

(No Model.)

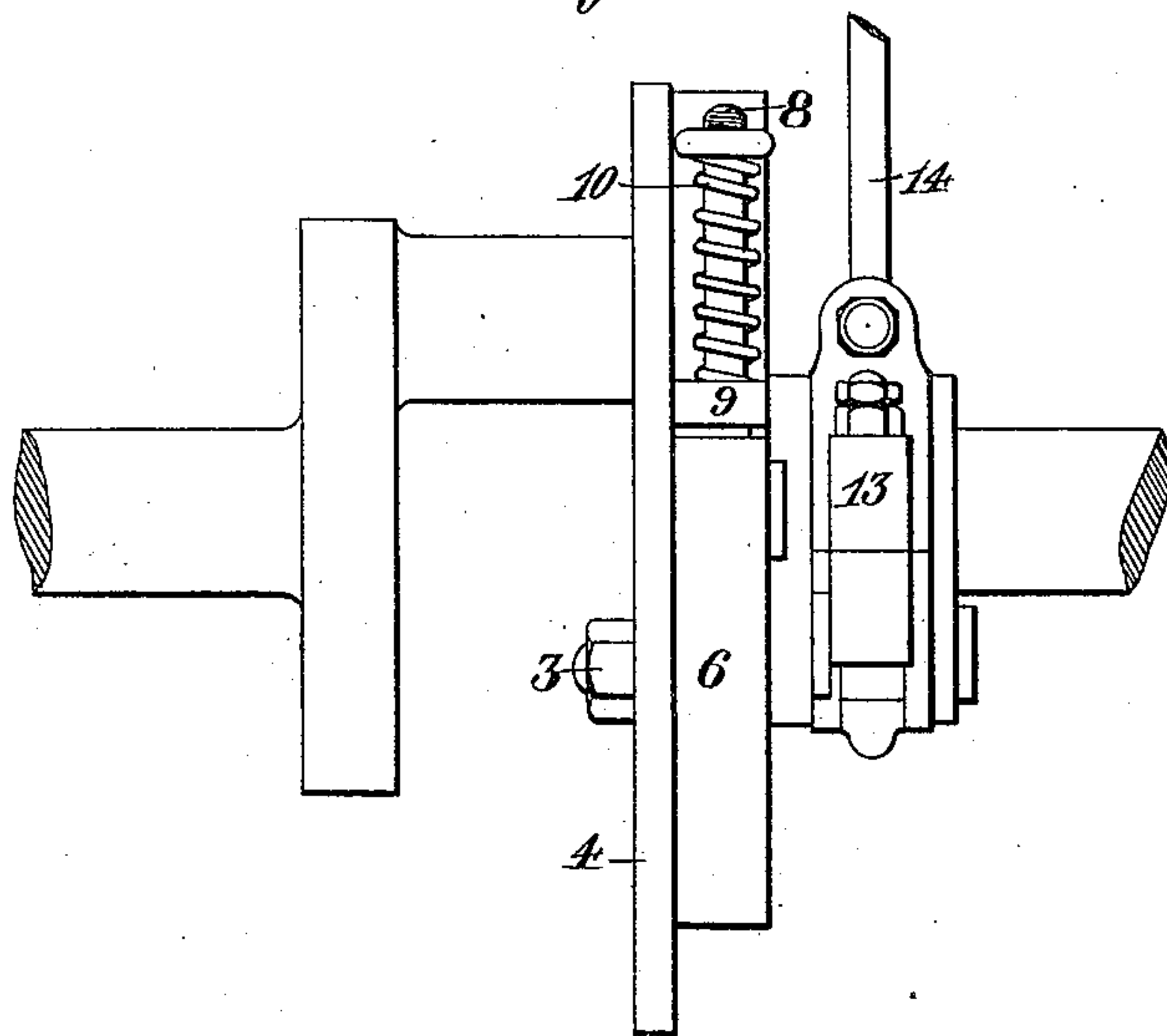
2 Sheets—Sheet 1.

N. CHANDLER.
CUT-OFF GEAR FOR ENGINES.

No. 428,453

Patented May 20, 1890.

Fig. 1.



Witnesses:

E. C. Duffy

Chas. M. Keck

Inventor
Noel Chandler

per

E. C. Duffy
Attorney

(No Model.)

2 Sheets—Sheet 2.

N. CHANDLER.
CUT-OFF GEAR FOR ENGINES.

No. 428,453.

Patented May 20, 1890.

Fig. 3.

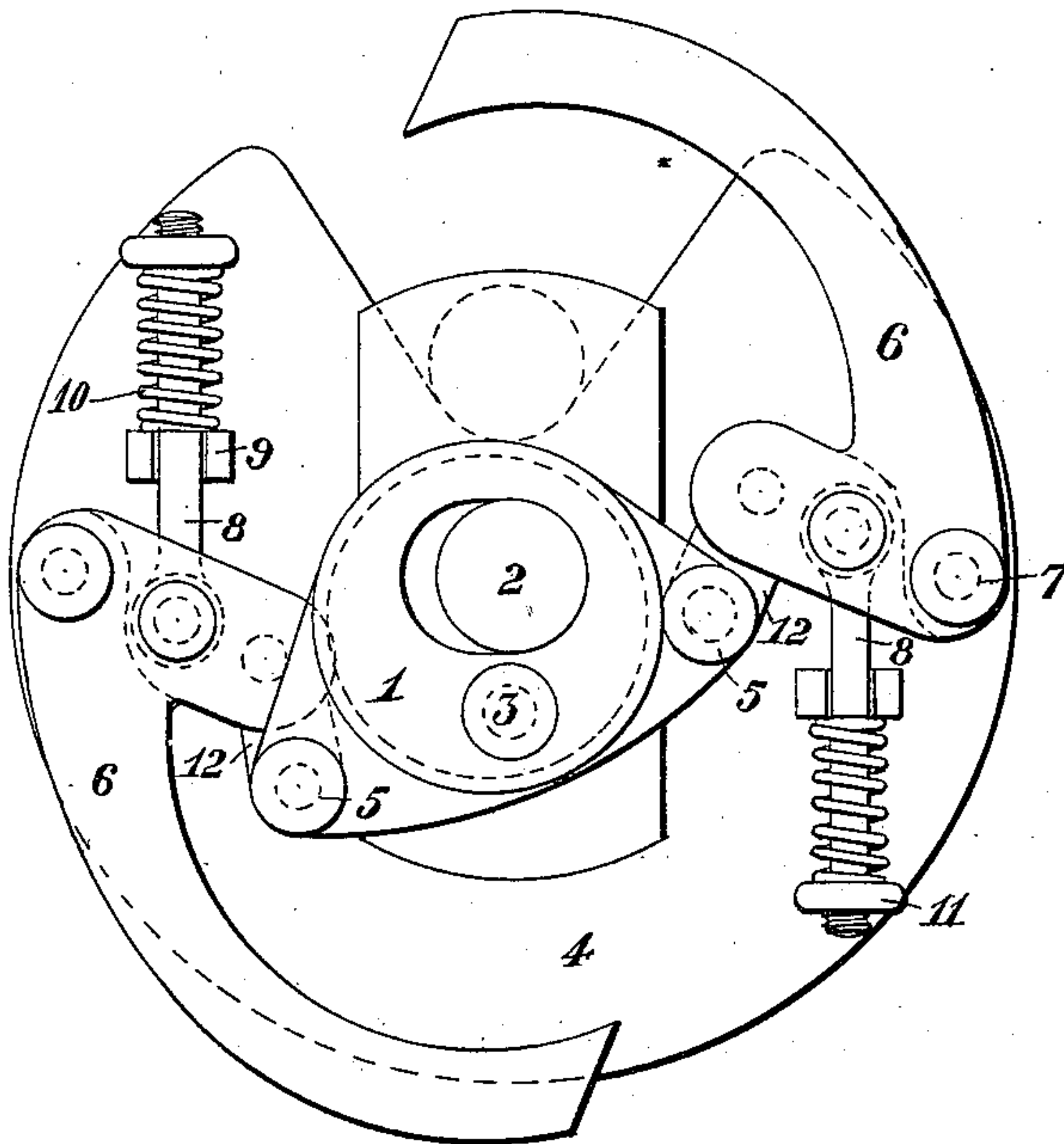
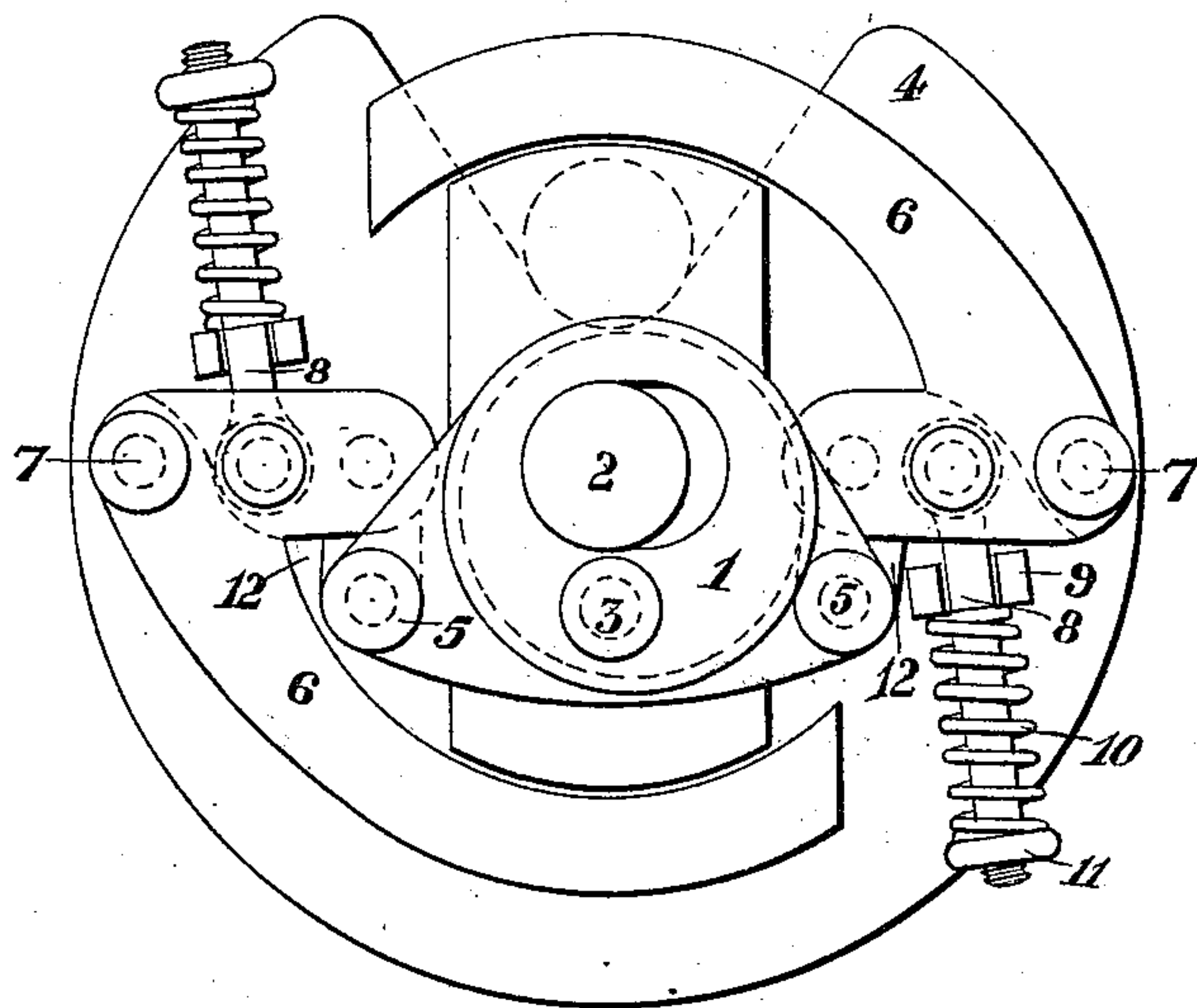


Fig. 2.



Witnesses:
E. C. Duffy
Chas. M. Werle

Inventor
Noel Chandler
per *E. C. Duffy*
Attorney

UNITED STATES PATENT OFFICE.

NOËL CHANDLER, OF HEDNESFORD, COUNTY OF STAFFORD, ENGLAND.

CUT-OFF GEAR FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 428,453, dated May 20, 1890.

Application filed March 29, 1889. Serial No. 305,328. (No model.)

To all whom it may concern:

Be it known that I, NOËL CHANDLER, a subject of the Queen of Great Britain and Ireland, residing at Hednesford, in the county of Stafford, Kingdom of Great Britain and Ireland, have invented Improvements in Automatic Cut-Off Gears for Steam Engines, of which the following is a specification.

This invention relates to automatic cut-off gears for steam-engines of the kind in which the eccentric which operates the distributing-valve has its position on the crank-shaft varied by the action of a centrifugal governor which is mounted upon and rotates with the said shaft.

In an automatic cut-off gear according to this invention the eccentric has its eye slotted out, so that it can be moved relatively to the shaft to alter the amount of its stroke. It is carried by a pin, which passes through the eccentric and within the circumference of the eccentric-strap, and which pin projects through an extension of one of the crank-webs, or which is carried by a disk or arm secured to the shaft. The position of the eccentric is regulated by a governor. This governor consists of two weights pivoted to the above-mentioned plate and connected by links to extensions of the eccentric. When the governor is in rotation, the centrifugal force of the weights tends to move the eccentric in one direction relatively to the shaft in opposition to the force of two adjustable springs, each connected at one end to the above-mentioned plate and at the other end to an arm or ear on the weight. The governor is so arranged that it occupies no more space on the shaft than the thickness of the crank-arm (longitudinally.)

Referring to the annexed two sheets of drawings, Figure 1 is a side elevation of an automatic cut-off gear according to this invention; and Figs. 2 and 3 are two front elevations, the former showing the parts in positions corresponding to the latest cut-off and the latter in positions corresponding to the earliest cut-off for which the gear is designed.

The eccentric 1 is not keyed on the crank-shaft 2, but has an elongated curved eye, so

that it can be moved with relation to the shaft. It is pivoted on a pin 3, which passes through an extension of one of the crank-webs (serving as a counter-weight) and through a plate 4 behind it. The eccentric can move on this pin to the extent allowed by its eye. Connected with the eccentric are two arms or horns 5 5, each of which is connected by a link 12 to a weight 6, pivoted on a pin 7, fixed to the plate 4. To each weight 6 there is pivoted a pin 8, which passes through a guide 9. Around this pin is a spring 10, which is compressed when the weights move outward under centrifugal force from the position in Fig. 2 to that of Fig. 3 to alter the stroke of the eccentric. The compression of the springs can be varied by means of the nuts 11 11. 13, Fig. 1, is the eccentric-strap, and 14 the eccentric-rod, by which the distributing-valve is operated. The cut-off of the steam is rendered earlier as the speed increases and the weights fly out, the lead remaining constant.

What is claimed is—

1. In an automatic cut-off gear, the combination of an eccentric having an elongated eye for the passage of a driving-shaft, arms or lugs in one with or directly connected to said eccentric, a pin driven from the driving-shaft, and whereon said eccentric is journaled at a point within the bearing of the eccentric-strap, weights subjected to centrifugal force and to the force of springs, the two forces acting in opposite directions, and a support fixed to the driving-shaft, said weights being jointed to said support and connected to said arms or lugs on said eccentric, substantially as herein described.

2. In an automatic cut-off gear, an eccentric 1, pivoted on a pin 3, carried by an extension of one of the crank-arms and arranged to pass through the eccentric at a point within its circumference, in combination with weights 6 6, connected to said eccentric and subject to centrifugal force and to the force of springs, and a plate 4, fixed to the driving-shaft, and whereon said weights and springs are mounted, substantially as described.

3. An automatic cut-off gear comprising an eccentric block or sheave 1, having an elongated curved eye, so

gated eye through which the crank-shaft 2
passes, a pin 3, whereon said eccentric is
 journaled, said pin being carried by an ex-
 tension of one of the crank-webs and passing
 5 through the eccentric at a point within its
 circumference, weights 6 6, links 12 12, con-
 necting said weights with said eccentric, a
 plate 4, whereon said weights are pivotally
 mounted, and springs 10 10, connecting said
 10 weights to said plate, substantially as herein
 described.

In testimony whereof I have signed my
 name to this specification in the presence of
 two subscribing witnesses.

NOËL CHANDLER.

Witnesses:

W. H. HARRIS,

*Not. Pub., 47 New Street, Birmingham, Eng-
 land.*

HENRY BREWIN,

*47 New Street, Birmingham, England, his
 clerk.*