

United States Patent Office.

WILLIAM JOHANNES KESSELMAYER AND CHARLES AUGUSTUS KESSELMAYER, OF MANCHESTER, ENGLAND, AND EMIL HERMANN NACKE, OF ALS-SCHOENFELD, SAXONY.

Letters Patent No. 95,481, dated October 5, 1869.

IMPROVED GOVERNOR FOR STEAM AND OTHER ENGINERY.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that we, WILLIAM JOHANNES KESSELMAYER, and CHARLES AUGUSTUS KESSELMAYER, of Manchester, in the county of Lancaster, in England, and EMIL HERMANN NACKE, of Als-Schoenfeld, in the Kingdom of Saxony, have invented a new and improved Governor for Steam and other Engines; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which the drawing represents a sectional elevation of our improved governor for steam and other engines.

This invention has for its object to render centrifugal governors more effectual in regulating the speed of the engine, so that the speed will be immediately corrected as soon as it shall vary.

The invention consists in the combination, with the movable valve-rod, of a vessel containing liquid matter, and in the arrangement of the same with a stationary vessel, in such manner that when, by the contraction of the governor-balls, the movable vessel is lowered, the liquid will flow into it from the reservoir, and will load it. The movable vessel will, when thus weighted, tend to open the valve without loss of time, as it descends quicker. When the balls are spread to raise the vessel, the liquid flows out from the same into the reservoir, and lightens the valve, to allow its more rapid closing. The speed of the engine is thereby regulated with great rapidity, as the least variation in the position of the balls will cause a corresponding variation in the weight on the valve, and a consequent rapid action on said valve.

In the drawing—

A A are the governor-balls, mounted, as usual, on the levers B B, which are pivoted to the hollow driving-spindle C, and which are connected by the rods a a with the sleeve D.

This sleeve slides on the spindle, and is, by a cross-bar, b, or by other connecting-pins, passing through slots of the spindle, arranged to support, or fastened to the rod E, that is within the tubular spindle, as shown.

The sleeve D is connected with the lever H, which communicates motion to the ordinary throttle, or other valve.

Upon the upper end of the rod E is affixed a vessel, F, which is to contain mercury, water, or other fluid.

G is another vessel, of similar size to F. It is placed stationary, so as to be about on the same level

with F, when the engine is at its proper rate of speed.

The two vessels F G are connected with each other by flexible or other pipes, or siphons, or other equivalent devices, so that whatever be their relative position, the liquid in them will be as in one vessel, and constantly tending to be on the same level in both.

In the drawing are represented two pipes I I, the former connecting the lower, the latter, the upper parts of the two vessels, the one being for the passage of the liquid, the other for the air.

As the balls of the governor fly out or collapse, the sliding collar will carry the rod E up or down with it, and will thereby raise or lower the vessel F. When the same is raised, the liquid will flow out of it into the reservoir G, and F will therefore become light, and will facilitate the raising of the rod E, and the closing of the valve. When, by insufficient supply of steam, or other motive-matter, the balls should collapse, they will cause the sleeve to draw the rod E, and with it the vessel F down, whereby liquid will be caused to flow from G into F.

The weight of F is thereby increased, and the downward motion aided in such manner that the valve will be quickly opened, and the proper speed obtained.

When the engine has the requisite degree of speed, the vessels F G will be in the position indicated in the drawing, so that they are both about half full. When lowered, the vessel F becomes nearly filled; when raised, as by dotted lines, it will be almost emptied.

Another advantage obtained by our invention is, that the governor will keep the valve opened or closed for a longer time than it would if not provided with our attachment.

When the valve is opened, the weighted vessel will keep it open during a certain normal number of revolutions, while otherwise the instant spreading of the balls would have left the valve open, but very insufficiently.

In the same degree will the lighter vessel tend to retain the balls spread during a certain normal number of revolutions, when the valve is to be closed, while the ordinary governor would instantly open said valve as soon as the balls would commence to collapse, which they will do instantly as the supply of steam is reduced.

The vessel G may be connected with the machinery, so as to move in opposite direction, or in unequal proportion to the motion of F. It is, however, preferable to have it fixed.

The mechanical connection of the governor-valve

and vessel F with each other may be varied, and will, of necessity, be varied on governors of different construction.

The vessels may be of suitable shape and size. Experiments will ascertain which are most favorable to the different classes of governors.

Having thus described our invention,

We claim as new, and desire to secure by Letters Patent—

The combination, with a governor, of the vessel F, which communicates with a reservoir, G, so as to be emptied or filled, as it rises and falls, substantially as herein shown and described.

The above specification of our invention signed by us, at Mulhouse, this 20th day of April, 1869.

WILLIAM JOHANNES KESSELMAYER.

CHARLES AUGUSTUS KESSELMAYER.

Witnesses:

AUG. STROHL,

ED. SCHLUMBERGER.

The above specification of our invention signed by me, at Leipzig, this 26th day of April, 1869.

EMIL HERMANN NACKE.

Witnesses:

AUGUST WOLFRUM,

FRANZ KERST.