

(No Model.)

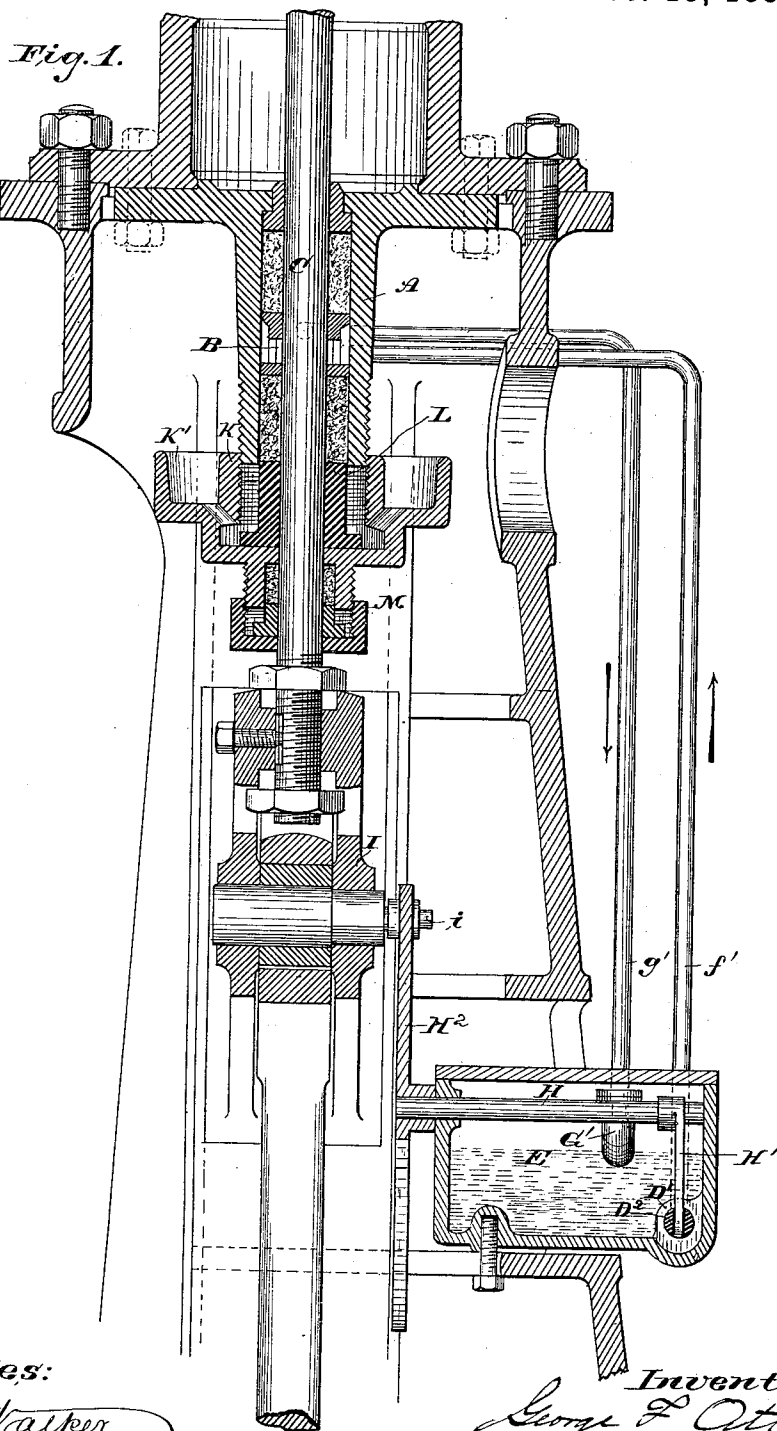
2 Sheets—Sheet 1.

G. F. OTT.

STUFFING BOX FOR PISTON RODS OF ICE MACHINES, &c.

No. 332,675.

Patented Dec. 15, 1885.



Witnesses:

E. A. Walker

Wm. B. Dyne

Inventor:

George F. Ott
by his attorney
C. C. Cils

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Fig. 2.

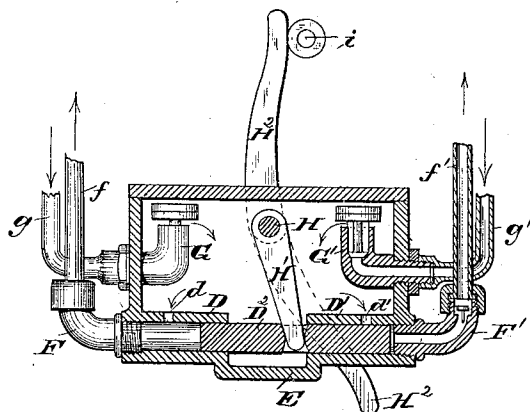
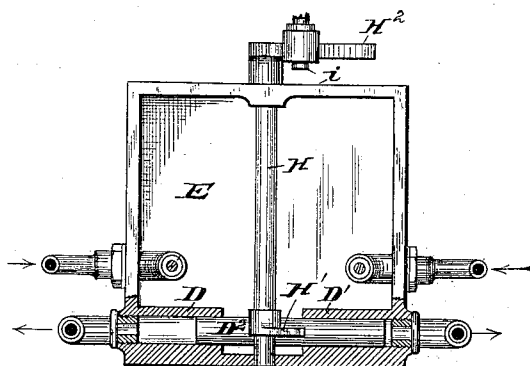


Fig. 3.



Witnesses:

E. P. Walker
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UNITED STATES PATENT OFFICE.

GEORGE F. OTT, OF PHILADELPHIA, PENNSYLVANIA.

STUFFING-BOX FOR PISTON-RODS OF ICE-MACHINES, &c.

SPECIFICATION forming part of Letters Patent No. 332,675, dated December 15, 1885.

Application filed November 11, 1885. Serial No. 182,436. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. OTT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Stuffing-Boxes for Piston-Rods; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the stuffing-boxes for the piston-rods of that type of compressors which are employed to compress expansive gases, such as are used for refrigerating purposes—anhydrous ammonia, for instance.

The object of my invention is to prevent the escape of gas through the stuffing-box without necessitating the objectionable undue compacting of the packing so often resorted to.

My improvement consists in the employment of a pump and safety-valve for maintaining a supply of a fluid lubricant in the stuffing-box under a pressure greater than the gas-pressure on the stuffing-box.

In order that my invention may be clearly understood I have illustrated and will proceed to describe a practical form thereof as applied to an upright single-acting compressor.

Figure 1 represents a vertical axial section of so much of an upright single-acting compressor as will suffice to illustrate the application of my invention. Fig. 2 represents a vertical section, and Fig. 3 a sectional plan view, of the oil-well, oil-pump, safety-valves, and connections detached from the compressor.

The same letters of reference indicate identical parts in all the figures.

The packing in the stuffing-box A is divided into two parts by the skeleton separator-ring B, which fits both the stuffing-box and piston-rod C loosely, and is introduced for the purpose of forming a cavity in the packing for the reception of a fluid lubricant—such as petroleum-oil, for instance. The oil is forced into this cavity by a double-acting oil-pump, which consists of the barrels D and

D' and the plunger D², and is located in the bottom of the oil-well E, which is supported on the frame-work of the compressor. Barrel D has an inlet-hole, *d*, and barrel D' an inlet-hole, *d'*. The check-valve F on barrel D is connected by a pipe, *f*, and the check-valve F' on barrel D' by a pipe, *f'*, with the oil-cavity of the stuffing-box. A return-pipe, *g*, connects the said oil-cavity with a loaded safety-valve, G, in the oil-well, and a second return-pipe, *g'*, connects said oil-cavity with a second loaded safety-valve, G', in the oil-well. The oil-pump plunger D² is reciprocated to force oil into the oil-cavity of the stuffing-box by the following means: An arm, H, on a rock-shaft, H, engages the plunger, and the rock-shaft is provided with an upright curved beam, H², which is operated on so as to rock shaft H by an anti-friction roller on a pin, *i*, secured to the cross-head I on the piston-rod of the compressor. The safety-valves G and G' are so loaded that the oil in the cavity of the stuffing-box is under a pressure somewhat greater than the gas-pressure on the stuffing-box, so that no gas can pass the stuffing-box. Whatever slight leakage there may be will be a leakage of oil, and though a portion of this leakage may be into the cylinder of the compressor, most of it will be through the outer end of the stuffing-box. In order to catch the oil leaking through the outer end of the stuffing-box, I construct the nut K, which forces the gland L against the packing, with a catch-basin, K'. A supplemental stuffing-box, M, may be combined with nut K, as shown, to prevent leakage past the nut.

I do not primarily confine myself to the details of construction illustrated in the drawings. It is obvious, for instance, that the oil-supply apparatus need not necessarily have the duplex form illustrated, and that the oil-pump need not necessarily be operated from a moving part of the compressor. The nature of the fluid lubricant used will depend upon the kind of gas employed; but it should be a non-absorbent of the gas as far as practicable.

I claim as my invention—

1. The combination, substantially as before set forth, of the stuffing-box having an oil-

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cavity in the packing, a pump for forcing oil into said cavity, and a safety-valve connected with said oil-cavity.

2. The combination, substantially as before set forth, of the stuffing-box, the skeleton separator-ring in the packing, a pump for forcing oil into the cavity formed by said separator-ring in the packing, an oil-well, and a

safety-valve within the oil-well and connected with the said cavity in the packing.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE F. OTT.

Witnesses:

WILLIAM S. TOLAND,
AUGUST FUCHS.