. The weighted members 6 and 7 of the governor are pivotally supported on the bridge plate 8 by means of the pivot pins 9 and 10. The opposite end of the governor shaft 2 is threaded and has screw-threaded engagement with the said bridge plate 8, thus rotatably securing the governor mechanism as

a whole to the bridge plate C. Adjustment pins 11 and 12 are provided in conjunction with the coiled spring 13 to regulate the speed at which the governor G returns to normal, thereby governing the speed at which the calling device transmits impulses. In describing the governor adjusting pins, I will describe the adjusting pin 11 only, which is provided with a slotted head 14, so that it may be turned after it has been inserted into the circular orifice 15 of the weighted member 7. The end 16 of the pin 11 is slotted and then spread so that when the pin is in place in the opening 15 and in a certain position, it will stay so positioned due to its frictional engagement with the inner surface of the orifice 15. A portion of the body of the pin is eccentrically disposed forming the eccentric portion 17 over which one loop of the coiled spring 13 rests. By turning the adjusting pins 11 and 12, the tension of the spring 13 may be lessened or increased, thereby decreasing or increasing the speed of the governor mechanism.

Now when the member B is operated in a clockwise direction to set the calling device to transmit a certain number of impulses, and upon the return movement of the member B, and through the medium of the train of gearing the motion is transmitted to the governor mechanism G. The weighted members 6 and 7 that are pivotally secured upon the pivot pins 9 and 10 of the bridge plate 8, which is rotated upon the return movement of the dial, are forced out by centrifugal force against the tension of the coiled spring 13 by the rotation of the dial. The forcing out of the free ends of the weighted members causes the pivoted ends of the members 6 and 7 to be forced against the member 5 and, due to the engaging surfaces of the members 6 and 7 being in close proximity to the fulcrum of the weighted members 6 and 7, the weight of said members is multiplied in assisting the engaging surfaces of the weighted members to remain in frictional engagement with the periphery of the member 5 against the tension of the coiled spring 13.

Now should it be desired that the device be operated at a speed so as to transmit say ten impulses in one and one-half seconds, the adjusting pins 11 and 12 are turned until eccentric portions 17 are at their lowest point so that the loops of the coiled spring 13 rest upon the lowest point of the eccentric and in this position the spring 13 is under the least tension so that upon the return movement of the device the weighted members 6 and 7 are more easily acted upon by the centrifugal force, causing the inner engaging surfaces of the weighted members to be more firmly held in frictional engagement against the periphery of the member 5.

Now, if it is desired to speed up the device, that is, the speed at which the cam 30 operates the impulse contacts 31, the adjusting pins 11 and 12 are turned causing the loops of the spring 13 to ride upon the eccentric until said eccentric is at its highest point and in this position the eccentric portion of the pins increases the tension of spring 13, thereby decreasing the force acting upon the members 6 and 7 so that the frictional engagement of the members 6 and 7 on the periphery of the member 5 is not as great as in the former case, thus permitting the speed of the return movement to be increased whereby a much shorter period for each impulse is obtained.

While I have illustrated and described my invention operating in connection with a certain type of automatic calling device, I do not wish to be limited to the same as my invention can be adapted to coöperate in conjunction with other devices, and changes and modifications may readily suggest themselves to one skilled in the art. Therefore, I do not wish to be limited to the exact structure as shown, but aim to cover all such changes and modifications as come within the spirit and scope of the appended claims.

Having described my invention what I claim as new and desire to secure by United States Letters Patent is:

1. A governing device of the class described including a rotatable shaft, a mounting strip attached to said shaft, a weighted member pivotally secured to said mounting strip, a stationary cylindrical drum adapted to be frictionally engaged by said weighted member, said weighted member partially encircling said drum, a pin provided with an eccentrical portion, a spring having its one end attached to the eccentrical portion of said pin holding said weighted member in normal position when said shaft is quiescent, said pin being adjustable to regulate the tension of said spring on said weighted member.

2. A governing device of the class described including a rotatable shaft, a mounting strip attached to said shaft, a weighted member pivotally secured to said mounting strip, a stationary cylindrical drum adapted to be frictionally engaged by said weighted member, a pin frictionally held in an orifice in said weighted member and provided with an eccentrical portion, a spring having its one end attached to the eccentrical portion of said pin holding said weighted member in normal position when said shaft is quiescent, said pin being adjustable to regulate the tension of said spring on said weighted member.

3. A device of the character described including a cylindrical member, a rotatable shaft extending through an orifice in said cylindrical member, a bridge piece secured

to one end of said shaft, a pair of weighted members pivotally secured to said bridge piece, said weighted members being normally out of engagement with said cylindrical member, adjustable spring means for said weighted members and means secured to the other end of said shaft to rotate said weighted members, thereby causing said weighted members to frictionally engage said cylindrical member to regulate the speed of rotation of said shaft.

4. A governing device including a rotatable shaft, a cylindrical drum provided with a circular orifice through which said shaft extends and which forms a bearing for said shaft, a bridge piece secured to said shaft, a weighted member normally out of engagement with said drum and pivotally secured to said bridge piece, adjustable spring means for said weighted member, and driving means for rotating said shaft, thereby causing the said weighted member to frictionally engage the outer peripheral surface of said cylindrical drum.

5. A governing device of the character described, including a cylindrical drum, a rotatable shaft extending through said drum and having attached at one of its ends a mounting piece, a pair of semi-circular weighted members secured to said mounting piece, said weighted members encircling said cylindrical drum and normally engaging each other to prevent the free ends thereof from engaging said cylindrical drum, spring means for holding said members out of engagement with said drum, and driving means associated with the opposite end of said shaft for rotating the same, thereby causing said weighted members to turn about their pivot points to frictionally engage said cylindrical drum to regulate the speed of rotation of said rotary shaft.

6. A governing device of the character described, including a stationary cylindrical member, a mounting plate, a pair of weighted members pivotally secured to said mounting plate and encircling said cylindrical drum, a pin secured to each of said weighted members, a coiled spring extending from one of said pins to the other of said pins to hold said weighted members in normal position, and means for rotating said mounting plate, thereby causing the said weighted members to turn about their pivoted points under the action of centrifugal force causing the inner ends of said weighted members to frictionally engage said cylindrical drum to regulate the speed of rotation of said mounting plate, and means for adjusting the tension of said spring.

7. A governing device of the character described, including a stationary cylindrical member, a mounting plate, a pair of weighted members pivotally secured to said mounting plate and encircling said cylindrical drum, an adjustable pin provided with an eccentric portion for each of said weighted members, a coiled spring having its opposite ends connected to the eccentric portions of said pins, said pins being adapted to be rotatable, whereby the tension of said spring may be changed to change the speed of rotation of said device.

8. A governing device of the character described, including a stationary cylindrical drum, a mounting plate, a pair of weighted members pivotally secured to said mounting plate and encircling said cylindrical drum, an orifice in each of said weighted members, an adjustable pin for each of said weighted members having its one end split so that when it is inserted in the orifice in its associated weighted member its bifurcated end portions will frictionally engage the wall of said orifice, a spring attached to said adjustable pins, and means for rotating said pins to change the tension of said spring.

9. A governing device of the character described including a cylindrical drum, a rotatable shaft to which is attached a mounting piece, a semi-circular weighted member pivotally secured at its one end to said mounting plate and partially encircling said cylindrical drum, a spring having its one end connected to said weighted member, said spring normally tending to cause said weighted member to engage said cylindrical drum but prevented therefrom by said weighted member engaging another member, means for rotating said shaft, whereby the free end of said weighted member turns about its pivot point through the action of centrifugal force, thereby causing its opposite end to frictionally engage said cylindrical drum to regulate the speed of rotation of said rotary shaft, and means for adjusting the tension of said spring.

10. A governing device of the character described including a cylindrical drum, a rotatable shaft to which is attached a mounting piece, a semi-circular weighted member pivotally secured at its one end to said mounting plate and partially encircling said cylindrical drum, a spring having its one end connected to said weighted member, means for rotating said shaft, whereby the free end of said weighted member turns about its pivot point through the action of centrifugal force, thereby causing its opposite end to frictionally engage said cylindrical drum to regulate the speed of rotation of said rotary shaft, and means including rotatable pins provided with eccentrical portions for adjusting the tension of said spring thereby regulating the speed of rotation of the said rotary shaft.

11. A device of the character described, including a circular drum, an orifice extending through said drum, a rotary shaft extending through said orifice, said drum

forming a bearing for said shaft, a weight carrying piece attached to said shaft, a weighted member pivotally secured to said weight carrying piece, a rotatable pin secured to said weighted member and provided with an eccentric portion, a spring having its one end secured to said eccentric portion for holding said weighted member in its normal position, means for rotating said rotary shaft to cause said weighted member to frictionally engage the outer peripheral surface of said drum thereby regulating the speed of rotation of said rotary shaft, and means for rotating said eccentric pin to adjust the tension of said spring.

12. A device of the character described including a circular drum, an orifice in said circular drum, a rotatable shaft extending through said orifice, a mounting member secured to said shaft, a pair of semi-circular weighted members pivotally secured to said mounting member encircling said drum and having their extremities in engagement to prevent them from engaging said drum while they are quiescent, spring means for yieldingly holding said weighted members in their normal position, and rotary means for rotating the said shaft thereby causing the said weighted members to turn about their pivot points against the tension of said spring to engage the said circular drum.

13. A device of the character described including a circular drum, an orifice in said circular drum, a rotatable shaft extending through said orifice, a mounting member secured to said shaft, a pair of semi-circular weighted members pivotally secured to said mounting member encircling said circular drum and having their extremities in engagement to prevent them from engaging said drum while they are quiescent, spring means for yieldingly holding said weighted members in their normal position, a pair of rotatable members secured to said weighted members and provided with eccentrical portions to which said spring means is attached whereby said rotatable members may be rotated to adjust the tension of said spring means, and means for rotating said rotary shaft to cause said weighted members to frictionally engage the peripheral surface of said drum to regulate the speed of rotation of said rotary shaft.

Signed by me at Chicago, in the county of Cook and State of Illinois, this 12th day of February, 1918.

WILLIAM KAISLING.