(No Model.) 2 Sheets—Sheet 1.

G. ROTHENBÜCHER.

VALVE MOTION FOR CORLISS STEAM ENGINES.

No. 398,751. Patented Feb. 26, 1889.

Fig. 1.

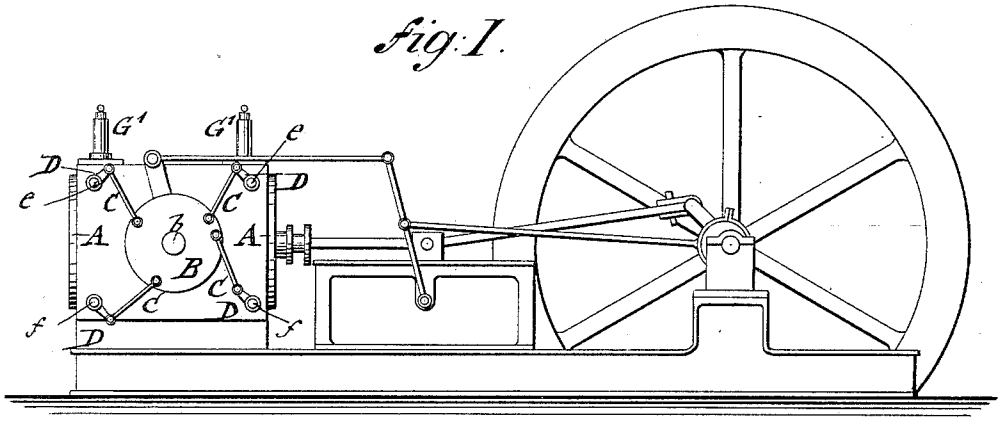
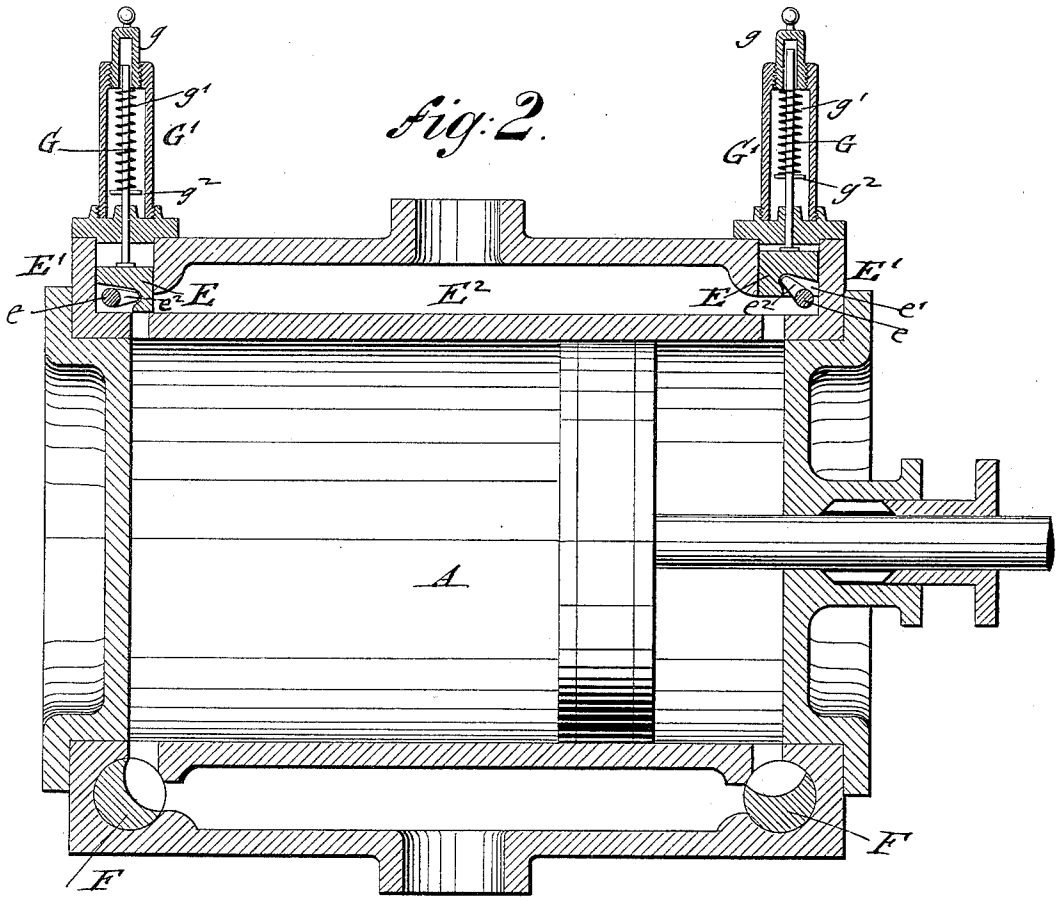


Fig. 2.



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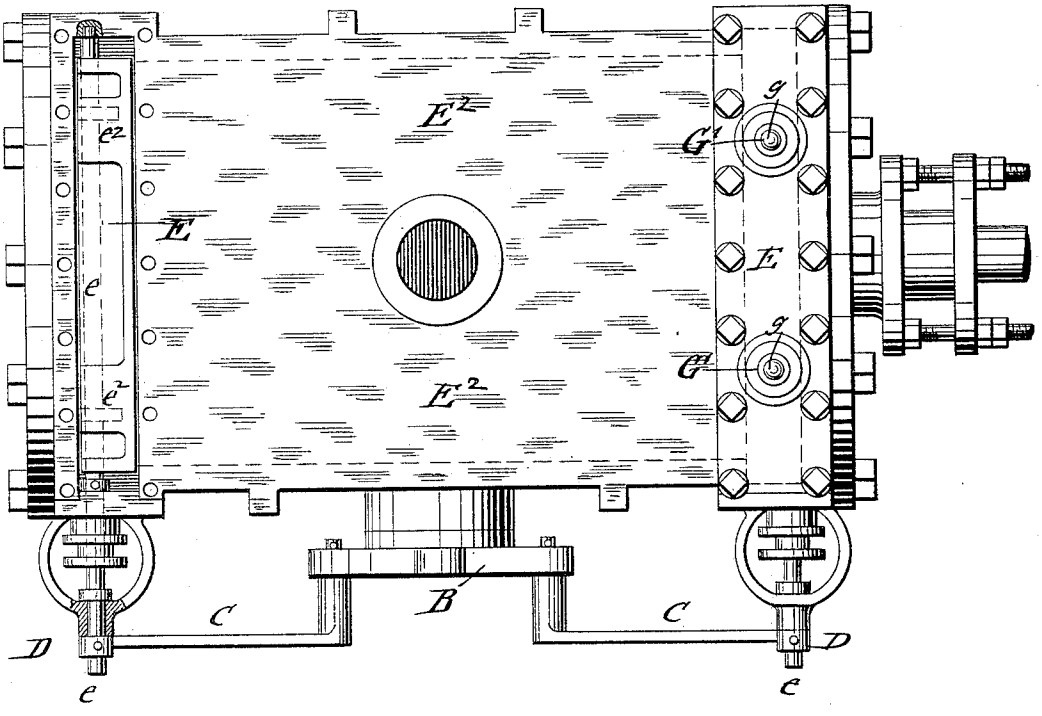
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Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE ROTHENBÜCHER, OF NEW YORK, N. Y.

VALVE-MOTION FOR CORLISS STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 398,751, dated February 26, 1889.

Application filed November 3, 1888. Serial No. 289,872. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ROTHENBÜCHER, of the city, county, and State of New York, have invented certain new and useful Improvements in Valve-Motions for Corliss Steam-Engines, of which the following is a specification.

This invention relates to an improved valve-motion for Corliss engines by which the construction of the valve-gear is greatly simplified, as the vacuum dash-pots are dispensed with and a rectilinear reciprocating motion imparted to the steam-inlet valves in place of the rotary reciprocating motion heretofore imparted to the same; and the invention consists of a valve-motion for Corliss engines in which the steam-inlet valves are guided in suitable boxes and reciprocated by spindles having toes that engage recesses of said valves. The reciprocating inlet-valves are acted upon by spring-pressed valve-rods which are guided in the top plates of the valve-boxes and in cylindrical casings on said top plates.

In the accompanying drawings, Figure 1 represents a side elevation of a Corliss steam-engine with my improved valve-motion. Fig. 2 is a vertical longitudinal section of the steam-cylinder, drawn on a larger scale and showing the construction of my improved steam-inlet valves; and Fig. 3 is a top view of the steam-cylinder with the plate of one of the valve-boxes removed.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the steam-cylinder of a Corliss steam-engine; B, the wrist-plate, which is centrally pivoted to a fixed pin, *b*, projecting from the steam-cylinder, and C C are pivot-rods that connect the wrist-plate with the bell-cranks D, which are applied to the outer ends of the spindles *e* of the steam-inlet and exhaust-valves E and F, as customary in steam-engines of this type. The wrist-plate is operated in the usual manner by an eccentric on the driving-shaft and suitable connecting-rods. The exhaust-valves F of the steam-cylinder are of the usual construction. The inlet-valves E are located in transverse guide-boxes E′ at both ends of the steam-chest E^2 and provided with recesses *e′* at the under side, which are arranged by toes e^2 of the spindles *e*, so that the inlet-valves receive a vertically-reciprocating motion by the action of the toes e^2 on the recessed valves E. The vertically-reciprocating inlet-valves E are acted upon by spring-pressed rods G, that pass through the top plates of the valve-boxes E′, said rods being guided in sockets *g* at the upper ends of cylindrical casings G′, which are attached to the top plates. The rods G impart a downward pressure to the valves E by the action of spiral springs *g′*, which are interposed between the sockets *g* and pins or collars g^2 on said rods, as shown in Fig. 2. The oscillating motion of the steam-inlet valves is changed by the toes on the oscillating valve-spindles and the spring-pressed rods G to a rectilinear reciprocating motion, which is steady and reliable and by which the construction of the valve-motion is considerably simplified, as the expensive vacuum dash-pots are dispensed with.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a steam-cylinder and steam-chest, said steam-chest being provided with transverse guide-boxes, of spring-pressed rectilinear reciprocating inlet-valves, oscillating spindles operated by a bell-crank connection with the wrist-plate, and toes in said spindles engaging recesses of the valves, substantially as set forth.

2. The combination, with a steam-cylinder and steam-chest, said steam-chest being provided with transverse guide-boxes, of rectilinear reciprocating inlet-valves, oscillating spindles operated by a bell-crank connection with the wrist-plate, toes on said spindles engaging recesses of said valves, and spring-actuated rods that press on the top of said valves, substantially as set forth.

3. The combination, with a steam-cylinder and steam-chest having transverse guide-boxes, of rectilinear reciprocating inlet-valves guided in said boxes, oscillating spindles operated by a bell-crank connection with the wrist-plate, toes on said spindles engaging recesses of said valves, spring-actuated rods that press on the top of said valves and pass through the top plates of the valve-boxes, and guide-casings for said presser-rods, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GEORGE ROTHENBÜCHER.

Witnesses:

PAUL GOEPEL,

JOHN A. STRALEY.