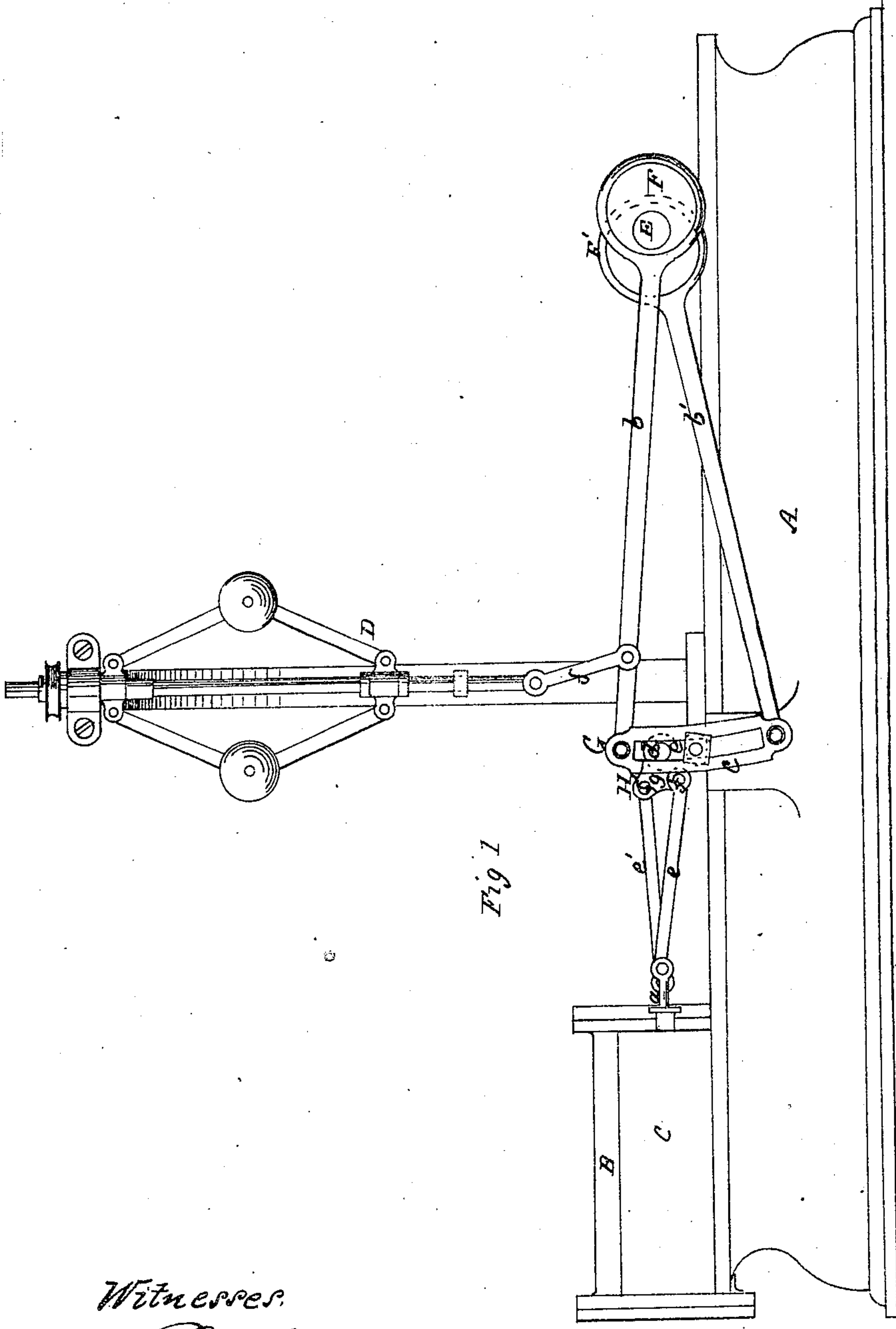


J. F. Allen.
Valve-Gear.

N^o 73069

Patented Jan 7, 1868.



Witnesses.

M. Coomb

L. Holmes Jr

Inventor

John F. Allen

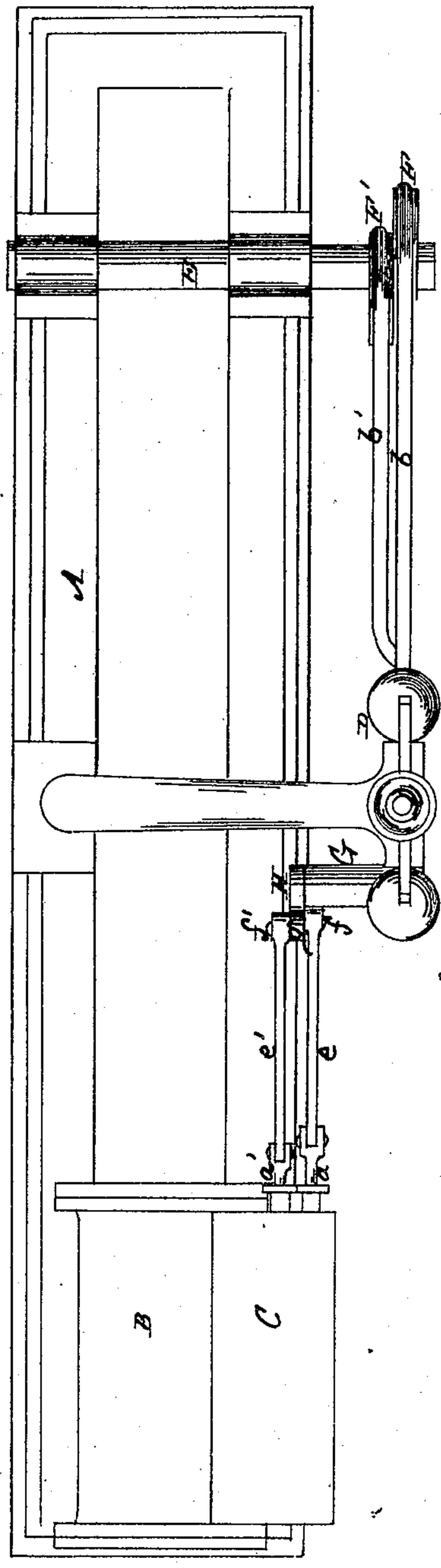
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Fig. 2.



Witnesses,

M. Crosby

Inventor

John F. Allen

L. Holmes Jr

United States Patent Office.

JOHN F. ALLEN, OF NEW YORK, N. Y.

Letters Patent No. 73,069, dated January 7, 1868.

IMPROVEMENT IN VALVE-GEAR.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN F. ALLEN, of the city, county, and State of New York, have invented a certain new and useful Improvement in the Valve-Gear of Steam-Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a side elevation of a horizontal engine, in part, with my improvement applied to it, and Figure 2 a plan of the same.

Like letters indicate corresponding parts in both figures.

The nature of my invention consists in novel means for automatically controlling or rendering uniform the motion of the engine by a combination of governor, link-motion, and wrist-motion, caused to bear or act upon the induction-valves of the engine.

Referring to the accompanying drawing, A represents the frame, B the cylinder of a horizontal engine, and C its steam-box or chamber, containing the induction-valves, which may be ordinary sliding blocks, controlling the ports, and to which *a a'* are the rods. The induction-valves may be separately arranged, and operated in any suitable manner, and the induction-valves be of any other appropriate form than that here suggested. D is the governor of the engine, which may be of the usual ball or other description, and E the engine-shaft, on which are hung two eccentrics, F F', for operating, by their respective rods, *b b'*, the link-motion G, of which *c* is the link, and *d* the rock-shaft, in gear therewith by a crank, *e*. The governor is connected to the one, *b*, of these rods, say, by a rod, *s*, to control the position of the link. Motion from this rock-shaft *d* is communicated to the induction-valve rods *a a'*, through connecting-rods *e e'*, by a wrist-motion, H, of which *f f'* are the wrists, attached to an arm, arms, or projection, *g*, from the rock-shaft *d*, and arranged, the one above and the other below a horizontal line intersecting the rock-shaft.

The advantages of this combination may be briefly stated, as follows: The wrist-motion dispenses with much lap to the valves, even where an extreme cut-off action is required, while the link-motion furnishes a quick and extensive range of action, producing no motion of the valves when the wrist-pin of the crank *e* is midway between the junction with the link *c* of the eccentric-rods *b b'*, that pull or thrust in opposite directions simultaneously, and exercising a considerable action on the valve-rods as the link is shifted to gear, at or towards its end, with the crank *e*, thus establishing a susceptibility or sensibility, that is, the link and wrist-motions, which, when the latter are combined with a governor, secures to the engine a perfect and immediate—even in quick-running engines—automatic control of the induction-valves.

What I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement of the governor and link-motion, with reference to the wrist-motion, constructed as described, to produce an automatic control of the induction-valves, substantially as specified.

JOHN F. ALLEN.

Witnesses:

J. W. COOMBS,
G. W. REED.