

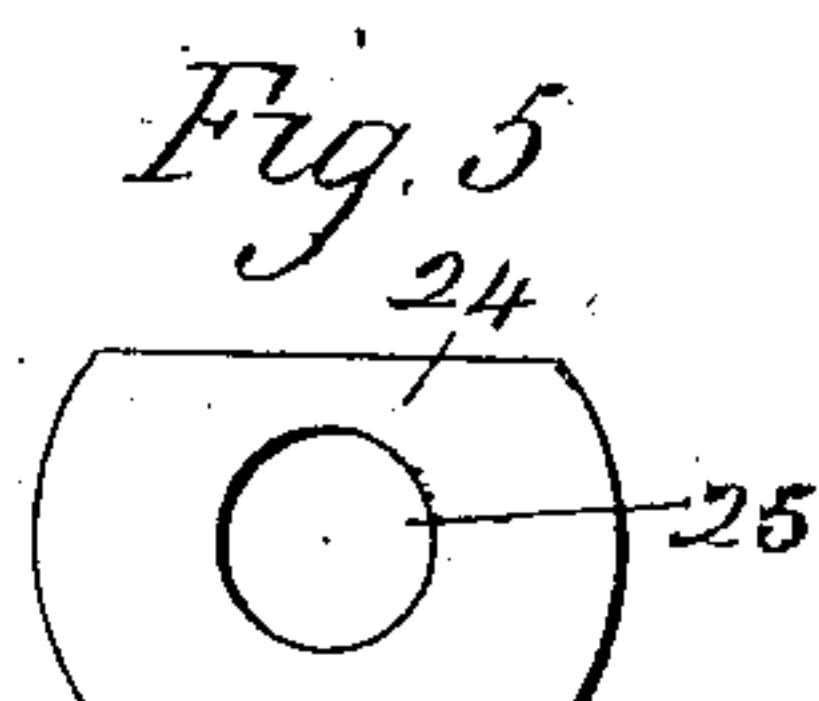
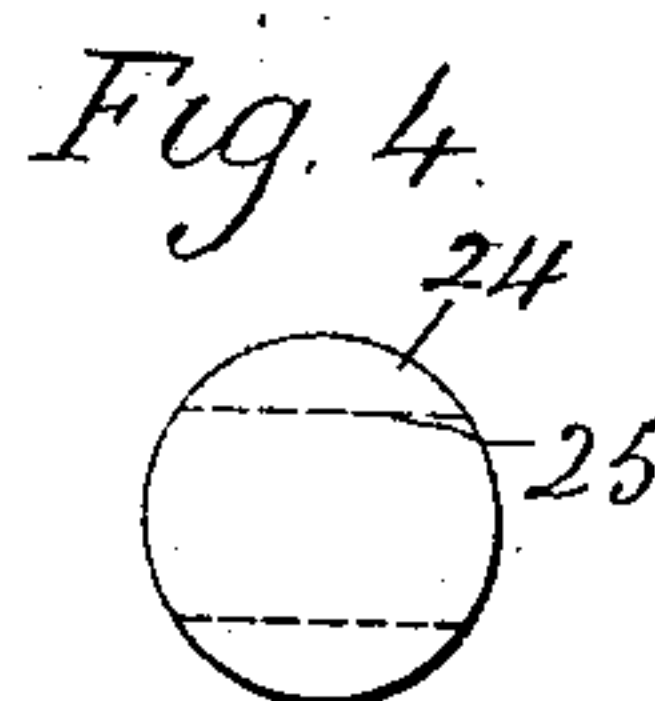
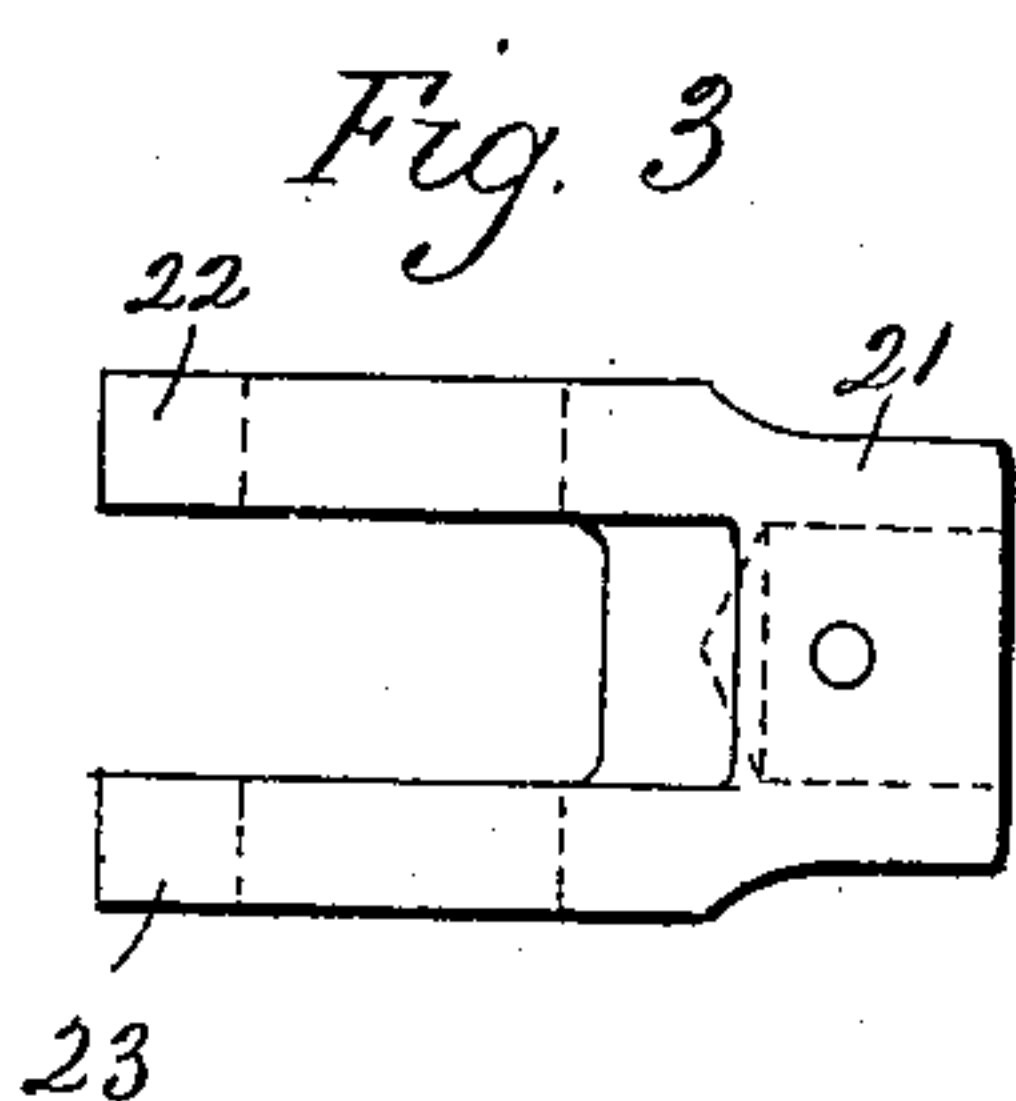
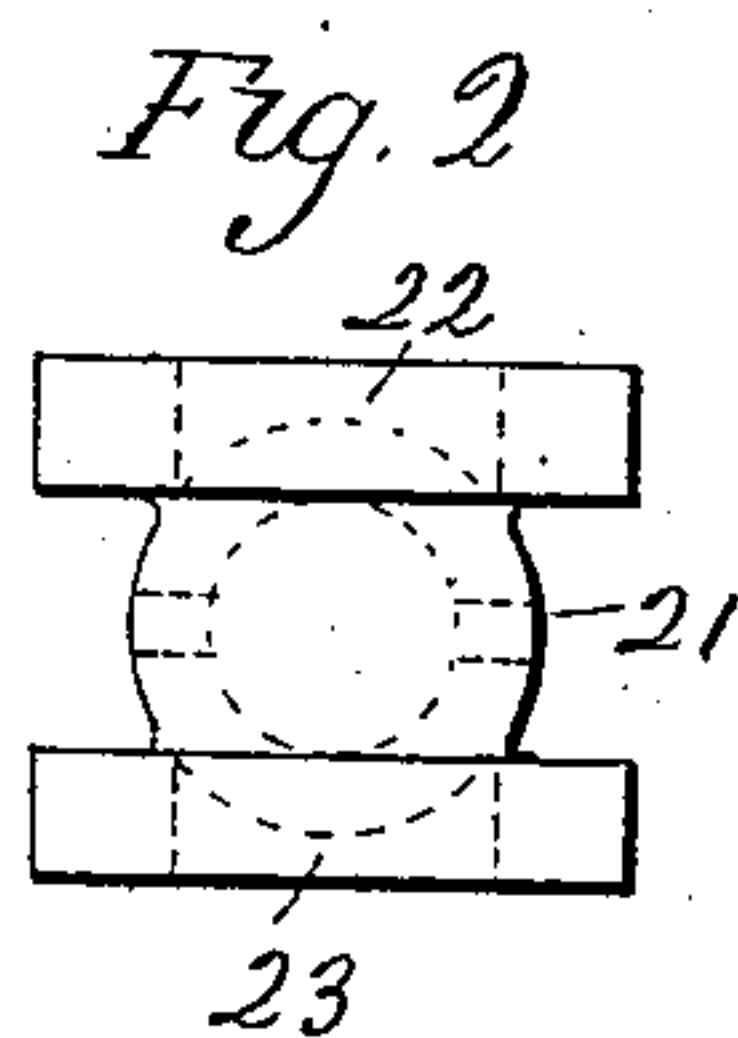
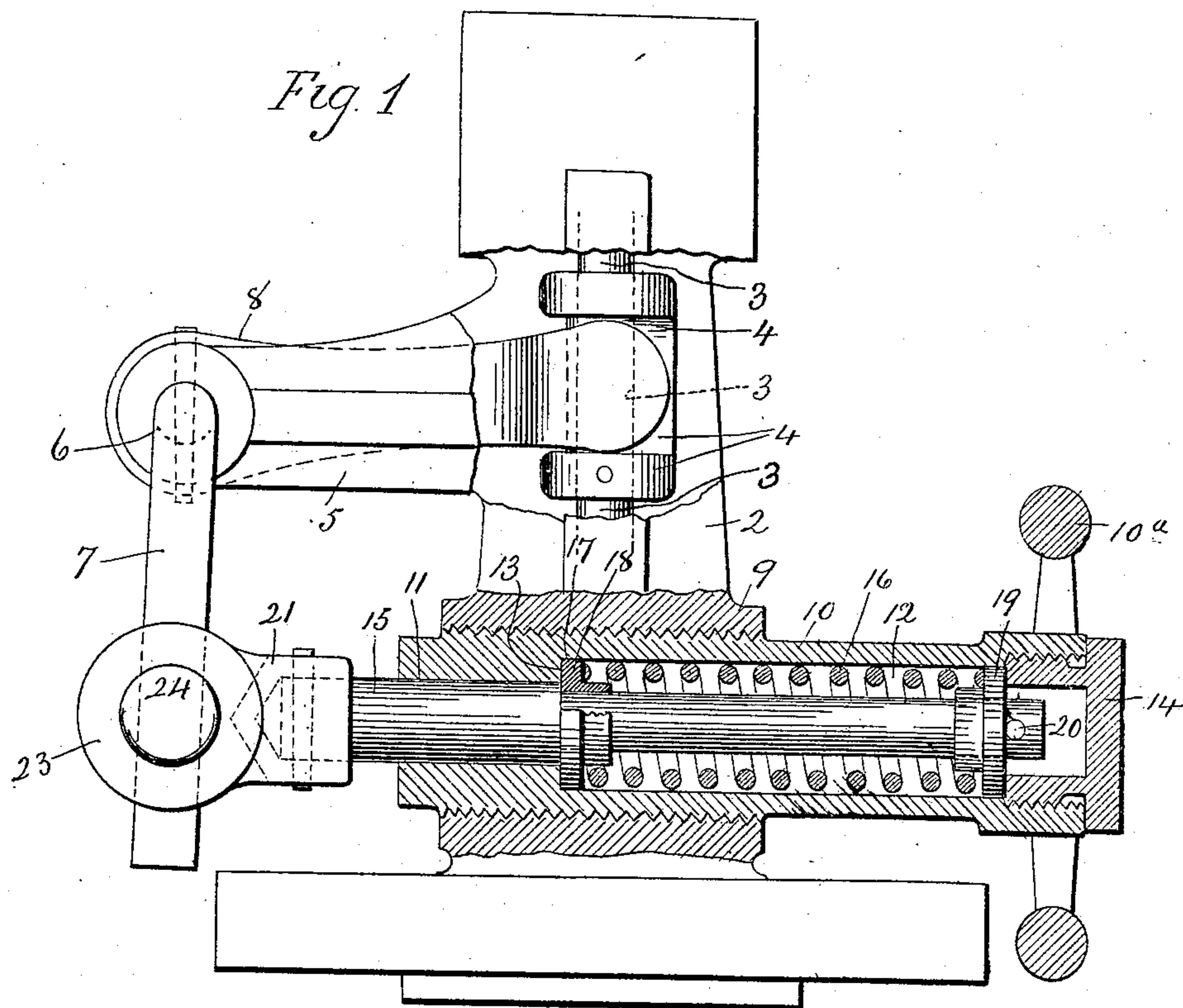
No. 856,056.

PATENTED JUNE 4, 1907.

S. S. HALL.
ENGINE GOVERNOR.

APPLICATION FILED JAN. 11, 1907.

2 SHEETS—SHEET 1.



Witnesses.
J. H. Shumway.
C. L. Weed

Stephen S. Hall.
Inventor.
By Atty: Seymour T. Earle

No. 856,056.

PATENTED JUNE 4, 1907.

S. S. HALL.
ENGINE GOVERNOR.

APPLICATION FILED JAN. 11, 1907.

2 SHEETS—SHEET 2.

Fig. 6.

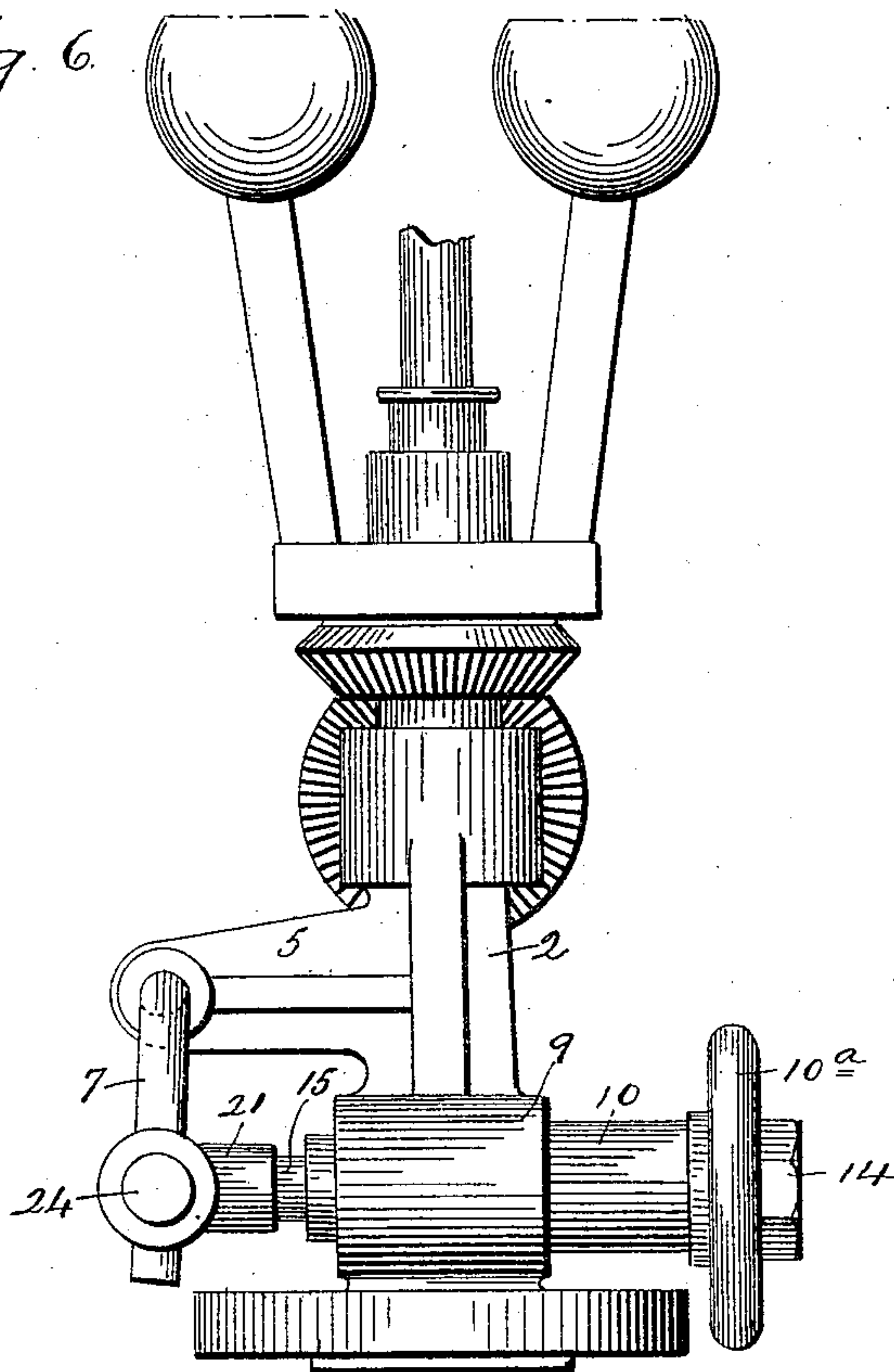
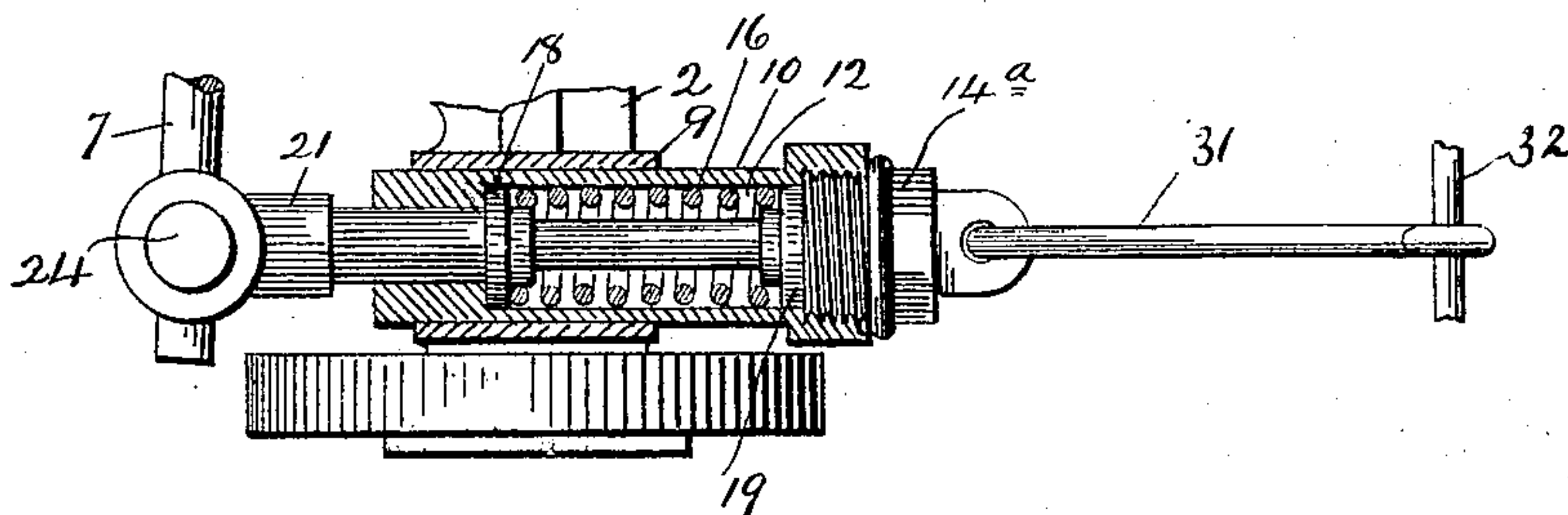


Fig. 7.



Witnessed.
J. H. Shumway
C. L. Weed

Stephen S. Hall
Inventor.
By aty. Seymour T. Care

UNITED STATES PATENT OFFICE.

STEPHEN S. HALL, OF PORTLAND, CONNECTICUT, ASSIGNOR TO THE
PICKERING GOVERNOR CO., OF PORTLAND, CONNECTICUT, A COR-
PORATION.

ENGINE-GOVERNOR.

No. 856,056.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed January 11, 1907. Serial No. 351,759.

To all whom it may concern:

Be it known that I, STEPHEN S. HALL, a citizen of the United States, residing at Portland, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Speed-Rangers for Engine-Governors; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a side view partially in section of an engine governor bracket showing my improved speed ranger in connection therewith. Fig. 2 an end view of the speeder shaft yoke. Fig. 3 a top or plan view of the same. Fig. 4 an end view of the yoke stud. Fig. 5 a top view of the same. Fig. 6 a side view of the lower portion of an engine governor showing my improved speed ranger in connection therewith. Fig. 7 a side view similar to Fig. 1 showing a modified form of spring holder.

This invention relates to an improvement in speed rangers for engine governors. In many cases a wide range of adjustment is required to add to or take from the initial tension or resistance of the revolving head, and the object of this invention is to provide for these conditions by securing a wider range in speed than has heretofore been possible, and to so arrange the parts that a single spring may act in two directions and be adjustable to compensate for the various conditions; and the invention consists in the construction as hereinafter described and particularly recited in the claims.

In illustrating my invention, I have shown it in connection with a governor bracket 2 through which a valve stem 3 passes and on which is mounted the usual speeder collar 4 this collar being somewhat spool like in longitudinal section. Projecting outward from the bracket 2 is an arm 5 in which is mounted a lever 6 having a lever-arm 7 arranged at right angles thereto. Pinned to the lever 6 is a speeder toe piece 8 extending into connection with the collar 4 the toe-piece being bifurcated at its end to be forked over the collar. At one side of the bracket is a horizontal bearing 9 which in one form of my inven-

tion is internally screw threaded to receive an externally threaded spring holder 10 which at its outer end may be provided with a handle 10^a by which it may be turned into or out of the bearing. This spring holder is formed with a passage 11 opening into a spring chamber 12 the spring chamber being of larger diameter than the passage so as to form a shoulder 13. The outer end of the chamber is threaded to receive a plug 14. Extending into the spring holder is a speeder shaft 15 at its outer end corresponding to the opening 11 and slightly reduced in diameter within the spring holder to provide space for a strong spiral spring 16 and to form a shoulder 17 to locate a washer 18 against which the inner end of the spring bears. A similar washer 19 is located on the shaft at the outer end of the spring, and to hold it on the shaft a transverse pin 20 passes through the shaft beyond the washer so that the ends of the spring bear respectively against the washers 18 and 19. The outer end of the speeder shaft 15 is pinned in a yoke 21, the plates 22 and 23 of which are perforated to receive a short stud 24 having a passage 25 extending transversely through it to receive the lever arm 7.

In operation the upward movement of the valve stem 3 raising the speeder collar 4 lifts the speeder toe piece, and this being pinned to the lever 6 rocks that lever forcing the outer end of the lever arm 7 inward, this inward movement being permitted by the turning of the stud 24 in the yoke 21. This inward movement of the lever arm 7 forces the speeder shaft 15 inward, its shoulder 17 striking the washer 18 and compressing the spring 16 against the washer 19 which bears against the plug 14 so that the upward movement of the shaft is against the tension of the spring 16. On the other hand if the valve stem moves downward it forces down the speeder toe piece throwing the lever arm outward and withdrawing the speeder shaft in which case the pin 20 bearing against the washer 19 draws against the spring which then bears the washer 18 against the shoulder 13 and the downward movement of the shaft is against the tension of this spring. Thus movement in either direction of the valve stem is compensated for by the same spring, and the tension of this spring may be increased or diminished by turning the spring

holder into or out of the bearing 9. Instead of screwing the spring holder into the bearing, it may be formed to slide longitudinally therein as shown in Fig. 7, in which case the
 5 adjustment of the spring is secured by providing a plug 14^a with a recess to receive the end of the speeder shaft and so that the plug can be screwed against the washer 19 to compress the spring; the outer end of the plug
 10 being of convenient form for attaching any suitable connection as for instance, a rod 31 which extends to the operating lever 32 which may be moved to operate the spring holder by sliding it in the bearing and so that the engine can be controlled through the governor.
 15 When the rod 31 is drawn outward it moves the spring-holder 10 which is free to slide in the bearing 9 and thus moves the valve-stem so that the engine can be controlled through
 20 the governor, but in which ever position the spring-holder may be held the spring is capable of controlling the movement of the speeder shaft for when that shaft is forced in one direction the washer 18 bearing on one
 25 end of the spring compresses the spring against the washer 19; or when moved in the opposite direction the washer 19 bears against the spring and compresses it against the washer 18 so that after the governor is adjusted by
 30 the movement of the spring chamber it is then under control of the spring which acts in both directions.

I claim:—

1. In a governor, the combination with a
 35 bracket and a valve stem entering the same, of a collar mounted thereon, a speeder toe piece engaging therewith and mounted upon a lever, a lever arm in engagement with a speeder shaft, a spring chamber mounted in
 40 said bracket into which said speeder shaft extends, a spring within said chamber around said shaft, washers on said shaft at opposite ends of said spring, substantially as described.

2. In a governor, the combination with a 45 bracket, of a valve stem and a collar thereon, a bearing formed integral with the bracket, a spring holder mounted therein, a speeder shaft extending into said spring holder, connections between the speeder shaft and the 50 collar, washers mounted on said shaft within the spring holder, and a spiral spring surrounding said shaft and bearing against said washers, substantially as described.

3. The combination with a governor, of a 55 valve stem and a collar thereon, and an internally threaded bearing and an externally threaded spring holder mounted therein, a speeder shaft extending into said spring holder, connections between the speeder 60 shaft and the collar, washers mounted on said shaft within the spring holder, and a spiral spring surrounding said shaft and bearing against said washers, substantially as described. 65

4. The combination with a governor including a valve stem, a collar mounted thereon, a bracket arm, a lever mounted therein, a toe piece mounted on said lever and extending into connection with said collar, said lever formed with a lever arm, a yoke, a stud mounted in said yoke, a passage through said stud through which said lever arm extends, a spring holder in the bracket, a speeder shaft extending into said holder and connected with said yoke, washers on said shaft within said spring holder, and a spiral spring surrounding said shaft within said holder and bearing against the said washers, substantially as described. 70 75 80

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

STEPHEN S. HALL.

Witnesses:

GEO. C. PASCALL,
 J. A. CHAPMAN.