(No Model.)

Z. C. TALBOT.

STEAM ENGINE GOVERNOR.

No. 248,961. Patented Nov. 1, 1881.

Fig 4

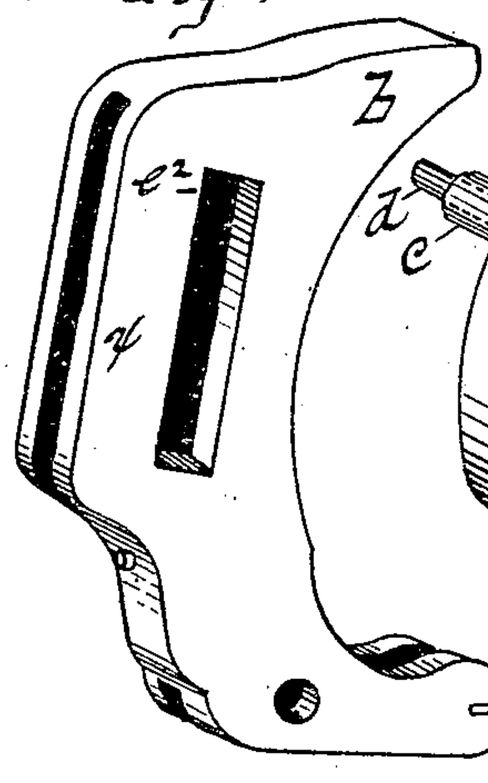


Fig 3

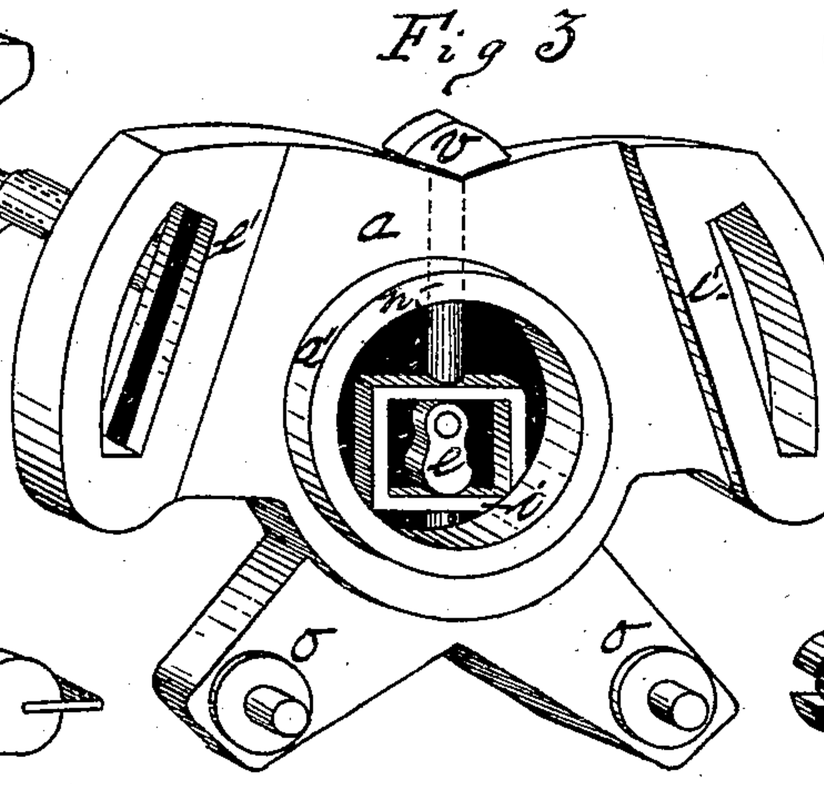


Fig 5

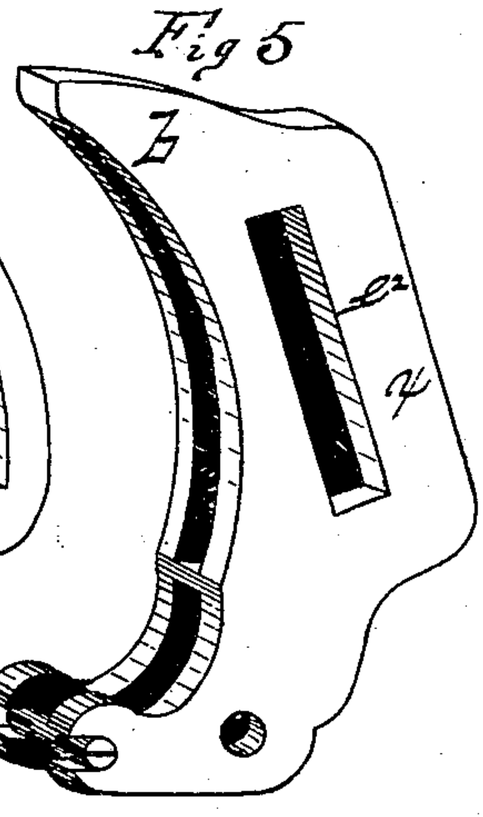


Fig 6

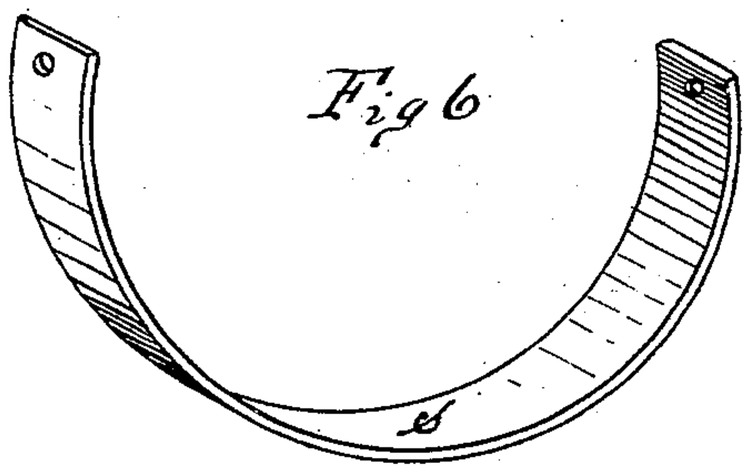


Fig 1

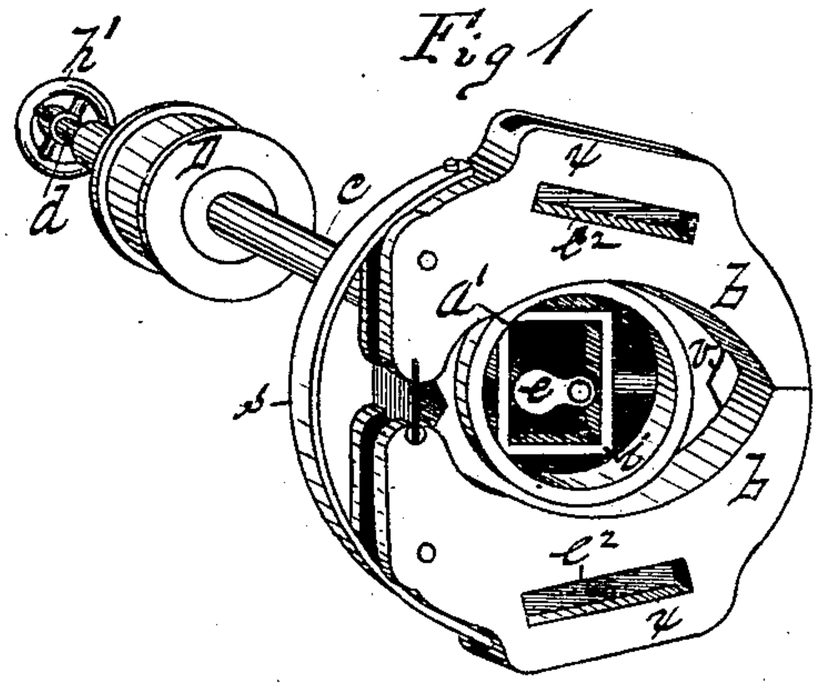


Fig 2

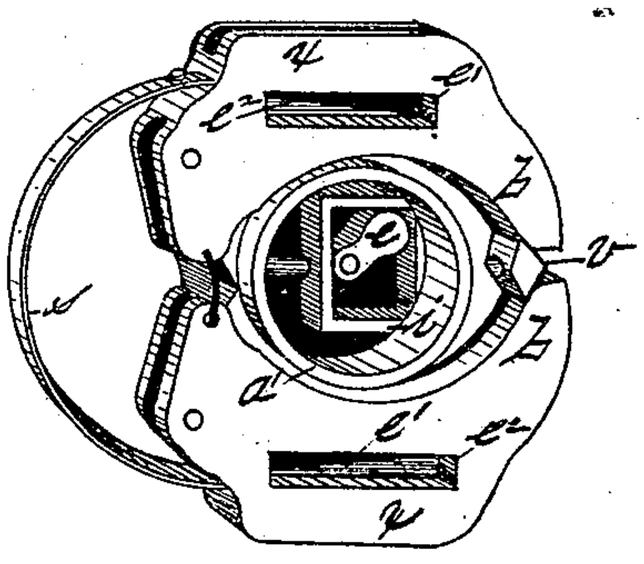
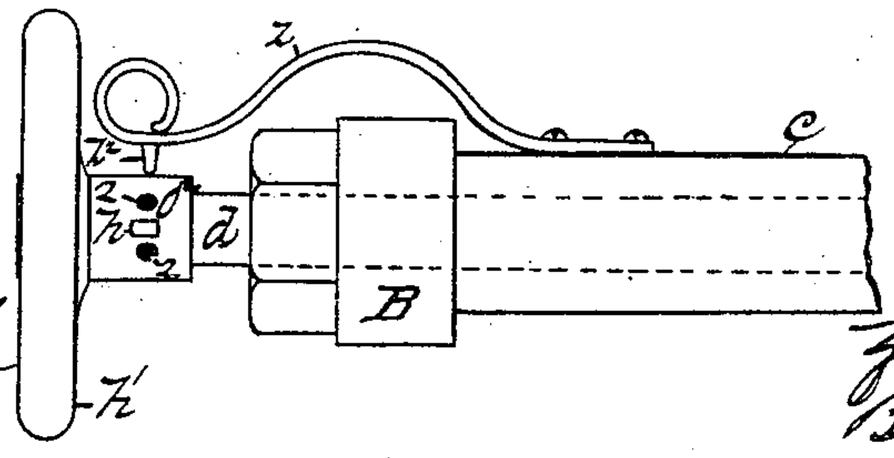


Fig 7



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UNITED STATES PATENT OFFICE.

ZEBEDEE C. TALBOT, OF SPRINGFIELD, MASSACHUSETTS.

STEAM-ENGINE GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 248,961, dated November 1, 1881.

Application filed August 31, 1881. (No model.)

To all whom it may concern:

Be it known that I, ZEBEDEE C. TALBOT, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Steam-Engine Governors, of which the following is a specification.

This invention relates to improvements in steam-engine governors which are constructed with cut-off valves which are adapted to operate by centrifugal force to open and close the steam-ports therein, and is in the nature of an improvement upon the patent to D. F. Chase, No. 160,572, dated March 9, 1875, the object being to so improve the construction of said governors that they will shut off the steam-supply if by accident the governor-belt or other governor-running device becomes broken or inoperative, and prevent the engine from "running away," as it is termed.

In the drawings forming part of this specification, Figure 1 illustrates the hollow steam-conductors with their driving-shaft, and with their hinged valves in place on said conductors, the outer case being removed, all constructed according to my invention. Fig. 2 is a similar view to Fig. 1, but showing the hinged valves in a partly-opened position. Fig. 3 is a view of the hollow steam-conductors, their shaft, and devices for operating the wings or hinged valves, the latter and their spring being removed from said conductors. Figs. 4 and 5 illustrate said hinged valves. Fig. 6 is the valve-spring, and Fig. 7 illustrates detail parts connected with the valve-operating devices.

In the drawings, *a* is the hollow steam-conductor, having two exit-ports, e' e', steam being received into it through an induction-pipe passing through the side of the outer case of the governor opposite the center of the ring a' on the face of said conductor. A shaft, *c*, carries said conductor on one end thereof, on which is a driving-pulley, D, said shaft *c* being hollow. A cam-shaft, *d*, passes through said shaft *c*, on the outer end of which is a hand-wheel, h', having a hub, *h*, provided with pin-holes 2 2 and a stop-pin, o^2. Said shaft *c* is provided with the usual packing-nut, B, to prevent steam from escaping between it and shaft *d*. A stop-spring, *z*, is secured to shaft *c*, having a pin, z^2, thereon, adapted to enter the holes 2 2 on hub *h*. Said cam-shaft *d* passes quite through shaft *c*, and terminates about at the center of the conductor *a* within the ring a', and on its inner end is secured a cam, *e*. A cam-yoke, *i*, secured to a spindle, *n*, is placed in the central chamber of said conductor, within which cam *e* may be rotated to give said yoke a transverse motion within said chamber. One end of said spindle *n* reaches through said conductor, projecting sufficiently beyond the edge thereof to permit of securing thereto the wedge *v*.

The hollow valves *b* are hung upon pivots in the arms *o o* of the conductor *a*, and are caused to swing together over the ports e' e' by the spring *s*, which is secured to said valves, as shown in Figs. 1 and 2, their ends meeting and bearing upon the wedge *v*, as shown in said first figure. Said valves *b* possess a novel construction, consisting of the wing parts *x*, extending considerably beyond the ports e^2 in said valves, and when said valves are in the position shown in Fig. 1, which is that which they occupy when the governor is at rest, said wings *x* entirely cover the ports e' of the conductor *a*, while in the said Chase governor, as ordinarily made, the openings or ports in said conductor and in said valves coincide when the governor is at rest and allow a free passage of steam therethrough. Said valves *b* are constructed to have that part of them beneath or on the inside of their ports e^2 swing over the ports e' in the conductor *a* when the governor is in operation, and regulate the size of the steam-passage through said ports e', the spring *s* causing the ends of the valves to approach each other when reduced speed of revolution diminishes the centrifugal force by which they are caused to swing apart and partly cover the ports in conductor *a*.

With the valves *b*, constructed with the wings *x* to cover the ports e' of the conductor *a* when the latter ceases to rotate, it is obvious that some means must be provided by which the said ports e' can be partially or wholly opened, so that the engine can be started and said conductor and valves set in motion; and to provide for this the wedge *v* on the end of spindle *n* is, by turning wheel h' and moving cam *e* in the yoke *i*, forced between the ends of the valves *b*, pressing them apart and partly opening the ports e' of conductor *a*, as shown in Fig. 2, thereby letting steam pass the governor to start the engine. As soon as the shaft *c* begins

to rotate, wheel h' is held for an instant, causing the end of spring z to swing around the hub h of said wheel against the projecting pin o^2, when pin z^2 on said spring will drop into one of holes 2 on said hub, indicating that the movement of the yoke around cam e has caused the latter to assume the position relative to yoke i shown in Fig. 1, leaving the valves free to swing without interference from said wedge, which has thus been retired from between said valves, and wheel h' is now released.

The operation of the wings x on valves b to close the ports e' of the conductor a when the rotation of the latter suddenly ceases from any accident to the devices driving it will be readily understood, since the rotation of the conductor and said valves is necessary to keep said ports open, and when said rotation ceases spring s operates to swing the valves together, thus shutting off the steam and stopping the engine when the governor-belt breaks.

I make no claim, broadly, to such construction of steam-engine governors as is shown in the above-named patent to Chase, nor to such as is shown in his patent of August 9, 1881, No. 248,777; but

What I claim as my invention is—

1. The hollow valves b, having the wings x to cover the steam-ports e' in the conductor a when the governor ceases to rotate, in combination with said conductor and the spring s, substantially as set forth.

2. In combination, the conductor a, attached to the hollow shaft c, valves $b\,b$, provided with the wings x, spring s, yoke i, wedge v, secured by spindle n to said yoke, shaft d, and cam e, substantially as set forth.

3. In combination, yoke e, having wedge v secured thereto by spindle n, cam e, shaft d, the stop-spring z, provided with pin z^2, and wheel h', having the hub h, provided with the holes 2 2, and pin o^2, substantially as set forth.

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Witnesses:
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