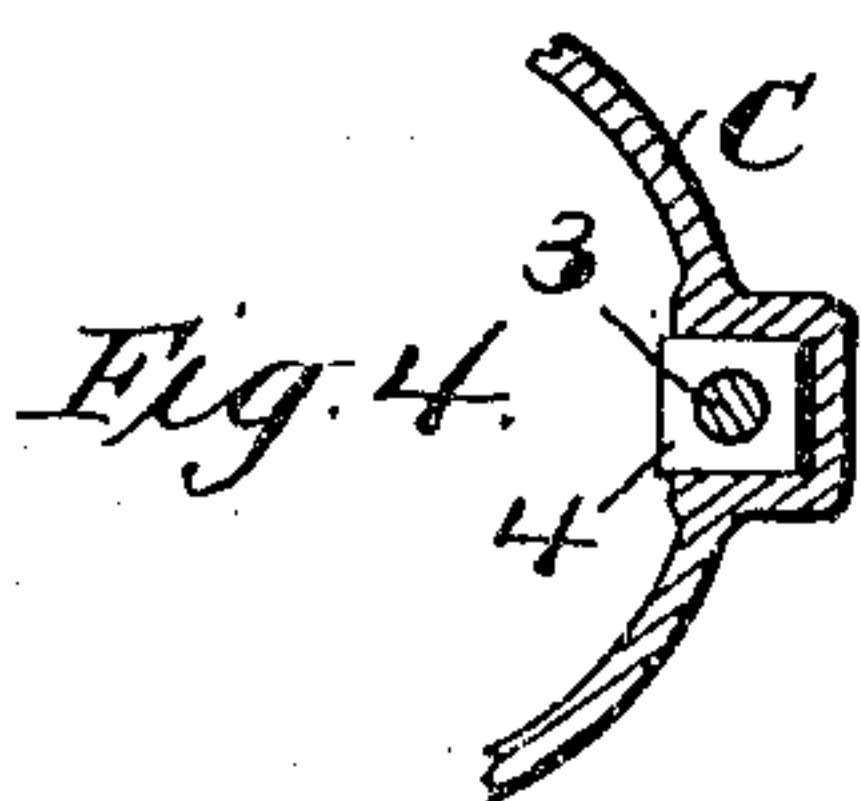
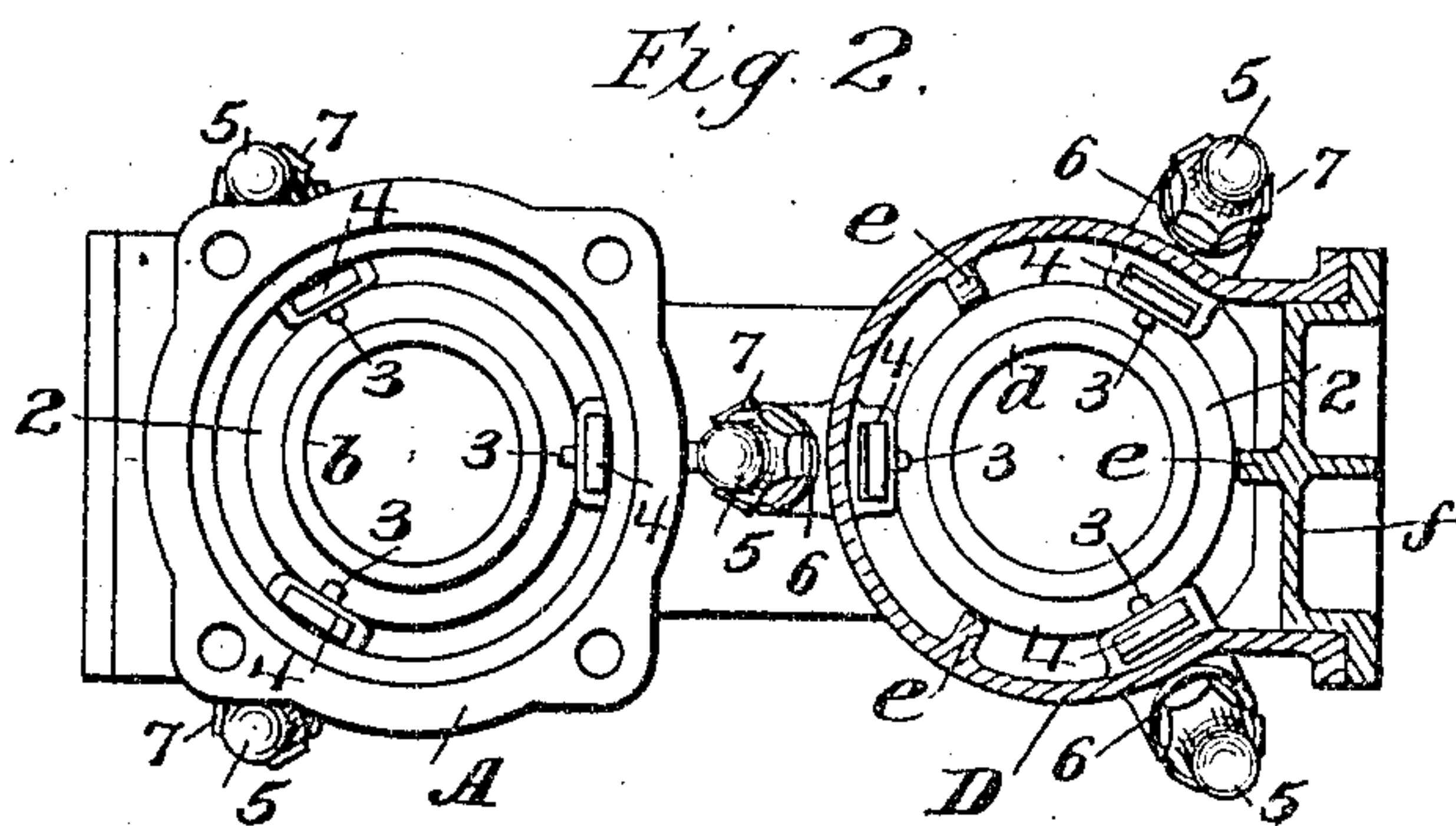
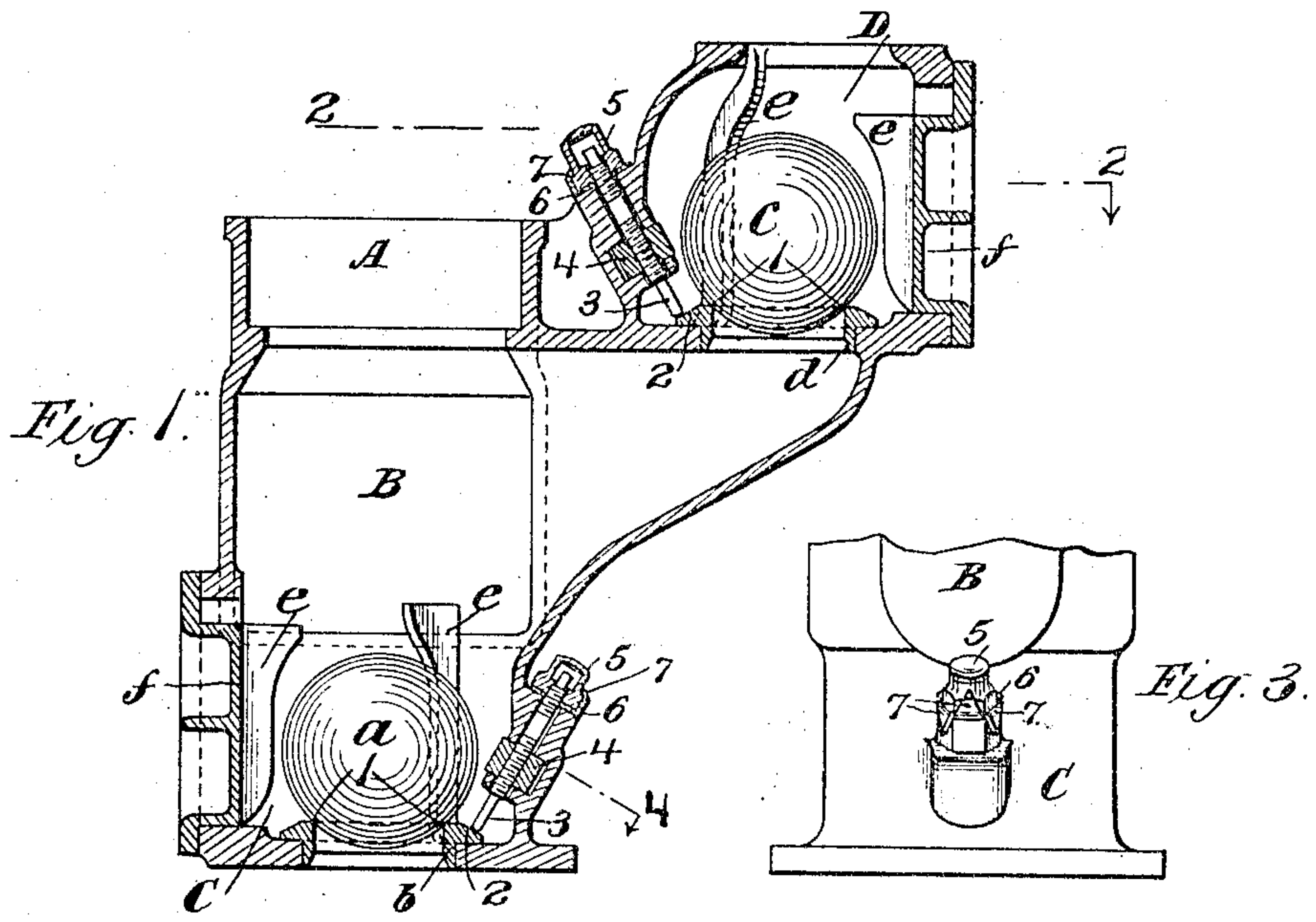


No. 871,357.

PATENTED NOV. 19, 1907.

C. L. NEWCOMB.
PUMP.

APPLICATION FILED JUNE 7, 1906.



Attest.
Wm. H. Tilden
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UNITED STATES PATENT OFFICE.

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PUMP.

No. 871,357.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed June 7, 1906. Serial No. 320,518.

To all whom it may concern:

Be it known that I, CHARLES L. NEWCOMB, a citizen of the United States, residing at Holyoke, county of Hampden, and State of Massachusetts, have invented certain new and useful Improvements in Pumps, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to an improved valve chamber and valve seat construction, which is adapted especially for use in paper stuff pumps, but may be used also in other classes of pumps, the object of the invention being to provide an improved construction by which danger of clogging the pump shall be avoided, water tight joints of the valve seats be secured, and the valve seats be properly held in place by devices permitting the convenient removal of the valve seats for repair and avoiding leakage about the seat holding devices.

25 In the accompanying drawings forming a part of this application, the invention is shown as applied in its preferred form in connection with a well-known type of pump.

30 This construction will now be described in detail, and the features forming the invention then particularly pointed out in the claims.

35 In the drawings—Figure 1 is a vertical central section of the suction and force valve chambers of the pump and the pulsation chamber between them. Fig. 2 is a cross section of the same on the line 2 of Fig. 1. Fig. 3 is a detail side elevation of the suction valve chamber. Fig. 4 is a detail section on the line 4 of Fig. 1.

40 Referring to said drawings, A is the upper end of the pump cylinder, B the pulsation chamber, C the suction valve chamber and D the force valve chamber, *a, b* the suction valve and valve seat and *c, d* the force valve and valve seat. The valves *a, c* are shown as the usual ball valves co-acting with the sharp edges 1 of the valve seats *b, d* to make tight joints, and the valves *a, c* are guided in their opening and closing movements by the valve guides *e*, one of the valve guides being preferably formed on the hand hole plate *f* so as to be withdrawn with the latter leaving the valve and valve seat free for removal. The valve chambers C, D are preferably circular as shown, this form securing an important result in stuff and similar pumps as there

are no corners to catch the stuff and clog the pump.

It is important that the edges of the valve seats *b, d* co-acting with the ball valves *a, c* shall be kept sharp, and these edges 1 are worn by the action of the ball, so that it is necessary at times to remove the valve seat and square off the face to restore the sharp edge. For this purpose it is important that the valve seat shall readily be removed and replaced and be of such form and so held as to secure tight joints between it and the valve chamber. In my improved construction, the valve seats are circular and fit into plain bored holes in the valve chamber, so that it is easy to make a perfect joint, and the valve seats are provided with the beveled surfaces 2 at the top which are engaged at opposite sides of the valve seat by the holding studs 3 by which the valve seats are held in place. The pressure of the studs 3, therefore, presses the valve seats down and sidewise so as to lock the valve seats in place and assure tight joints between the valve seats and the walls of the valve chambers.

45 The holding studs 3 are bolts passing through the chamber walls, so as to be accessible outside the chambers for releasing and securing the valve seats. These stud bolts 3 are preferably made of non-corrosive material such as Tobin bronze and work through nuts 4 set into pockets in the chamber casting, the nuts 4 being threaded to receive the threaded part of the stud bolts 3 and preferably being of non-corrosive material. Outside the nuts 4 the stud bolts 3 pass through a hole in the chamber casting and are threaded at their outer ends to receive cap nuts 5 which act as check nuts and protect the ends of the stud bolts from injury. Between the cap nuts 5 and the chamber castings are washers 6, preferably of copper, which act as packing and, when the nuts 5 are screwed down tight, prevent any leak from the valve chamber past the stud bolts. The washers 6 are preferably star-shaped with some of the points 7 turned down over squared portions of the boss on the cylinder casting and other points turned up against the squared parts of the cap nut, thus preventing the nuts 5 from backing off and the stud bolts 3 from backing out, and avoiding all danger of the valve seat holding devices working loose, while the cap nuts 5 may readily be removed and the stud bolts 3

screwed out to release the valve seats, when the points 7 are bent out to permit the cap nuts to rotate.

It will be understood that the invention is not to be limited to the particular arrangement of valve chambers and valves shown, and that the form and arrangement of the parts illustrated may be varied while retaining the invention defined by the claims.

10 What I claim is:—

1. In a pump, the combination with a removable valve seat, of holding studs passing through the valve chamber wall, nuts held stationary in the inner chamber wall and
15 threaded to receive the studs, and check nuts on the studs outside the chamber.

2. In a pump, the combination with a removable valve seat, of holding studs passing through the valve chamber wall, nuts held
20 stationary in the inner chamber wall and threaded to receive the studs, check nuts on the studs outside the chamber, and star

washers between the check nuts and chamber wall for packing and locking the studs.

3. The combination with the circular 25 valve chamber C, of the valve *a* and valve seat *b*, hand hole plate *f* carrying valve guide *e*, and valve seat holding studs extending through the chamber wall and adjustable for holding and releasing the valve seat. 30

4. The combination with a removable valve seat, of stud bolts 3, nuts 4 held in pockets in the chamber wall, cap nuts 5 outside the chamber wall, and star washers 6
35 for packing the stud bolts and locking the bolts and cap nuts.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

CHARLES L. NEWCOMB.

Witnesses:

W. M. RAYNOLDS,

JAMES P. TAYLOR, Jr.