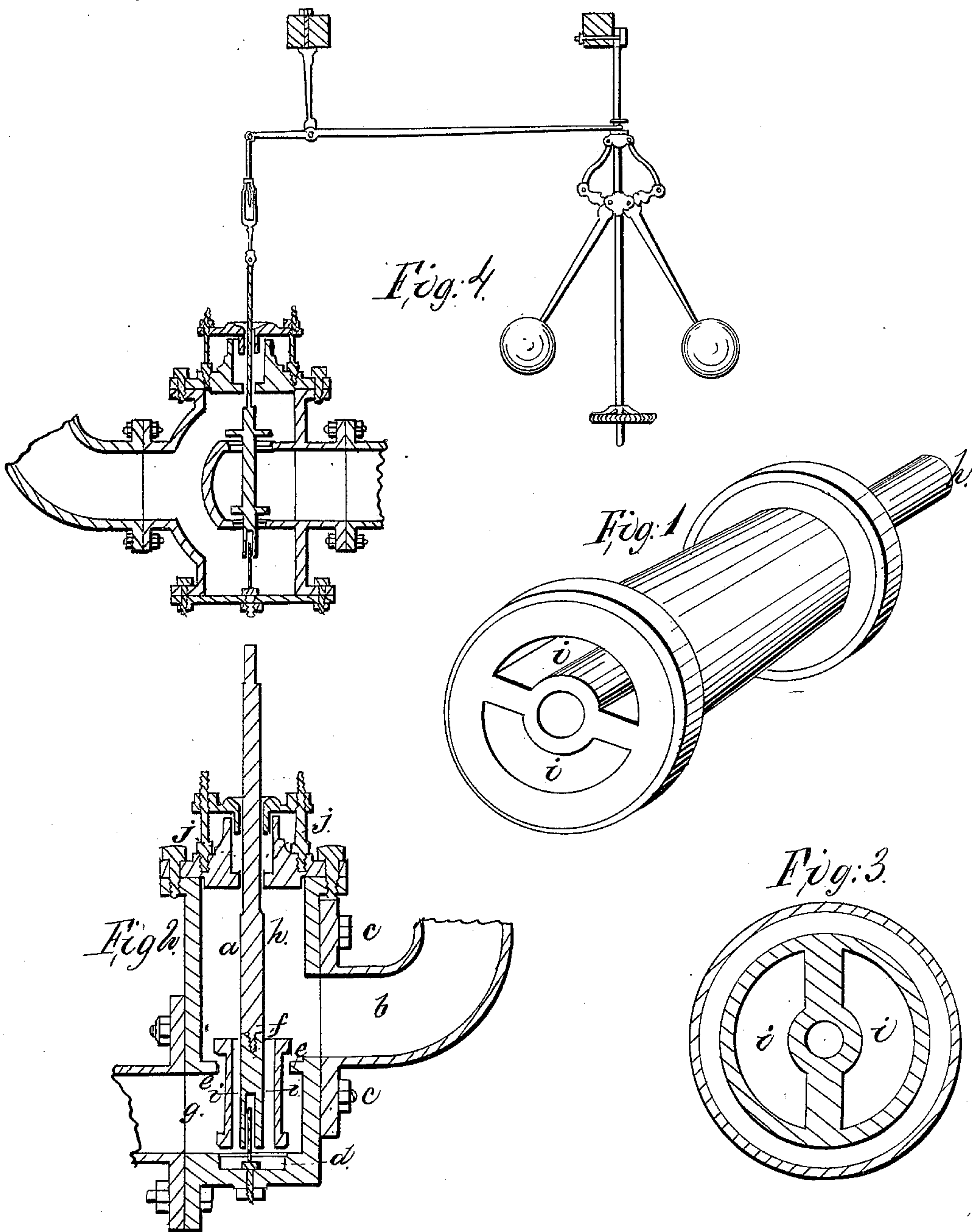


W. B. Hill,

Governor.

N^o 5,540.

Patented Apr. 25, 1848.



UNITED STATES PATENT OFFICE.

WILLIAM B. HILL, OF GRAND RAPIDS, MICHIGAN.

BALANCE-VALVE FOR STEAM-ENGINES.

Specification of Letters Patent No. 5,540, dated April 25, 1848.

To all whom it may concern:

Be it known that I, WM. B. HILL, of Grand Rapids, in the county of Kent and State of Michigan, have invented a new and
5 useful improvement in the construction of double puppet-valves and also the adaptation and application of common double puppet-valves for the purpose of regulating the motion of steam-engines; and I do hereby
10 declare that the following is a full, clear, and exact description of the construction and operations of the same, reference being had to the annexed drawings, making a part of this specification, in which—

15 Figure 1 is a perspective view of the valve; Fig. 2, a longitudinal section showing the position of the valve and its seats in the steam chamber also a portion of the induction and eduction pipes. Fig. 3 represents an end view of the valve and Fig. 4
20 represents the application of a double puppet valve for the purpose of governing the motion of an engine.

25 The advantages of my improvement are first the simplicity and economy of its construction, and secondly the great saving of steam that is usually lost in the chambers and pipes by exhaustion.

30 To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

Let *a*, Fig. 2, represent a steam chamber; and *b* the induction steam pipe secured to the chamber by the bolts *c, c*, through proper
35 flanges in the usual manner.

e, e, represents a partition having a seat on its upper surface to receive the upper

valve; *d* represents a steam chamber with a seat for the lower valve; *f*, represents a double puppet valve having two tubes *i i* 40 passing through it parallel to its axis.

g, represents the eduction pipe or passage to the steam chest of the engine.

h represents the stem of the valve passing through the stuffing box *j', j'*, in the usual 45 manner.

The operation of this valve is as follows: The steam being admitted into the chamber *a*, through the pipe *b* passes through the tubes *i, i*, into the chamber *d* will press the 50 valve upward, and the surfaces of the upper and lower valve being proportionate will hold the valve in equilibrium; also the valve *f* being raised off its seats by the stem *h*, the steam passes from the chamber, *a*, 55 through the partitions *e, e*, and from the chamber *d*, into the pipe *g* and thence to the steam chest or cylinder of the engine.

I propose to apply this valve to all the purposes for which steam valves are used, 60 and also to govern the motion of engines, combined and arranged with common governor balls as shown at Fig. 4.

I claim as my invention—

The tubular construction of the double 65 puppet valve for the purpose of conducting the steam through said tubes to the lower or opposite valve in its passage to or from the cylinder, substantially as set forth, instead of passing around them, as in the usual way. 70

WM. B. HILL.

Witnesses:

LUTHER H. HARMON,
H. H. HARMON.