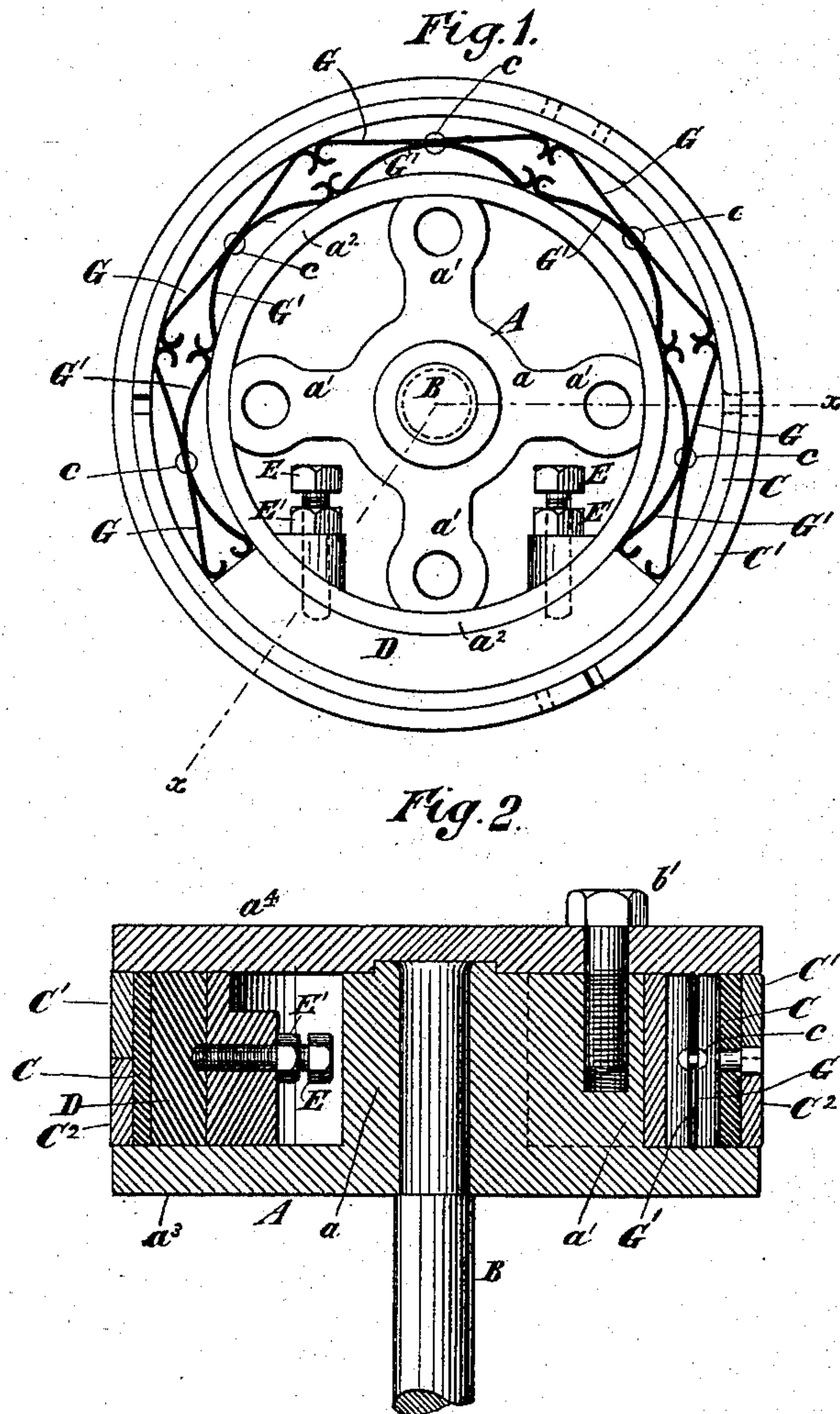


(No Model.)

J. J. LOVE.
PISTON FOR STEAM ENGINES.

No. 326,046.

Patented Sept. 8, 1885.



Witnesses
Edward T. Roche
Wm. G. Lipsey

Inventor
John J. Love,
by his attys,
Efford & Brown.

UNITED STATES PATENT OFFICE.

JOHN J. LOVE, OF NEW YORK, N. Y.

PISTON FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 326,046, dated September 8, 1885.

Application filed May 20, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. LOVE, of New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Pistons for Steam-Engines, &c., of which the following is a specification.

I will describe a piston embodying my improvement, and then point out the various features in the claims.

In the accompanying drawings, Figure 1 is an end view of a piston embodying the improvement and intended to work in a horizontal plane, one of the end plates being removed. Fig. 2 is an irregular transverse section of the same, taken as indicated by the dotted line x , Fig. 1.

Similar letters of reference designate corresponding parts in both figures.

A designates the body of the piston. It may be made of any suitable metal. It consists of a hub-like portion, a , which is fitted upon a reduced end portion of an ordinary piston-rod, B, a number of arm-like portions, a' , extending from the hub-like portion a , a ring-like portion, a^2 , and a plate-like portion, a^3 , located at one end. All these component parts of the piston-body may be made integral, but, as shown, the ring-like portion a^2 is made separate from the others. A plate, a^4 , is recessed to fit the hub-like portion a , and is secured in place by means of screws b' , passing through the plate a^4 and inserted in tapped holes in the arm-like portions a' .

Between the plate-like portion a^3 of the body of the piston and the plate a^4 metal packing-rings C C' C² are arranged. As shown, the ring C occupies the full space between these parts; but the rings C' C² are arranged side by side around the exterior of the ring C. These three rings are split transversely and have a tendency to spring outward.

Between the lower part of the ring-like portion a^2 of the piston-body and the ring C is interposed a shoe, D, consisting of an arc-shaped piece of metal. Screws E, working in tapped holes in the ring-like portion a^2 of the piston-body, bear against the shoe and serve as a means for adjusting it. Jam-nuts E' are com-

bined with the screws E for screwing them in position.

Springs G G' are connected in pairs and arranged between the ring-like portion a^2 of the piston-body and the packing-ring C. These springs are made of pieces of steel bent longitudinally, so as to be of the semi-elliptic pattern. Those of each pair are arranged so that their middle portions will be together and their ends will diverge. Their extreme ends are bent around toward each other. The springs G are slightly longer than the springs G' and are arranged outermost—that is, in contact with the ring C—while the springs G' are arranged in contact with the ring-like portion of the piston-body. The springs G G' are of such length that the springs G come close together around the piston, and the springs G' also occupy similar relations. The springs of each pair are connected together at the middle by rivets c , or otherwise.

These springs which I have shown are simple and very effective in their operation.

For a vertically-moving piston the shoe D will be unnecessary. When dispensed with, springs G G' will occupy its place.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a piston, the combination of a body having a ring-like portion, a packing-ring outside the latter, and intermediate uniformly semi-elliptical springs, G G', arranged in pairs and rigidly secured together midway of their lengths and having their outer ends bent toward each other, the ends of the springs of one pair coming in contact with the ends of the springs of the next adjacent pair, substantially as specified.

2. In a piston, the combination of a body having a ring-like portion, an outer packing-ring, an intermediate shoe, and screws working in tapped holes in the ring-like portion of the body and impinging against the shoe, substantially as specified.

J. J. LOVE.

Witnesses:

T. J. KEANE,
E. T. ROCHE.