

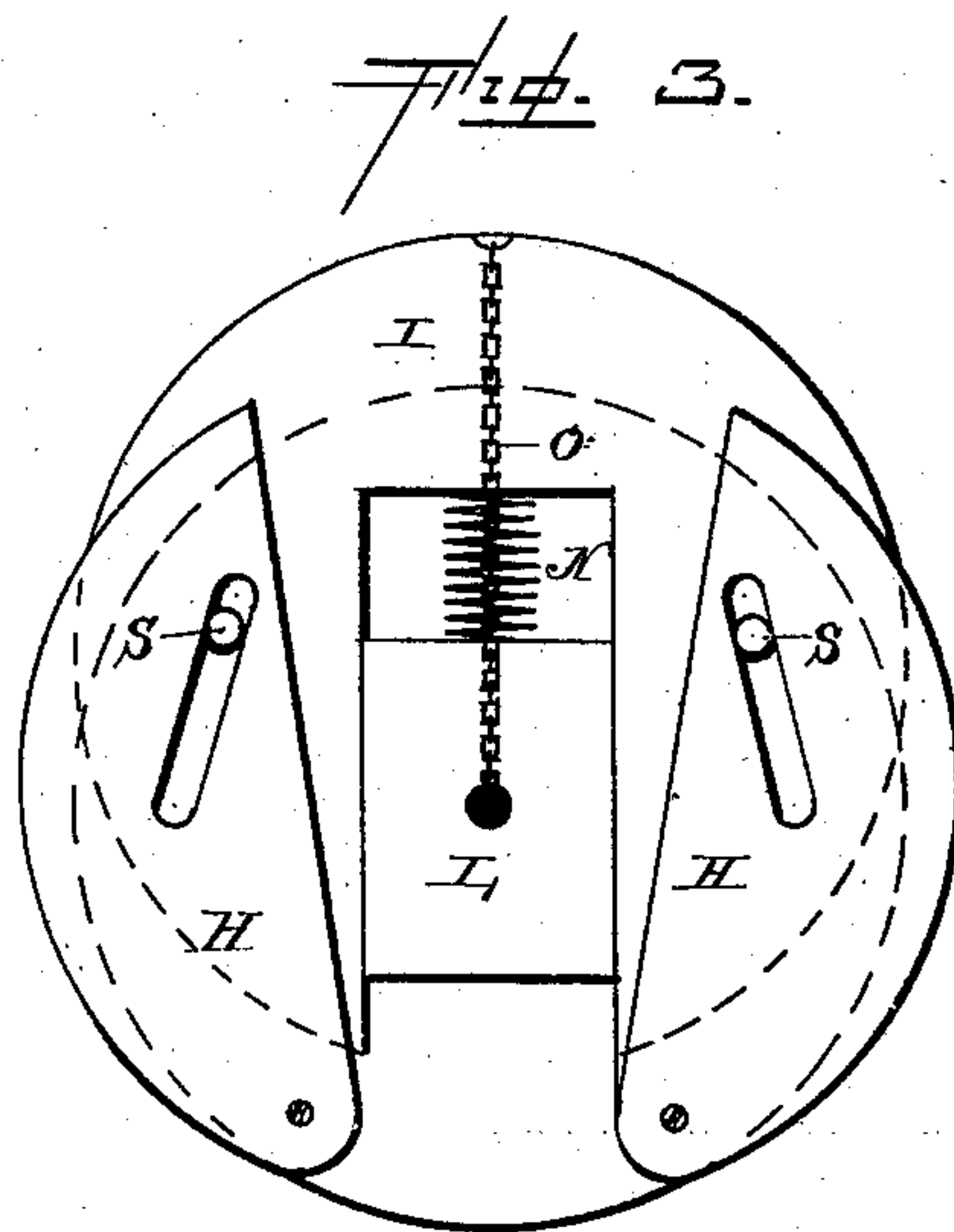
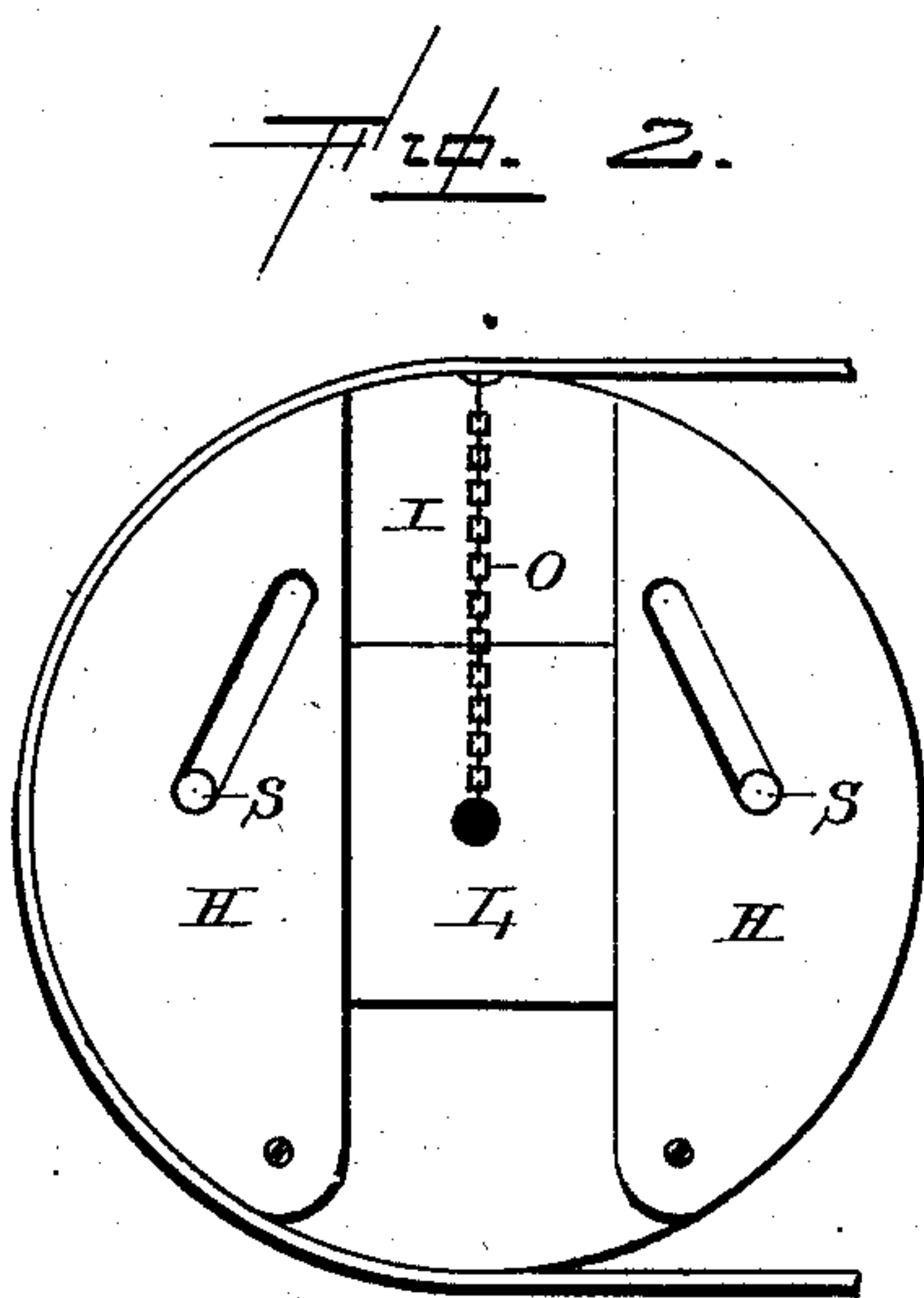
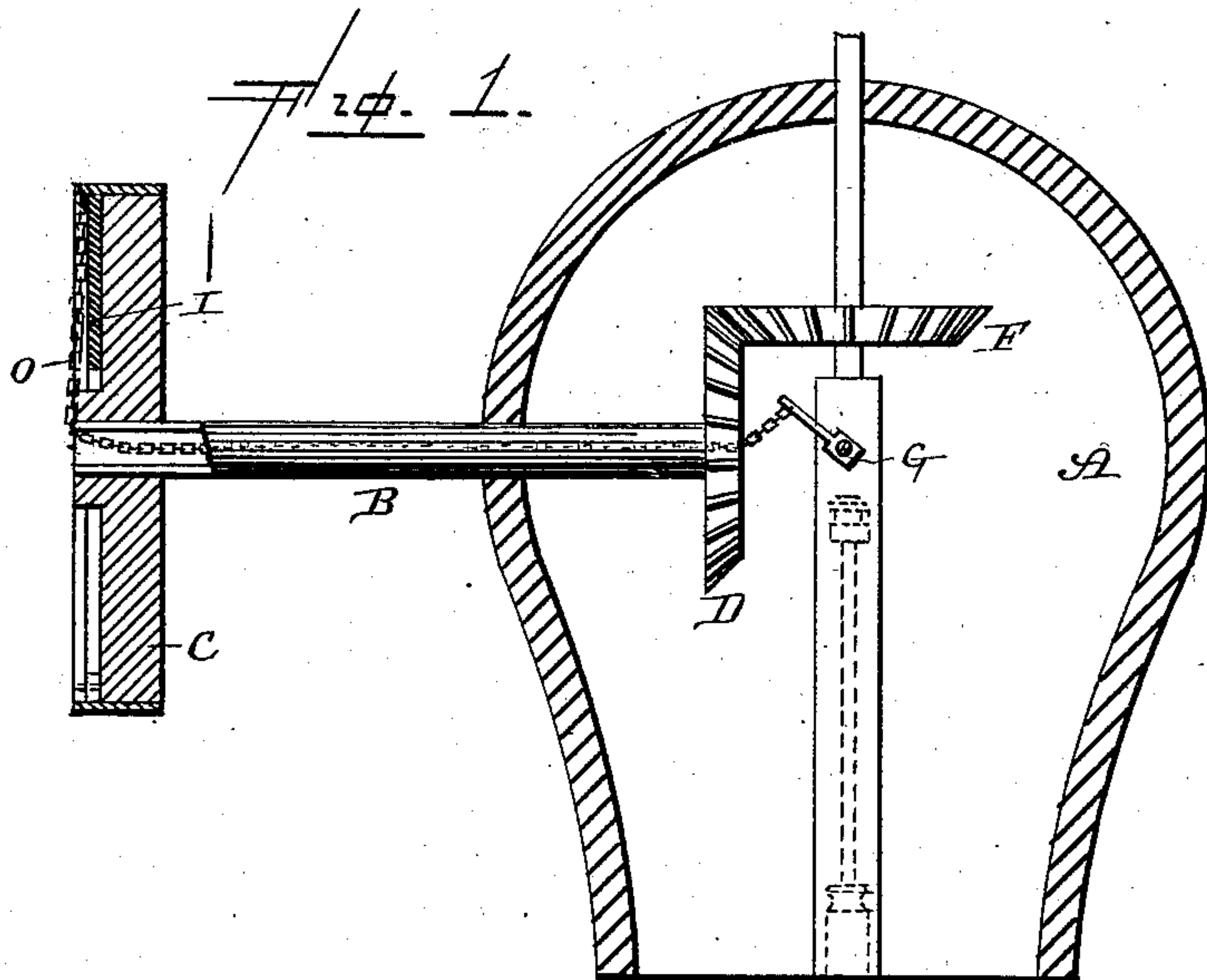
(No Model.)

W. J. BUCHANAN.

ATTACHMENT FOR STEAM ENGINE GOVERNORS.

No. 287,620.

Patented Oct. 30, 1883.



—Witnesses.—  
Louis R. Gardner  
J. W. Garner

—Inventor.—  
W. J. Buchanan  
per  
J. A. Lehmann,  
att'y



# UNITED STATES PATENT OFFICE.

WILLIAM JOHN BUCHANAN, OF HUNTINGTON, INDIANA.

## ATTACHMENT FOR STEAM-ENGINE GOVERNORS.

SPECIFICATION forming part of Letters Patent No. 287,620, dated October 30, 1883.

Application filed August 2, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, W. J. BUCHANAN, of Huntington, in the county of Huntington and State of Indiana, have invented certain new and useful Improvements in Attachments for 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in attachments for governors for steam-engines; and it consists in the combination, with the driving-pulley, around which the driving-band passes, of a spring-actuated slide, which is connected by a wire, cord, or chain with a clutch on the governor-shaft, with pivoted arms or levers that are made rounding on their outer side, so as to correspond to the shape of the pulley, and which hold the slide in place until the band slips off or becomes broken, as will be more fully described hereinafter.

The object of my invention is to provide an attachment for governors of steam-engines, so that in case the driving band or belt should become broken or slip off of its pulley the governor will at once become detached or allow the steam to be shut off before the engine gets beyond control.

Figure 1 is a side elevation of my invention complete. Fig. 2 is a detached view of the pulley, showing the different parts in position. Fig. 3 is a similar view of the pulley, showing the parts when released by the slipping off or the breaking of the band or belt.

A represents a suitable frame, and B a hollow shaft, which passes through one side, and has the driving band or belt C attached to its outer end. To the inner end of this shaft B is secured the pinion D, which meshes with a corresponding pinion, F, upon the governor-shaft. Just below this pinion F is placed a sliding clutch, G, which disconnects the stem of the governor when the steam is to be shut off.

The driving-pulley C may either be grooved, so as to receive a band, or may be flat, to receive a belt, as is preferred. To one of the

sides of this pulley is pivoted two levers or arms, H, which are made rounding on their outer sides, so as to correspond to the shape of the pulley. These arms or levers H are made to operate together, and by frictional contact of pins against upper sides of slots in levers hold slide I in place. These arms or levers are slotted, and have pins S upon the slide, which pass through them, for the purpose of holding the slide in place and preventing it from moving the clutch. As long as the band or belt is around the pulley it presses one or both of the arms tightly against the pins S, and thus holds the slide in position. When, however, the band breaks or slips off from the pulley, these arms or levers are left free to move outward, and the slide is forced outward as far as the slots will allow.

The slide I is made rounding at its outer edge, so as to correspond to the shape of the pulley, and this slide is also kept in place, not only by the pressure of the arms or levers, but by the pressure of the band or belt itself. The central portion, L, of the pulley extends out so as to be about flush with the arms or levers and the slide, and between the edge of this central portion, L, and the inner side of the slide I is placed a coiled spring, N. Also fastened to this slide is a wire, cord, or chain, O, provided with a swivel, and which passes through the center of the pulley and through the hollow shaft and fastens to the clutch which disconnects the governor-stem. As long as this slide I remains in position the clutch drops down in place; but as soon as the slide is forced outward by the pressure of the coiled spring the cord, wire, or chain causes the clutch to pull downward, and thus disconnect the governor-shaft and instantly shut off the steam. While the pulley is in motion the band or belt is bearing against the outer side of one or both of the arms or levers, so as to force them tightly in against the pins, while the slide is in that position where it is not held by the band or belt; but as soon as the slide reaches that point where the band or belt comes in contact with its outer edge the band or belt alone is sufficient to keep the slide in position.

One great trouble with governors which are



driven by a band or belt is that in case the band or belt becomes broken or slips off the governor no longer has any effect upon the engine, and the engine then acquires a momentum so great that the engineer loses control over the engine, and then it (technically speaking) "runs away." Where my invention is used, as soon as the band or belt slips off or becomes broken the slide I is instantly forced outward, and thus causes the cord, wire, or chain to operate the clutch and disconnect the governor-stem. The pressure of the steam forces the valve of governor downward, thus preventing the steam from passing through to the engine; or, in case there is no downward pressure upon the valve, a spring is placed upon the stem, and, acting against the clutch, forces the valve downward.

Having thus described my invention, I claim—

1. The combination, in an attachment for steam-governors, of the pulley, with an auto-

matic mechanism which is connected thereto and held in place by means of the pressure of the band or belt, and a suitable connection between this mechanism and the governor-stem, substantially as shown. 25

2. In an attachment for steam-governors, the spring-actuated slide, suitable means for holding the slide in place upon the pulley, and a means of connection between this slide and the clutch upon the governor-stem, substantially as described. 30

3. The combination of the driving-pulley, the pivoted holding arms or levers, the spring-actuated slide, a connecting cord, wire, or chain, the hollow shaft, and the clutch upon the governor-stem, substantially as set forth. 35

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

WILLIAM JOHN BUCHANAN.

Witnesses:

CHARLES B. GARRETT,  
SAML. BUCHANAN.