J. Tremper.

Lever Attachment for Governors.

No. 13,889. Patented Dec. 4, 1855.

Fig 2.

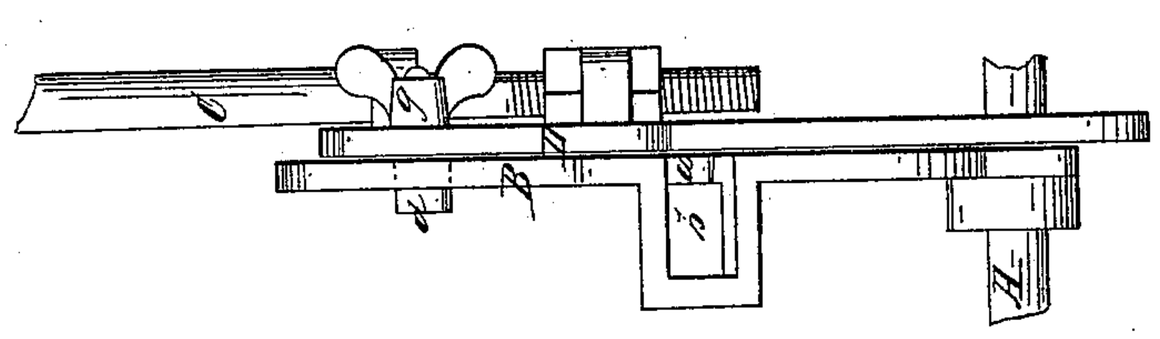


Fig 1

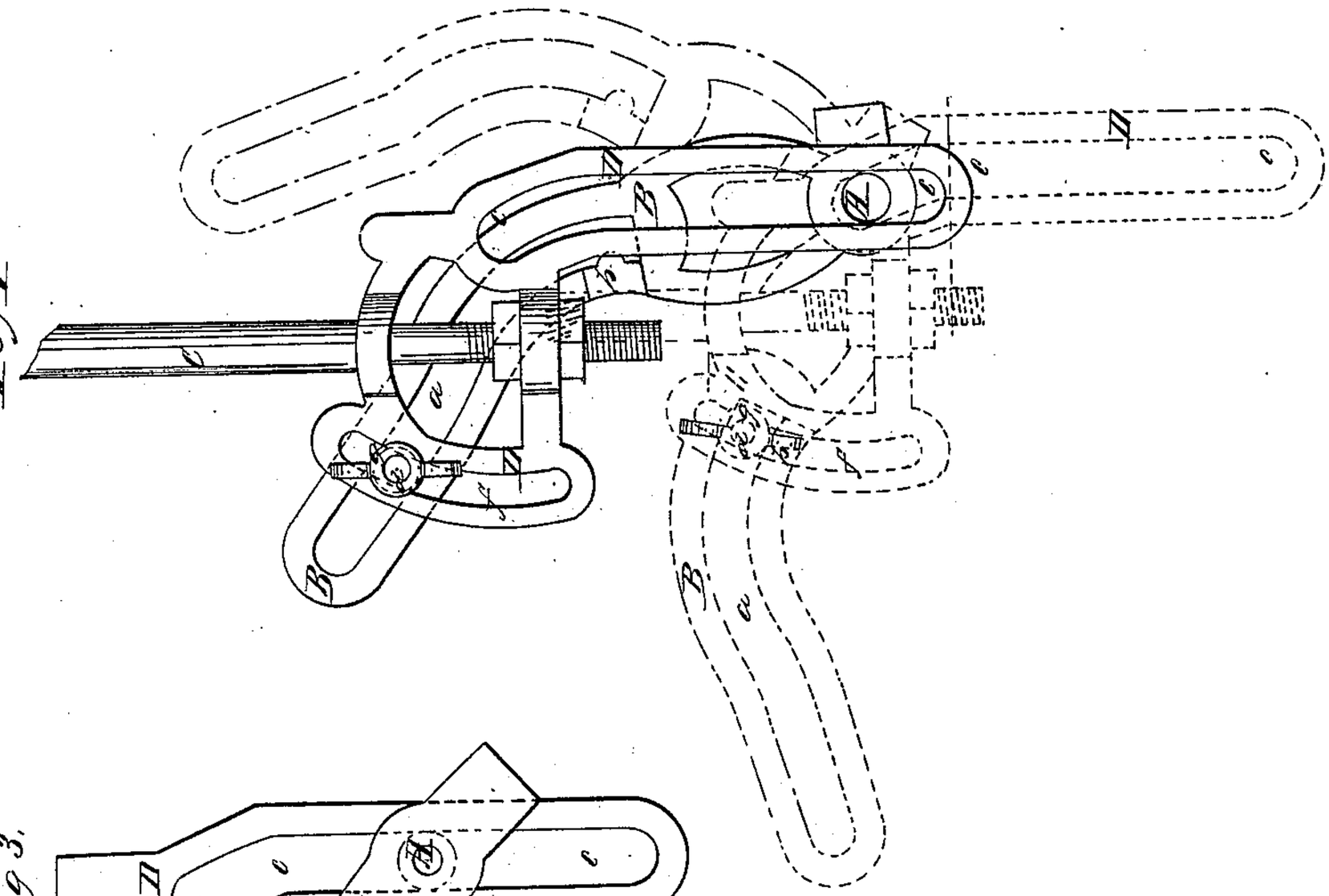
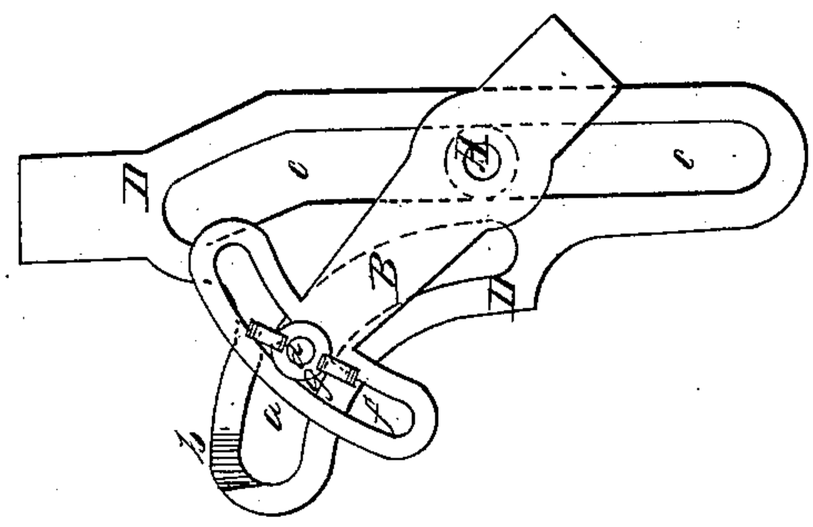


Fig 3.



UNITED STATES PATENT OFFICE.

JNO. TREMPER, OF PHILADELPHIA, PENNSYLVANIA.

MEANS OF CONNECTION BETWEEN REGULATOR-VALVES AND GOVERNOR-STEMS.

Specification of Letters Patent No. 13,889, dated December 4, 1855.

To all whom it may concern:

Be it known that I, JOHN TREMPER, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Method of Effecting the Connection Between the Governor and the Throttle-Valve or Cut-Off of the Steam-Engine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a front view, showing the connection of the throttle valve lever and governor. Fig. 2, is a side view of the same, and Fig. 3, is a front view of a modification of the connection.

Similar letters of reference indicate corresponding parts in the several figures.

In the ordinary method of applying the governor, no provision is made for the control of the engine, in case of the governor becoming suddenly inoperative and if by reason of its driving belt or gear giving way or by other accidental cause it is stopped or thrown out of operation, still remaining connected with the valve, it leaves the valve wide open and the steam full on the engine, which, in many cases causes the speed to be suddenly increased to such a degree that much injury is done to it and to the machinery driven by it.

The principal object of this invention, which I call a "Safety lever attachment," is to detach the governor entirely from the valve the instant it becomes inoperative to allow the valve to be closed by a spring or weight applied for the purpose, thereby stopping the engine.

Another object is to regulate the movement of the valve while the governor is in operation.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, represents the spindle of the throttle or regulating valve, by turning which the vale is opened, and B, Figs. 1 and 2, a lever secured to the said spindle for the purpose of turning it. This lever contains a curved slot *a*, at the inner extremity of which, or the end nearest the spindle, there is a recess or opening *b*, on one side.

C, is the connecting rod which connects the valve lever B, with the governor slide. The connection between this rod and the valve lever is effected by means of a slot *c*, and a pin *d*, the former made in, and the latter secured to, a plate D, which is secured to the lower end of the connecting rod, the said slot for the greater portion of its length, being parallel or nearly so with the rod, and fitting to move freely on the end of the valve spindle to guide the rod, and the said pin fitting to move freely in the slot *a*, of the valve lever. The rising and falling of the connecting rod with the governor slide causes the pin *d*, to work up and down the slot *a*, giving a less opening to the valve by an upward and a greater opening by a downward motion. While the governor has any motion at all, the pin *d*, never descends as low as the opening *b*, of the slot, but if the governor ceases to revolve and the balls, vanes or their equivalents, and the governor slide, fall to the lowest position, the pin arrives oposite the opening, as shown in red outline in Fig. 1, and the valve lever is then thrown sidewise as shown in blue outline, far enough to detach itself entirely from the pin and close the valve, by the action either of a spring applied to the spindle or by a weight. This spring or weight is not shown, as its action will be intelligible to any person versed in mechanics. The upper part of the slot *c*, is a little bent, as shown, in Fig. 1, to give the bottom of the rod, such a lateral movement, as the governor arrives at its lowest position, when inoperative, as to assist in disengaging the pin *d*, from the slot *a*. The slot *a*, also serves the purpose of giving the valve any desired motion, by making it of proper curved or angular form. The curved form represented, gives an increased movement to the valve within a given length of range of the governor slide, as the valve opens wider, and vice versa, this being the most desirable movement.

Instead of having a slot *a*, the valve lever may be made without a slot, the same as if the side *d*, of the slot were removed entirely leaving only a bearing for one side of the pin *d*, which is all that is necessary as the spring or weight which is employed to close the valve will keep the valve lever in proper contact with the pin *d*.

In the modification of my invention, which is exhibited in Fig. 3, the valve lever carries the pin *d*, which is fixed therein and the slot *a*, or bearing for the said pin and the escape opening *b*, are made in the plate D, attached to the connecting rod C, by

which it is obvious the same effect will be obtained as by attaching the pin to the plate and providing a slot or bearing for it in the valve lever.

In either of the above modes of carrying out my invention I make the pin *d*, adjustable for the purpose of giving the valve more or less opening and the engine more or less steam, and therefore I fit it to a slot *f*, in the plate D, as shown in Fig. 1, or in the lever B, as shown in Fig. 2, as the case may require, so that I can move it as may be required, securing it in the desired position by a shoulder and a nut *g*.

The method of applying the invention to a cut-off, is substantially the same as that of applying it to a throttle or regulator valve, the lever B, the traveling pin *d*, and the escape opening or notch *b*, being all combined in substantially the same manner.

The same result as has been above described may be obtained by a straight or curved toothed rack on the connecting rod C, and a concentric toothed segment on the valve spindle, the rack being, when the governor becomes inoperative, allowed to fall out of gear with the segment.

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

Effecting the connection between the throttle valve cut-off or other regulator valve and the governor stem, by means of a pin *d*, working within a slot *a*, or against a bearing face, the said slot or bearing face having an escape opening *b*, opposite to which the pin *d*, is brought by the cessation of the operation of the governor, whereby the pin is allowed to escape from the said slot or bearing face, and thereby effect the disconnection of the governor from the valve or cut-off instantaneously, to allow the valve to be closed by a spring or weight provided for the purpose to stop the engine immediately after the governor ceases to operate, the said pin *d*, being attached to the governor rod, and the said slot or bearing face *a*, and escape opening *b*, being in or upon the lever of the throttle valve or cut-off or what is equivalent, the pin being attached to the said lever and the slot or bearing face and escape opening being in the connecting rod of the governor or in a plate connected therewith, or what is equivalent by a toothed rack and segment substantially as herein described.

JOHN TREMPER.

Witnesses:
PUSY R. MCNEILLE,
JNO. R. MCNEILLE.