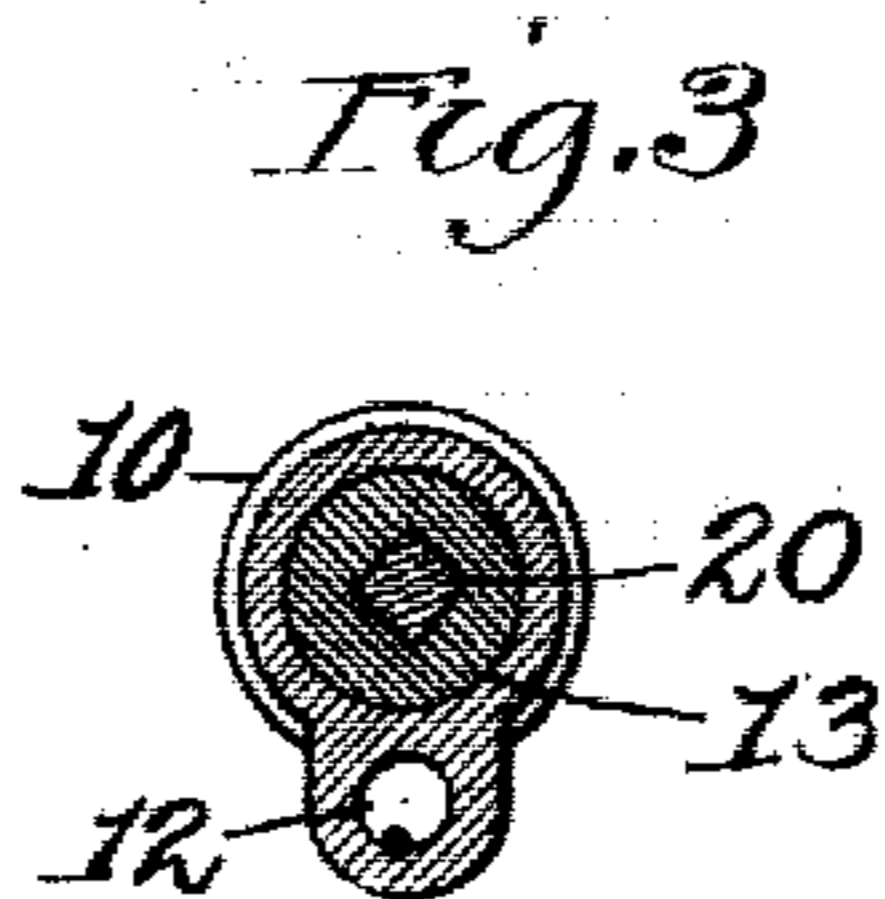
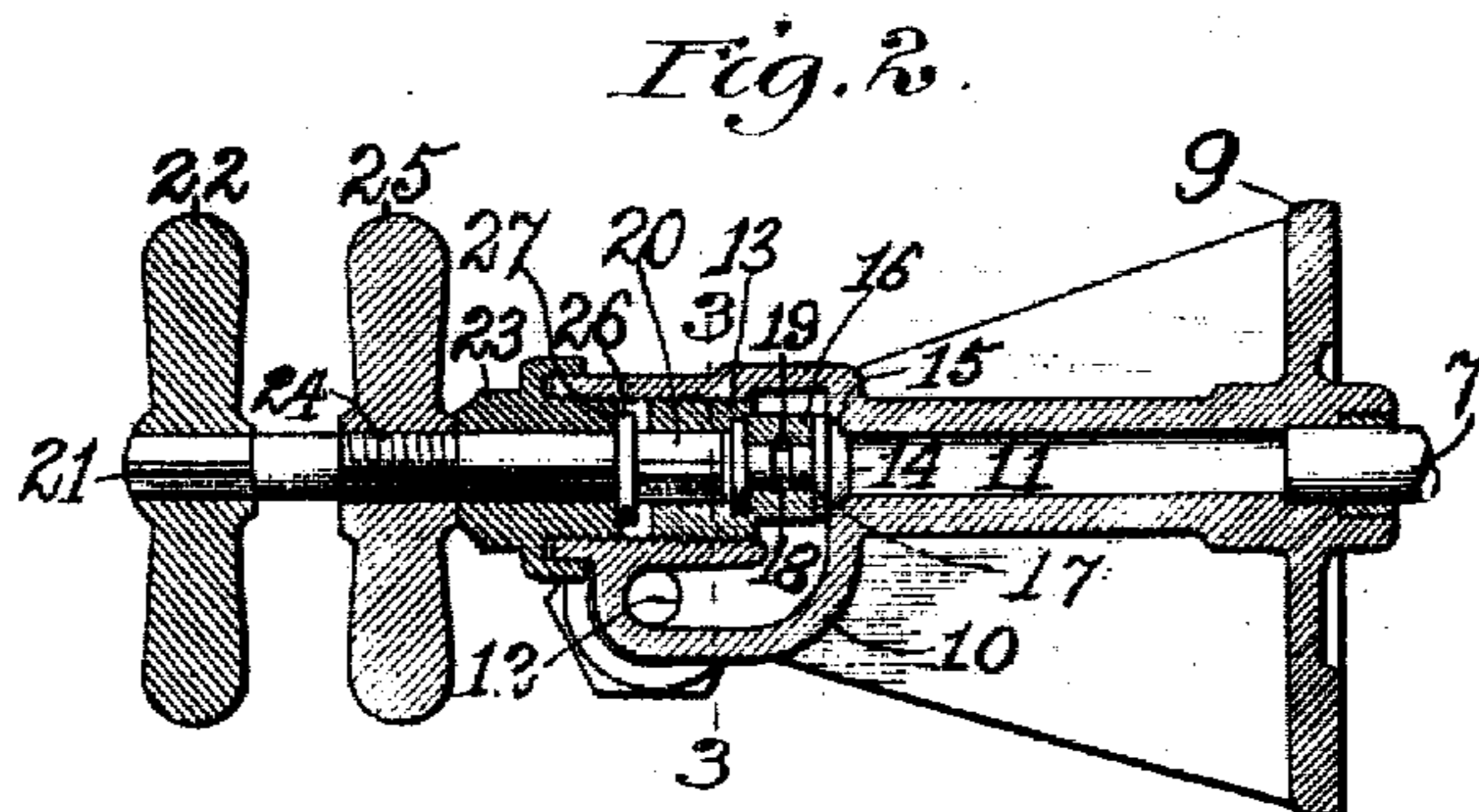
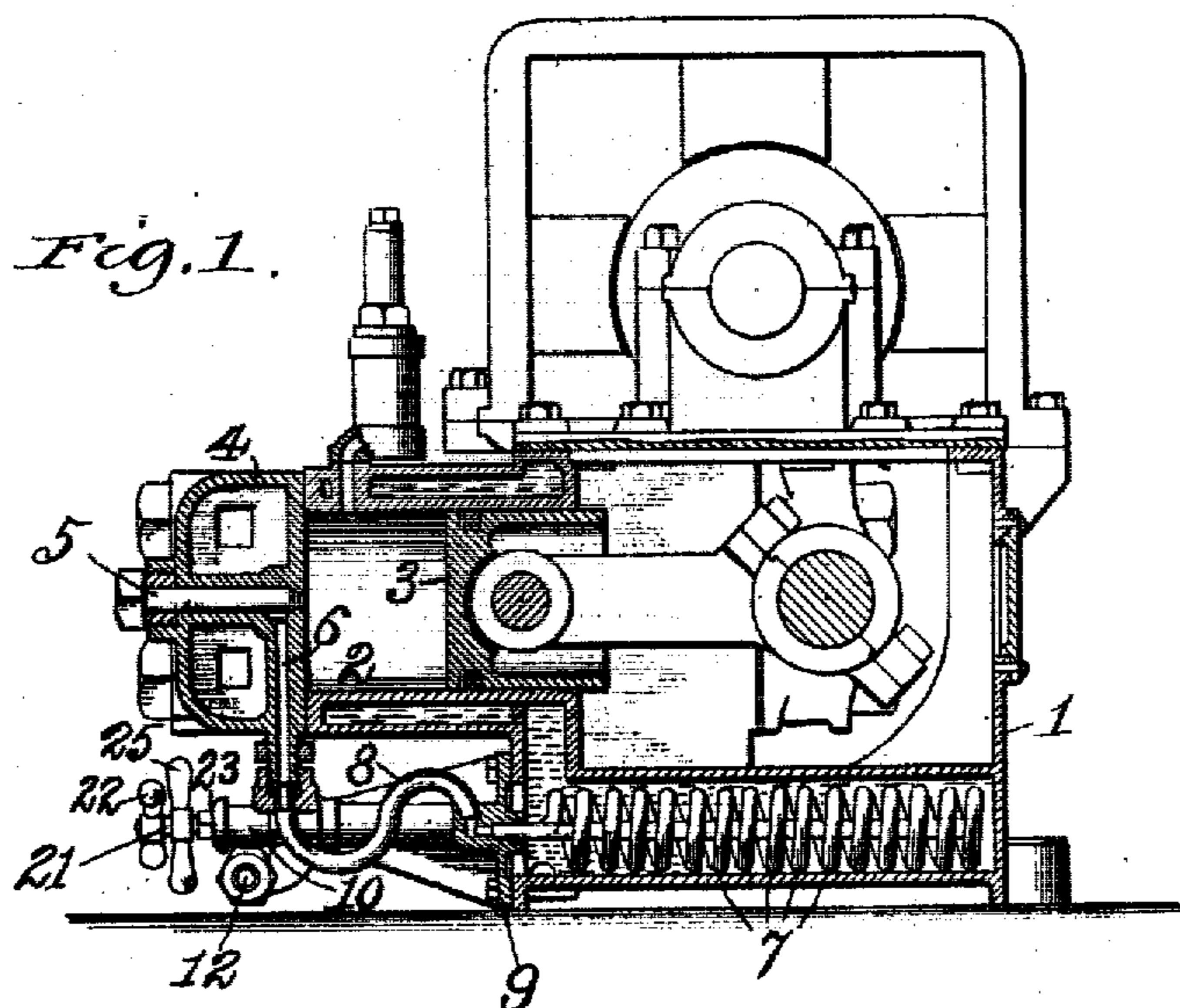


No. 826,649.

PATENTED JULY 24, 1906.

N. A. CHRISTENSEN.
CUT-OUT VALVE FOR FLUID COMPRESSORS.
APPLICATION FILED DEC. 11, 1899.



Witnesses:
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UNITED STATES PATENT OFFICE.

NIELS ANTON CHRISTENSEN, OF MILWAUKEE, WISCONSIN.

CUT-OUT VALVE FOR FLUID-COMPRESSORS.

No. 826,649.

Specification of Letters Patent.

Patented July 24, 1906.

Original application filed September 9, 1899, Serial No. 729,957. Divided and this application filed December 11, 1899. Serial No. 739,899.

To all whom it may concern:

Be it known that I, NIELS ANTON CHRISTENSEN, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Cut-Out Valve for Fluid-Compressors, of which the following is a specification, the within application being divisional of an application filed by me on September 9, 1899, Serial No. 729,957, for a High-Pressure Fluid-Compressor.

My invention pertains to fluid-compressors generally, and more particularly to a cut-out valve therefor; and its object is to provide a valve of this character more especially designed to be employed in connection with a compressor for obtaining high pressures in which leaks through the cut-out valve must be provided against. To devise a valve of this character and having these attributes is the object of the present invention.

In the drawings, Figure 1 is a sectional elevation of a compressor, showing one form of apparatus to which my invention may be applied; Fig. 2, an enlarged sectional elevation of the cut-out valve, and Fig. 3 a section on line 3 of Fig. 2.

Inasmuch as my present invention is restricted to the cut-out valve of a compressor, I will describe the parts of the compressor shown only in general terms, it being understood that the compressor illustrated is simply one exemplification of a compressor that may be employed and that my cut-out valve is to be used and applied wherever applicable to perform its functions.

The compressor-casing 1 has a cylinder 2, in which operates a single-acting piston 3. The cylinder has a back head or cover 4, containing a discharge-port governed by a discharge-valve 5 and communicating with the discharge-passage 6. As shown in the compressor selected for illustration purposes only, the discharge-passage does not communicate directly with the usual reservoir, but indirectly therewith through a cooling-coil 7, arranged in the lower part of the casing 1 and communicating with the discharge-passage 6, preferably by means of the gooseneck 8. As shown, one end of the cooling-coil chamber is closed by means of a removable plate or cover 9, which has passages communicating with both ends of the coil and with the gooseneck and with the passage leading to the reservoir, which latter passage is gov-

erned by the cut-out valve now to be described.

The cut-out valve comprises a casing 10, which in the drawings is shown as connected to and forming a part of this removable plate 9, which provides an excellent construction and arrangement of the parts; but of course it will be understood that this valve-casing may be separate therefrom. The only requirement is that such casing shall communicate both with the discharge-passage of the compressor and with the connection leading to the reservoir. As shown, this casing communicates through a port or passage 11 with the delivery end of the cooling-coil, which means that it communicates with the discharge from the compressor. The casing also communicates with a pipe or passage 12, leading to the reservoir.

The casing 10 has an open end into which screws a hollow externally-screw-threaded sleeve 13, which carries the valve proper, 14, seating on a seat 15 when closed. A central bore in the reduced end 16 of this sleeve receives the valve-stem 17, which has a circular groove 18, as well as the bore, so that the valve may be held in place by a transverse pin 19.

In a high-pressure compressor more particularly it is imperative that the cut-out-valve device be effectually sealed against leakage whether the valve is open or closed, and to attain this end the valve is constructed as shown in the drawings. The sleeve 13 has a square or angular hole to receive the angular end 20 of an operating-stem 21, having a handle 22. This operating-stem reciprocates and rotates in an end cap or head 23, screwing into the casing, and the end 20 has a slight motion or movement horizontally in the sleeve and independent thereof. The stem has screw-threads 24, on which screws a locking-handle 25, bearing against the cap 23, so as to reciprocate the stem 21 in one direction or the other through its said slight independent movement. When such stem is reciprocated outward by means of the locking-handle, an enlargement or collar 26 is caused to seat tightly against the inner end 27 of the end cap. Consequently any pressure leaking into the chamber in which the stem end 20 is situated is prevented from escaping to the atmosphere. The construction shown constitutes both a locking device and a seal for the cut-out valve. It is obvious that when the valve 14 is seated by turning

the handle 22 it may be locked in closed position by subsequently turning the locking-handle 25, so that the valve cannot be opened without first unlocking it by rotating the handle 25. At the same time when the valve 14 was locked on its seat the rotation of the handle 25 caused the operating-stem 21 to be drawn outward, so that its collar 26 was caused to seat upon the seat 27, thereby securely sealing the entire valve device and preventing any leakage whatever. These cut-out valves are adapted to be used in connection with any compressor and are particularly useful in a compressor having a plurality of compressor-cylinders and a plurality of delivery pipes or passages, so that one of the compressors may for any reason be cut out of connection with the other or active compressors. The normal position of the valve 14 is open, so as to permit free communication between the pipe or passage 11 and the pipe or passage 12, communicating with the reservoir.

Although I have described more or less precise forms and details of construction, I do not intend to be understood as limiting myself thereto, as I contemplate changes in form, the proportion of parts, and the substitution of equivalents as circumstances may suggest or render expedient and without departing from the spirit of my invention.

I claim—

1. A cut-out valve for compressors comprising a valve-casing provided with a valve-chamber having an inlet from the compressor and also having an outlet, a valve in such chamber governing the communication between the inlet and outlet, a screw-threaded body arranged to screw upon the inner wall of the casing and upon which said valve is rotatably mounted, a longitudinally-movable stem coöperating with said body to rotate it, and a collar arranged on said stem to seat upon an inner wall of the casing.

2. A cut-out valve for compressors comprising a valve-casing provided with a valve-chamber having an inlet from the compressor and also having an outlet, a valve in such chamber governing the communication

between the inlet and outlet, a screw-threaded body arranged to screw upon the inner wall of the casing and upon which said valve is rotatably mounted, a longitudinally-movable stem coöperating with said body to rotate it, a collar on said stem to seat upon an inner wall of the casing, and a hand-wheel device screwing upon the stem and arranged to bear against the casing to move the stem longitudinally and also to lock it after said collar has been seated.

3. A cut-out valve for compressors comprising a casing 10 having passages 11 and 12 and also a chamber, a sleeve 13 screwing into the chamber and having an angular opening in one end, a valve 14 separate therefrom but carried thereby at the other end for governing communication between passages 11 and 12, a stem 21 extending into the casing and having an angular end received by said angular opening, a cap 23 screwing into the casing and through which the stem passes, a collar 26 on the stem, a handle 22 for rotating the stem, said stem having external screw-threads 24, and a handle 25 engaging said threads and bearing against said cap 23.

4. A cut-out or controlling valve for compressors comprising a hollow valve-casing through which the discharge-passage from the compressor runs, a sleeve screwing in the casing and having a central bore at its inner end and an angular socket to its outer end, a valve-body having a stem fitting in such bore and governing such discharge-passage, such valve-stem having a circumferential groove, a pin through the sleeve and the groove, an operating-stem having its inner end angular and received in such socket, a collar on such stem adapted to be seated within the casing when the stem is positively reciprocated outwardly, such stem being round where passing through the casing and having screw-threads extraneous thereof, and a hand-wheel fitting on such threads and bearing against the casing to reciprocate the operating-stem.

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Witnesses:

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