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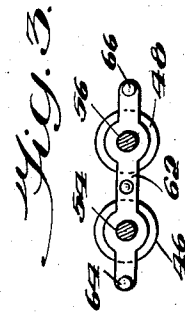
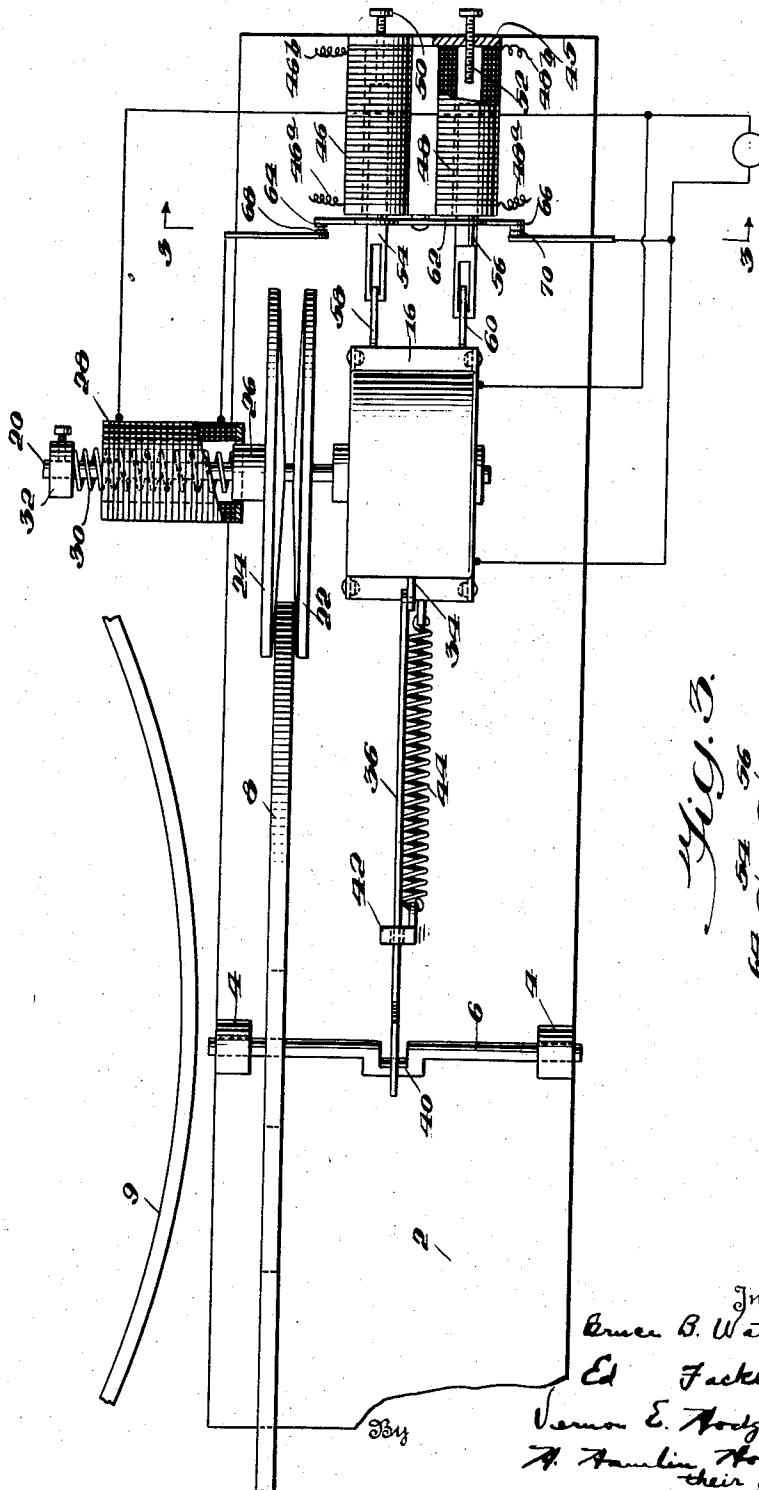
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TRAFFIC CONTROL TIME INDICATOR

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Fig. 1.



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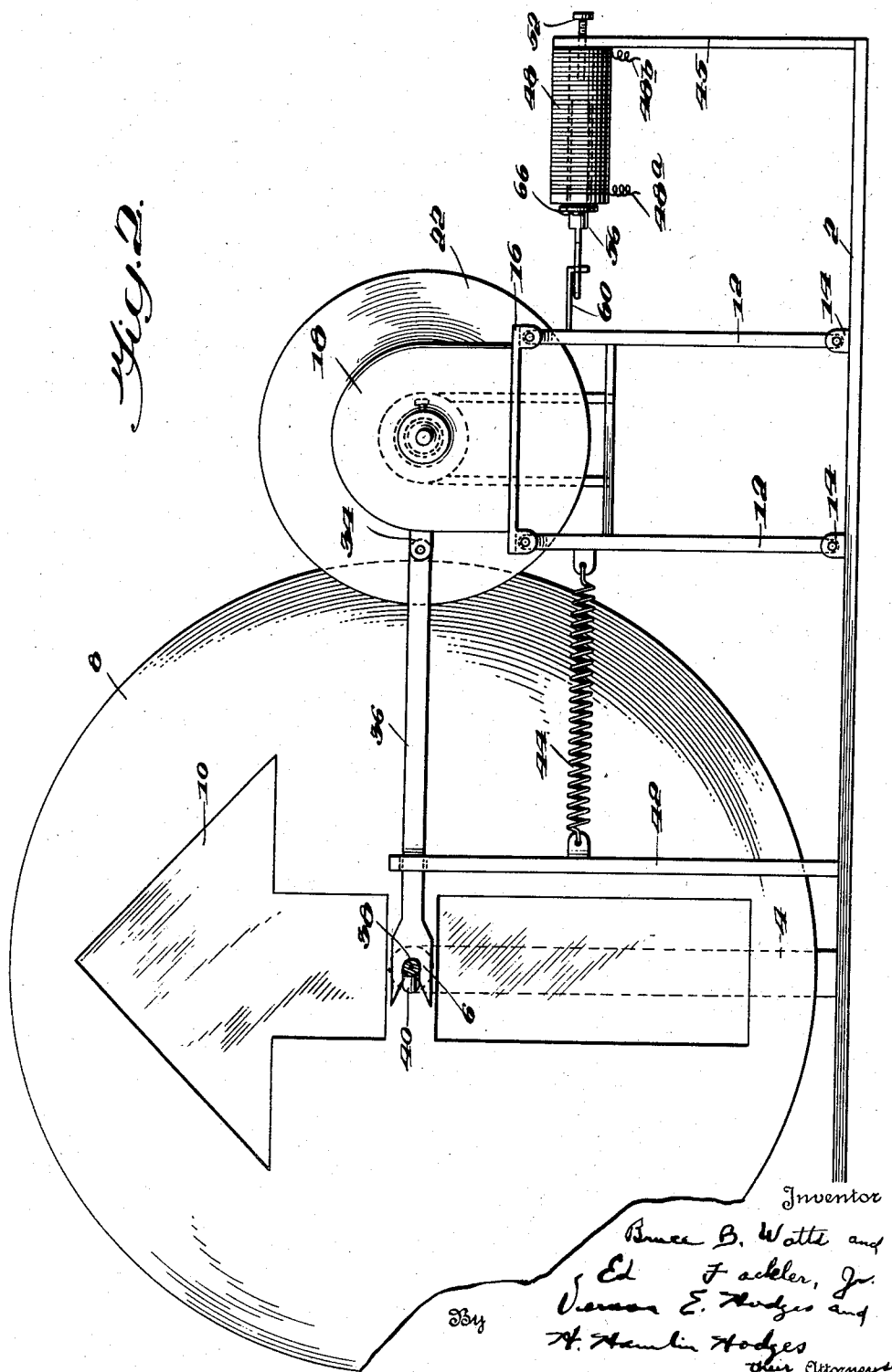
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UNITED STATES PATENT OFFICE

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TRAFFIC CONTROL TIME INDICATOR

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11 Claims. (Cl. 177—337)

Our invention relates to a device which may be used either independently of, or in conjunction with, a conventional traffic control light. Various forms of traffic light control means are commonly in use to-day, and, generally speaking, these traffic control lights include one green or "go" light, one red or "stop" light, and an amber light which will indicate a coming change from green to red, or vice versa.

It has been commonly found that vehicular and pedestrian traffic does not always start or stop promptly on the change of lights, and very often a vehicle or a pedestrian goes only as far as perhaps the middle of the light-controlled intersection at the time that the traffic light changes from green to red.

The primary object of our invention is to provide an indicating means whereby the traffic may readily become aware of the approximate length of time that the signal will remain with its instant light on before the light is automatically changed either from a "go" signal to a "stop" or vice versa.

Another object of our invention is to provide an indicating means whereby waiting traffic may accurately judge the moment when the light will change and its turn to go will commence.

A further object of our invention is to provide a time indicating device to be used in conjunction with existing traffic lights, or to be used independently thereof, to indicate the elapsed portion of time and the remaining time before a traffic light change.

A further object of our invention is to provide time indicating means for traffic control lights which may be adjusted to coordinate accurately with existing traffic control lights.

In the accompanying drawings:

Fig. 1 is a plan view;

Fig. 2 is a front elevation; and

Fig. 3 is a cross-section on the line 3—3 of Fig. 1, looking in the direction of the arrows.

Our whole device is mounted on a base 2 to which uprights 4 are attached to support, by means of suitable bearings, the shaft 6 on which the disk 8 is secured. The end of the base 2 which carries the disk 8 is adapted to be positioned suitably in front of the amber lens 9 of a conventional traffic signal, or any other source of light. The disk 8 is provided with an indicating medium 10, which may be in the form of an arrow as shown in Fig. 2, or of any other suitable shape. This disk 8 may be made of opaque material, and the arrow 10 of transparent, or the order may be reversed and the disk

be made of transparent material with the arrow opaque.

Spaced apart from the uprights 4 are legs 12 which are hingedly secured to the base 2 by means of suitable hinges 14. At the end of the legs 12 remote from the base 2, we provide a suitable motor support 16 on which a conventional constant speed motor 18 is supported.

The motor 18 is provided with an elongated shaft 20 which extends outwardly therefrom, and on which is fixedly secured a friction disk 22, which disk is adapted to frictionally engage the transparent disk 8. An additional friction disk 24 is slidably positioned on the shaft 20 and is provided with an extended metallic core 26. This core 26 is adapted to be inserted within a solenoid 28, which solenoid is adapted to pull the metallic core 26, and its associated friction disk 24, inwardly against the pressure of the coiled spring 30 at the time that the solenoid 28 is energized. The coil spring 30 is adjustable on the shaft 20 by means of the collar 32, the pressure of the coil spring being properly adjusted to afford a sufficient amount of tension to engage the friction disk 24 against the transparent disk 8 and to hold the latter against the friction disk 22 secured to the motor shaft. The motor 18 is provided with a suitable ear 34 to which is hingedly secured a stop rod 36, which is provided at the end thereof remote from the motor 18 and the ear 34 with a V-shaped notch 38 in position to engage the crank-arm 40 of the shaft 6 when that crank-arm is in the position shown in Fig. 2 with the indicating arrow 10 pointing upwardly.

A support 42 upstanding from the base 2 is in position to slidably hold the stop-rod 36 in a proper position so that the V-shaped notch thereon may be moved into and out of engagement with the crank-arm 40 as the motor 18 is moved to the right or to the left, as will be more fully described hereinafter. Attached to the stud 42 we provide a coil spring 44 which extends between the support 42 and one leg 12, supporting the motor base 16 and the motor, the tension of this spring 44 being adapted to pull the legs 12, the motor support and motor, toward the support 42 and to maintain the V-shaped notch 38 in engagement with the crank-arm 40 of the shaft 6.

On the side of the motor 18 and motor base 16 remote from the uprights 4, shaft 6 and disk 8, we provide two solenoids 46 and 48 properly positioned above the base 2 by an upright 45, the solenoid 46 being provided with a conventional

coil having electric leads 46a and 46b, which leads are adapted to be connected with the conventional traffic light green light circuit. The electric leads 48a and 48b from the solenoid 48 are adapted to be connected to conventional traffic light red light circuit. These solenoids 46 and 48 are provided with adjusting screws 50, 52, respectively, so that the amount of travel of the solenoid cores 54 and 56, respectively, may be properly adjusted for purposes of synchronizing the rotation of the disk 8 with the predetermined period of time that the red or the green light of a conventional traffic control light is adjusted to be on.

The ends of the solenoid cores 54 and 56 are provided with the slotted portion into which hooks 58 and 60 extend. These hooks 58 and 60 are properly secured to the legs 12 under the motor base 16, so that at the time that either of the solenoids 46 or 48 is energized, the motor 18 and its assembled mechanisms will be pulled slightly away from the disk 8, and also the stop rod 36 will be pulled sufficiently away from the shaft 6 so that the V-shaped notch 38 will disengage the crank-arm 40, allowing the shaft 6 to revolve. We provide a flexible armature 62 extending across the two solenoids 46 and 48 and provided at its ends with contact points 64 and 66, which contact points are in position to make contact with the contacts 68 and 70, respectively. The contact 70 is electrically connected to a source of supply of electricity, and the contact 68 is electrically connected with an end of the winding of the solenoid 28, the other end of the solenoid winding being connected with the source of supply of electricity.

Operation

In operation, our device may be positioned in front of the amber lens of a conventional traffic signal light (or any other source of light) which amber light is adjusted to be continually energized to provide a light which will pass through the transparent portion of the disk 8 or indicating media 10. At the time that the green light of the traffic control signal is energized, the solenoid 46 will be energized, and will pull the solenoid core 48 inwardly until it comes in contact with the adjustable stop 50, and the core 54 will pull against the hook 58, pulling the motor 18 and its elongated shaft 20 to a properly adjusted position for the friction disks 22 and 24 to engage the disk 8 and revolve the latter at a predetermined speed. At the same time the stop rod 36 is moved so that the V-shaped notch 38 is taken out of engagement with the crank-arm 40 to allow the shaft 6 to rotate. At the time that the solenoid core 54 is pulled inwardly by the solenoid 46, contact is broken between the contact points 64 and 68, and thereby the solenoid 28 is deenergized and the coil spring 30 pushes the metallic core 26 and the friction disk 24 toward the motor and into engagement with the disk 8. The parts will remain in this condition as long as the green light is energized by its own conventional mechanism, the rotation of the disk 8 being adjusted by the adjusting screw 50 of solenoid 46 so that the disk 8 will make one revolution during the period of time the green light is energized.

After the green light has gone "off," by operation of its own mechanism, an interval of a second or two is provided whereby the motor may be pulled back by the spring 44 to properly engage the V-shaped notch 38 and the crank arm 40 and to adjust the indicating means on the disk 8 in

the proper starting position, if by chance it is rotated either slightly too far or not far enough. After that momentary interval, the red light of the traffic control light is energized by its own mechanism and by means of its connections 48a and 48b, the solenoid 48 is energized, and its core 56 will be pulled inwardly until its engagement with the end of the adjusting screw 52. By pulling inwardly the core 56, the hook 60 on the motor 18 is pulled, and simultaneously contact points 66 and 70 are pulled apart to deenergize the solenoid 28. After this has taken place, the operation will be the same as described above, and the motor through its assembled mechanism will rotate the disk 8 through the one revolution by means of its adjusted position, which has been predetermined by setting the adjusting screw 52 of the solenoid 48.

After the red cycle of the traffic light control is completed, the indicating means 10 on the disk 8 will again be pointing upwardly, and the mechanism is in position to proceed again on the green cycle of the traffic light mechanism after a momentary pause of one or two seconds.

We claim:

1. A traffic control time indicator including a revolving disc, having indicia thereon, said disc having the double function of mounting the indicator and also serving as a mechanically engaged part of the friction drive, a motor, magnetically controlled means engaging said motor with the said disc, and magnetic circuit maker-breaker means controlling the magnetic motor engaging means.

2. A traffic control time indicator including a revolving disc, having indicia thereon, a motor, a motor shaft, a friction disc secured on said shaft, a spring-pressed friction disc slidable on said motor shaft, and a solenoid adapted to retract the said slidable friction disc, the said friction discs positioned to engage the said revolving disc near the periphery thereof.

3. A traffic control time indicator including a motor, an elongated motor shaft, a friction disc fixed to said shaft, a friction disc slidable on said shaft, a rotatable indicator disc having its peripheral edge between said friction discs, and solenoid means controlling the engagement of said sliding friction disc with the said indicating disc.

4. A traffic control time indicator including a motor, an elongated motor shaft, a friction disc fixed to said shaft, a friction disc slidable on said shaft, a rotatable indicator disc having its periphery between said friction discs, and solenoid means controlling the engagement of the friction discs with the said indicating disc.

5. A traffic control time indicator including a motor, an elongated motor shaft, friction discs mounted on said shaft, an indicator disc having its periphery between said friction discs, and solenoid means controlling the time of engagement of the indicator disc with the said friction discs.

6. A traffic control time indicator including a motor, an elongated motor shaft, friction discs mounted on said shaft, an indicator disc having its peripheral edge between said friction discs, and solenoid means attached to the traffic control circuit regulating the time of contact between the indicator disc and the friction discs.

7. A traffic control time indicator including a revolving indicator disc, a motor, an elongated motor shaft, a pair of friction discs on said shaft, one fixed and one slidable, a solenoid around one

end of said shaft, a solenoid core affixed to the slidable friction disc, two solenoids positioned laterally of the motor and shaft, circuit breakers attached to said solenoids, and hooks attached laterally to said motor in position to be engaged by the solenoid cores, the two solenoids adapted to adjust the said friction discs in position to rotate the indicator disc at proper speed.

8. A traffic control time indicator including a rotatable indicator disk, an electric motor, a movable support therefor, the motor having a shaft with fixed and slidable friction disks thereon in position to embrace the edge of the indicator disk, means for sliding the slidable disk at predetermined intervals for frictional contact with the indicator disk, and means for shifting the position of the motor and friction disks with respect to the position of the periphery of the indicator disk.

9. A traffic control time indicator including a rotatable indicator disk, an electric motor, a movable support therefor, the motor having a shaft with fixed and slidable friction disks thereon in position to embrace the edge of the indicator disk, magnetic means for sliding the slidable disk at predetermined intervals for frictional contact with the indicator disk, and magnetic means for shifting the position of the motor and friction disks with respect to the position of the periphery of the indicator disk.

10. A traffic control time indicator including a rotatable indicator disk, a rotatable shaft on which said indicator disk is mounted, said shaft

having a crank-arm thereon, a motor, a movable support on which said motor is mounted, a stop-rod hingedly connected with the motor and having a notch at one end in position to engage the crank-arm when the disk is in a certain predetermined position, a shaft driven by the motor, friction disks on said shaft in position to engage the opposite sides of the periphery of the indicating disk, magnetic means for controlling one of said disks, and magnetic means for shifting the position of the motor and the disks carried on the motor shaft.

11. A traffic control time indicator including a rotatable indicator disk, a rotatable shaft on which said indicator disk is mounted, said shaft having a crank-arm thereon, a motor, a movable support on which said motor is mounted, a stop-rod hingedly connected with the motor and having a notch at one end in position to engage the crank-arm when the disk is in a certain predetermined position, a shaft driven by the motor, friction disks on said shaft in position to engage the opposite sides of the periphery of the indicating disk, magnetic means for controlling one of said disks, magnetic means for shifting the position of the motor and the disks carried on the motor shaft, and means connected with this last-mentioned magnetic means for permitting any length interval, either the "stop" or "go" light which might be desired.

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