No. 725,857. PATENTED APR. 21, 1903.

T. H. MACDONALD.

SPEED REGULATOR AND STOP MECHANISM.

APPLICATION FILED JAN. 31, 1903.

NO MODEL.

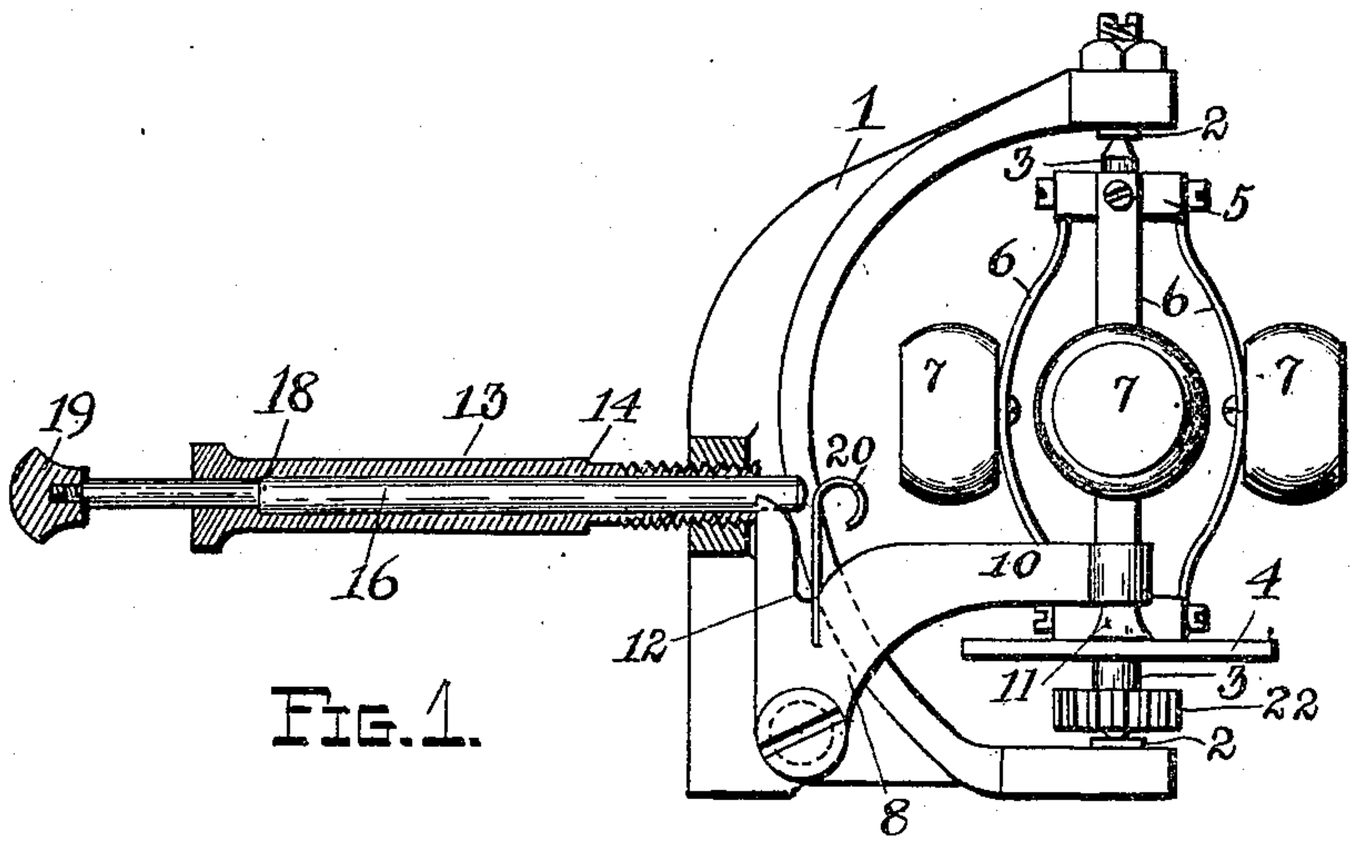

FIG. 1.

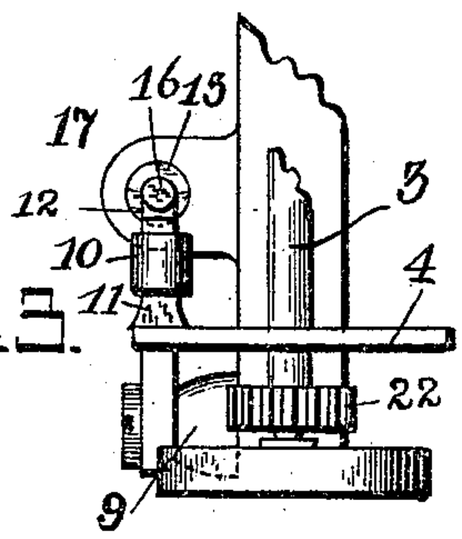

FIG. 3.

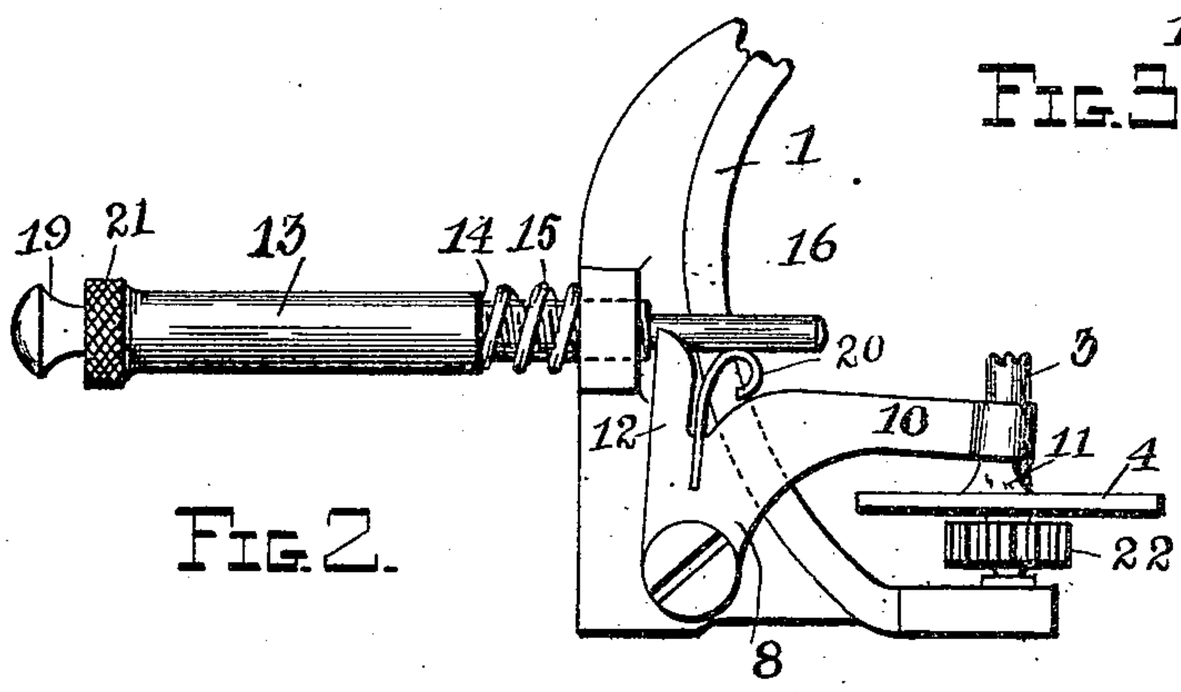

FIG. 2.

Witnesses
J. R. Thompson
Wm. B. Kerr

Inventor
Thomas H. Macdonald

By Munn Compton Davis & Co
Attorneys

UNITED STATES PATENT OFFICE.

THOMAS H. MACDONALD, OF BRIDGEPORT, CONNECTICUT.

SPEED-REGULATOR AND STOP MECHANISM.

SPECIFICATION forming part of Letters Patent No. 725,857, dated April 21, 1903.

Application filed January 31, 1903. Serial No. 141,242. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. MACDONALD, a resident of Bridgeport, Connecticut, have invented a new and useful Improvement in Speed-Regulators and Stop Mechanisms, which invention is fully set forth in the following specification.

This invention relates to speed-governing and stop devices for motors, and more particularly to that class of speed-governing and stop devices designed for use in connection with spring or weight-driven motors. In devices of this kind it has heretofore been proposed to connect a governor-shaft by suitable gearing to the main power-shaft and to slidably mount a friction-disk on the governor-shaft, connecting said disk to one end of spring-blades carrying suitable weights, the other end of the spring-blades being fixedly secured to the governor-shaft, so that the centrifugal action of the weights when the motor is in motion draws the friction-disk along the governor-shaft against a friction-pad mounted on a lever, controlled by a screw adjustment, so as to cause the pad to resist with greater or less force the sliding action of the disk. In addition to the screw independent means were provided for throwing the pad against the disk with such force as to stop the motor. The present invention is an improvement on this structure and is designed to simplify the construction and so construct, combine, and arrange the several elements that they may be formed by automatic machinery, quickly assembled, and readily manipulated to control the motor. The inventive idea involved may receive various mechanical expressions, one of which is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of the improved speed-governor and stop device, showing the parts in running position. Fig. 2 is a side elevation with parts broken away, showing the device in position to stop the motor; and Fig. 3 is a right-hand elevation of Fig. 2.

In said drawings, 1 is a bracket or other suitable part of the motor frame or support, having bearings 2 2 for the governor-shaft 3, on which disk 4 is slidably mounted. A collar 5 is fixed to the shaft 3, and the spring-blades 6 are secured at one end to the collar 5 and at the other end to the disk 4, weights 7 being carried by the spring-blades. A bell-crank lever 8 is pivoted to a boss 9 on the frame 1 and has one arm 10 extending between the disk 4 and the weights 7, which arm carries a friction-pad 11, of leather or other suitable material, in contact with or close proximity to the disk 4. The other arm 12 of the bell-crank lever 8 projects opposite the end of a hollow screw 13, threaded in the frame 1, so that as the screw is advanced inwardly through the frame it bears on the arm 12 and forces the pad 11 toward the disk 4. The screw 13 has a shoulder 14, and a spring 15 reacts between this shoulder and the frame 1. A stop-rod 16 passes through the hollow screw 13, with one end projecting over the arm 12 of lever 8, the end of the arm being preferably cut out, as shown at 17, Fig. 3, to accommodate the stop-rod. A shoulder 18 on the rod engages a corresponding shoulder in the interior of the screw 13, and the outer end of the rod is provided with a knob or head 19, screwed or otherwise secured thereto, while the screw 13 is preferably knurled, as at 21. Projecting from the lever 8 and into the path of the stop-rod 16 is a yielding member, preferably in the form of a steel blade 20 of such stiffness that sufficient pressure may be exerted through it to force the pad 11 against the disk 4 hard enough to stop the motor. Preferably the spring-blade 20 is curved at its upper end, as in Fig. 1, and when the stop-rod is forced against it it is bent into the position shown in Fig. 2. The governor-shaft is connected to the motor-shaft in any suitable way, as by a gear-wheel 22.

The operation is as follows: When the motor is running, the parts are as shown in Fig. 1, and the screw 13 is advanced against the arm 12 of lever 8 if it be desired to slacken the speed of the motor and withdrawn if it is desired to increase the speed. When it is desired to stop the motor, the stop-rod is pushed in, bending the spring-blade 20 down forwardly, thereby tilting the lever 8, so as to

bring the pad 11 forcibly against the disk 4 (see Fig. 2) and stopping the motor. To start the motor, the operator grasps the knob 19 and withdraws rod 16 from the position shown in Fig. 2 to that of Fig. 1.

Owing to the cylindrical form of the screw 13 and the stop-rod 16, they are readily turned out by automatic machinery, thereby greatly cheapening and facilitating their construction, while other elements, as the lever 8 and disk 4, are struck out by suitable metal-working dies. Moreover, it will be observed that the spring-blade 20 not only transmits pressure from the stop-pin to the brake-lever 8, but also reacts against the stop-pin to retain it yieldingly in position to stop the motor, as shown in Fig. 2.

Having thus described the invention, what is claimed is—

1. In a stop device for motors, a brake-lever, a sliding stop rod or bar, and a spring member reacting between the said lever and bar and retaining the parts in position to stop the motor.

2. In a stop device for motors, a brake-lever, a sliding stop rod or bar, and a spring mounted on the lever and projecting into the path of said sliding stop-rod.

3. In a stop device for motors, a brake-lever, a sliding stop rod or bar, and a blade-spring having one end secured to the brake-lever and a free end projecting into the path of said sliding stop rod or bar.

4. The combination of a brake-lever, an adjusting-screw bearing on one arm of said lever, a sliding stop rod or bar, and a spring member reacting between said lever and bar.

5. The combination of a brake-lever, an adjusting-screw bearing on one arm of said lever, a sliding stop rod or bar, and a spring mounted on the lever and projecting into the path of said sliding stop-rod.

6. The combination of a brake-lever, an adjusting-screw bearing on one arm of said lever, a sliding stop rod or bar, and a blade-spring having one end secured to said lever and a free end projecting into the path of said sliding stop rod or bar.

7. The combination of a brake-lever, a hollow adjusting-screw bearing on one arm of said lever, a stop rod or bar slidably mounted in said hollow screw, and a spring member reacting between said lever and bar.

8. The combination of a brake-lever, a hollow adjusting-screw bearing on one arm of said lever, a stop rod or bar slidably mounted in said hollow screw, and a spring mounted on said lever and projecting into the path of said sliding stop-rod.

9. The combination of a brake-lever, a hollow adjusting-screw bearing on one arm of said lever, a stop rod or bar slidably mounted in said hollow screw, and a blade-spring having one end secured to said lever and the other end projecting into the path of said sliding stop rod or bar.

10. In a speed-regulating and stop device for motors, the combination of a brake-lever, with an adjusting-screw and sliding stop-rod for independently actuating said lever, said rod and screw being arranged one within the other.

11. The combination of a brake-lever, a hollow adjusting-screw in operative relation with one arm of said lever, a slidable stop rod or bar movable into and out of operative relation with the lever, and yielding retaining means engaging said rod or bar when it is slid into operative relation with the lever.

12. The combination of a hollow adjusting-screw and a friction-disk, a brake-lever, having one arm carrying a brake shoe or pad in operative relation with the disk and another arm in operative relation with the adjusting-screw, with a stop-rod slidable in said hollow screw, and yielding retaining means engaging said rod when it is slid into operative relation with said lever.

13. In a speed-regulating and stop device for motors, the combination of a brake-lever, a hollow screw, a slidable stop-rod mounted in said screw and both the screw and rod adjustable into operative relation with said lever, and yielding retaining means engaging said stop-rod when so adjusted.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

THOMAS H. MACDONALD.

Witnesses:

A. B. KEOUGH,

M. A. FOGO.