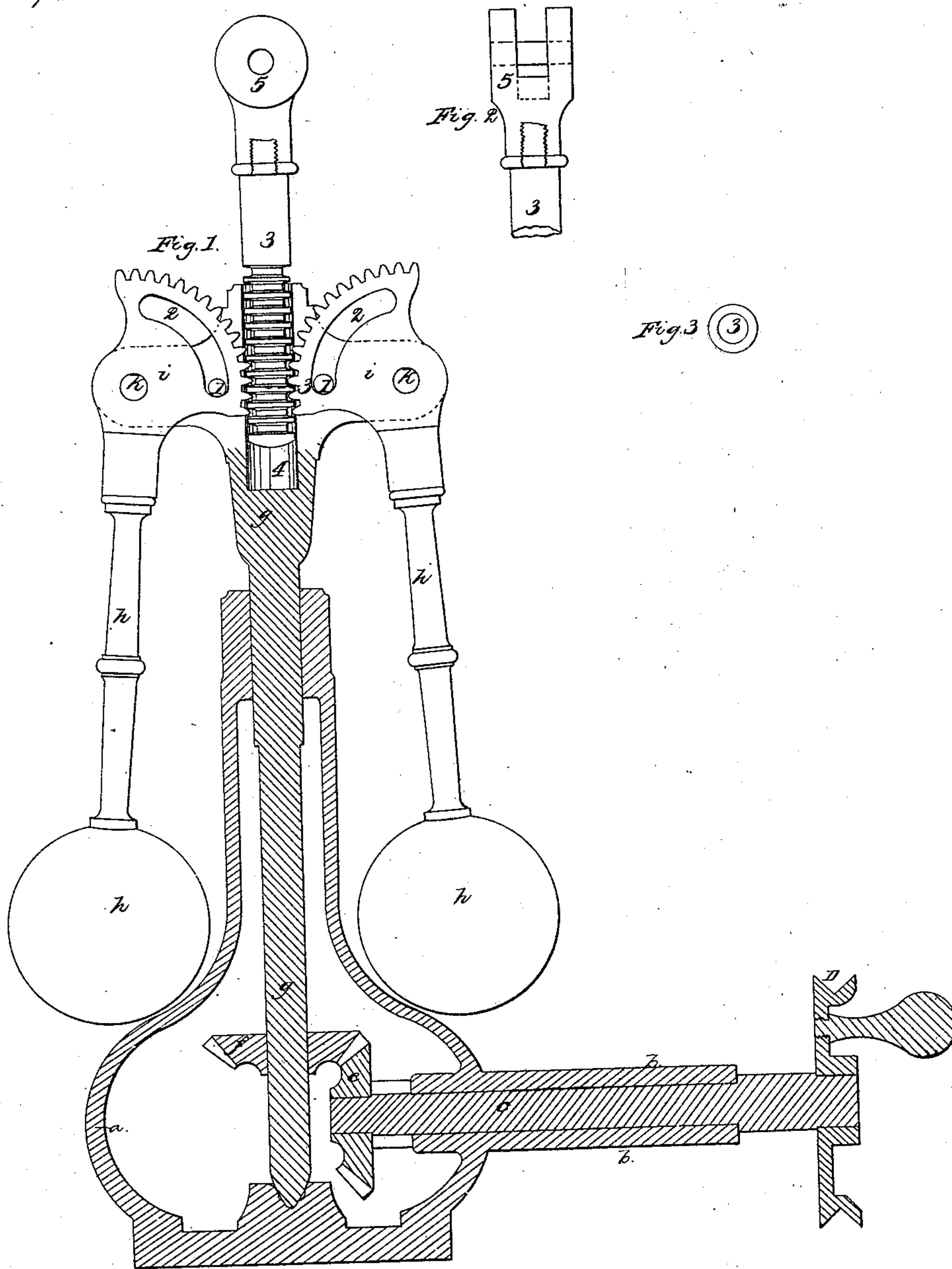


Stearns & Hodgson.

Governor.

N^o 9,236.

Patented Aug. 31, 1852.



UNITED STATES PATENT OFFICE.

GEO. S. STEARNS AND WILL HODGSON, OF CINCINNATI, OHIO.

GOVERNOR FOR STEAM-ENGINES.

Specification of Letters Patent No. 9,236, dated August 31, 1852.

To all whom it may concern:

Be it known that we, GEORGE S. STEARNS and WILLIAM HODGSON, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Governors for Steam-Engines; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters and figures of reference marked thereon.

The nature of our invention consists in providing the upper part or end of the arms of the governor with segments or quadrants of wheels furnished with teeth, by being cast in the usual method, or cut if found to suit best. The quadrants work in a cylindrical rack, placed in the main spindle of the governor in an opening or bore provided for the purpose, and made sufficiently long to allow the rack to have a reciprocal motion equal to the demand of the valve it may have to govern. When the governor is set in motion the arms together with the balls recede from the spindle by the centrifugal force given to them and thereby cause the quadrant wheels to operate on the cylindrical rack which produces a reciprocal motion without the intervention of pins, levers or connecting links as is commonly used in the other methods of constructing governors, the quadrants and cylindrical rack answering the purpose.

To enable others skilled in the art to make and use our invention we will proceed to describe its construction and operation.

Figure 1, represents a sectional elevation of the frame, together with the spindle, the remaining parts are not drawn sectionally. Fig. 2, is a view of the piece to which the lever is attached for working the valve. Fig. 3 is a transverse section of the cylindrical rack, in which the quadrants work, placed on the upper end of the arms.

Similar letters and figures refer to corresponding parts.

The governor frame is constructed in any of the known forms, and the spindle can be driven by a band through the medium of cog or gear wheels or directly with the band or cord as the case may best suit.

(*a, a,*) Fig. 1, represents the frame made of cast iron, furnished with an arm or tube (*b*) at the right for the purpose of securing the driving shaft (*c*). The end of the shaft is provided with a pulley (*d*) the edge be-

ing grooved for the purpose of receiving a cord by which it is intended to be driven.

(*e, f*) is a pair of wheels through which the governor spindle gets its motion, one being placed on the shaft and the other on the spindle, (*g, g*).

(*h, h, h, h*) represents the arms and balls of the governor; the arms are made of wrought iron, and balls of cast iron, or both can be made of the same material.

(*k, k*) are the axes on which the arms vibrate.

(*i, i*) represents quadrant of wheels or a little more than a quadrant to which the upper part of the arm is attached by being screwed into the quadrants.

(2, 2) are slots cut in each quadrant concentric with the circumference for the purpose of receiving the guard pins (*1, 1,*) which pass through the sides of the spindle (*g, g,*) to prevent the balls from falling so low as to strike the frame (*a, a*) in their rotary motion, the quadrants are furnished with teeth which work into the cylindrical rack (*3, 3*), placed in the center and upper part of the spindle in the bore (*4*).

Fig. 3, represents a transverse section of the rack (*3*) the top of the rack is furnished with a forked piece (*5*), for the purpose of receiving the end of the lever that works the valve the lever is not represented here.

Fig. 2, represents an edge view of the forked piece (*5*), the piece is screwed on the rack (*3, 3*) as is represented in the accompanying drawings.

The advantage gained by constructing a governor after this plan, consists in its simplicity and cheapness, composed with common methods usually employed of building governors, the quadrants and cylindrical rack before mentioned do away with levers, axes and collars, which are found to be much more expensive than the rack and its attachments. The rack is made of wrought iron and the grooves are turned in it, which form the teeth and in which the teeth on the quadrant work. When the governor is put in motion the arms, as usual, recede from the spindle by the centrifugal force, which causes the quadrants to draw the rack down and thereby gives it a reciprocal motion, which works the lever that may be placed to the forked piece at the top of the rack, to the opposite end of which the valve is attached and thereby get its governed regulation.

What we claim as new and desire to have secured by Letters Patent, is—

The combination of the quadrants (i, i) and the cylindrical rack (3, 3) arranged
5 and operating substantially as set forth, not confining ourselves to the cylindrical form of the rack, other forms may be used

if found to suit, such as square or any polygon form.

GEO. S. STEARNS.
WILL HODGSON.

Witnesses:

J. H. GETZENDANNER,
MARTIN BENSON.