

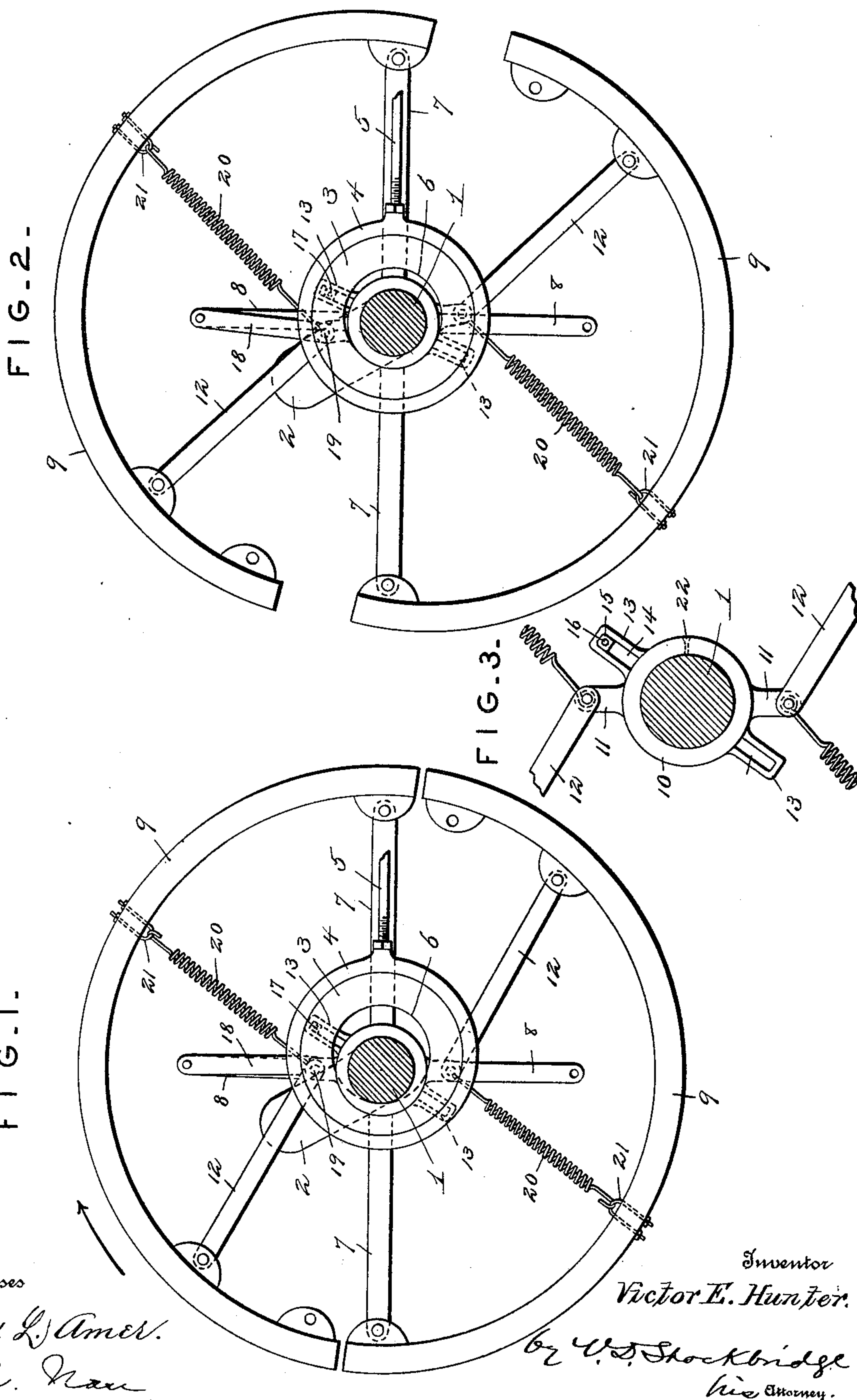
No. 627,422.

Patented June 20, 1899.

V. E. HUNTER.
GOVERNOR.

(Application filed Aug. 5, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

VICTOR EMMET HUNTER, OF CLEBURNE, TEXAS.

GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 627,422, dated June 20, 1899.

Application filed August 5, 1898. Serial No. 687,802. (No model.)

To all whom it may concern:

Be it known that I, VICTOR EMMET HUNTER, a citizen of the United States, residing at Cleburne, in the county of Johnson and State of Texas, have invented certain new and useful Improvements in Governors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to automatic governors for steam-engines, the object in view being to provide a simple attachment to be placed upon the crank-shaft of an engine and so connected with the slide-valve in the steam-chest that when the crank-shaft acquires a certain speed the eccentric, which forms an element of the device, is automatically shifted, thereby giving less throw to the valve and correspondingly cutting off a portion of the steam admitted to the cylinder.

The detailed objects and advantages of the invention will be fully pointed out in the course of the subjoined description.

The invention consists in a steam-engine governor embodying certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and incorporated in the claims.

In the accompanying drawings, Figure 1 is a side elevation showing a governor constructed in accordance with the present invention, the segments being in normal positions. Fig. 2 is a similar view showing the position the parts assume when a high speed is attained. Fig. 3 is a detail view showing the intermediate shifting collar.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates the crank-shaft of an engine, provided with the usual crank 2, which receives the pitman or connecting-rod leading to the piston-rod of the cylinder.

Surrounding the shaft 1 is an eccentric 3, encircled by a strap 4, to which is connected the usual rod 5, which extends to and operates the slide-valve in the steam-chest. The construction thus far described is the same as in an ordinary horizontal engine. In car-

rying out the present invention the eccentric 3 is provided with an enlarged central opening 6 of greater diameter than the external diameter of the shaft 1, thus enabling the eccentric to be shifted in the manner hereinafter described.

Rigidly connected to the shaft 1, preferably through the medium of a collar or hub, (not shown,) is a pair of diametrically opposite arms or spokes 7. A second pair of diametrically opposite rigid arms 8 is connected to the shaft 1 through the medium of the collar aforesaid, the arms 7 and 8 being arranged at right angles to each other or a quarter of a revolution apart. Connected pivotally to the outer ends of the arms 7 are semicircular segments 9. Each segment is pivotally connected at one end to its respective arm 7, while its opposite end is left free to be swung outward by centrifugal force when a rapid rotation of the shaft 1 is attained.

Mounted loosely upon the shaft 1, between the eccentric 3 and the arms 7 and 8, is a shifting collar 10, which is provided at diametrically opposite points with ears 11, to which are pivotally connected the inner ends of a pair of links or rods 12, which extend outward and connect pivotally at their outer ends to the segments 9, near the free ends of the latter. When the segments 9 are thrown out by centrifugal action, the links 12 are also drawn outward, and said links act to partially rotate the shifting collar 10 on the shaft 1.

The shifting collar 10 is provided with oppositely-extending slotted arms 13, the slots 14 of which are radially disposed. In one of the slotted arms 13 is mounted a sliding block or bearing 15, having an opening 16 to receive a pin 17, projecting laterally from the inner side of the eccentric 3. When the shifting collar 10 is partially rotated on the shaft 1 by the means hereinabove described, the slotted arm 13 moves the block or bearing 15 and through the medium of the pin 17 shifts the eccentric 3 across the axle 1 or from the position shown in Fig. 1 to the position shown in Fig. 2. The greater the extent to which the segments 9 are turned outward the greater will be the distance that the eccentric is shifted across the axle, and as the position

of the eccentric governs the amount of throw of the strap 4, and consequently the rod 5, the throw of the valve in the steam-chest will be correspondingly varied and more or less steam admitted to the cylinder.

Connected pivotally to the outer end of one of the arms 8 is a link 18, the inner end of which is fastened or rigidly connected at 19 to the eccentric. The object of this arrangement is to steady the eccentric and cause it to be shifted or swung directly across the axle. As the speed of the engine decreases the segments 9 are drawn inward to their normal positions by means of springs 20, connected by clips 21 at their outer ends to the segments 9 and connected at their inner ends to the ears 11 on the shifting collar 10 and preferably to the same pins which pivotally connect the links 12 with said ears 11.

From the foregoing description it will be seen that when the speed of the engine increases beyond the predetermined point the segments 9 are thrown out by centrifugal force, thereby giving a partial rotation to the shifting collar 10 and through its connections with the eccentric shifting said eccentric across the axle. This decreases and varies the amount of projection of the eccentric from the shaft 1 and correspondingly varies or diminishes the throw of the valve in the steam-chest in a manner and for a purpose readily understood by those familiar with the art to which this invention appertains. The shifting collar 10 is provided with an oil-hole 22 for lubricating purposes.

In the drawings an eccentric-rod is shown leading off to the right, and the eccentric is shown connected with the upwardly-extending arms 8 and 13 to the former by the swinging link 18; but if the eccentric-rod were extended in the opposite direction the eccentric would be connected with the oppositely-extending or pendent arms 8 and 13, or the position of the eccentric and of the arms connected therewith might be reversed, as preferred, as only one each of the arms 8 and 13 would be required to be used at any one time.

The particular manner of supporting the eccentric may be changed and other modifications in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

Having thus described the invention, what

is claimed as new, and desired to be secured by Letters Patent, is—

1. In a governor, the combination with a rotary shaft, of an eccentric surrounding the shaft and having an opening of greater diameter than the shaft, a shifting collar loose on said shaft and carrying a sliding block pivotally connected with the eccentric, a centrifugally-controlled segment, and a link connection between said segment and said shifting collar.

2. The combination in a governor, of a rotary shaft, an eccentric having a central slot or opening adapting it to be shifted in a substantially diametrical line across the shaft, a shifting collar loose on said shaft having a slotted arm, a pin on the eccentric engaging and sliding in said arm, a centrifugally-controlled segment, a connection between said segment and the shifting collar, and a swinging link-support for the eccentric also connected to the centrifugally-controlled segment.

3. In a governor, the combination with a rotary shaft, of radial arms rigid on said shaft, semi-annular centrifugally-controlled segments pivoted each at one end to oppositely-disposed radial arms, an eccentric having a central slot or opening adapting it to be moved transversely of the shaft, a collar loose on the shaft and having a sliding connection with the eccentric, and a link pivoted to one of the radial arms on the shaft and forming a swinging support for the shifting eccentric.

4. In a governor, the combination with a rotary shaft, of the radial arms 7 and 8 rigid on said shaft, the semi-annular centrifugally-controlled segments pivoted at one end each to an arm 7, the eccentric surrounding the shaft and having an enlarged central opening or slot, the collar loose on the shaft provided with oppositely-disposed ears, links connecting the segments with said ears, oppositely-disposed slotted arms on the collar, in one of which a pin on the eccentric is adapted to slide, and a swinging support for said eccentric pivoted to one of the radial arms 8, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

VICTOR EMMET HUNTER.

Witnesses:

R. G. HALL,
L. M. MORGAN.