

(No Model.)

2 Sheets—Sheet 1.

J. W. SARGENT.

ECCENTRIC FOR OPERATING VALVES OF STEAM ENGINES.

No. 516,633.

Patented Mar. 13, 1894.

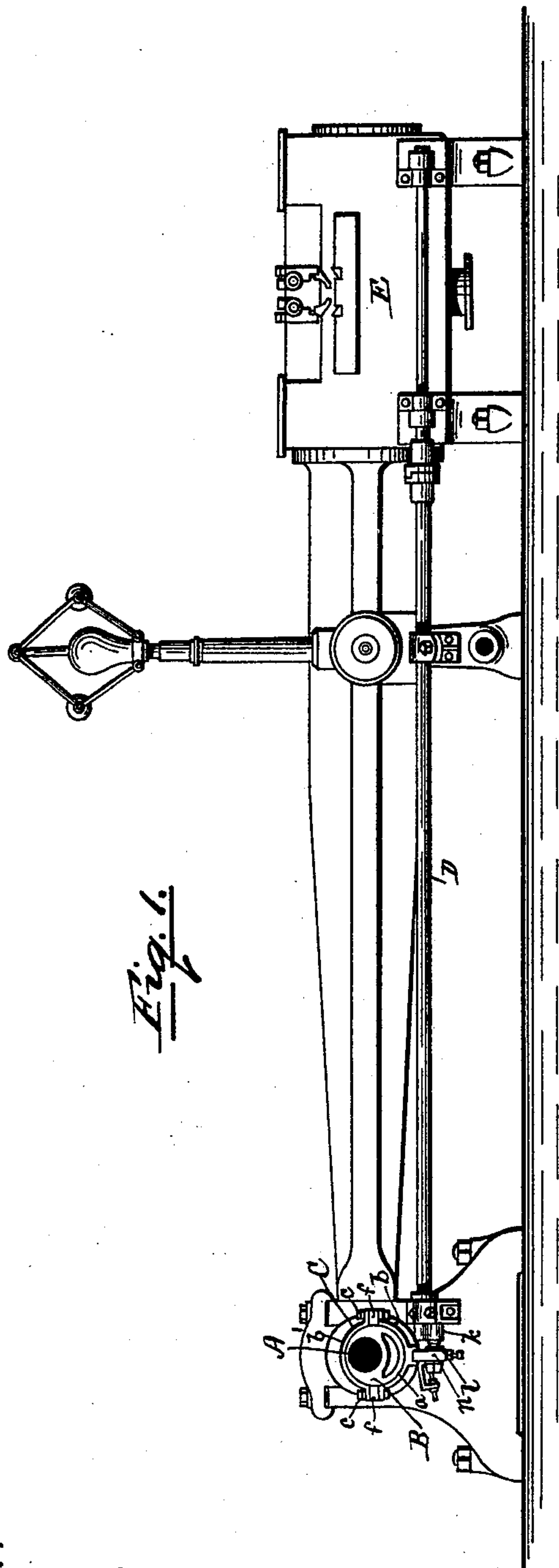


Fig. 1.

Witnesses.

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2 Sheets—Sheet 2.

ECCENTRIC FOR OPERATING VALVES OF STEAM ENGINES.

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Inventor.

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UNITED STATES PATENT OFFICE.

JOHN W. SARGENT, OF PROVIDENCE, RHODE ISLAND.

ECCENTRIC FOR OPERATING VALVES OF STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 516,633, dated March 13, 1894.

Application filed October 2, 1893. Serial No. 487,009. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SARGENT, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Eccentrics for Operating the Valves of Steam-Engines, of which the following is a specification.

The object of my invention is to provide an improved mechanism for operating the valves of a steam engine, when the said valves are connected with a rocking side-shaft arranged usually at right angles to, and below the main shaft. And my invention consists in an eccentric having a peripheral groove, and a spherical bearing surface between the eccentric and its strap, the said strap being provided with swivel pins loosely fitting the groove of the eccentric and operating as guides to keep the strap in its proper place.

My invention also consists in the combination of the said spherical eccentric and strap, with the rocking shaft arranged at right angles to and below the main shaft.

Referring to the drawings: Figure 1, represents a side elevation of a steam engine provided with my improvement. Fig. 2, represents a side view of the eccentric at its lowest position. Fig. 3, represents a section taken on the line 3, 3, of Fig. 2. Fig. 4, represents a section taken on the line 4, 4, of Fig. 2. Fig. 5, represents a section taken in the same line, with the eccentric turned to its intermediate position. Fig. 6, represents a section taken in the same line, with the eccentric in its highest position. Fig. 7, represents a side and an end view of the swivel pin.

In the accompanying drawings, A represents the main shaft of the engine, to which is fastened the eccentric B, the periphery *a* of the said eccentric being made in spherical form, to fit the spherically concaved form of the eccentric strap C, which is made in two parts *b, b'*, secured to each other by means of the bolts *c, c*. The eccentric B is provided centrally with the peripheral groove *d*, and between the opposite ears *e, e'*, of the parts *b, b'*, of the eccentric strap, are placed the blocks *f, f*, perforated at *g*, to loosely receive the swivel pins *h* which enter the groove *d* of

the eccentric B, horizontally, at opposite sides of the said eccentric. The pins *h* are preferably provided with the heads *i*, extending each way from the shank *j*, thus providing an extended wearing surface, which bears against the side of the groove *d*, and they serve to prevent the eccentric strap C, from moving sidewise out of its normal position, and also form a turning point for the lateral rocking movement of the said eccentric.

The rock shaft D which serves to operate the exhaust valves of the steam cylinder E, is provided at its end, next to the shaft A, with the outwardly directed arm *k*, provided with the wrist pin *l*, having at its end a spherical knob *o*, which is connected with the eccentric B by means of the concave adjustable boxes *m, m*, held in the downwardly extending arm *n* of the lower portion *b'* of the eccentric strap, thus forming with the said eccentric strap a ball and socket joint. The revolution of the main shaft A of the engine, will cause a rocking motion to be imparted to the rock-shaft D, which operates the valves, and as the knob *o* of the wrist pin *l*, moves in the outwardly curved arc of a circle described about the center of the rock-shaft D, which shaft is located below the main shaft A, and extends at right angles therewith, the eccentric strap C will have a slight rocking motion laterally upon the eccentric B, the said eccentric strap turning about the axes of the pins *h*, as illustrated in Figs. 4, 5, and 6, which show the eccentric in different positions relatively to the rock-shaft D, and the rocking arm *k* of the said shaft. The rock shaft D is shown at right angles to the main shaft, but it may be arranged at any angle that is required.

I claim as my invention—

1. An eccentric, provided with a spherical bearing surface and the peripheral groove, and a concaved eccentric strap, provided with the swivel pins fitting the groove of the eccentric, to prevent lateral displacement and form a turning point for the lateral rocking movement of the eccentric strap, substantially as described.

2. An eccentric, provided with a spherical bearing surface and the circumferential

groove, a concaved eccentric strap, the T headed swivel pins fitting the groove of the eccentric, and the blocks for holding said pins, substantially as described.

- 5 3. The combination with the main shaft, and the rock-shaft, provided with the rocking arm, and the wrist-pin having the spherical knob, of the eccentric having a spherical bearing surface and a peripheral groove in
10 said surface, the eccentric strap fitting the

eccentric and the spherical knob of the wrist pin carried by the rocking arm, the swivel pins fitting the groove in the eccentric, and the holding blocks for the swivel pins, substantially as described.

JOHN W. SARGENT.

Witnesses:

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