

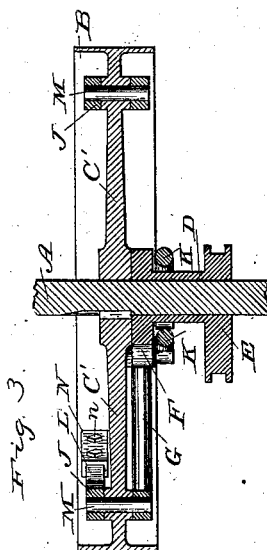
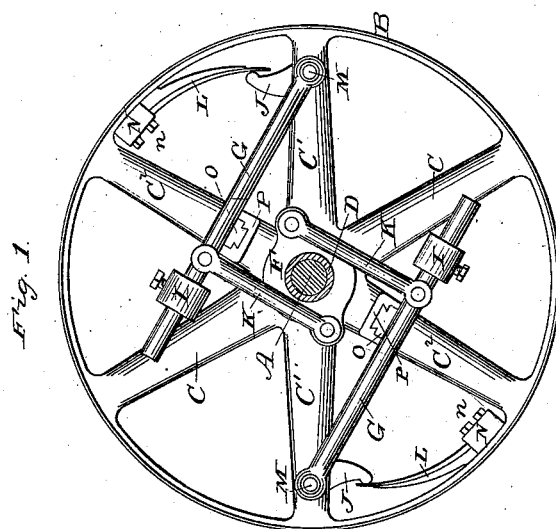
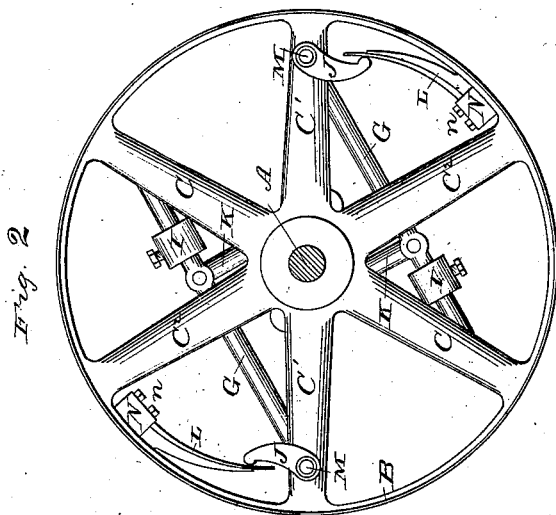
(No Model.)

W. A. CLARK.

GOVERNOR FOR SHIFTING ECCENTRICS.

No. 261,432.

Patented July 18, 1882.



Witnesses:

N. K. Low
L. B. Marshall.

Inventor:

Willard A. Clark
by Doubleday & Bliss

Atty's.

UNITED STATES PATENT OFFICE.

WILLARD A. CLARK, OF STILLWATER, MINN., ASSIGNOR TO THE NORTH
WESTERN MANUFACTURING AND CAR COMPANY, OF SAME PLACE.

GOVERNOR FOR SHIFTING ECCENTRICS.

SPECIFICATION forming part of Letters Patent No. 261,432, dated July 18, 1882.

Application filed May 9, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLARD A. CLARK, a citizen of the United States of America, residing at Stillwater, in the county of Washington and State of Minnesota, have invented certain new and useful Improvements in Governors for Shifting Eccentrics; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is an inside view of a governor having my improvements. Fig. 2 is an outside view. Fig. 3 is a cross-section on line *x x*, Fig. 1.

A represents the shaft to which the governor is attached. Preferably this is the main shaft of the engine, or the shaft to which the power is directly applied, and which carries the fly-wheel or band-wheel.

The governor may be attached to said band-wheel or fly-wheel; or it may be carried by a separate wheel or casing attached to the shaft. In the drawings, the wheel to which it is secured is represented as having a rim or perimeter, B, and spokes or arms C C' C². It may be, however, solid, if preferred, instead of having spokes or arms. In proximity to this wheel is secured the eccentric E, which operates the steam-valves. It is mounted loosely on the shaft by means of a sleeve, D, which permits it to be oscillated or rocked relatively to the shaft, and when rocked or oscillated it will be seen that it varies the point of cut-off to the engine. A variation of this character is rendered necessary by the variations in load or in resistance.

F is a plate, also carried by the sleeve D between the eccentric and wheel. With this plate weighted arms G G are connected, which, when the speed of the shaft is increased, operate to turn the plate, and with it the sleeve and eccentric, by means of intermediate links, K, which are pivoted respectively to one of the weighted arms G and to the plate F, the points at which they are pivoted to the plate F being diametrically opposite to each other.

On the arms G G are placed adjustable weights

I I, which may be of any of the well-known sorts. As the wheel rotates these weights tend to throw outward those ends of the arms G G which are pivotally connected with the plate and the eccentric.

The arms G G are joined to the wheel by means of the pivots M, which pass through the arms C' C' of the wheel.

On the ends of each pivot opposite to its arm G there is a cam or shorter arm, J, with which the spring L engages, the spring tending to throw the weighted ends of the arms toward the center.

The springs L L are preferably formed, as shown, of two or more plates or leaves of bent spring metal, secured to the perimeter of the wheel by means of a boss or socketed piece, N, the springs being clamped by end screws, *n*.

In order to prevent the eccentric from being thrown too far by the weight-arms as they come inward, I provide a cushion which shall receive the impact of their inward movement. The cushion preferably consists of a rubber block, O, held in the socket P, cast with or attached to the spokes or arms C² C² of the wheel. If desired, the socket holding the cushions may be made adjustable.

I do not claim the weight-arms or the centripetally-acting springs; nor do I claim broadly cushions to receive the impact of the inwardly-moving arms, for I am aware that these devices, broadly considered, are very old; but when the parts are constructed and arranged as I have described the governor mechanism can be arranged much more compactly and symmetrically than can the devices heretofore used.

The means for making the springs valuable are exceedingly simple, while at the same time the parts are supported much more firmly than when all are mounted on the same side of the wheel.

By mounting the pivots which carry the cams J and the weight-arms G directly across the plane of the wheel they are made much steadier and more durable than when arranged in the ordinary manner.

What I claim is—

1. In a steam-engine governor, the combination of the following elements, namely: the shaft, the wheel carried by the shaft, the sleeve

and eccentric mounted loosely on the shaft, the weight-arms pivotally connected to the eccentric, the pivots of the weight-arms passing through the spokes, the cams J J, carried by
5 the pivots on the side of the wheel opposite to the weight-arms, and the springs L L, arranged to bear against the cams, substantially as set forth.

10 2. In an engine-governor of the class described, the combination of the shaft, the wheel attached thereto, the eccentric and sleeve mounted loosely on the shaft, the weight-arms

pivoted to the wheel, the centripetally-acting springs to return the weight-arms, the sockets P, carried by the wheel and projecting later- 15 ally therefrom, and the cushions O in the sockets, all arranged and operating substantially as set forth.

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

WILLARD A. CLARK.

Witnesses:

C. L. EASTON,

P. MACY.