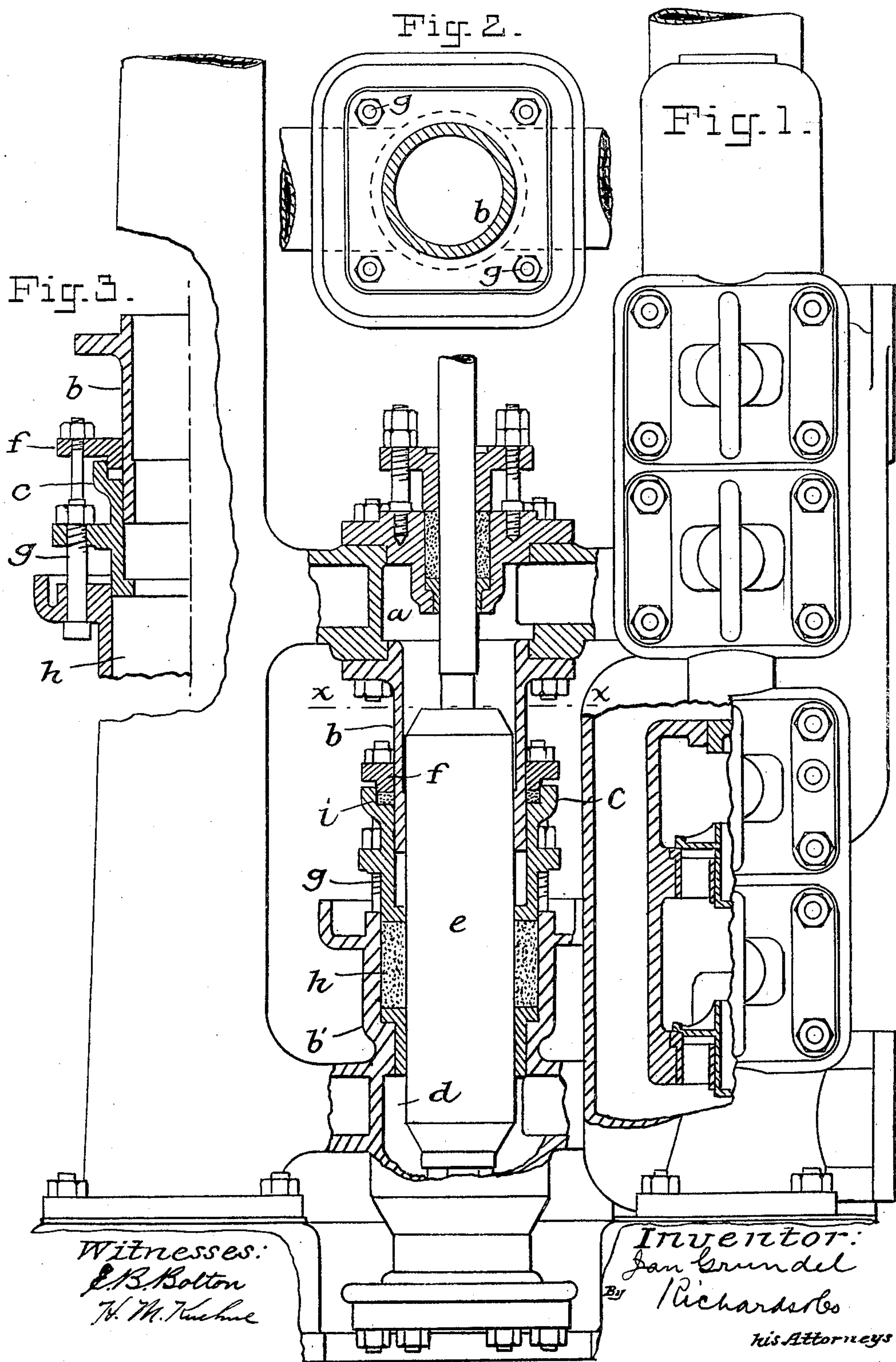


No. 803,225.

PATENTED OCT. 31, 1905.

J. GRUNDEL.  
DOUBLE ACTING PLUNGER PUMP.

APPLICATION FILED MAY 20, 1904.





# UNITED STATES PATENT OFFICE.

JAN GRUNDEL, OF THE HAGUE, NETHERLANDS.

## DOUBLE-ACTING PLUNGER-PUMP.

No. 803,225.

Specification of Letters Patent.

Patented Oct. 31, 1905.

Application filed May 20, 1904. Serial No. 208,903.

*To all whom it may concern:*

Be it known that I, JAN GRUNDEL, a subject of the Queen of the Netherlands, residing at No. 39 van Speykstraat, The Hague, in the Kingdom of the Netherlands, have invented certain new and useful Improvements in Double-Acting Plunger-Pumps, of which the following is a specification.

This invention relates to means for packing the plunger in a double-acting pump.

Pumps of this type have usually been constructed with two external stuffing-boxes; but under such circumstances considerable loss of power occurs, owing to the excessive friction. The construction was, moreover, unnecessarily long, as space had to be provided in order to afford access for packing the two stuffing-boxes. According to an alternative mode of construction sometimes adopted the pump was provided with a single internal stuffing-box; but as this was entirely within the pump-chamber access was not readily obtainable thereto. Further, in pumps which have hitherto been constructed with a single external stuffing-box the connections have been neither visible nor accessible from the exterior, in consequence whereof unperceived leakages were possible, and if such were suspected a partial dismemberment of the pump was necessary in order to remedy them.

The object of the present invention is to provide means whereby the foregoing defects may be avoided, all the connections being easily accessible and their regulation accomplishable with facility.

In the accompanying drawings, which illustrate a double-acting pump embodying my improvements, Figure 1 is a vertical section of the pump; Fig. 2, a plan on the line *xx* in Fig. 1, and Fig. 3 a partial section of the stuffing-box.

According to this invention in a double-acting pump of the ordinary vertical type in which one of the hollow supporting-pillars is made use of as a discharge-pipe and for that purpose provided with valves, Fig. 1, a plunger *e* reciprocates in a cylinder *b*, which is inserted from the exterior of the pump and at-

tached to the upper pump-chamber *a*. This cylinder instead of extending into the stuffing-box *h* of the pump-barrel *b'*, leading from the chamber *d*, as is usually the case, only enters the gland-ring *c*, with which a joint is made by means of the stuffing-box *i* and collar *f*.

The packing forming the joints in the gland-ring *c* and the stuffing-box *h* are tightened by means of the bolts *g*, which pass through the gland-ring *c* and the collar *f*. When fresh packing is required in the stuffing-box *h*, the rings *c* and *f* are readily removed by unscrewing the nuts from the bolts. The position of the bolts *g* in the pump-barrel *b'* with respect to the pump-chamber *d*, Fig. 2, enables the insertion of the bolts *g* from below in erecting the pump.

It will be readily seen that by this improved construction of pump the joints are easily accessible, the pressure of the packing in the stuffing-box evenly regulated by the bolts, and any leakages are at once perceived and their stoppage facilitated. Moreover, there being only one stuffing-box, friction in working is greatly reduced, as also is the length of the pump.

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

A double-acting plunger-pump having the barrel made in two parts, a gland-ring connecting said parts, a stuffing-box in the lower part of the barrel into which the lower end of the gland-ring enters, the upper end of said ring surrounding the upper part of the barrel, a stuffing-box between said parts, a collar covering said box and a bolt connected to the lower part of the barrel and adjustably secured to the gland-ring and the collar for regulating the position of said ring and collar, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAN GRUNDEL.

Witnesses:

JOHN W. CARREN,  
I. I. HELSDON RIX.