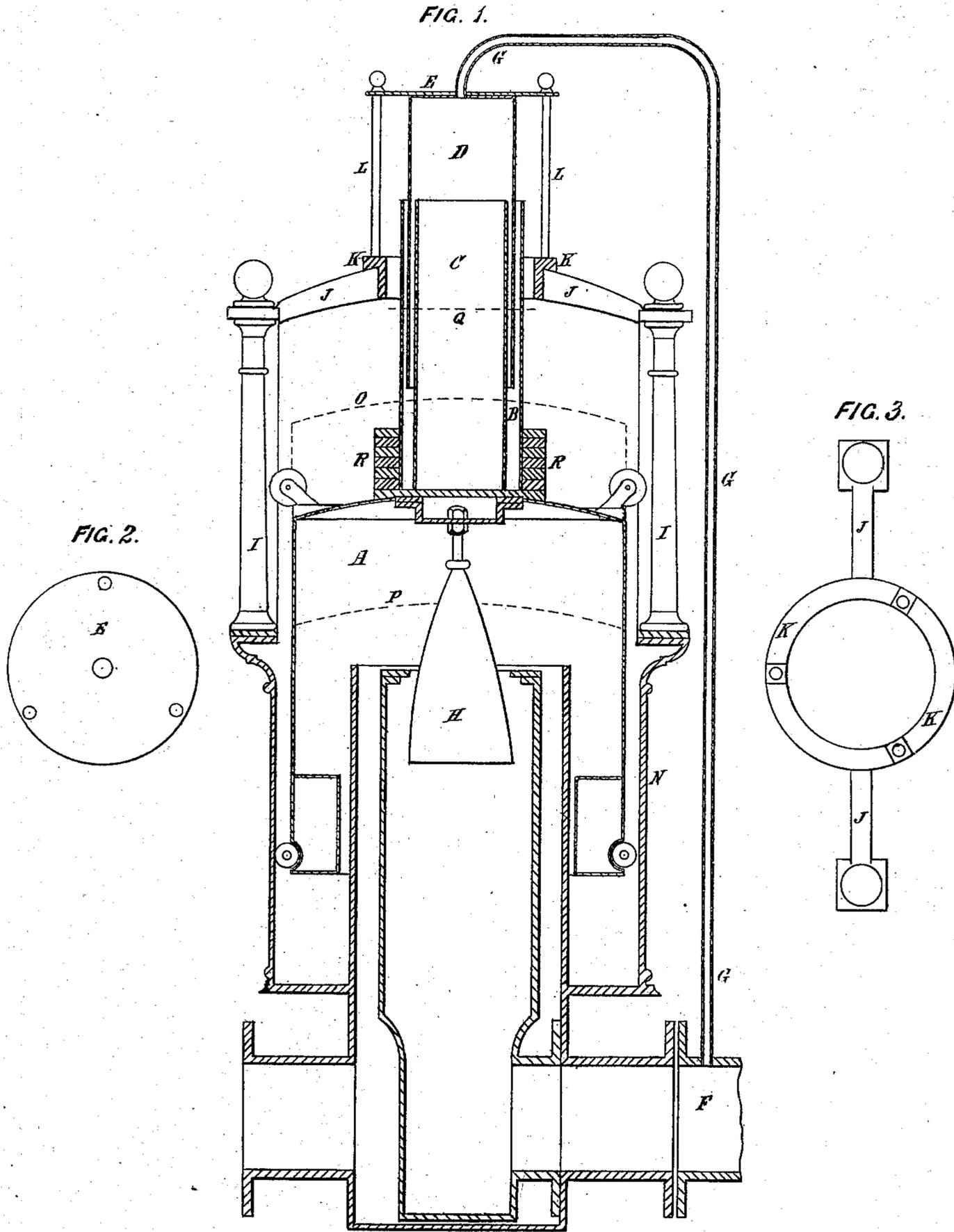


(No Model.)

W. COWAN.
Gas Governor.

No. 238,359

Patented March 1, 1881.



WITNESSES.

James E. Hutchinson
J. A. Rutherford

INVENTOR.

Wm. Cowan,
By James L. Norris,
Atty

UNITED STATES PATENT OFFICE.

WILLIAM COWAN, OF EDINBURGH, NORTH BRITAIN.

GAS-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 238,359, dated March 1, 1881.

Application filed January 13, 1881. (No model.) Patented in England December 8, 1880.

To all whom it may concern:

Be it known that I, WILLIAM COWAN, of Edinburgh, North Britain, have invented new and useful Improvements in Gas-Governors, (for which I have obtained a patent in Great Britain, No. 5,122, bearing date December 8, 1880,) of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to improvements in gas-governors; and it has for its object the application of means whereby the action or influence of the inlet pressure on the superficial area of the base of the cone may be neutralized and the governing agency of the instrument be undisturbed by changes of the initial pressure, and is applied to governors in which the bell is sealed by water in a tank, and the inlet-orifice is regulated by a conical plug and valve-seat, as shown in the accompanying drawings.

15 Figure 1 is a sectional elevation of an ordinary gas-governor with my invention applied; Fig. 2, a plan of the disk attached to the top of the small pillars of the instrument; and Fig. 3 a plan of the cross-bar and ring, hereinafter to be described.

25 The invention consists in placing on, or attaching to, the exterior of the roof of the governor-bell A a tank, B, capable of being charged with water, glycerine, or other suitable liquid, hereinafter called the "water-tank," and which, in some cases, may be annular, the central chamber, C, being closed at the top. This tank moves up and down along with the governor-bell, to the outside of the roof of which it may be either fixed or upon which it may simply rest. Into this water-tank, whether annular or not, there dips a bell, D, which does not move, but is fixed to and suspended by a disk, E, cross-bar, or other suitable means. This moving tank, with the fixed bell, forms a water-slide like that of some gasaliers. Into this fixed bell gas, and consequently pressure from the inlet F of the governor, is introduced by means of a pipe, G, connecting the two, and as the area of the fixed bell D corresponds with the area of the base of the governor-cone H, it follows that the influence of the initial pressure upon the latter will, under all circumstances, be balanced by an equivalent effect produced on the former.

When increased inlet pressure on the base of the cone H would tend to force it upward, and so, by diminishing the effect of the weight of the bell, derange the pressure the governor was loaded to maintain, the same influence exerted over a similar area—that is, the area of the fixed bell D—above the roof of the governor-bell A will prevent the action referred to taking place, and the adjusted pressure will therefore not be disturbed. In like manner, when diminished inlet pressure would, by its less supporting influence on the base of the cone H, tend to increase the effect of the weight of the governor-bell, and so to derange the outlet pressure, the reduction of support to the cone will be accompanied by a corresponding diminution of the pressure above the roof of the governor-bell, with the result that the perfect equilibrium will remain unaffected.

To avoid the necessity for lengthening the pillars I I of a governor constructed or altered to this invention, the usual cross-bar J J, Figs. 1 and 3, may be made with a ring, K, in the center, through which the moving tank B may pass up and down. Upon the upper side of this ring two or more suitable pillars, L L, may be fixed, and on the top of these there may be a disk, E, Figs. 1 and 2, or a cross-bar, to which the roof of the fixed bell may be attached, from which it will hang downward into the liquid in the moving tank.

The moving tank is not necessarily annular, but may be sometimes so made, in order to reduce the constant weight the governor-bell will have to carry.

The pipe G, instead of being arranged as shown, (it being shown in this manner solely for the sake of perspicuity,) may be carried up from the inlet F of the governor close to the side of the fixed tank N, and from thence up, by the sides of the pillars I and L, to the top of the fixed bell, or in any other convenient manner.

The dotted lines O and P show the limits to which the governor-bell can either ascend or descend, while the dotted line Q shows the lowest position of the top of the moving tank, so that the fixed bell will be at all times sealed.

R shows a number of segmental flat rings of metal, that may be placed on the top of the governor-bell and round the movable tank, for

loading the governor-bell; but the loading or unloading may be effected by any well-known or suitable method.

In constructing governors according to this invention the changes introduced would be wholly exterior, and in no way interfere with the principle or internal arrangement of the gas-governors most commonly in use. The object is to correct, by simple means applied to the exterior, certain inherent defects which are known to exist in most gas-governors.

Having now described and particularly set forth the nature of this invention, I wish it to be understood that what I claim is—

1. The tank B, either annular or otherwise, placed on or attached to the governor-bell, and as herein described, and shown on the drawings.

2. In a gas-governor, the combination, with

the main governor-bell A and the rising and falling tank, of the fixed bell D, arranged substantially as and for the purpose described.

3. In a gas-governor, the combination, with the rising and falling tank B, of the fixed bell D, provided with a pipe, G, connected with the inlet of the governor, substantially as and for the purpose described.

4. In a gas-governor, the combination of the rising and falling tank B, cross-bar J, constructed with a ring, K, the pillars L, and connecting-disk or cross-bar E, arranged substantially as and for the purpose described.

WILLIAM COWAN.

Witnesses:

ALEXR. W. WILSON,

ALEXANDER SEATH,

Law Clerks, 8 York Buildings, Edinburgh.