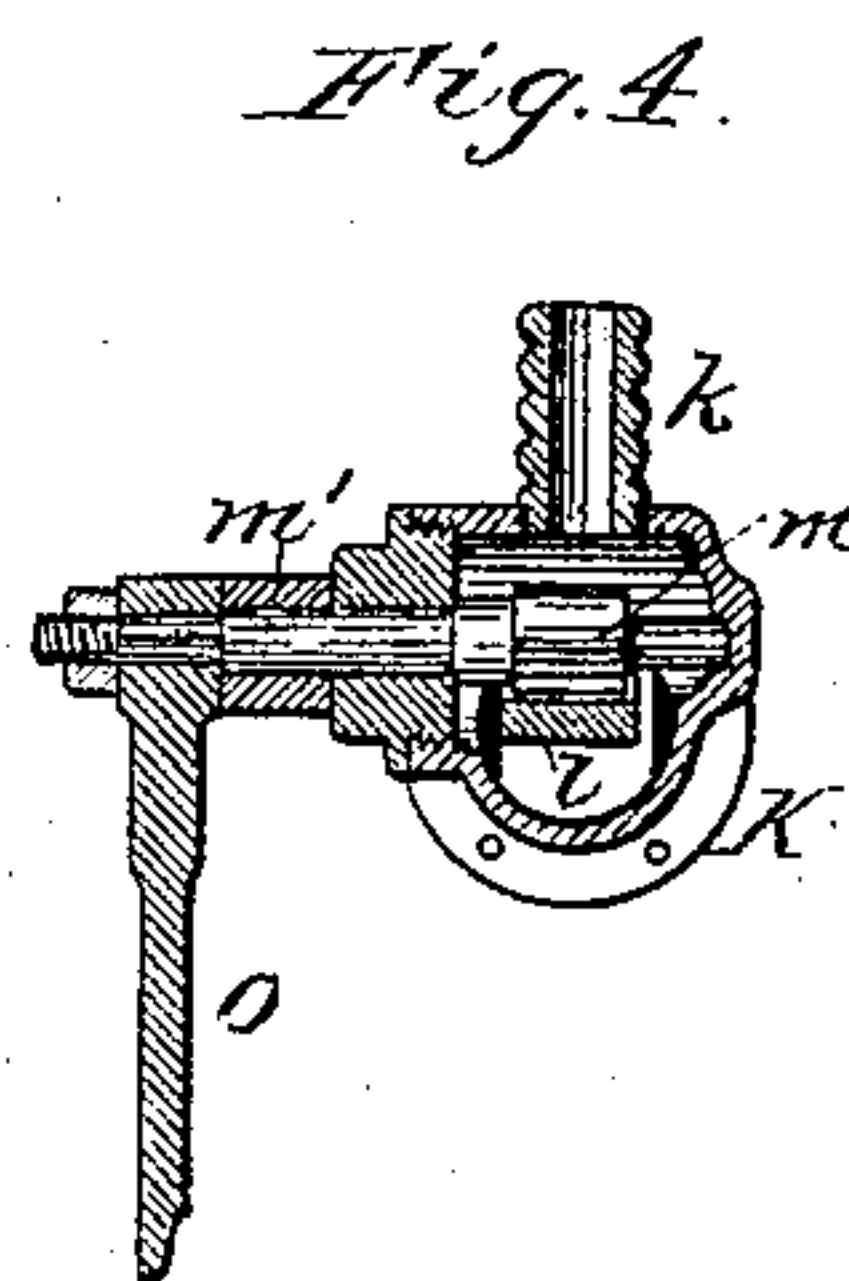
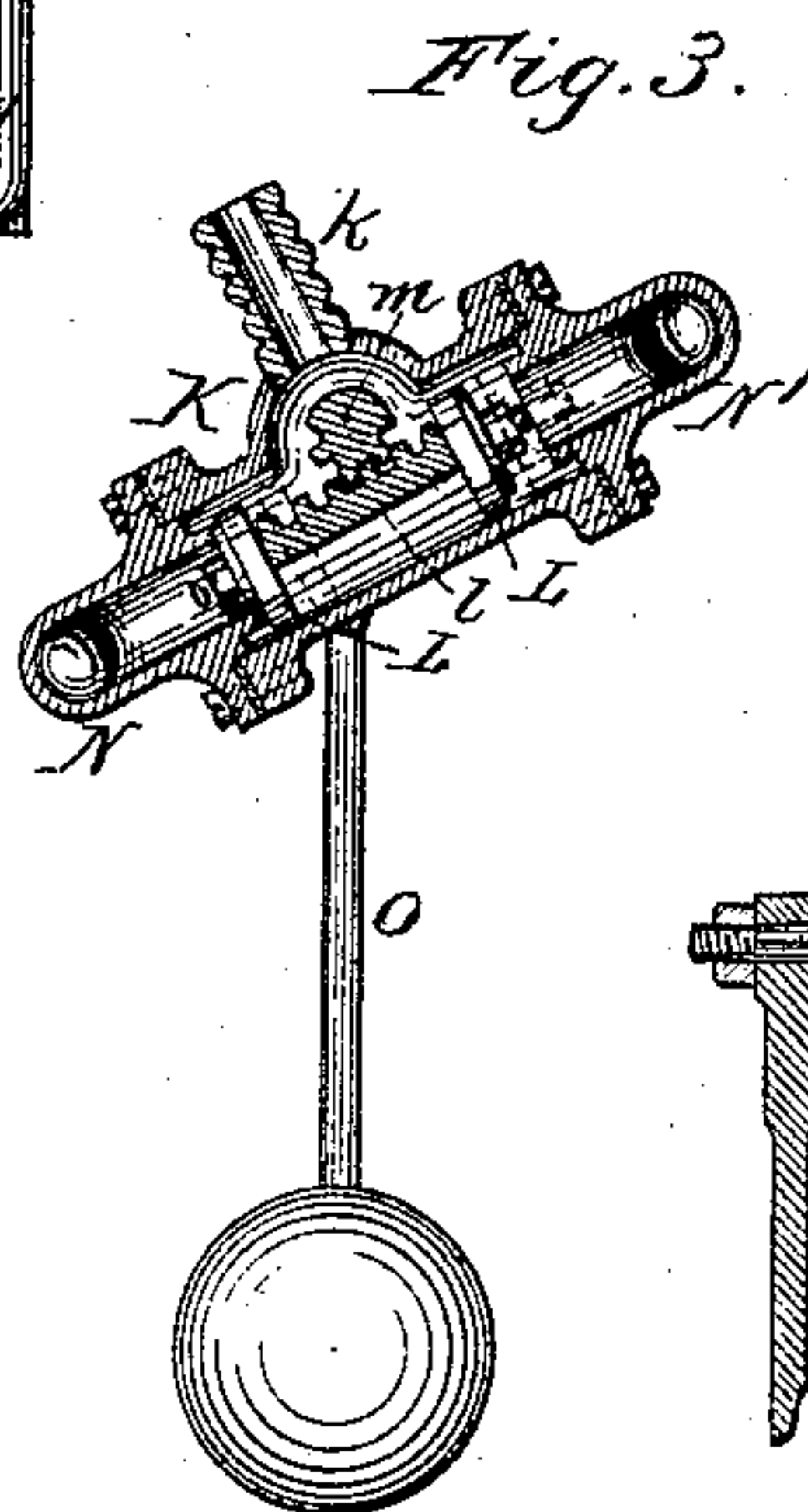
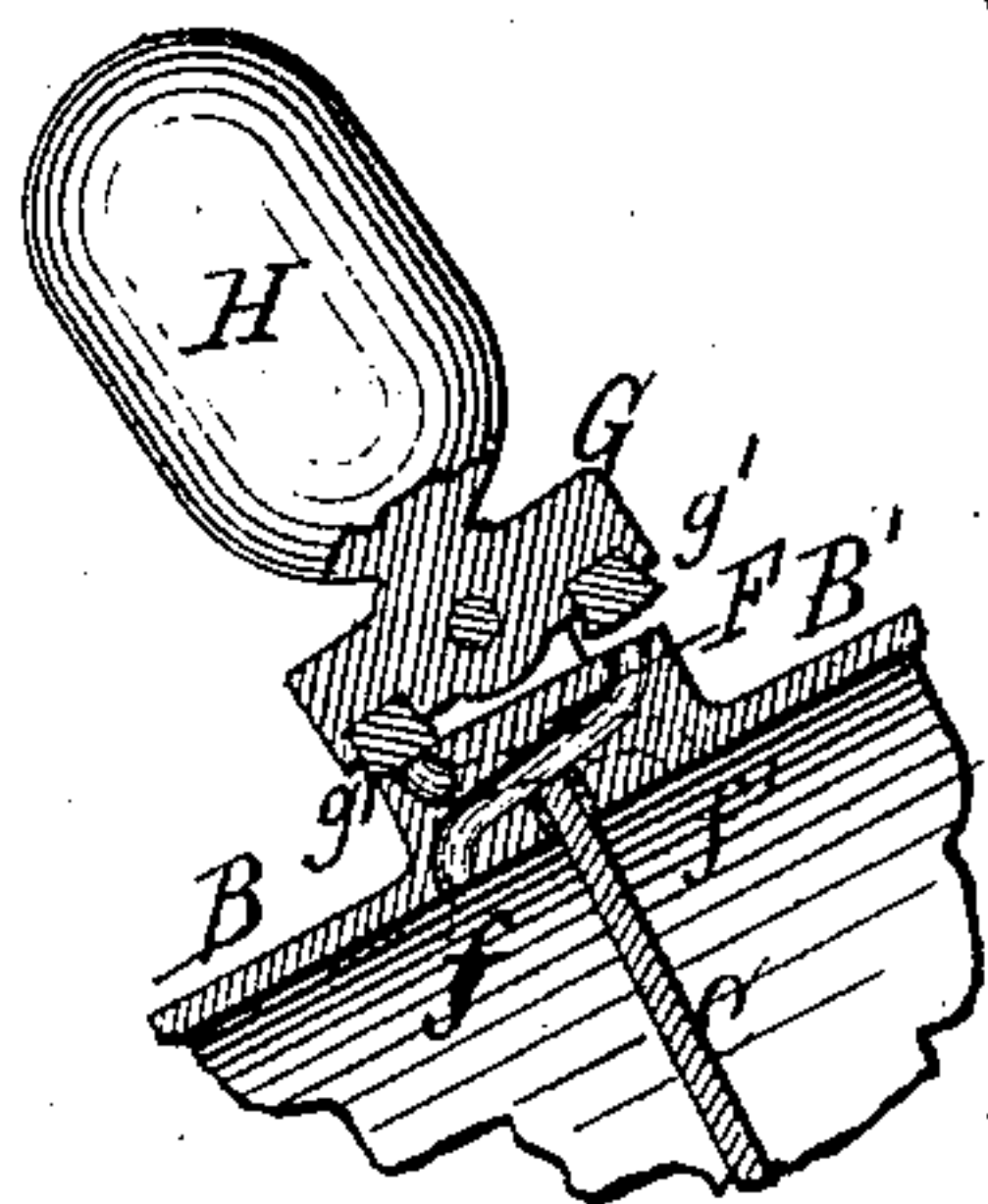
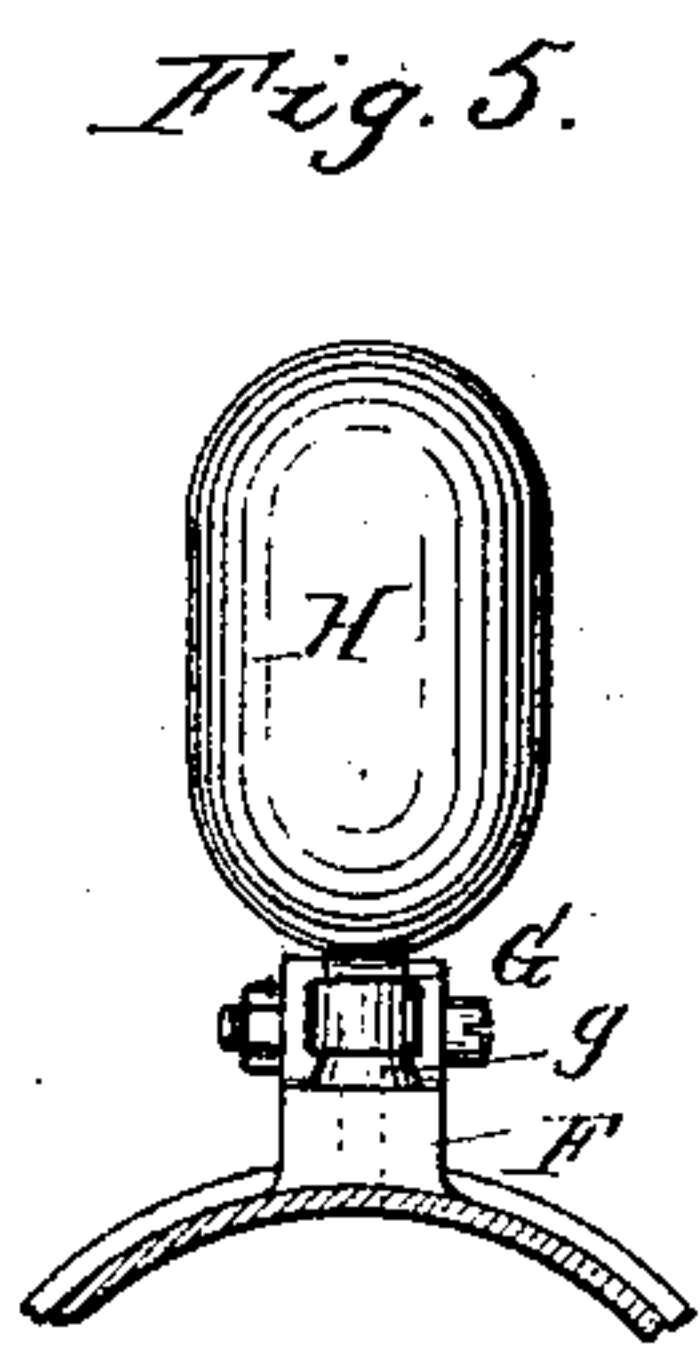
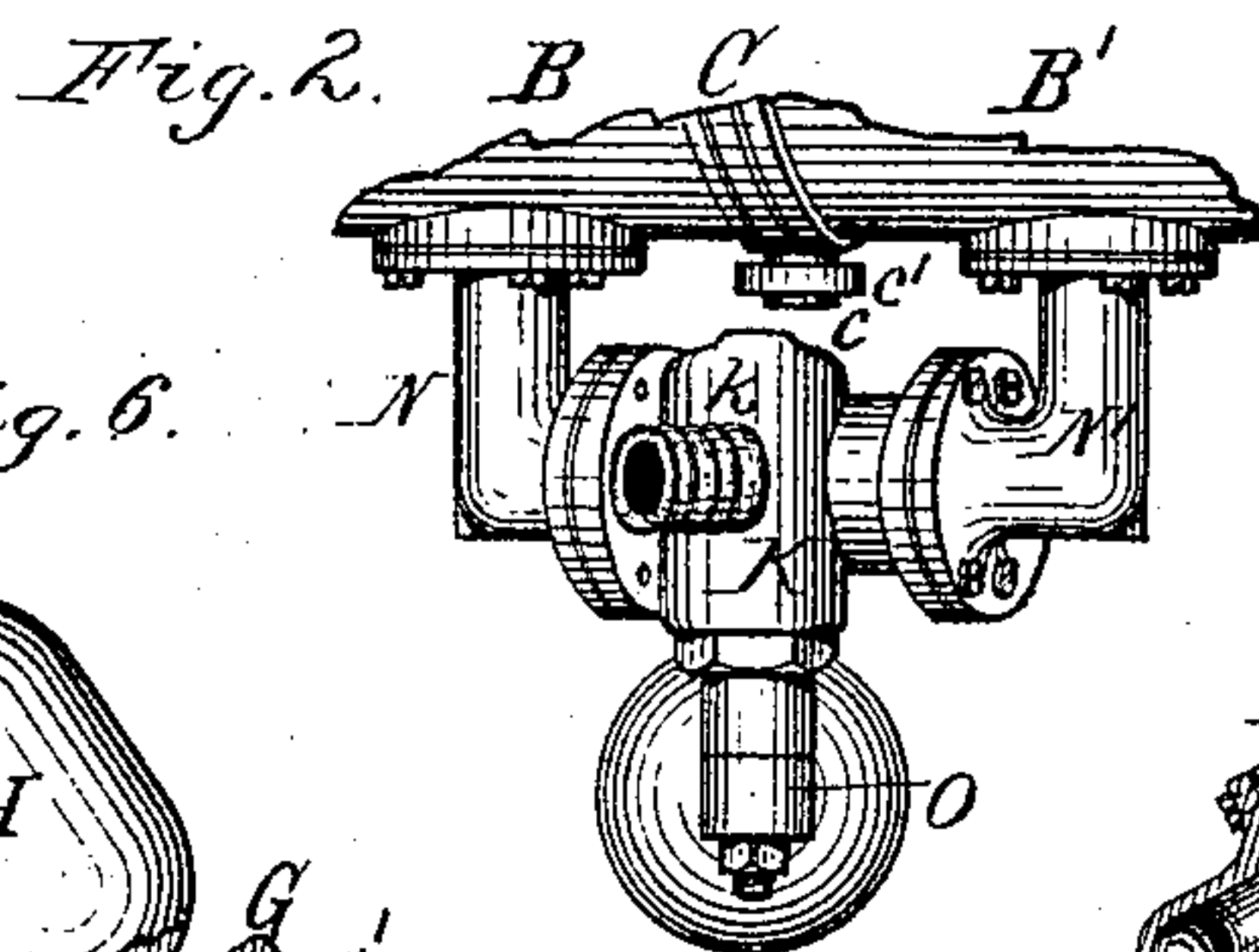
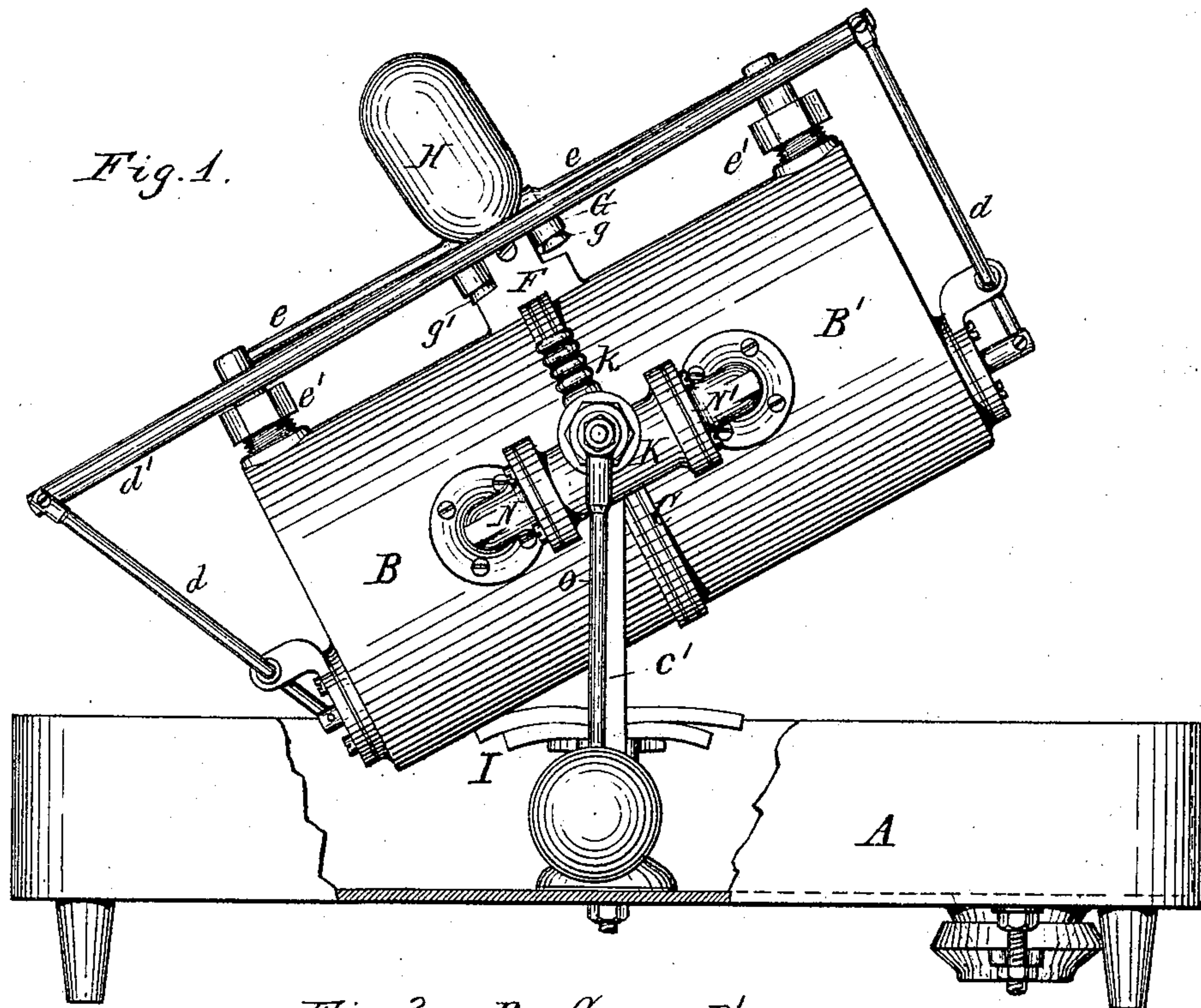


(No Model.)

W. T. FOX.  
AIR COMPRESSOR.

No. 321,207.

Patented June 30, 1885.



Witnesses:

Geo. C. Pitman.  
Thos. L. Popp.

W. T. Fox Inventor  
By Wilhelm & Bonner  
Attorneys.



# UNITED STATES PATENT OFFICE.

WILLIAM T. FOX, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE STEAM GAUGE AND LANTERN COMPANY, OF SAME PLACE.

## AIR-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 321,207, dated June 30, 1885.

Application filed June 4, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM T. FOX, of the city of Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Air-Compressors, of which the following is a specification.

This invention relates to an improvement in that class of air-compressors which consist of two air-compressing chambers which are alternately filled with water under pressure, whereby the air contained in the chamber which is being filled is forced out of the chamber into a suitable reservoir, from which it is conducted to the apparatus in which it is to be used. A machine of this kind is described and shown in Patent No. 285,743, granted to me September 25, 1883, to which reference is here made for a more complete description thereof.

The object of my present invention is to improve the means whereby the air-inlet valves are operated, to secure by a simple device the filling of the air-compressing chambers with water before the chambers are tilted, and to provide simple means for operating the water-inlet valve.

My invention consists to that end of the improvements which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a machine provided with my improvements. Fig. 2 is a top plan view of the water-inlet valve and connecting parts. Fig. 3 is a longitudinal sectional elevation, and Fig. 4 a cross-section thereof. Fig. 5 is an end elevation, and Fig. 6 a longitudinal section, of the air-inlet valves.

Like letters of reference refer to like parts in the several figures.

A represents the trough, which forms the base of the machine, and which receives the water which is discharged from the compressing-chambers.

B B' represent the air-compressing chambers secured to opposite sides of an intermediate head, C, by which the chambers are separated, and which is provided with trunnions *c*, journaled in standards *c'*, which latter are secured to the trough A.

*d* represents the levers, and *d'* the weighted

connecting-bar, by which the water-discharge valves are operated in a well-known manner.

*e* represents the passages through which the compressed air is conducted from the compressing-chambers B B', and *e'* are the casings in which the check-valves are arranged. All of these parts are constructed in any common and well-known manner.

*ff'* represent the air passages or channels through which the external air enters the compressing-chambers B B'. These channels are formed in an enlargement, F, arranged on the upper side of the intermediate head, C, and extending over the adjacent parts of the compressing-chambers B B'. The upper and lower ends of each channel *ff'* are arranged on opposite sides of the central head, C, so that the two channels cross each other, as represented in Fig. 6, the inlet end of the channel *f* being above the chamber B' and the outlet end connecting with the chamber B, while the inlet end of the channel *f'* is arranged above the chamber B and its outlet end communicates with the chamber B'.

*g g'* represent the valves whereby the passages *ff'* are alternately opened and closed. These valves are arranged opposite the upper ends of the channels *ff'*, and are attached to a pivoted beam, G, which is provided with a weight, H, extending upwardly from the beam G. The valves *g g'* are formed of blocks of rubber or other flexible material, seated in cavities in the under side of the beam G, and arranged at such distances from the outer ends of the channels *ff'* that one valve will be removed from the end of one channel when the other valve rests in contact with the other channel. The chambers B B' are supported in an inclined position by a flexible support, I.

In the position of the chambers represented in Fig. 1 the chamber B' is being filled with water, and the air contained therein is compressed and discharged through the conduit *e*, connecting with said chamber. The air-inlet passage *f'* of the chamber B' is closed by the valve *g'*. The chamber B is being emptied, and the air-inlet passage *f* communicating with this chamber is open, as clearly shown in Fig. 6, so that the air enters the same through the passage *f* as the water escapes from said



chamber. The weight *H* being supported on one side of the trunnion *c*, the elevated chamber *B'*, which is being filled, cannot descend until the weight of the water which it has received preponderates over the weight *H*, and by this means the elevated chamber is compelled to receive the proper quantity of water before the chambers are tilted.

*k* represents the water-inlet pipe leading to the valve-casing *K*, in which are arranged the two water-valves *L L*, which are connected by a rack-bar, *l*, and moved by a gear-segment, *m*, which meshes with said rack-bar in a well-known manner.

*N N'* represent the water-conduits, which lead from both ends of the valve-chamber *K* to the air-chambers *B B'*.

The gear-segment *m* is mounted upon a shaft, *m'*, which extends through a stuffing-box in the side of the valve-casing *K*, and is provided at its outer end with a depending weighted lever, *O*. The weight at the lower end of this lever tends to retain the lever in a perpendicular position, so that the tilting of the air-chambers *B B'* will cause the valves *L L* to be shifted by the resistance which the weighted

lever opposes to any turning movement of the segment *m*. The weighted lever *O*, attached to the stem of the segment *m*, forms a very simple device for shifting the water-inlet valves, and effects the reversal of the valve in a very easy and convenient manner.

I claim as my invention—

1. The combination, with the tilting air-chambers *B B'*, of a weight, *H*, pivoted to said air-chambers, and valves and ports arranged on opposite sides of its pivot, whereby the weight is held on one or the other side of the trunnions by which the air-chambers are supported, substantially as set forth.

2. The combination, with the tilting air-chambers *B B'*, of the air-inlet passages *f f'*, and air-valves *g g'*, attached to a rocking beam, *G*, and a weight, *H*, whereby said passages are alternately opened and closed, substantially as set forth.

Witness my hand this 28th day of May, 1884.

WILLIAM T. FOX.

Witnesses:

JNO. J. BONNER,  
CARL F. GEYER.