June 25, 1935. G. GRIMSLEY 2,006,136

SPEED CONTROL MECHANISM

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Fig. 1.

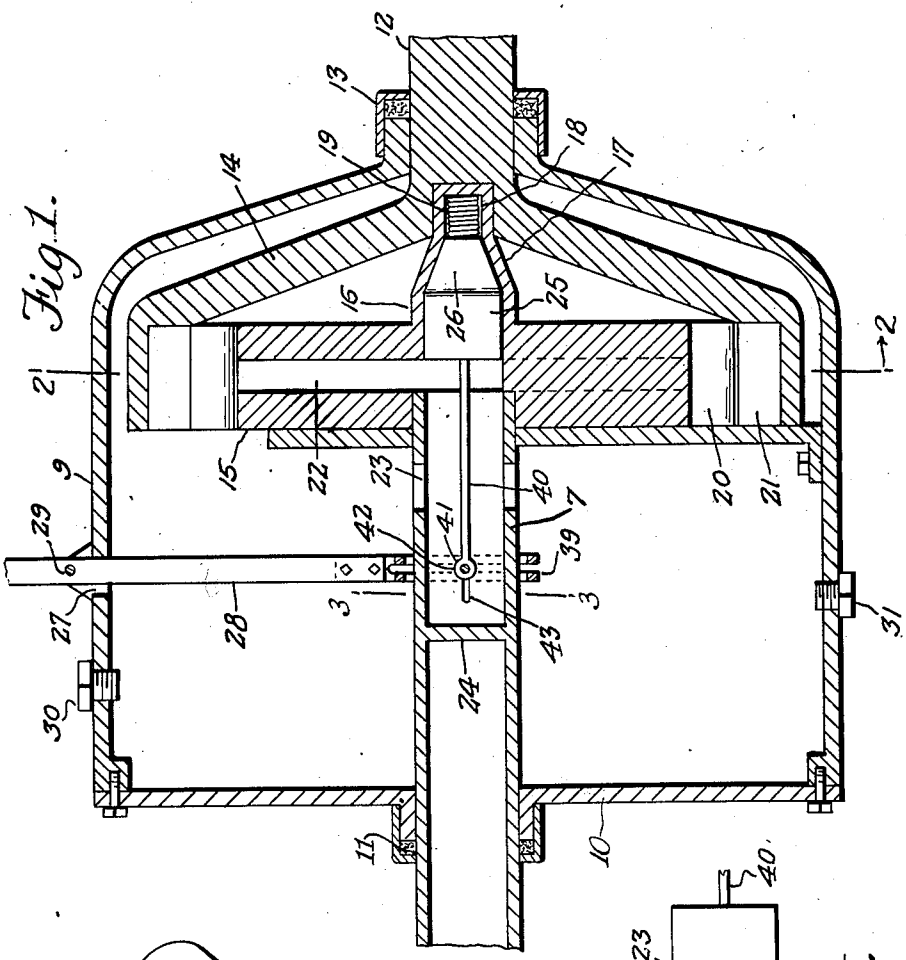


Fig. 4

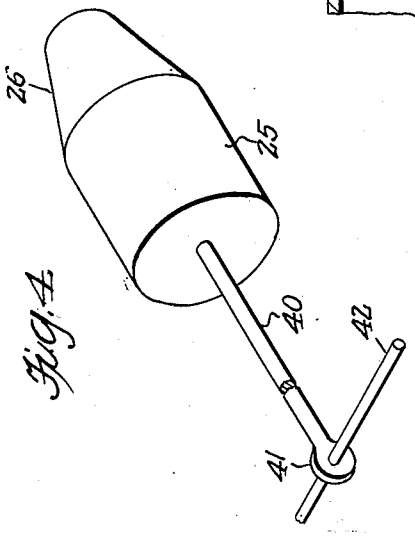
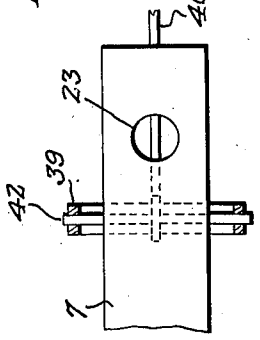


Fig. 5.



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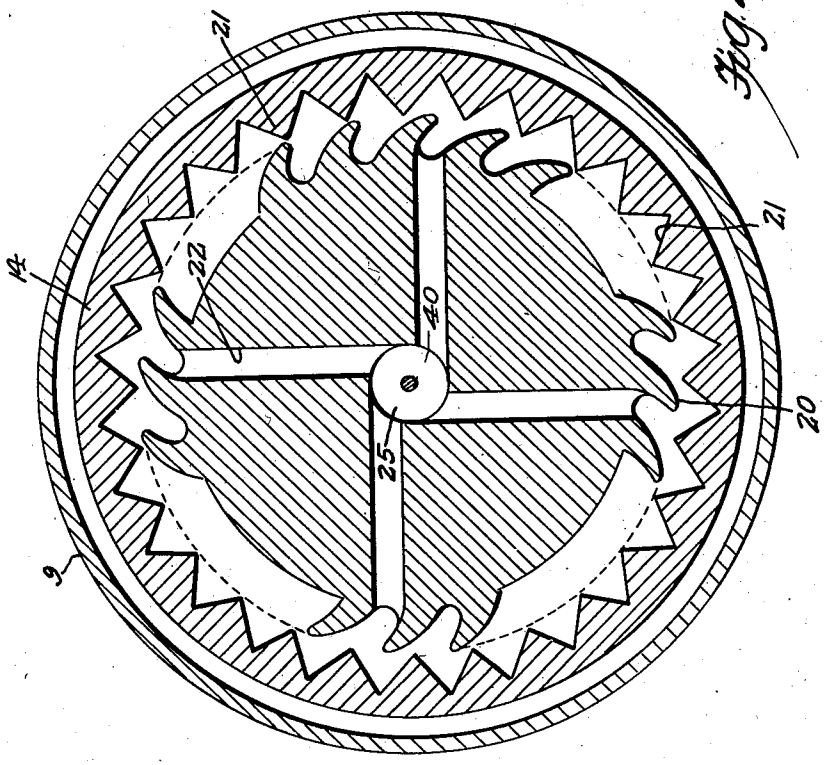


Fig. 2.

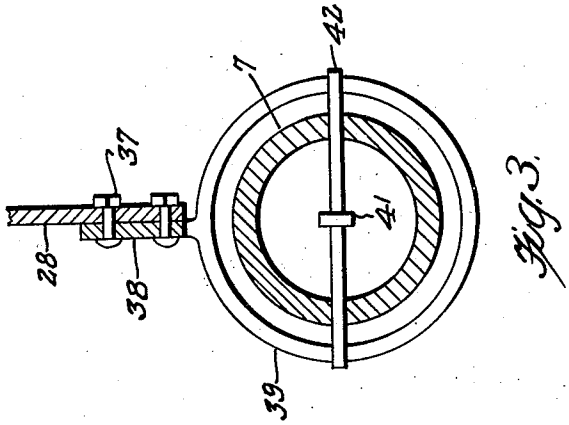


Fig. 3.

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SPEED CONTROL MECHANISM

Gail Grimsley, Little Sioux, Iowa

Application March 15, 1934, Serial No. 715,768

1 Claim. (Cl. 192—58)

This invention appertains to new and useful improvements in speed controlling mechanisms of the centrifugal type.

The principal object of the present invention is to provide a speed control mechanism which in operation will be accurate and not susceptible to the development of ready defects.

Another important object of the present invention is to provide a mechanism of the character stated which is of simple construction, to the end that the same can be manufactured at low cost.

Other important objects and advantages of the invention will become apparent to the reader of the following specification.

In the drawings:—

Figure 1 represents a fragmentary longitudinal sectional view through the control mechanism.

Figure 2 represents a sectional view taken substantially on line 2—2 of Figure 2.

Figure 3 represents a cross sectional view taken substantially on line 4—4 of Figure 2.

Figure 4 represents a perspective view of the valve element.

Figure 5 represents a fragmentary sectional view showing a portion of the valve operating means.

Referring to the drawings wherein like numerals designate like parts, it can be seen in Figure 1 that numeral 5 generally refers to the speed control mechanism, while numeral 6 generally refers to an electric motor having the power shaft 7 extending therefrom, both the motor and speed control mechanism being mounted on a suitable base 8.

The speed control consists of a housing 9 provided with a closure plate 10 at one end having a centrally located packing gland 11 through which the aforementioned motor shaft 7 extends.

Numeral 12 represents the drive shaft which extends through a packing gland 13 at the opposite end of the housing 9 and merges into the internally toothed gear or ring 14 within which the rotor 15 operates, the rotor having the adjacent end of the shaft 7 engaged into the same and properly secured thereto. The rotor is provided with a tubular extension 16 which is reduced and engaged into a socket at the inner end of the drive shaft 12, this reduced end of the extension 16 being provided with a tapered portion 17 and terminating in a pocket 18, the latter receiving a compressible coiled spring 19.

The rotor 15 is provided at its periphery with a multiplicity of equally spaced and backwardly curved fins 20 which barely pass the teeth of the gear or internally toothed ring 14 which is provided with the internal teeth 21. At approximately every 90°, a duct 22 radiates from the axis of the rotor and opens through the periphery thereof, as is clearly shown in Figure 3.

The interior of the housing 9 constitutes a tank for an oil or similar substance which can enter the inner end of the motor shaft 7 by way of the openings 23. The interior of the shaft 7 is partitioned off at 24 so that the oil must follow a path through the ducts or openings 23 to reach the periphery of the rotor. A valve element 25 has a tapering portion 26 which is seatable within the tapered portion 17 of the shaft extension 16 and obviously, this valve element 25 can be moved back and forth to regulate the amount of oil passing to the ducts 22. The housing 9 is provided with an opening 27 in the top thereof through which the lower portion of the rocker 28 extends, the rocker being swingably supported, as at 29. The top of the housing 9 is provided with a filler plug 30, while the bottom is provided with a drain plug 31.

As is clearly shown in Figure 1, numeral 32 represents a control rod and this connects to a collar 33 internally threaded and feedable to proper adjustment on the threaded portion 34 of the upstanding bar 35 connected by a link rod 36 to the upper end of the rocker 28.

The lower end of the rocker 28 is connected, as at 37, to the upstanding shank 38 of a pair of rings 39 which circumscribe the shaft 7.

As is clearly shown in Figure 2, the valve 25 is provided with an elongated stem 40 extending in the shaft 7 and this is provided with an eye 41 through which the rod 42 extends. This rod 42 extends through slots 43 in the side of the shaft 7 and terminates between the rings 39. Thus the shaft 7 can rotate freely without interfering with the adjustability of the valve adjusting means.

While the foregoing specification sets forth the invention in definite terms, it is to be understood that numerous changes in the shape, size, materials and arrangement of parts may be resorted to without departing from the spirit and scope of the appended claim.

Having described the invention, what is claimed as new is:—

A speed control mechanism comprising a housing, a drive shaft extending into the housing, a driven shaft extending into the housing, a rotor secured to the inner end of the driven shaft, an internally toothed ring on the inner end of the drive shaft within which the said rotor is

operative, said rotor being provided with backwardly curved fins at its periphery, the inner end of said drive shaft being hollow and provided with an opening, ducts radiating from the axis of the rotor and being in communication with the interior of the hollow portion of the drive shaft and opening through the periphery of the rotor, and a valve operative axially of the rotor for controlling the passage of liquid into the said ducts, said valve being provided with a stem extending longitudinally in the hollow shaft, said hollow shaft being provided with a pair of diametrically opposite longitudinally extending slots, a cross pin at the end of the stem opposite from the end at which the valve is located, said pin extending at its ends through the slots in the hollow shaft, a rocker having one end portion extending into the housing, a pair of rings loosely circumscribing the hollow shaft and being attached to the inner end of the rocker to assume a spaced parallel relation with respect to each other, the ends of the said cross pin extending into the space between the said rings.

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