

(No Model.)

J. L. & J. S. HALL.
COMBINED GOVERNOR AND CLUTCH.

No. 505,827.

Patented Oct. 3, 1893.

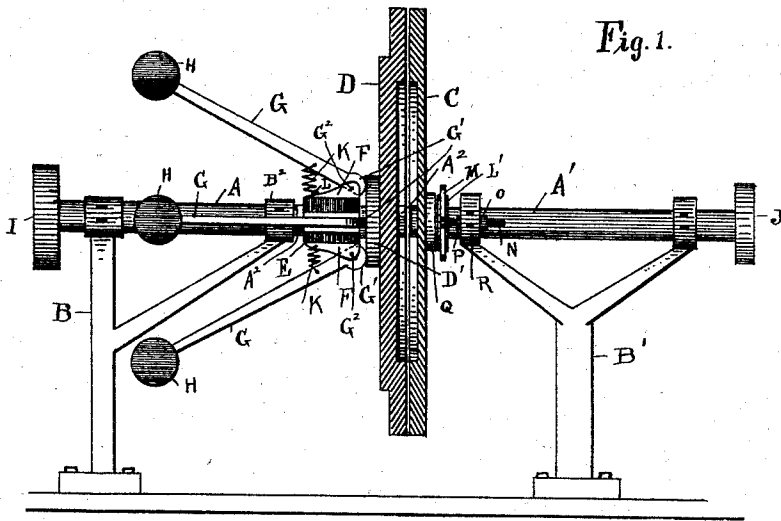


Fig. 1.

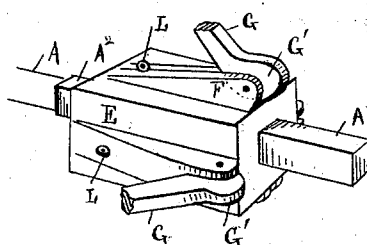


Fig. 2.

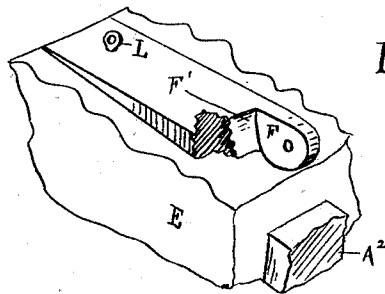


Fig. 3.

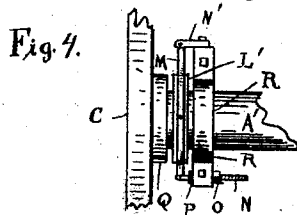


Fig. 4.

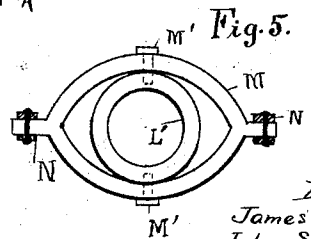


Fig. 5.

Witnesses
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UNITED STATES PATENT OFFICE.

JAMES L. HALL AND JOHN S. HALL, OF EDEN, ILLINOIS.

COMBINED GOVERNOR AND CLUTCH.

SPECIFICATION forming part of Letters Patent No. 505,827, dated October 3, 1893.

Application filed January 31, 1893. Serial No. 460,341. (No model.)

To all whom it may concern:

Be it known that we, JAMES L. HALL and JOHN S. HALL, citizens of the United States, residing at Eden, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Automatic Governors and Friction-Clutches; and we 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 improvements in automatic governors and friction clutches.

This device is mainly for use on farm machinery, but may be used on other classes of machinery on which it is necessary to have such a device.

It is our purpose in this invention to provide means by which farm or other machinery may be driven at a certain rate of speed and by the construction and operation shown and described, a gage is really set, by which the machinery may be governed as to speed—all of which will be fully understood hereinafter.

Figure 1 represents a side elevation of the invention. Fig. 2 is a perspective view of a governor arm carrier. Fig. 3 is a perspective view of a section of the governor arm carrier, showing construction of one of the arm holders. Fig. 4 is a plan view of an auxiliary tension device. Fig. 5 is a front elevation of the figure last above described omitting certain parts.

A represents a shaft mounted in boxings on the upright standard B. The outer free end of said shaft is provided with a pulley I to which the motive power is applied, and the other extremity A² of said shaft is made square from its extreme end, back to a point behind the bearing B². On the end A² of the shaft just mentioned is loosely secured a friction plate D and this plate is allowed to slip back and forth on the shaft for the purposes hereinafter described. Secured to the squared portion A² immediately back of the said friction plate D is a carrier block E of either round or square cross section having a series of ears F F made integral therewith and set at regular intervals around the outer surface of said carrier. Each pair of these ears F pivotally supports between them by means of

the pivot G² the end of an arm G carrying on its outer free end a weight H. The said pivoted end of each of said arms G is in the form of an eccentric G'. It will be seen that the full side of the eccentric is outward and away from its pivotal point, so that when the arms G are thrown outward, the full portion of the eccentric bears against a shoulder D' made on the friction plate D. The opposite friction plate C is mounted securely on the end of a shaft A' having bearings in the standard B'. As before stated the power is applied at the pulley I, and the pulley J on the shaft A' drives the machinery.

It is sometimes of advantage to start machinery at a certain rate of speed and keep it steady at that rate. In this device, when the shaft A with the governor is started to revolve, the speed must reach a certain point before the arms G will be thrown outward sufficiently to bring the plate D against the plate C and with enough pressure to carry the machinery to be driven. It may be clearly seen that the faster the governor revolves, the more will be the pressure of the eccentrics G' against the said shoulder D' and therefore the more friction is created between the friction plates.

Fig. 3 shows a portion of the carrier E and also shows a portion of a pair of ears F, having a filling F' between them upon which the arms G rest when idle. A spring K is secured at one end to the arm G (Fig. 1) and the other end to an eye L on the carrier E.

As the friction plates are each mounted on a separate shaft, it will be seen that the machinery to be driven will not be affected until the governor has attained sufficient speed to throw plate D outward to bear firmly against plate C.

When the governor revolves fast enough, so that the friction plates take a good grip, the speed is kept as near as possible at that speed. The device is especially good where immediate stoppage of the driven machinery is required, because almost as soon as the engine is deprived of its supply of steam the speed of the governor will fall enough to release the friction plates and consequently the driven machinery comes at once to a stand.

Figs. 4 and 5 show an auxiliary attachment

for the shaft A'. On said shaft just back of the plate C and adapted to bear against the shoulder Q at times is a shifting collar L' over which is placed a link M, which is pivotally secured to said collar L' by the bolts M' M'. One end of the said link is pivoted to a forked arm N' which is secured to the boxing R, while the opposite end of the link is pivoted to a forked threaded rod or bar N passing through the said boxing R, and having taps O and P run on the bar one before and the other behind the said boxing as shown so that the taps may be loosened or tightened as desired to press the collar against the shoulder Q of the plate C, thus giving any desired steady pressure upon the plate C against the plate D. This construction allows the shaft A' with its plate C to be forced toward and against the plate D (Fig. 1) so that more friction may be had in case the arms G do not revolve fast enough to throw plate D close enough to plate C for the required friction. In this case the shaft A' has a slight end play to allow of the use of the tightener just described.

We claim—

1. In an automatic governor and friction clutch, the combination of a driving shaft A mounted in suitable bearings, and having one end thereof made square, and a friction disk D placed on said squared portion of said shaft and having a limited longitudinal movement thereon, a carrier block rigidly mounted on the shaft behind said friction disk, a series of two or more arms G pivoted at one end between the ears F of said carrier E, the pivoted ends of each of said arms being formed into an eccentric and adapted to impinge upon the back of the friction disk D, and springs K attached at one end to the carrier E and at the other to the arms G substan-

tially as and for the purposes set forth and described.

2. In an automatic governor and friction clutch, the combination of a shaft A' mounted in suitable bearings and a friction disk C rigidly mounted on one end thereof and provided with a shoulder Q, a "take up" device comprising a collar L' encircling the shaft A' and adapted to bear against the shoulder Q, a link M encircling the said collar and having a pivotal connection therewith, a rod N' to which one end of said link is pivoted, a boxing R to which rod N' is bolted, threaded bar N to which the opposite end of the link M is pivoted, the taps O and P to adjust said bar, one of said taps being on each side of the said boxing R, and all arranged substantially in the manner and for the purposes set forth and described.

3. In an automatic governor and friction clutch the combination of, a shaft A' journaled in suitable bearings having the friction plate C with the shoulder Q secured to one end thereof, a collar L' loosely mounted on said shaft and adapted to bear against the shoulder Q, a link M inclosing said collar and pivotally secured thereto, a rod N to which one end of said link M is pivoted, boxing R to which rod N' is bolted, threaded bar N to which the opposite end of the link M is pivoted, the taps O and P to adjust said bar, one of said taps being on each side of the said boxing R, in the manner and for the purposes herein set forth and described.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES L. HALL.
JOHN S. HALL.

Witnesses:

ROBERT H. LOVETT,
C. JOHNSON.