

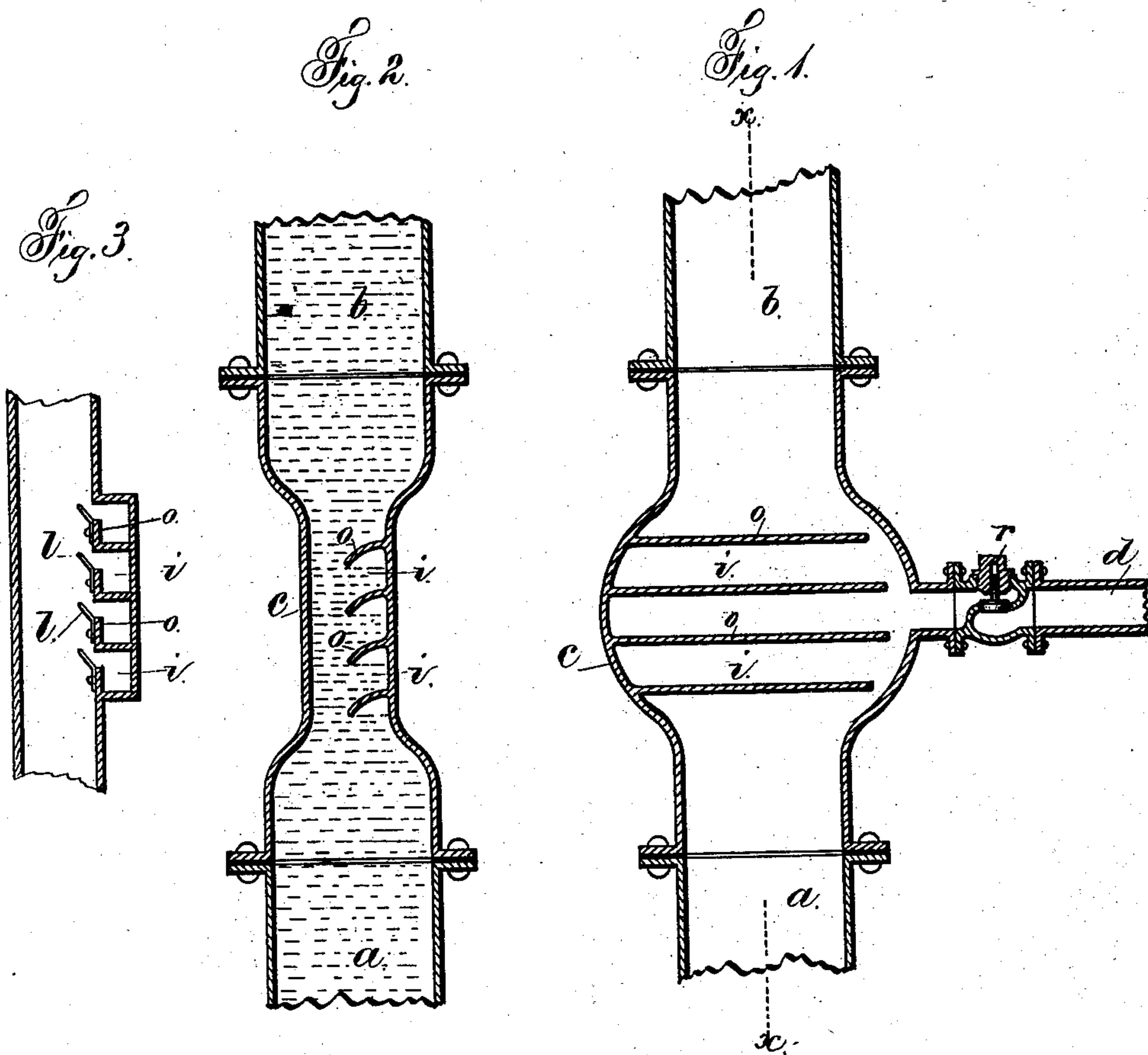
(No Model.)

W. A. MILES.

CONDENSER FOR STEAM PUMPS.

No. 272,456.

Patented Feb. 20, 1883.



Witnesses
Harold Terrell
Chas. H. Smith

Inventor
William A. Miles
per Lemuel W. Terrell

UNITED STATES PATENT OFFICE.

WILLIAM A. MILES, OF COPAKE IRON WORKS, NEW YORK.

CONDENSER FOR STEAM-PUMPS.

SPECIFICATION forming part of Letters Patent No. 272,456, dated February 20, 1883.

Application filed December 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. MILES, of Copake Iron Works, in the county of Columbia and State of New York, have invented an
5 Improvement in Condensers for Steam-Pumps, of which the following is a specification.

I make use of a series of steamways placed transversely to the suction water-way of the pump and admit the steam from the exhaust-
10 steam pipe into such transverse steamways, so that the steam passes into the water from a number of narrow spaces and is condensed with rapidity. I combine with the steamways, exhaust-steam pipe, and water-way a check valve
15 or valves that prevent the water passing into the steam-pipe, as the steam may condense more rapidly than it is supplied, especially when the engine is running slowly.

In the drawings, Figure 1 is a section of
20 the suction water-way and steam-pipe, longitudinally of the latter. Fig. 2 is a section at the line *xx*. Fig. 3 is a section of a modification of the steamway.

The pipe *a* leads to the water-supply, and
25 the pipe *b* to the pump. The pipe *d* conveys the exhaust-steam into the water-way. At the junction of these pipes I provide a chamber, *c*, which by preference is flattened in one direction and extended in the other direction,
30 so as not to interfere with the free flow of water in the suction water-way; and at the same time allow for the introduction of elongated steam passage-ways *i*, that extend across the water-way, and are a continuation of or in line
35 with the exhaust-steam pipe *d*, so that as the steam issues from the pipe *d* it will spread itself along in these steam-ways *i*, and pass gradually into the water and be condensed. If the pipes *a b* are horizontal, the steamways *i* should
40 be in the upper part of the chamber *c*. If the pipes *a b* are vertical, the partitions *o* between one steamway *i* and the next may be inclined downwardly, as in Fig. 2, to give better opportunity for the steam to pass along below the
45 inclined partition.

I generally prefer to make the steamways in the form shown in Fig. 3, wherein there are valves or deflecting-lips *l*, of sheet metal or other suitable material, attached to the flat surfaces formed at the edges of the partitions, 50 so that these deflect the water as it passes by the openings between the edges of the lip *l* and the ends of the partitions *o*. If these deflecting-lips are sufficiently flexible, they will close down against the ends of the partitions 55 *o* and form valves, if the vacuum in the steam-spaces becomes greater than the vacuum in the suction water-pipe, and thereby these deflecting-lips will render the use of other or check valves unnecessary. 60

I have shown a check-valve, *r*, in the exhaust-steam pipe *d*, which check-valve opens to the steam as it flows toward the water-way; but this valve closes whenever the steam condenses in the pipe *d* and the vacuum becomes 65 greater than that in the suction water-way. This prevents the water flowing into the exhaust-steam pipe.

I claim as my invention—

1. The combination, with the suction water- 70 way and the exhaust-steam pipe, of steamways passing across the water-ways, substantially as set forth.

2. The combination, with the water-way in a steam-pumping apparatus, of the partitions 75 *o*, intermediate steamways, and the deflecting-lips *l*, and exhaust-steam pipe *d*, substantially as set forth.

3. The combination, with the suction water-way and exhaust-steam pipe, of steamways 80 passing across the suction water-way and opening into the water-space, and a check valve or valves, substantially as set forth.

Signed by me this 21st day of December, A. D. 1882.

WILLIAM A. MILES.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.