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COLLECTING ELECTRODE FOR ELECTROFILTER

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FIG. 1.

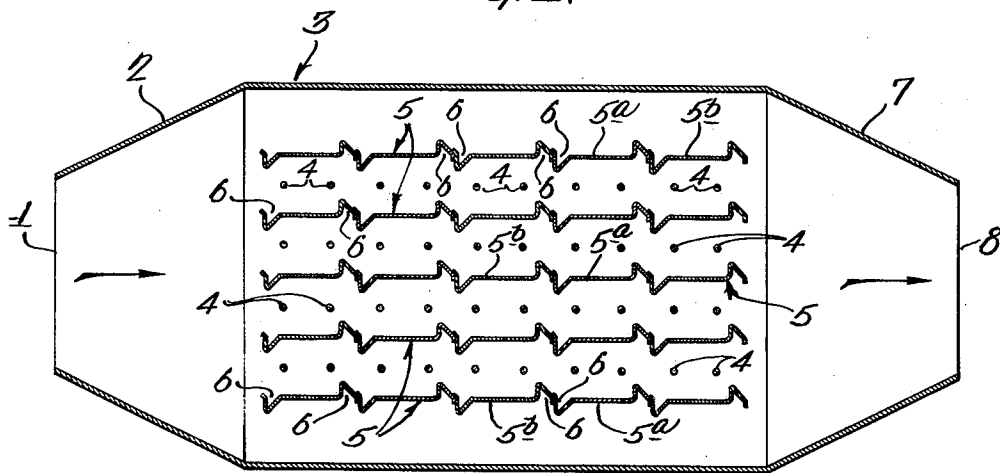


FIG. 2.

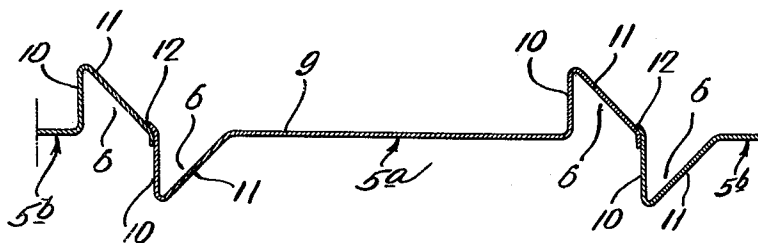


FIG. 3.



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COLLECTING ELECTRODE FOR ELECTROFILTER

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4 Claims. (Cl. 183—7)

The present invention relates to a collecting electrode for electrofilters with horizontal gas-flow and having collecting electrodes in shape of a number of vertical, substantially plane plates, arranged parallel to the gas-flow. In electrofilters of this kind one aims to prevent the dust, deposited on the electrodes and falling down from said electrodes, from being carried away by the gas-flow. This problem has earlier been solved by providing the collecting electrodes with catching ledges of different types, for example, ridges or long narrow strips of sheet metal standing out from the electrode plate. The invention relates to a new and improved embodiment of collecting electrodes which will facilitate a more effective conducting away and collecting of deposited dust. The object of the invention is characterized in that each plate is equipped with pairs of vertical leeward-pockets, evenly interspaced in the flow direction of the gas and consisting of two adjacent, substantially Δ -shaped pockets, bent outwardly from opposite sides of the plate. The bent portions are suitably made so that their two branches make different angles with the plane of the plate and so that the adjacent bent portions turn their shorter branches towards the gas-flow. In accordance with a suitable embodiment the collecting electrode consists of a number of elements, each having two leeward-pockets of the above mentioned kind. The elements can thereby be made with one leeward-pocket at each edge of the element, i.e. the joints for the electrode elements will be situated between two adjacent bent portions.

The invention will now be described more in detail with reference to the accompanying drawing, in which Fig. 1 shows a horizontal section through an electrofilter;

Fig. 2 shows in detail a part of a suitable embodiment of a collecting electrode; and

Fig. 3 is a view similar to Fig. 2 showing a modification wherein the collecting electrode consists of one single large plate.

In Fig. 1, 3 designates a casing of an electrofilter and 2 and 7 respectively designate inlet and outlet hoods for the gaseous medium to be cleaned in the electrofilter and being supplied at the point 1 and discharged at the point 8 and the flow direction of which is marked by the arrows shown in the Figure 1. Number 4 designates a number of emission electrodes arranged in parallel rows and 5 designates a number of collecting electrodes arranged between said emission electrodes formed as vertical, substantially plane plates, parallel to the gas-flow. In accordance with the invention said plates 5 are provided with pairs of leeward-pockets 6, evenly interspaced in the flow direction of the gas and consisting of two adjacent, delta-shaped outwardly bent portions of the plate extending from opposite sides of said plate. Each collecting electrode can consist of one single large plate equipped with a number of such leeward-pockets arranged in pairs as shown at 15 in Fig. 3, or the plate can consist of a number of elements 5a, 5b, etc., each having two leeward-

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pockets. In accordance with a suitable embodiment each separate electrode element consists of a leeward-pocket arranged at each edge of the element as shown in Fig. 2, whereby the joints 12 will be situated between two adjacent bent portions. The leeward-pockets are suitably formed as shown in Fig. 2, so that the both branches 10 and 11 constitute a different angle with the plane 9 of the plate and so that the adjacent bent portions turn their shorter branches, which are preferably at substantially a 90 degree angle with the plane 9—designated 10 in the illustrated embodiment—towards the gas-flow.

In accordance with conventional practice, the dust being collected on the electrodes is carried away by rapping or hammering the electrodes at intervals by means of special hammering devices. The dust collected on the electrodes falls down into conventional pockets or troughs having a screw conveyor therein for exhausting the dust. When using flat electrodes, it happens that dust is entrained in the gas current before it passes into the pocket or trough at the bottom, and by using electrodes in accordance with the present invention, the dust which is entrained by the gas current loses its horizontal velocity and whirls into the leeward-pockets, where it falls down into the troughs without interference from the horizontal gas flow.

What I claim is:

1. A collecting electrode for electrofilters having horizontal gas flow and collecting electrodes in the form of a plurality of vertical substantially plane collecting plates mounted parallel to the gas flow, each of said collecting plates having a plurality of vertically elongated pockets therein extending in spaced parallel relationship and being formed by two similar delta-shaped offset portions of said plates displaced outwardly from the planes of the plates a like distance on opposite sides of said plates in laterally contiguous relation, each of said portions defining a peak on one side of the plate and a valley on the opposite side of the plate whereby the offset portions form a pocket at each side of the plate which extends continuously from the top of the peak of one of said delta-shaped offset portions through the plane of the plate to the bottom of the valley of the contiguous offset portion and has a depth equal to twice the outward displacement of each offset portion.

2. A collecting electrode according to claim 1 wherein each of said portions comprises two branches, one disposed at right angles, and the other at an acute angle to the plane of the plate, the right angle branches facing towards the gas flow, the acute angle branch of the upstream portion terminating in the right angle branch of the contiguous downstream portion.

3. A collecting electrode according to claim 1 wherein the electrode consists of a number of plates mounted in longitudinal alignment, each plate having two of said offset portions.

4. A collecting electrode according to claim 3 wherein each of said longitudinally aligned plates has one of said offset portions at the leading edge thereof and the oppositely offset portion at the trailing edge thereof, whereby the joints between said plates are located between the two contiguous oppositely offset portions.

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