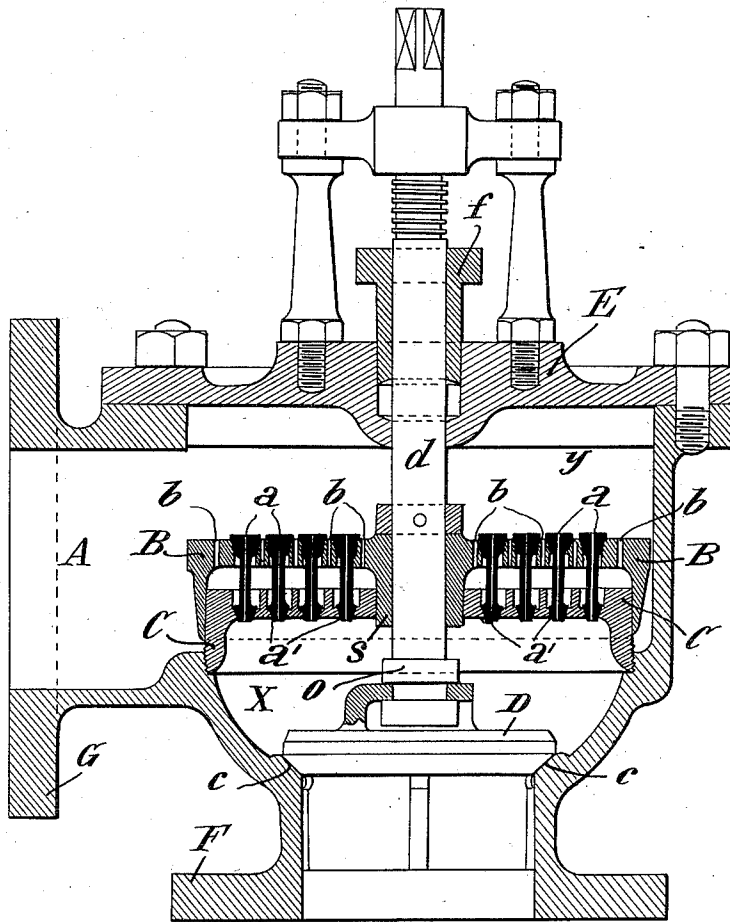


G. RESTUCCI.
STEAM VALVE SEPARATOR.
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1,019,278.

Patented Mar. 5, 1912.



Witnesses:
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UNITED STATES PATENT OFFICE.

GIUSEPPE RESTUCCI, OF NAPLES, ITALY.

STEAM-VALVE SEPARATOR.

1,019,278.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed May 26, 1911. Serial No. 629,683.

To all whom it may concern:

Be it known that I, GIUSEPPE RESTUCCI, mechanical engineer, a subject of the King of Italy, residing at Naples, Italy, have invented certain new and useful Improvements in or Relating to Steam-Valve Separators, of which the following is a specification.

This invention relates to a stop valve for steam in which water separation is obtained by throttling the steam, in such a manner that any water mechanically carried away, is evaporated by the heat produced by the throttling. The water mechanically separated, can then fall back in the form of drops into the steam generator. This arrangement has the advantage that it supplies absolutely dry steam without necessitating discharge of water by condensation at the expense of the boiler feed water. The throttling is effected according to this invention by two superposed partitions which are adjustable relatively to each other. The bottom partition is mounted rigidly in the valve casing and is provided with a number of small conical perforations with which engage, with their conical heads, hollow valve spindles secured to the upper plate. When the upper plate is pressed against the lower one, the heads of the spindles close the conical perforations provided for them in the bottom plate, and when the main valve is opened, the steam can pass only through the hollow spindles. If, however, the upper plate is raised relatively to the bottom plate, the hollow spindles will be lifted off their seats, so that steam will pass also through the annular spaces between the conical heads of the hollow spindles and the conical perforations or valve seats of the bottom plate. This steam passes first between the two partitions and through special holes arranged in the upper partition to the discharge side of the valve chamber. The adjustable plate provided with the hollow spindles, is preferably raised simultaneously with the raising of the main stop valve, that is, in such a manner that on the main valve being opened, no raising takes place at first, so that there is only throttling in the passages of the valve spindles. If, however, the main stop valve is raised still more from its seat, the adjustable plate will also be raised, and further passage will be afforded for the steam, the steam being more or less throttled, according to the position

of the stop valve, and decomposed into a large number of fine jets.

The figure illustrates the stop valve in vertical section.

The working of the device is as follows: When the valve D is arranged in a steam pipe between the generator and engine, and it is desired to start the engine, a hand wheel mounted on the rod —d— is rotated, so that the valve D is raised, and the necessary quantity of steam can pass through the valve. The steam passes first into a chamber X from which it is forced to pass through the perforations of the tubes —a—. A slight increase of velocity then takes place, corresponding to the reduced cross-section of passage. In the chamber Y there again takes place an expansion, whereupon the steam passes to the engine to which the flange G can be connected directly or indirectly. If for some reason it is necessary to get a greater speed of steam, the hand wheel on the rod —d— is rotated, so that the valve D is lifted still farther from its seat. As the ring —o— of the rod —d— strikes against the hub —s— of the movable partition B, the latter will be raised. The small conical valves of the tubes —a— must be however then also lifted off their seats, and a correspondingly greater quantity of steam will be able to pass through the partitions. This distance must not be greater than about 5 mm. If this distance is maintained, the steam must have a free passage through the annular spaces —a'— produced by the lifting off of the conical ends of the tubes —a— from their seats. The steam passes further as before through the perforations of the tubes —a— and through the holes —b— of the partition B. It will be seen that owing to the fine division of steam by the partitions, the particles of water contained in the steam must separate and that the steam becomes therefore properly dried.

Having now fully described my said invention and the manner in which the same is to be performed, I declare that what I claim as my invention is:

1. A steam valve with water separation by throttling, in which two partitions are arranged over the stop valve in the valve casing one of which partitions is moved by the spindle which operates the main valve, while the other fixed partition is provided with holes forming conical seats for corre-

spondingly shaped valves provided at the end of small tubes carried by the movable partition and engaging with the corresponding seats in the fixed partition.

- 5 2. A steam valve with water separation by throttling, in which two partitions are arranged over the stop valve in the valve casing one of which partitions is moved by the spindle which operates the main valve, 10 while the other fixed partition is provided with holes forming conical seats for correspondingly shaped valves provided at the end of small tubes carried by the movable partition and engaging with the correspond-

ing seats in the fixed partition, a hub on the movable partition adapted to pass through the fixed partition, and a collar on the spindle of the main valve adapted to raise the movable partition when the said valve is lifted. 15 20

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

GIUSEPPE RESTUCCI.

Witnesses:

DUILIO NARDONI,
CARREDO BREVILL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."