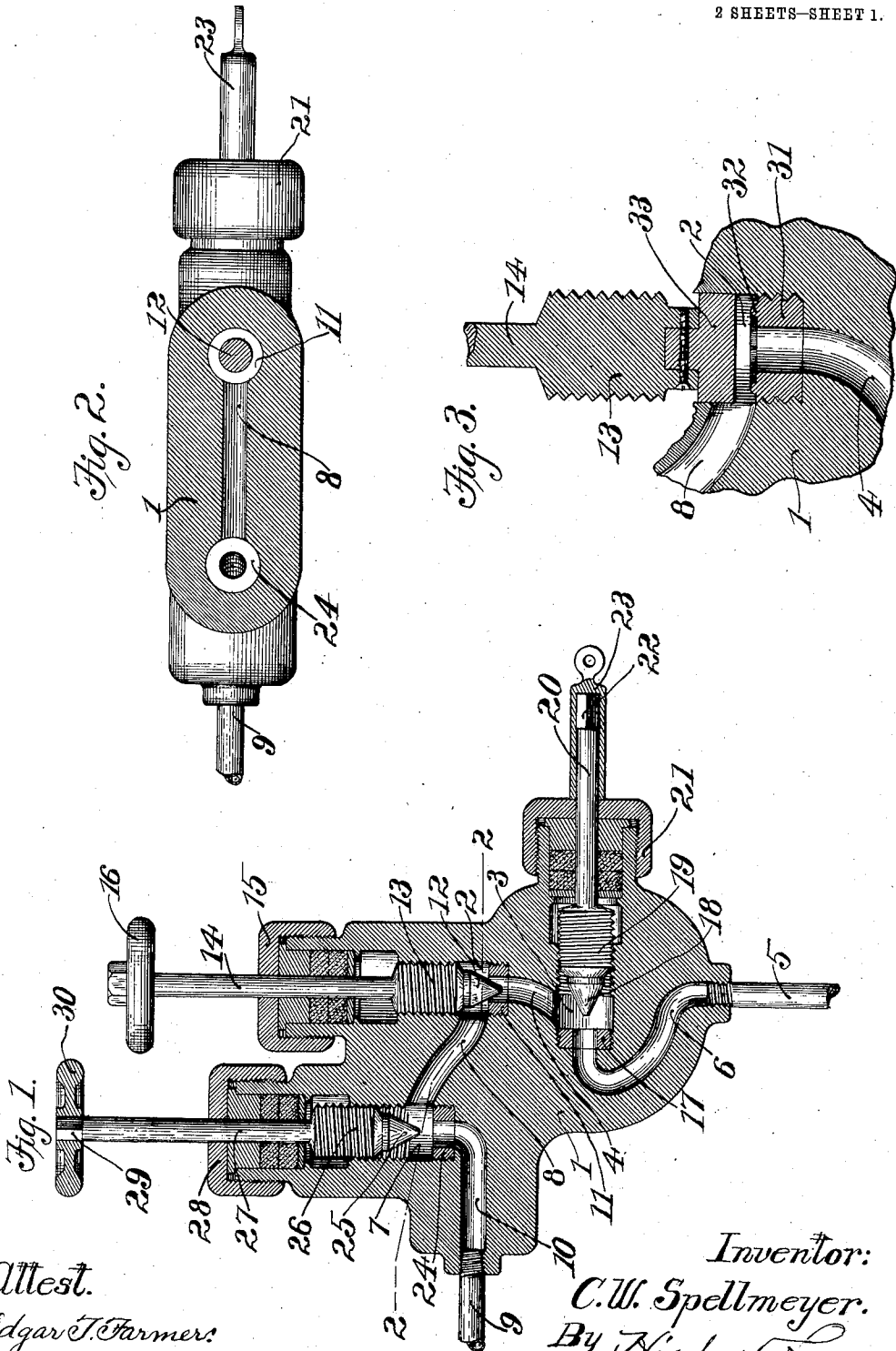


C. W. SPELLMEYER.
 EXPANSION VALVE FOR REFRIGERATING SYSTEMS.
 APPLICATION FILED AUG. 26, 1907.

1,002,463.

Patented Sept. 5, 1911.

2 SHEETS—SHEET 1.



Attest.
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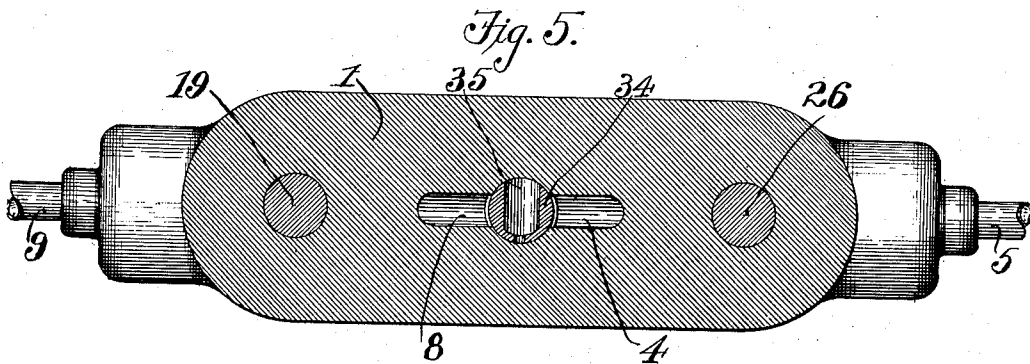
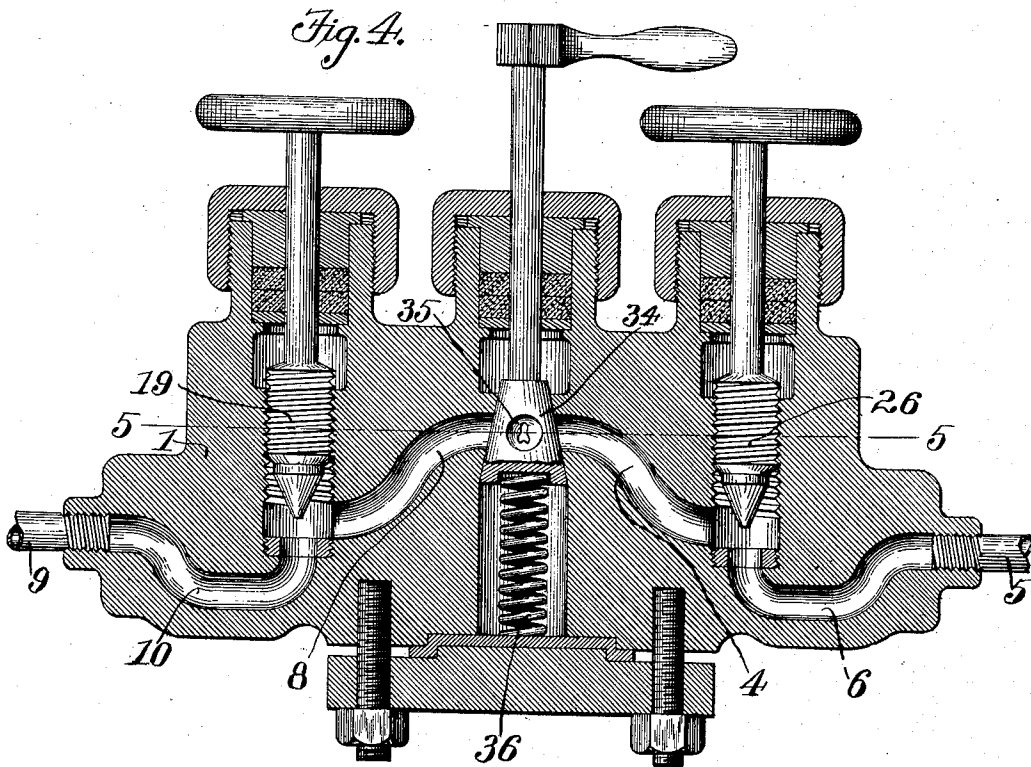
Inventor:
 C. W. Spellmeyer.
 By Higdon Logan
 Attys.

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UNITED STATES PATENT OFFICE.

CHARLES W. SPELLMEYER. F. ST. LOUIS, MISSOURI.

EXPANSION-VALVE FOR REFRIGERATING SYSTEMS.

1,002,463.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed August 26, 1907. Serial No. 390,262.

To all whom it may concern:

Be it known that I, CHARLES W. SPELLMEYER, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Expansion-Valves for Refrigerating Systems, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an expansion valve for refrigerating systems, and the object of my invention is to provide simple and inexpensive means whereby the expansion valve in a refrigerating system may be temporarily cut out of service by means of two secondary valves located in the same valve-body adjacent the expansion valve, in order that said expansion valve may be removed for the purpose of repair, or to permit new packing to be placed on top of said expansion valve.

Heretofore it has been necessary to shut down and pump out the entire system when the expansion valves require repair or attention; but, by my improved construction, the time required for this pumping out is entirely done away with, and a simple, compact construction is provided.

To the above purposes, my invention consists in certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in the claim, and illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical section taken through the center of an expansion valve of my improved construction; Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1; Fig. 3 is a detail section showing a modified form of the valve and valve seat; Fig. 4 is a vertical section taken through the center of a modified form of the valve; Fig. 5 is a horizontal section taken on the line 5—5 of Fig. 4.

Referring by numerals to the accompanying drawings:—1 designates the valve body or housing, in the upper portion of the right hand side of which is formed a chamber 2; and formed in the lower portion of the housing, below this chamber 2, is a chamber 3, there being a passageway or port 4 connecting said chambers 2 and 3; and leading from the chamber 3 downward to the inlet pipe 5 is a passageway or port 6.

Formed in the upper left hand portion of

the housing 1 is a chamber 7, communicating with the chamber 2 by means of a passageway or port 8, and leading from said passageway 7 to an outlet pipe 9, tapped or flanged into the housing 1, is a passageway or port 10.

Horizontally disposed in the bottom of the chamber 2 is a soft or hard metal ring 11, which forms a seat for the tapered lower end 12 of the valve 13, which is exteriorly screw threaded and adapted to operate in the upper portion of the chamber 2, said valve being provided with a vertically disposed stem 14, which passes through a gland or stuffing box 15, and being provided on its upper end with a handle 16.

Vertically disposed at the inner end of the chamber 3 is a soft or hard metal ring 17, which forms a seat for the tapered inner end 18 of a valve 19, which is threaded for operation in the chamber 3, said valve being provided with a stem 20 which passes through a stuffing box 21 arranged on the side of the housing 1, and the outer end of said stem being square, as designated by 22.

Removably positioned on the exposed end of this stem 20 is a sleeve 23, which is for the purpose of preventing rust and dirt from accumulating on the stem and thus rendering the same useless.

Seated in the lower end of the chamber 7 is a soft or hard metal ring 24, which forms a seat for the tapered lower end 25 of the valve 26, which is threaded for operation in the upper portion of the chamber 7, said valve being provided with a stem 27 operating through a stuffing box 28 on the upper left-hand corner of the housing 1; and the upper end of said stem is square, as designated by 29; and adapted to receive a wheel or handle 30, which latter is also used on the square end of the stem of the valve 19.

In Fig. 3 I have shown a hard metal ring 31, provided on its top surface with an integral annular flange 32, and on which is adapted to engage a soft metal disk 33, carried by the end of the valve.

In the modification seen in Fig. 4, the secondary valves 19 and 26 are both vertically disposed adjacent the ends of the valve housing 1, and the specific expansion valve 13 is done away with, and in its place is provided a conical head 34, which answers the purpose of an expansion cock, and which is provided with a transverse aperture 35 adapted to register with the passageway

between the secondary valves, and which conical head is held in proper position by an expansive coil spring 36 located in the chamber below said head.

5 When an expansion valve of my improved construction is in use, the secondary valves 19 and 26 are normally in open positions, and the expansion valve 13 is opened or closed, as desired, to correspondingly open
10 and close communication between the passageways 4 and 8.

Should the expansion valve become worn from use, or should new packing therefor be required, the secondary valves 19 and 26
15 are closed, thus shutting off communication on both sides of the expansion valve, and the same can now be removed to be repaired, or repacked, without necessitating the pumping out or shutting down of any
20 part of the system. Or, in case any pipe sediment, or other foreign substance becomes lodged in the ports 4, the expansion valve may be also removed, thereby permitting the port to be examined, and such substances
25 removed or blown out.

Heretofore in refrigerating systems when it became necessary to take out the expansion valve to repair or repack the same, or
30 replace with another valve, air would rush into the system on the low pressure side, which necessitated the pumping out of the system, in addition to repairing or replacing the valve. These secondary valves 19 and
35 26 may be closed whenever repairs are being made in the line of the suction side of the valve, thus cutting off any leakage which might occur to and through the expansion valve.

My improved valve may also be placed

where other valves are now in use, without the expense of removing any piping. 49

An expansion valve of my improved construction is simple, compact, easily manipulated, and much time, labor, and consequent expense is saved when it becomes necessary
45 to repair, examine, or repack said valve.

I claim:

The improved expansion-valve for ammonia refrigerating-systems; comprising the combination with the supply and outlet
50 pipes of such system; of a single valve-body having three valve-seats therein, one of said valve-seats being located in said body adjacent the inlet thereof, another one of said valve-seats being located in said body adjacent the outlet thereof, and a third valve-seat being located in said body intermediate
55 of the two valve-seats above mentioned; said body having a single continuous tortuous passageway extending therethrough from end to end, a portion of said passageway at each seat leading downwardly therefrom; said valve seats being separated from and independent of each other; a separate and independent valve for each of said three
60 valve-seats; a separate stem for independently controlling each of said three valves; and separate and independent stuffing-glands and packing for each of the three valve-stems. 70

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

CHARLES W. SPELLMEYER.

Witnesses:

EDWARD E. LONGAN,
E. L. WALLACE.