No. 777,846. PATENTED DEC. 20, 1904.

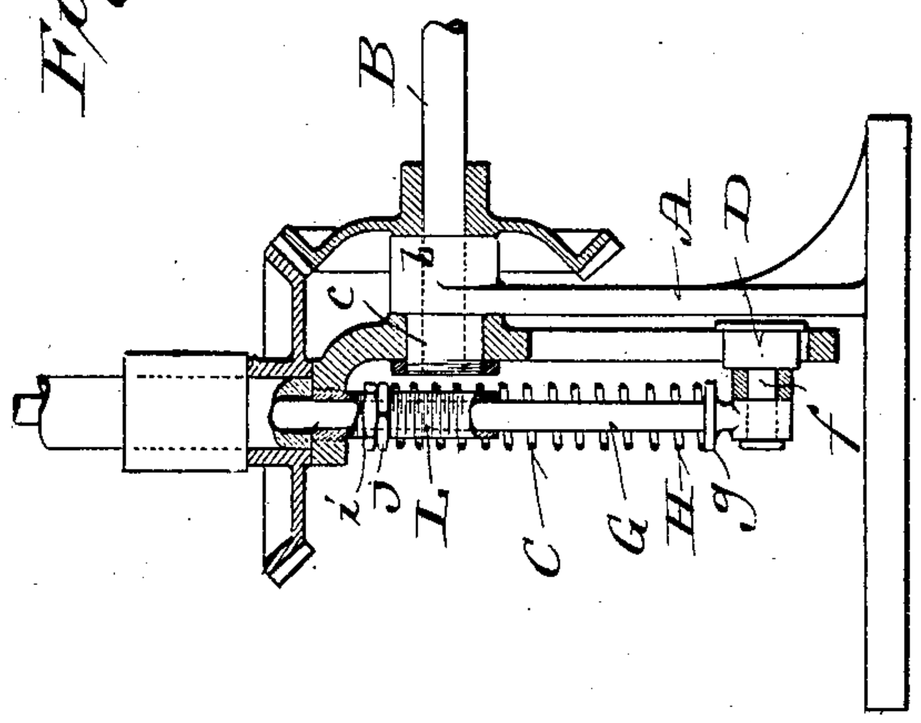
H. DAMERELL.

GOVERNOR CUT-OFF FOR STEAM ENGINES.

APPLICATION FILED NOV. 23, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 2.



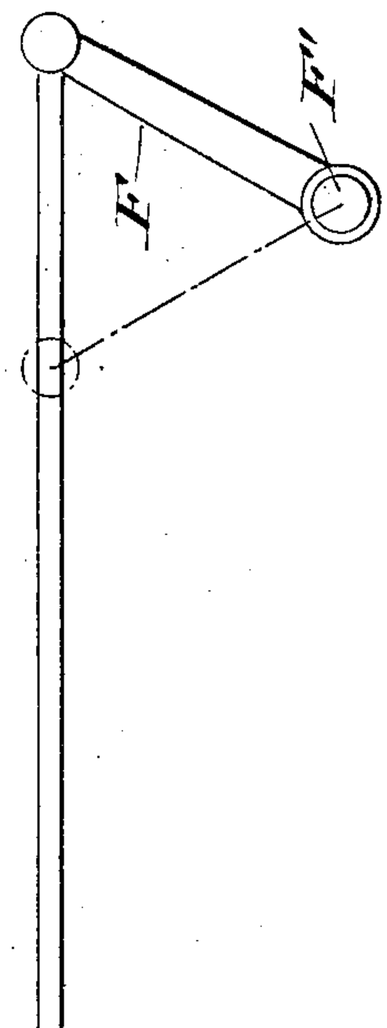
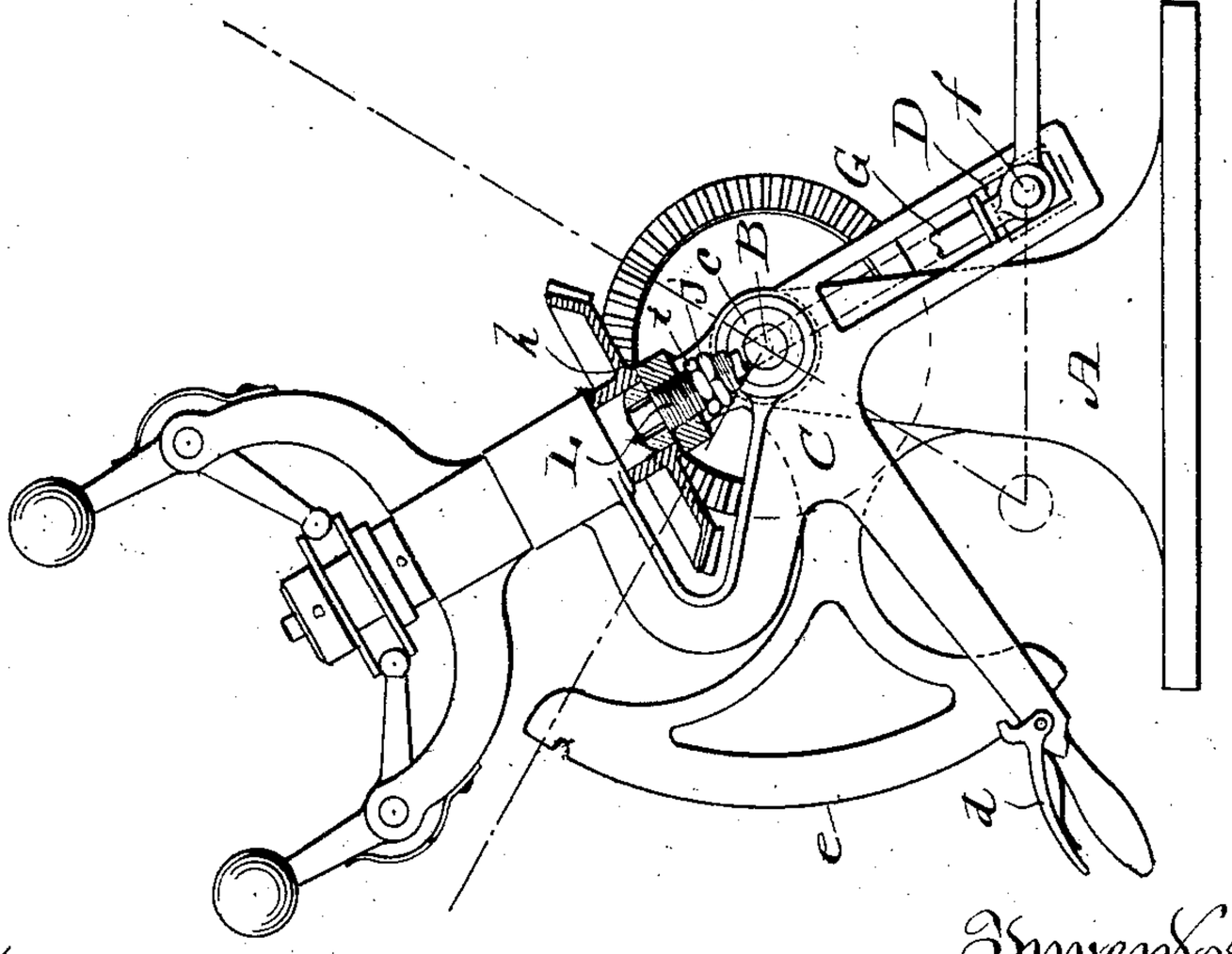


Fig. 1.



Witnesses
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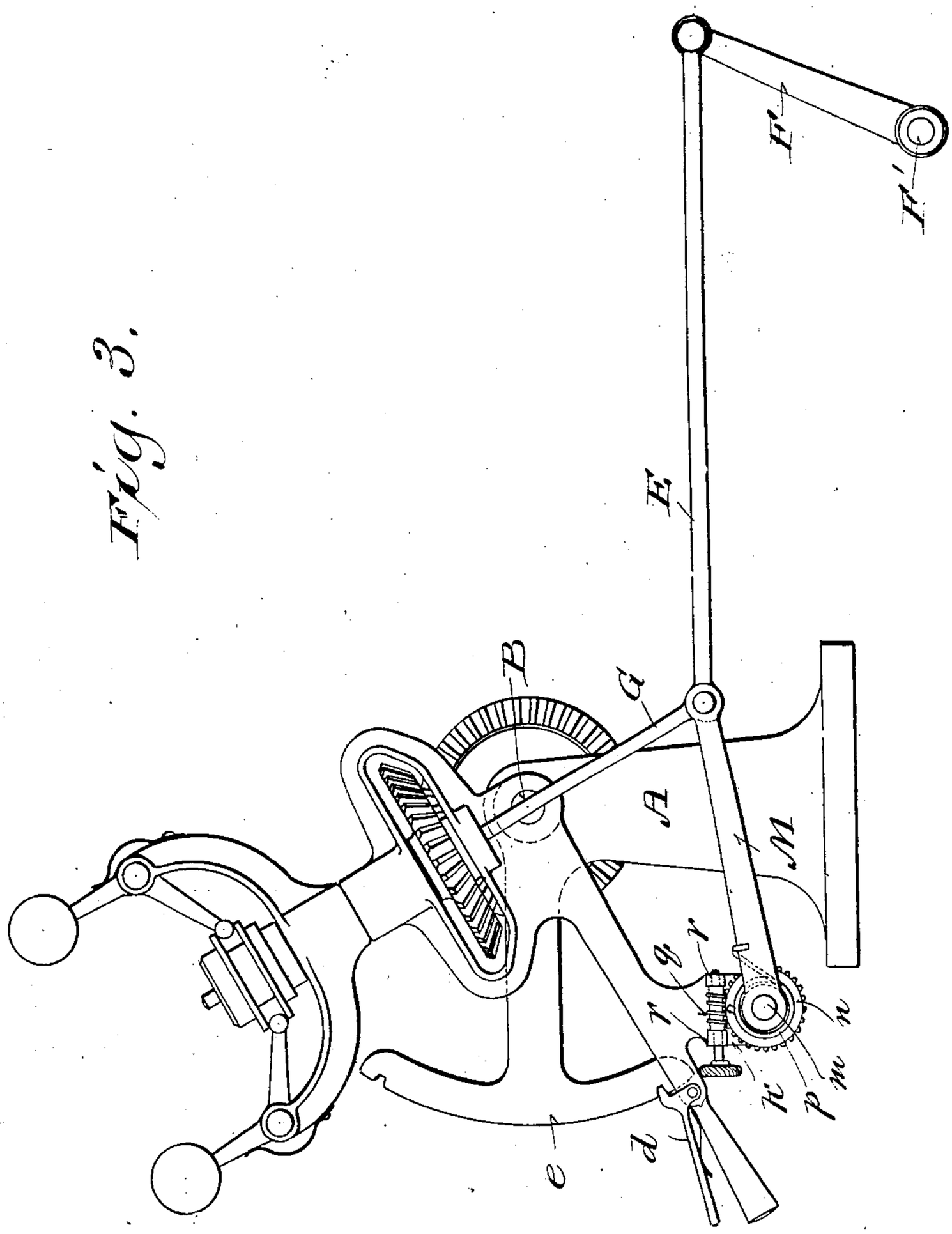
NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY DAMERELL, OF PORT HURON, MICHIGAN, ASSIGNOR OF ONE-HALF TO FRANK WAY, OF CHILLICOTHE, MISSOURI.

GOVERNOR CUT-OFF FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 777,846, dated December 20, 1904.

Application filed November 23, 1903. Serial No. 182,355.

To all whom it may concern:

Be it known that I, HENRY DAMERELL, a citizen of the United States, and a resident of Port Huron, in the county of St. Clair and State of Michigan, have invented certain new and useful Improvements in Governor Cut-Offs for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in certain peculiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed, the object of said invention being to provide simple, economical, sensitive, and efficient governor-controlled mechanism in connection with the reversing-lever of a steam-engine to automatically vary the point of cut-off in proportion to the speed of the engine running in either direction.

Figure 1 of the drawings represents a side elevation of governor-controlled mechanism in accordance with my invention in connection with the reversing-lever of a steam-engine, parts of said mechanism being broken away; Fig. 2, a rear elevation of a portion of said mechanism, partly in section; and Fig. 3, a side elevation of what constitutes another form of the invention.

Referring by letter to the drawings, A indicates a standard provided with a bearing for a shaft B in bevel-gear connection with a governor that is similar to the one herein shown or of any other suitable form, mounted in a bearing portion *b* of the reversing-lever C of a steam-engine to swing therewith, said lever being loose on a stud *c* of said standard concentric with said shaft. The reversing-lever is provided with a spring-latch *d*, engageable with notches in a segmental branch *e* of the standard A to hold said lever in adjusted position.

In Fig. 1 the reversing-lever C is shown as being virtually a bell-crank, having one arm thereof longitudinally slotted, the slot serving as a guide for a slide-block D, having a lateral stud *f* engaging an eye in one end of a link-rod E, that is connected at its other end with a crank F, fulcrumed on a stud F′ and constituting part of any suitable form of reversing-gear the movement of which will affect that of the steam-valve in the engine.

The stud *f* of the slide-block D also engages an eye in the lower end of a governor-controlled longitudinally-movable rod G, having a collar *g*, that supports a spiral spring H, and in union with a lateral arm *h* of the reversing-lever is an exteriorly-screw-threaded sleeve L, that extends downward on said rod within said spring. The tension of the spring is adjusted by means of nuts *i j* on the sleeve L, and said spring resists centrifugal force on the governor.

In Fig. 3 the reversing-lever is shown provided with a lower arm *k*, having a lateral stud *m*, that is loose in a worm-wheel *n* and one end of an arm M, that has its other end in pivotal connection with the lower end of the governor-controlled rod G and the adjacent end of the link-rod E aforesaid. A spring *p* is connected at its ends to the worm-wheel and lever-arm M, the tension of this spring being regulated by means of a worm *q*, that meshes with said worm-wheel and has its bearings in ears *r* of said lever-arm, said spring serving to resist centrifugal force on the governor.

The position of the governor and the rod G is shifted with the reversing-lever, the extreme of adjustment of said lever, governor, and link-rod E in one direction being shown by full lines in Figs. 1 and 3 and indicated by dotted lines in said Fig. 1. The reversing-lever being adjusted to either extreme of position and the engine speeded up sufficient to cause lifting of the governor-controlled shaft G, there will be pull or push on the link-rod E and an automatic movement of the same to change the point of cut-off in the engine. Hence said point of cut-off is variable in proportion to the speed of the engine running in either direction.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A steam-engine reversing-lever, a governor mounted in connection with the lever, a longitudinally-movable rod controlled by the

governor, tension mechanism arranged to resist centrifugal force on said governor, and a link-rod coupled to the rod aforesaid, this link-rod being for connection with valve-reversing gear of the engine.

2. A steam-engine reversing-lever, a governor mounted in connection with the lever, a longitudinally-movable rod controlled by the governor, a spring adjustable as to tension and arranged to resist centrifugal force on said governor, and a link-rod coupled to the rod aforesaid, this link-rod being for connection with valve-reversing gear of the engine.

In testimony that I claim the foregoing I have hereunto set my hand, at Port Huron, in the county of St. Clair and State of Michigan, in the presence of two witnesses.

HENRY DAMERELL.

Witnesses:
CHAS. BURNETT,
DUNCAN JOWETT.