CLAIMS

1. A combined high-temperature steam-water filtering device, comprising:

two or more filtering units (1) arranged in an outer shell (9), wherein each filtering unit (1) comprises a filter frame (2) divided into an upper layer and a lower layer by an interlayer (3), the lower layer (21) being provided with a feed inlet (211) capable of being in communication with a steam inlet (6), and the upper layer (22) being provided with a discharge port (221);

a filter (4) comprising a plurality of filter cartridges (41) mounted on the interlayer (3) along a vertical direction, an inlet of each filter cartridge (41) being positioned below the interlayer (3), and an outlet of each filter cartridge (41) being positioned above the interlayer (3); and

a communicating channel (5) extending along a vertical height direction of the filter frame (2) and being in communication with the discharge port and the feed inlet of the adjacent filtering units (1).

2. The combined high-temperature steam-water filtering device according to claim 1, wherein the interlayer (3) is provided with two or more of the filters (4), the two or more of the filters (4) being arranged along a direction perpendicular to a medium flowing direction.

3. The combined high-temperature steam-water filtering device according to claim 1, wherein the feed inlet (211) and the discharge outlet (221) of each filtering unit (1) are oppositely arranged; or the feed inlet (211) and the discharge port (221) of each filtering unit (1) are arranged in a staggered manner.

4. The combined high-temperature steam-water filtering device according to claim 1, wherein the discharge port of the filtering unit (1) at a tail end is in communication with a steam outlet (7); or the steam outlet (7) is arranged at a top of the communicating channel at a tail end.

5. The combined high-temperature steam-water filtering device according to claim 1, wherein the filtering unit (1) also comprises a pressure sensor (8) for monitoring a differential pressure between the feed inlet (211) and the discharge port (221).

6. The combined high-temperature steam-water filtering device according to claim 1, wherein a drain outlet (23) is arranged at the bottom of the filter frame (2); access manholes (24) with a same number as the filters (4) are formed in the filter frame (2); the filter (4) comprises a flange bottom plate (42), and the filter cartridges (41) are mounted on the flange bottom plate (42) in parallel.