

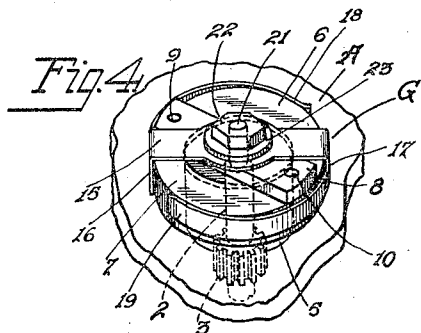
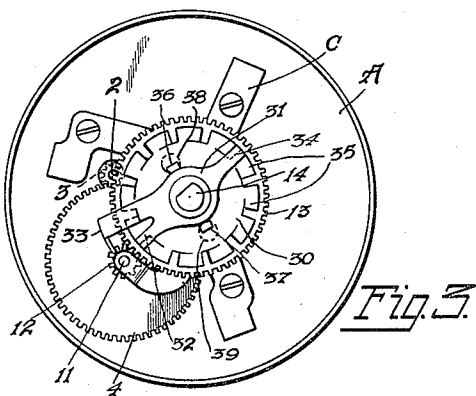
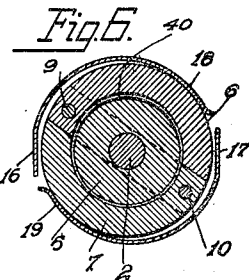
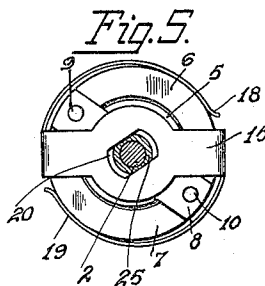
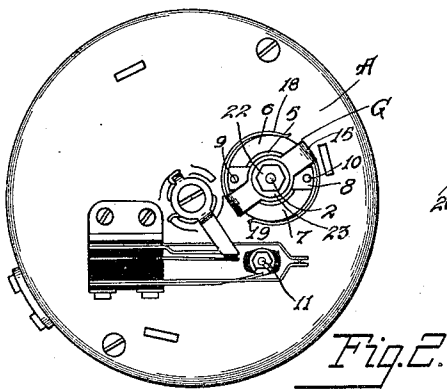
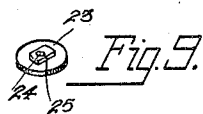
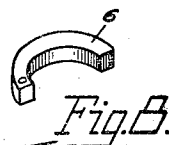
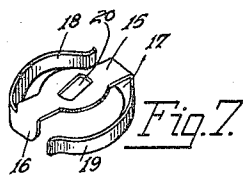
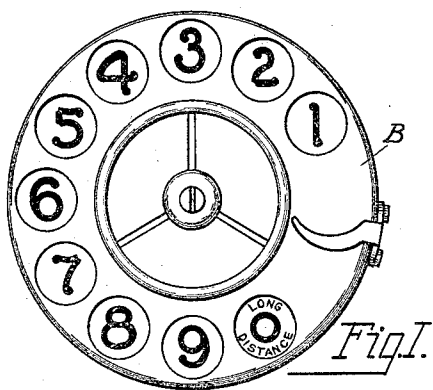
July 3, 1923.

1,460,907

H. H. IDE

GOVERNOR

Filed Aug. 25, 1920



Inventor:
Harry H. Ide.
By Curtis S. Camp,
Attorney.

UNITED STATES PATENT OFFICE.

HARRY H. IDE, OF LA GRANGE, ILLINOIS, ASSIGNOR TO KELLOGG SWITCHBOARD AND SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

GOVERNOR.

Application filed August 25, 1920. Serial No. 405,980.

To all whom it may concern:

Be it known that I, HARRY H. IDE, a citizen of the United States of America, residing in La Grange, county of Cook and State of Illinois, have invented certain new and useful Improvements in Governors, of which the following is a specification.

My invention relates to speed governors and has to do more particularly with governors for use in connection with automatic calling devices, such 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.

For the purpose of illustrating my invention, I have shown my governor 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.

In the present automatic telephone systems of the two-wire type, it is necessary to maintain the speed of the calling device constant, and any slight change in speed of the device will affect the apparatus at the main exchange, causing an incorrect operation of the same.

An object of my invention is to provide a governing device which may be readily adjusted without the use of special tools, and which when once adjusted remains in such adjustment and maintains the speed of the calling device constant.

The governing device of my invention embodies desirable features and advantages in a simple, efficient and economical manner, and these features will be more fully described in the ensuing specification.

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

Fig. 1 is a face view of the calling device.
Fig. 2 is a rear view of Fig. 1.

Fig. 3 is an interior view of the calling device showing the mechanism of the same.

Fig. 4 is a perspective view of the governor mechanism.

Fig. 5 is a sectional view of the governor mechanism.

Fig. 6 is another sectional view of the governor mechanism.

Fig. 7 is a perspective view of the tension spring of the governor.

Fig. 8 is a perspective view of one of the governor weights, and

Fig. 9 is a perspective view of one of the pieces of my governor.

As my invention relates particularly to the governing mechanism, a full description of the mechanism of the calling device and operation of the same, illustrated in the accompanying drawing will not be given, but only such description as is necessary for a full and complete understanding of the governor mechanism. For a more complete understanding of the calling device reference may be had to my co-pending application S. N. 372,525, filed April 9, 1920. The present application is a continuation in part of said co-pending application.

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 finger hold actuating member B, and a bridge plate C for supporting parts of the calling device.

The governor mechanism comprises a shaft 2 which has a pinion 3 formed integrally with it, the said pinion 3 meshing with a gear wheel 4 of a train of gearing which operatively connects the governing mechanism to the motive power of the calling device. A member 5 is staked to the main mounting plate A and serves as a bearing for the shaft 2 and also as a braking surface for the weighted members 6 and 7 of the governor mechanism. The weighted members 6 and 7 of the governor are pivotally supported on a mounting plate 8 by means of the pivot pins 9 and 10. The end of the governor shaft 2 is threaded and has screw threaded engagement with a suitable tapped orifice in the mounting plate 8, to thus rotatably secure the governor mechanism as a whole to the mounting plate A.

The pinion 3 on the governor shaft 2 meshes with a gear wheel 4 upon the shaft 11, which shaft 11 has in turn a pinion 12 integrally formed with it. The pinion 12

upon the shaft 11 meshes with a gear wheel 13 upon the main shaft 14, and this train of gearing thus outlined connects the governor mechanism G with the main shaft 14. A plate 15 of comparatively thin metal is provided and, formed integrally with the plate 15, are angular downwardly extending portions 16 and 17 provided with arcuate spring arms 18 and 19. The plate 15 is provided with a rectangular shaped slot 20, through which the threaded end 21 of the shaft 2 projects when the said plate 15 is in place, as illustrated in Fig. 4. The spring arms 18 and 19 engage respectively the weighted members 6 and 7, and the said plate is held in place by means of a nut 22 which has screw-threaded engagement with the threaded end 21 of the shaft 2. A member 23 is provided and has an orifice 24 of a size to permit it being slipped over the threaded end portion 21 of the shaft 2, and rests between the plate 15 and the nut 22. The member 23 is provided with a shoulder portion 25 which fits down into the slot 20 of the plate 15. The shoulder portion 25 of the member 23 is such as not to permit rotation of the plate 15 relative to the member 23, but to permit only lateral movement of the plate 15 relative to the member 23. The shoulder portion 25 of the member 23 is slightly greater in thickness than the plate 15 so that when the nut 22 is tightened, the plate 15 is held against rotation but not against lateral movement, for purposes as will presently be described.

The governor mechanism G is operatively associated with the train of gearing before mentioned, and when the finger hold actuating member B is rotated in a clockwise direction to set the calling device to transmit a certain number of impulses, the gear 13 and floating ratchet 30, which are loosely mounted upon the main shaft 14, remain stationary, while the shaft 14 and dog 31 are operated in a clockwise direction so that the arms 32, 33 and 34 ride over the wings 35 of the floating ratchet 31 until the arms 32 and 34 rest in the desired wing 35 of the floating ratchet 30. Upon the return movement of the finger hold actuating member B the shaft 14 and dog 31, all of which are secured to the shaft 14, also return therewith and as the arms 32 and 34 of the dog 31 now engage the desired wing 35 of the ratchet 30, the said ratchet is rotated in a clockwise direction, and due to depending arms 36 and 37 of the ratchet 30 extending into orifices 38 and 39 in the gear wheel 13, the said gear wheel 13 is rotated therewith, and through the medium of the train of gearing, the motion is transmitted to the governor mechanism G. The shaft 2 of the governor mechanism is now rotated, as is also the mounting member 8, which is secured to the shaft 2, and due to the fact that the weighted

members 6 and 7 are pivotally secured to the mounting member 8, they are forced out by centrifugal force against the tension of the spring arms 18 and 19. The forcing out of the free ends of the weighted members 6 and 7 causes the pivoted ends of the members 6 and 7 to be forced against the peripheral surface 40 of the member 5, and due to the engaging surfaces of the weighted members 6 and 7 being in close proximity to the fulcrum of the weighted members 6 and 7, the weight of the said members is multiplied in forcing the engaging surfaces of the weighted members 6 and 7 against the peripheral braking surface 40 of the member 5.

The slot 20 in the plate 15 as before mentioned permits lateral movement of the plate 5, so that should there be a slight difference of tension between the spring arms 18 and 19, it is overcome by permitting the plate 15 to move slightly either way, depending upon the tension of the said arms 18 and 19, thus equalizing the tension of the spring arms 18 and 19. The action of the tension of the spring members 18 and 19 upon the weighted members 6 and 7 may be lessened or increased to increase or decrease the speed of rotation of the calling device, and to accomplish this the nut 22 is loosened and the member 23 and plate 15 are rotated in one direction or the other, relative to the weighted members, to increase the action of the spring tension or to decrease the action of the spring tension upon the weighted members 6 and 7, whichever the case may demand. It is apparent that the relation of the free extremity of the springs 18 and 19 towards or away from the fulcrumed points of the weighted members will decrease or increase the action of the springs 18 and 19 upon the weighted members when they are rotated.

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 may be adapted to cooperate 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 Letters Patent is:

1. A device of the character described including a circular drum, an orifice through 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 en-

gement while they are quiescent, a spring secured to said mounting member having its free extremities normally in engagement with said semi-circular weighted members, said spring being adapted to be rotated relative to said mounting member to adjustably increase or decrease its action upon said weighted members.

2. A device of the character described including a brake drum, an orifice through said drum, a shaft extending through said orifice, a mounting member attached to said shaft, a pair of weighted members pivotally secured to said mounting member, a spring member normally in engagement with said weighted members and having an orifice through which said shaft protrudes, said spring member being adapted to be rotated relatively to said weighted members to increase or decrease the action of said spring member upon said weighted members.

3. A device of the character described including a brake drum, an orifice through said drum, a shaft extending through said orifice, a mounting member attached to said shaft, a pair of weighted members pivotally secured to said mounting member, a spring member having an oblong orifice through which said shaft extends, the free extremities of said spring member normally engaging said weighted members, and a member for normally preventing rotation between said spring member and said weighted members but permitting lateral movement of same relative to said weighted members.

4. A device of the character described including a brake drum, an orifice through said drum, a shaft extending through said orifice, a mounting member attached to said shaft, a pair of weighted members pivotally secured to said mounting member, a spring member having an oblong orifice through which said shaft extends, the free extremities of said spring member normally engaging said weighted members, and a member for normally preventing rotation between said spring member and said weighted members but permitting lateral movement of same relative to said weighted members so as to balance up the spring tension on the weighted members, said spring member being rotatable relative to the weighted member to adjustably increase or decrease the action of the spring member upon the weighted members.

5. A device of the character described including a brake drum, an orifice through said drum, a shaft extending through said orifice, a mounting member attached to said shaft, a pair of weighted members pivotally secured to said mounting member, a spring member provided with curved portions normally in engagement with said weighted members, said spring member having an orifice through which said rotatable

shaft extends, and a member having a depending portion adapted to fit into said orifice and abut against said mounting member to prevent rotation between said spring member and said mounting member, the orifice in said spring member being such as to permit lateral movement of the same relative to the mounting member, said spring being rotatably adjustable for increasing or decreasing the action of the spring member upon said weighted members.

6. A device of the character described including a member having a braking surface, a rotatable shaft, a mounting member attached to said shaft, a pair of weighted members attached to said mounting member for frictionally engaging the braking surface of said first member, a spring having dependent portions of the general contour of the weighted members, the free extremities of the dependent portions engaging the said weighted members, said spring also being provided with an orifice through which the said rotatable shaft extends, and a device adapted to fit onto said rotatable shaft to fit into said orifice to prevent rotation of said spring relative to said mounting member but permitting lateral movement of the same relative to said mounting member.

7. A device of the character described including a member having a braking surface, a rotatable shaft, a mounting member attached to said shaft, a pair of weighted members attached to said mounting member for frictional engagement with the braking surface of said first member, a spring having dependent portions of the general contour of the weighted members, the free extremities of the dependent portions engaging the said weighted members, said spring also being provided with an orifice through which the said rotatable shaft extends, and a device adapted to be mounted onto said rotatable shaft and to fit into said orifice to prevent rotation of said spring relative to said mounting member, said spring being adjustable relative to said weighted members to regulate the action of said spring upon said weighted members.

8. 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, said spring means comprising a spring with its extremities bent at right angles to the main portion of the spring and having the same shaped to

fit the general contour of the weighted members and engaging the weighted members, rotary means for rotating the said shaft thereby causing the weighted members to turn about their pivot points to engage the said circular drum against the tension of said spring, and means for rotating said spring to increase the action of the same upon the said weighted members.

9. 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 mounting member attached to said shaft, a weighted member pivotally secured to said mounting member, a spring having an orifice through which said shaft extends, the free extremity of said spring normally engaging said weighted member, means for rotating said shaft to cause the weighted member to frictionally engage the outer peripheral face of said drum, thereby regulating the speed of rotation of said shaft, and means for rotating said spring to adjust the action of the same upon said weighted member.

10. A governing device of the character described including a cylindrical drum, a rotatable shaft to which is attached a mounting member, a semi-circular weighted member pivotally secured at its one end to said mounting member and partially encircling said cylindrical drum, a spring having an orifice through which said shaft extends, the free extremity of said spring being bent at right angles to the body portion of the same and shaped to substantially fit the contour of said weighted member, the free extremity of said spring engaging the 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 for

rotating the said spring relative to the weighted member to adjust the spring action of the same upon the weighted member to regulate the speed of rotation of the rotary shaft.

11. A device of the character described including a circular drum, an orifice in said circular drum, a shaft extending through said orifice, a mounting member secured to said shaft, a pair of weighted members secured to said mounting member encircling said drum, a spring secured to said mounting member for engaging the periphery of said weighted members, said spring adapted to affect the movement of said weighted members when said shaft is rotated.

12. A device of the character described including a circular drum, an orifice through 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 plate encircling said drum and having their extremities in engagement while they are quiescent, a spring secured to said mounting plate having its free extremities normally in engagement with said semi-circular weighted members, said spring being adapted to be rotated relative to said mounting member to adjustably increase or decrease its action upon said weighted members.

13. A device of the character described including a drum, a rotatable shaft, a pair of weighted members encircling said drum and operatively associated with said rotatable shaft, a spring member for encircling and having its free end portions adapted to engage the periphery of said weighted members to control the movement of said weighted members when said shaft is rotated.

Signed by me at Chicago, in the county of Cook and State of Illinois, this 23rd day of August, 1920.

HARRY H. IDE.