

(No Model.)

C. B. MOHN.
SHAFT GOVERNOR FOR STEAM ENGINES.

No. 450,249.

Patented Apr. 14, 1891.

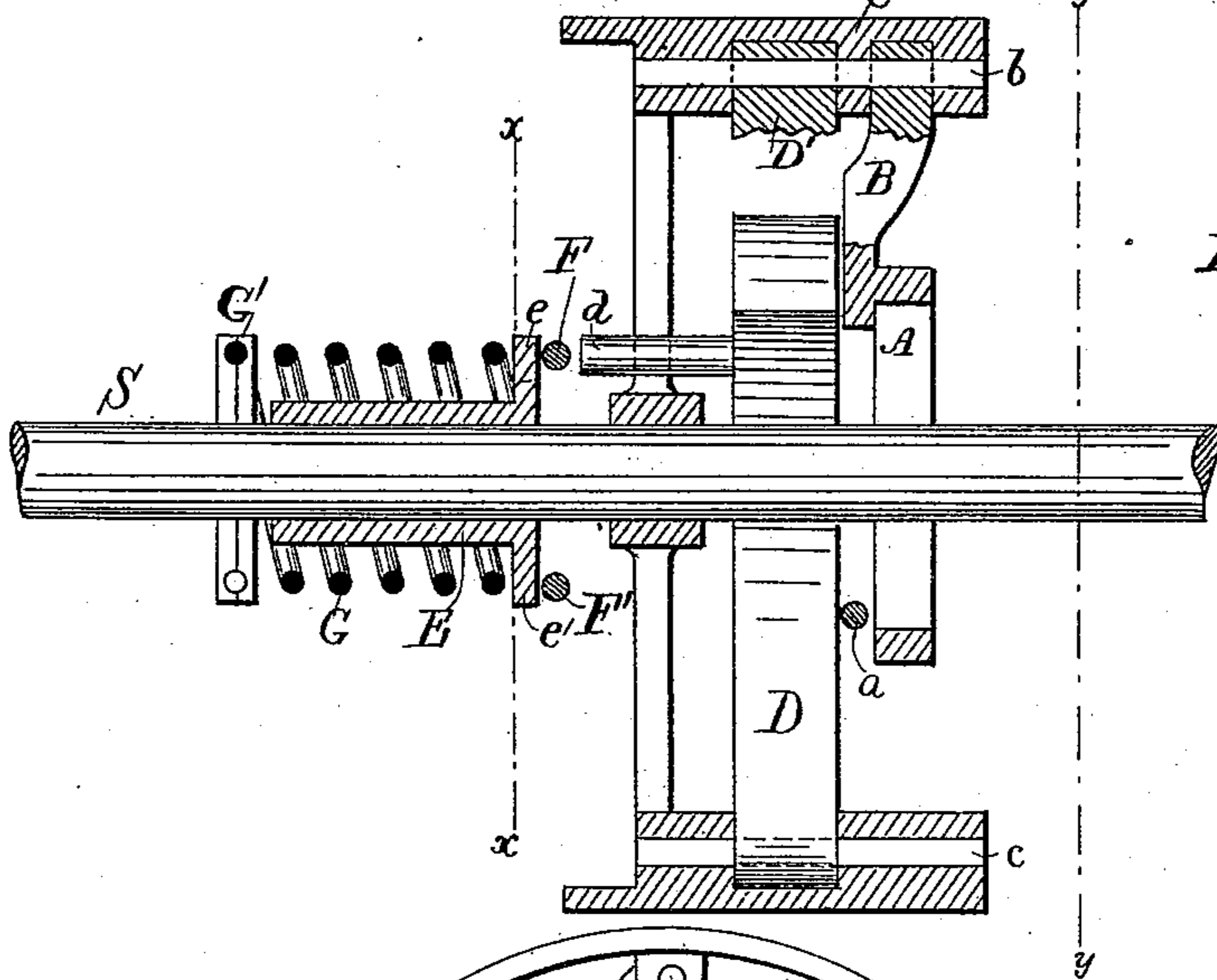


Fig. 1.

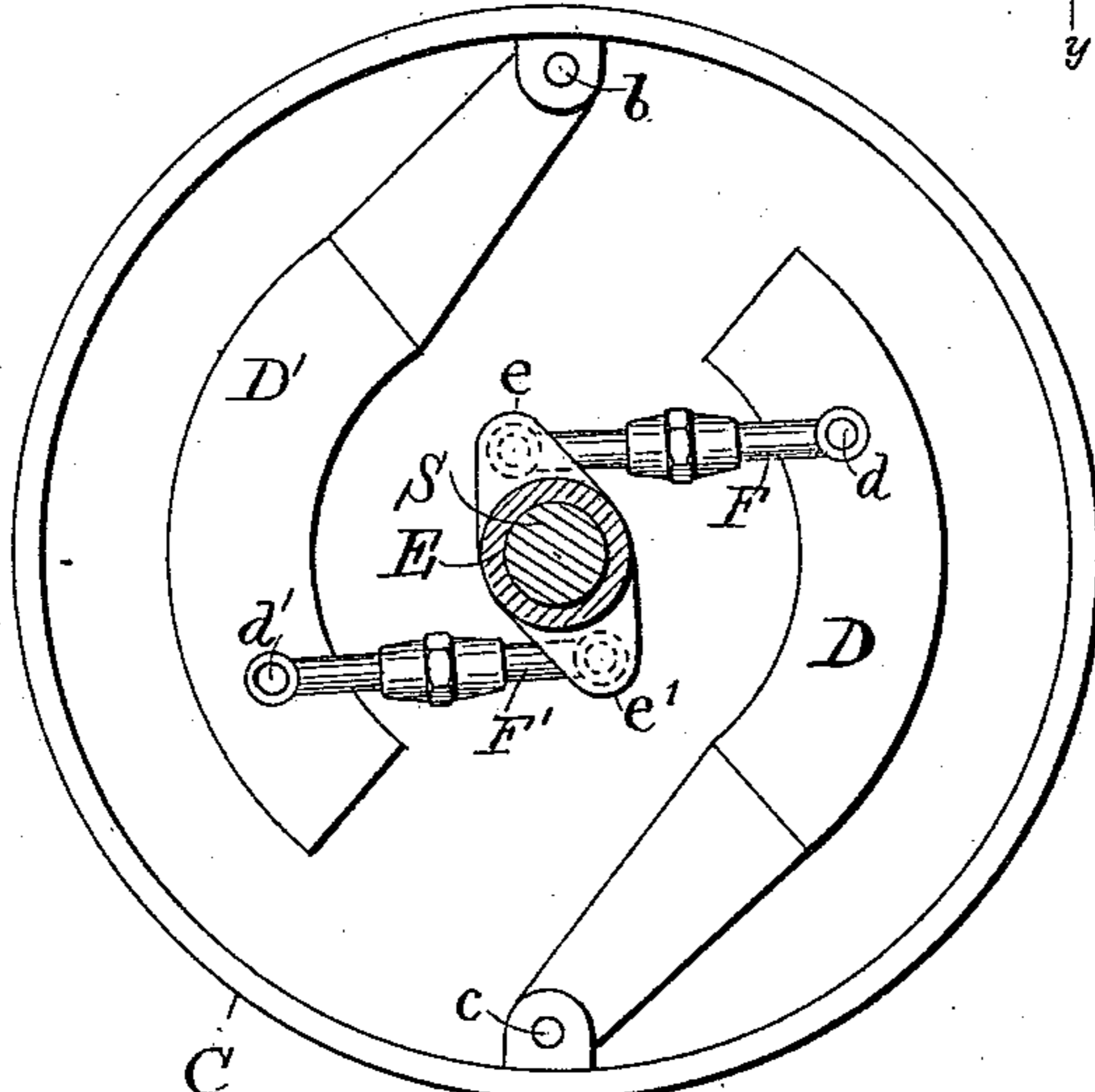


Fig. 2.

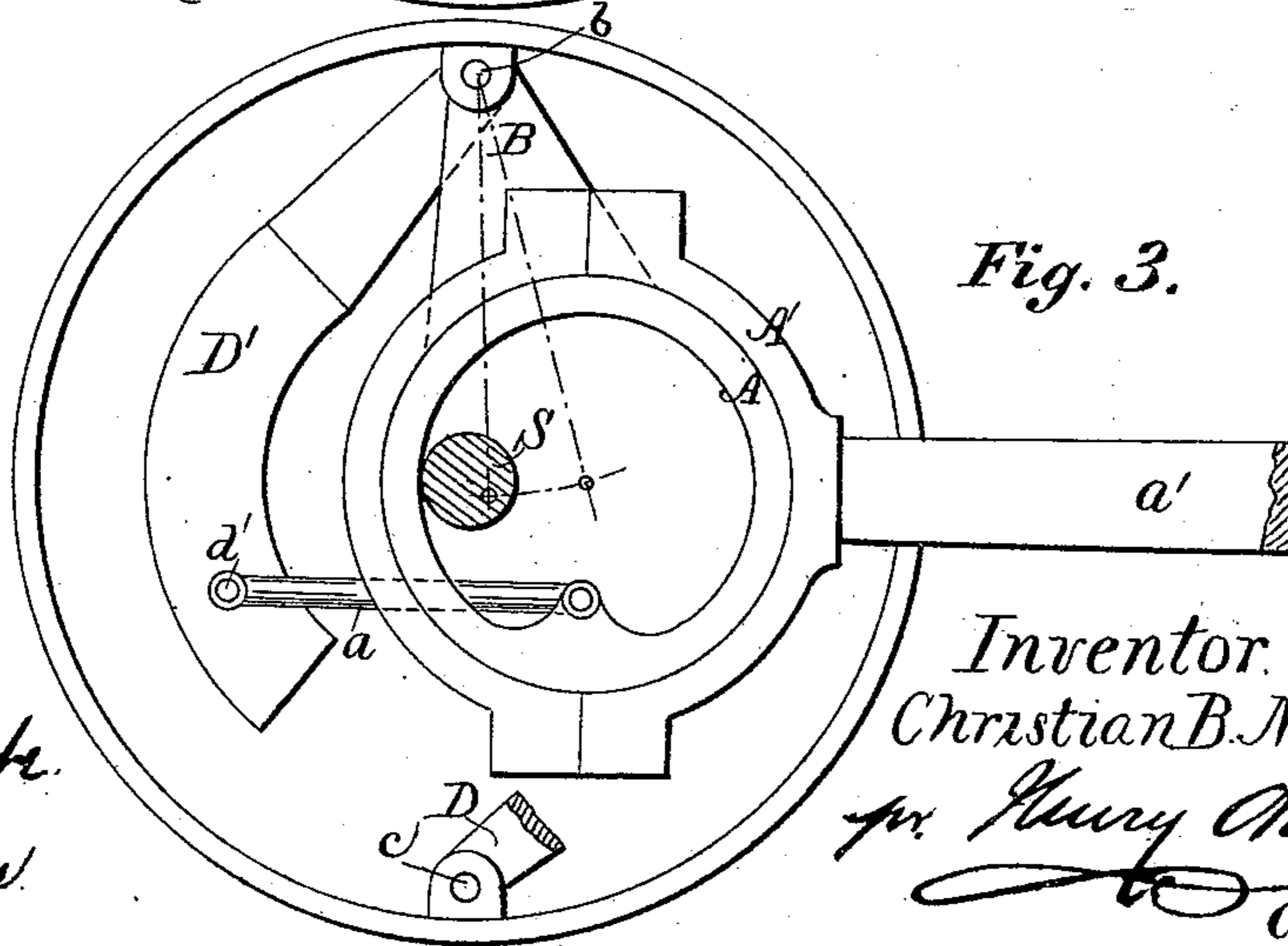


Fig. 3.

Witnesses.

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SHAFT-GOVERNOR FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 450,249, dated April 14, 1891.

Application filed September 25, 1890. Serial No. 366,110. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN BENEDICK MOHN, a citizen of the Kingdom of Norway, residing at Christiania and Kingdom of Norway, have invented certain new and useful Improvements in Shaft-Governors for Steam-Engines; and I 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.

The invention relates to valve-gearing, and more especially to that class of valve-gear in which the position of the eccentric relatively to the driving-shaft is automatically controlled by means of weights operating upon the eccentric by centrifugal action.

The invention has for its object certain improvements in the class of valve-gear referred to for the purpose of more readily and accurately adjusting the connections between the eccentric and the weights, and therethrough the throw of the slide-valve, so that the speed of the engine may be adjusted to that desired, whatever may be the work performed.

To these ends the invention consists in the combination, with the eccentric and weights, of adjustable link connections and of a resilient connection between the weights and driving-shaft, as will now be fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section; and Figs. 2 and 3 sections taken on lines $x x$ and $y y$, respectively, of Fig. 1, of a valve-gear embodying my improvements.

The driving-shaft S carries a pulley C, in which are formed bearings for the pivot-pins b and c , upon which are pivoted the segmental weights D and D' diametrically opposite each other. Upon the pin b is also pivoted the eccentric A by means of an arm B, the strap A' of said eccentric being provided with the rod a' , that is connected with the slide-valve, while eccentric A is connected by a link a with one of the two weights—as, for instance, the weight D', as shown in Fig. 3.

The eccentric A is simply a ring through which the shaft S passes freely, and whose position relatively to the shaft is controlled by the centrifugal action of the weights, which action is counteracted or controlled by the

spring G, with which both weights are connected, so that whatever the work performed by the engine its speed will be practically the same at all times. The use of a ring-eccentric admits of its free motion about the shaft with the wheel, while the frictional contact between the two is reduced to a minimum and said eccentric is rendered more sensitive to the centrifugal force exerted thereon by one of the weights. In fact, the eccentric, although it revolves about the shaft, has at the same time a free pendulous motion at right angles to the axis of the shaft during its revolution.

The weights are each provided with a pin d and d' , respectively, and the driving-shaft carries a sleeve E, that has two lugs e and e' projecting from opposite sides thereof, the lug e being connected by link F with the pin d and the lug e' by link F' with the pin d' of the weights D and D', respectively. These links are constructed of two parts and have their contiguous ends screw-threaded, one link-section being provided with a right-hand thread and the other with a left-hand thread, the threaded ends screwing into a correspondingly-threaded nut f . The same results may be obtained with a single link by screw-threading the bearing in the sleeve-lugs or by means of a nut pivotally connected with said sleeve-bearings, as will be readily understood, though I prefer the two-part link as being the simpler means of adjustment.

Upon the sleeve E is mounted a coiled spring G, one of whose ends is secured to said sleeve and the other to the shaft S by means of a ring-clamp G', adjustable on said shaft. Inasmuch as the weights D and D' are connected to the sleeve E and the latter to the spring G, the position of the weights relatively to said spring can be very accurately adjusted by means of the links F F'. On the other hand, the eccentric being suspended from the pulley and linked to one of the weights, the position of said eccentric relatively to the shaft is also adjusted when said weights are adjusted relatively to the spring G, so that the throw or travel of the slide-valve, and consequently the speed of the shaft S, can be adjusted to any desired travel and speed respectively.

It will be seen that by the arrangement of devices as described the throw of the eccen-

tric can be adjusted with great nicety. On the other hand, the construction of the governor is very much simplified, a single spring on the driving-shaft performing the function of the two springs heretofore employed in this class of governors to control the centrifugal action of the weights.

Having described my invention, what I claim is—

1. The combination, with the driving-shaft and the eccentric that controls the slide-valve, said eccentric consisting of a ring through which the shaft extends, and which is adapted to revolve about and to vibrate at right angles to the axis of said shaft, of weights arranged on opposite sides of the shaft and revolving about the same, one of said weights being connected with and having a fixed relation to the eccentric, and a resilient connection between the weights and the shaft acting in opposition to the centrifugal action of said weights, for the purpose set forth.
2. The combination, with the driving-shaft and the eccentric that controls the slide-valve, said eccentric consisting of a ring through which the shaft extends and which is adapted to revolve about and to vibrate at right angles to the axis of said shaft, of weights arranged on opposite sides of the shaft and revolving about the same, one of said weights being connected with and having a fixed relation to the eccentric, and an adjustable resilient connection between the weights and the shaft acting in opposition to the centrifugal action of said weights, for the purpose set forth.
3. The combination, with the driving-shaft and the eccentric that controls the slide-valve, said eccentric consisting of a ring through which the shaft extends and which is adapted to revolve about and to vibrate at right an-

gles to the axis of the said shaft, of two weights arranged on opposite sides of and revolving about the shaft, one of said weights being connected with and having a fixed relation to the eccentric, a coiled spring on the driving-shaft having one of its terminals secured to said shaft, and a connection between the other terminal of the spring and the two weights, for the purpose set forth.

4. The combination, with the driving-shaft and the eccentric that controls the slide-valve, said eccentric consisting of a ring through which the shaft extends and which is adapted to revolve about and to vibrate at right angles to the axis of the said shaft, of two weights arranged on opposite sides of and revolving about the shaft, one of said weights being connected with and having a fixed relation to the eccentric, a coiled spring on the driving-shaft having one of its terminals secured to said shaft, and an adjustable connection between the other terminal of the spring and the two weights, for the purpose set forth.

5. The combination, with the driving-shaft, the eccentric that actuates the slide-valve, and the pulley-support C, to which said eccentric is pivoted, said pulley-support being rigidly connected with the driving-shaft, of the weights D and D', the link connection *a* between one of said weights and the eccentric, the sleeve E on driving-shaft, the adjustable link connections F F' between said sleeve and the weights, and the spring G, connected with the shaft and sleeve, respectively, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTIAN BENEDICK MOHN.

Witnesses:

O. WINGE,
GERH. GADE.