J. D. REIFF.

Governor for Horse-Powers.

No. 207,984. Patented Sept. 10, 1878.

Fig. 1.

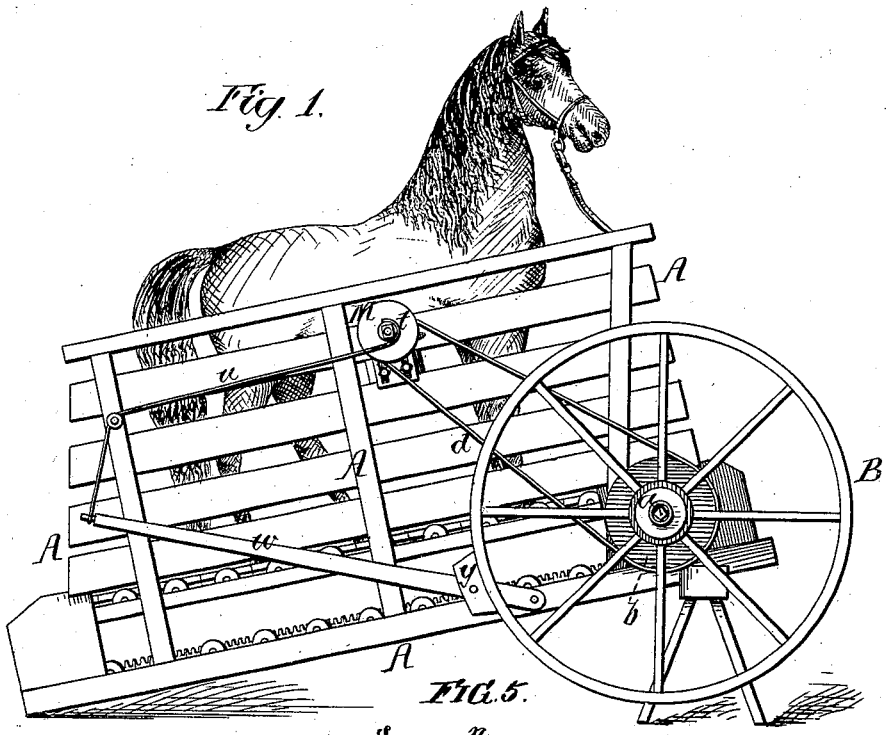


FIG. 5.

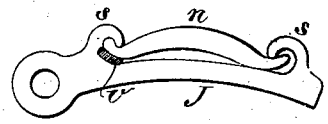


Fig. 2.

Fig. 3.

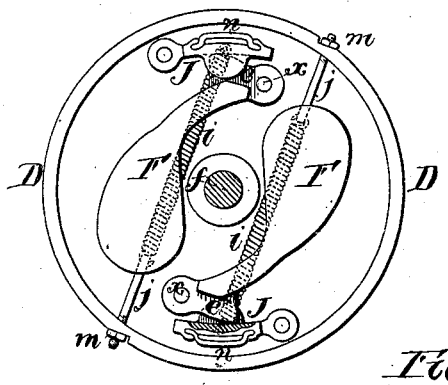
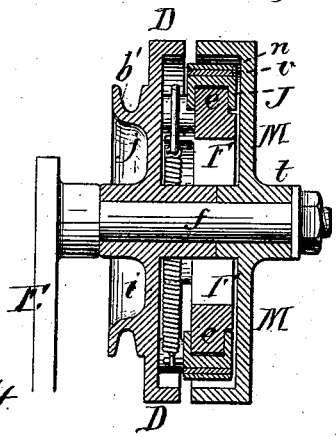
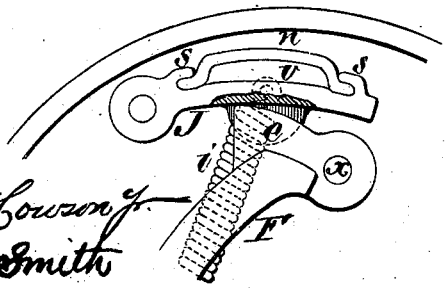


Fig 4.





Witnesses.
Henry Howson Jr.
Harry Smith

Inventor.
Jacob D. Reiff
by his attorneys
Howson and Son

UNITED STATES PATENT OFFICE.

JACOB D. REIFF, OF SKIPPACKVILLE, PENNSYLVANIA.

IMPROVEMENT IN GOVERNORS FOR HORSE-POWERS.

Specification forming part of Letters Patent No. **207,984**, dated September 10, 1878; application filed August 10, 1878.

To all whom it may concern:

Be it known that I, JACOB D. REIFF, of Skippackville, Montgomery county, Pennsylvania, have invented a new and useful Improvement in Governors for Horse-Powers and other Machinery, of which the following is a specification:

My invention relates to an improvement in the horse-power governor for which Letters Patent No. 20,368 were granted to Lea Pusey on the 25th day of May, 1858, the main object of my improvements being to render the governor more effective in its operation. This object I attain in the following manner, reference being had to the accompanying drawing, in which—

Figure 1 is a side view of a horse-power machine, showing the mode of applying my improved governor thereto; Fig. 2, an inside view of the governing device; Fig. 3, a transverse vertical section of the same; Fig. 4, an enlarged view of part of the device, and Fig. 5 a view of a modification.

A represents the frame of the horse-power machine; *a*, the main shaft, and B the fly-wheel. Around a pulley, *b*, on the shaft *a* passes a belt, *d*, which also passes around a pulley, *b'*, at the rear of a flanged disk, D, the latter turning freely on a shaft, *f*, which projects from a plate, E, secured to the side frame A of the machine. (See Fig. 3.)

Hung to the disk D at *x x* are two weighted levers, F F, each of which has a cam, *e*, for acting on a shoe, J, pivoted to the disk E at a point near the flange of the same. To each shoe J is connected one end of a coiled spring, *i*, the opposite end of which is secured to a rod, *j*, the outer end of the latter passing through the flange of the disk D, and being provided outside of the same with a nut, *m*.

Each of the shoes J has a friction-pad, *n*, of leather or similar material, the opposite ends of this pad extending under lips *s* on the shoe, while the central portion of the pad is forced outward by means of a wedge-block, *v*, interposed between the pad and the body of the shoe, so that the portions of the pad *n* intervening between the wedge and the edges of the lips *s* are griped so tightly that the displacement of the pad by friction is effectually prevented.

Hung to the shaft *f*, outside of the disk D, is another disk, M, the flange of which overlaps the shoes J of the disk D. The disk M has a hub, *t*, and around this hub is wound one end of a cord, *u*, which passes over a pulley on the frame A and is connected to the outer end of a brake-lever, *w*, hung to the frame of the machine and carrying a pivoted shoe, *y*, adapted to the periphery of the fly-wheel B.

The operation of the device is as follows: When the machine is running at a normal rate of speed the centrifugal force of the weighted ends of the rotating levers F is not sufficient to overcome the tension of the springs *i*, and the shoes J are consequently maintained free from contact with the flange of the disk M, the cord *u* being slack and the brake-shoe *y* free from contact with the periphery of the wheel B. As soon as the speed of the machine is unduly increased, however, the centrifugal force of the weighted ends of the levers F overcome the tension of the springs *i*, and the cams *e* of the levers press the shoes J outward, so that the friction-pads *n* of the latter are brought into contact with the flange of the disk M, said disk being thereby rotated so as to wind up the cord *u* and effect the application of the brake *y* to the wheel B. As soon as the speed of the latter is reduced to the desired extent the tension of the springs *i* overcomes the centrifugal force of the weighted ends of the levers F, and the shoes J are again drawn back clear of the disk M, the hub of the latter then ceasing to pull upon the cord *u*, so that the brake is withdrawn.

In the above-mentioned patent of Pusey the cams of the levers F acted directly upon the flange of a stationary disk, the retarding effect being due to the friction between said cams and the said stationary flange.

By interposing friction-shoes J between the cams *e* and the flange of the disk M, and by allowing the latter to turn so as to act upon a brake-beam, the speed of the machine is governed much more effectively than with the patented device.

Another objection to the device shown in Pusey's patent was that the tension-spring was interposed between the two weighted levers, and entirely inclosed by the two flanged

disks, so that it was not accessible for adjustment without removing one of the disks from the shaft. Moreover, as one spring acted upon both levers, it was impossible to vary the tension upon one lever independently of that upon the other.

These objections I overcome by the use, in connection with each lever, of a rod, *j*, extending through the flange of the disk D and provided with an adjusting-nut outside of the same.

Although I prefer to use the arrangement shown in the drawing, the construction may be modified in some respects without departing from the main feature of the invention. For instance, the cams *e* on the levers E may be provided with enlarged faces of such a character that the shoes J could be dispensed with, and the disk M, instead of having a hub for winding up a cord attached to the brake-lever, might be provided with a cam for acting directly upon said brake-lever.

The wedge *v*, for insuring the proper gripe of the friction-pad *n* by the lip or lips *s* of the brake-shoe, may be applied directly beneath the lip, as shown in Fig. 5, if desired, instead of being inserted beneath the central portion of the pad.

The governor may also be applied to classes of machinery other than horse-powers.

I claim as my invention—

1. The combination of the disk D and its centrifugal friction-clutch mechanism with springs *i* and threaded rods *j*, capable of adjustment from the outside of the disk D, as set forth.

2. The shoes J, each having a retaining lip or lips, *s*, a friction-pad, *n*, and a wedge-block, *v*, as specified.

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

JACOB D. REIFF.

Witnesses:

HENRY HOWSON, Jr.,

HARRY SMITH.