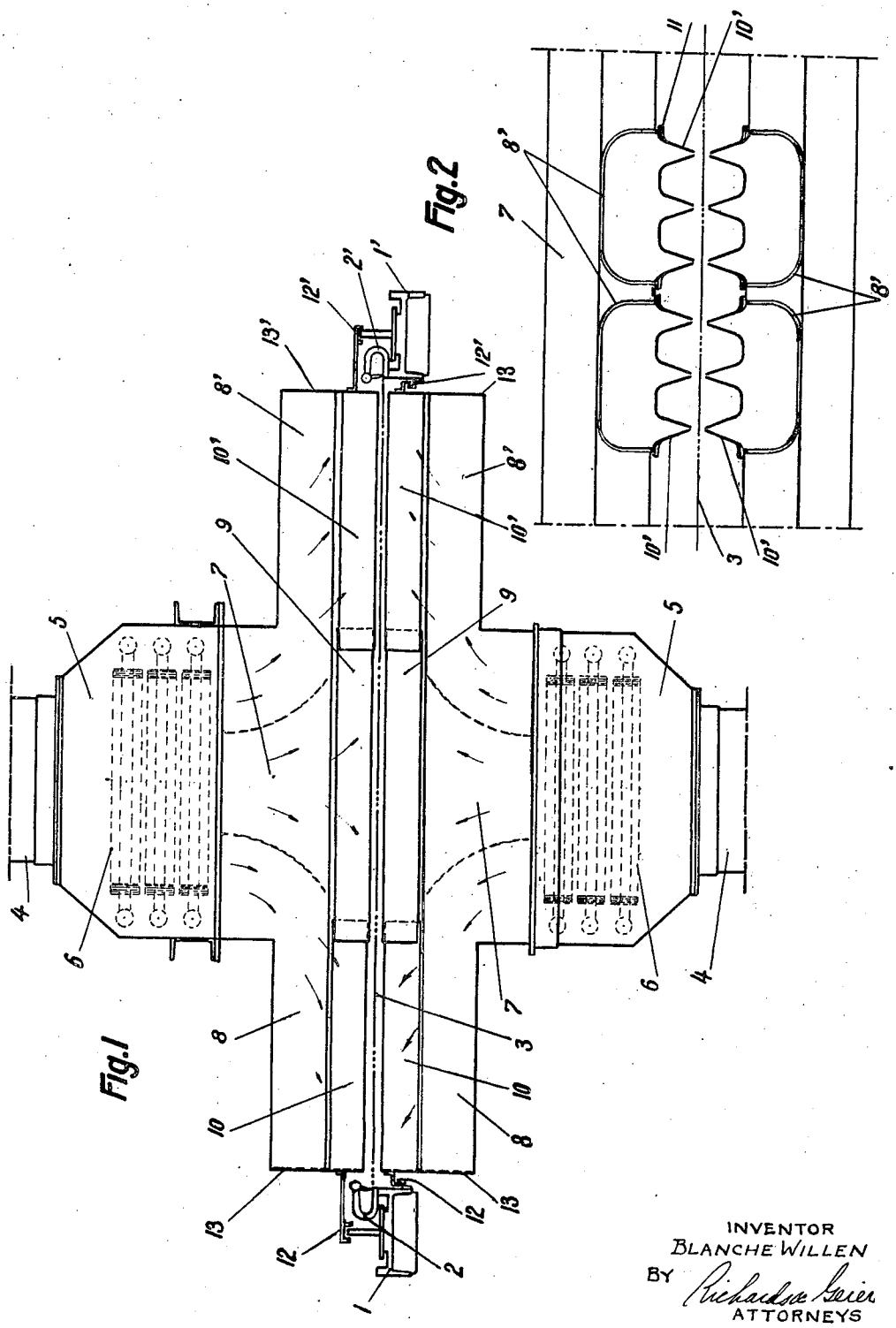
Jan. 13, 1942. B. WILLEN 2,270,155

TENTER FOR THE TREATMENT OF CLOTH

Filed May 23, 1940 2 Sheets-Sheet 1



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Fig. 3.

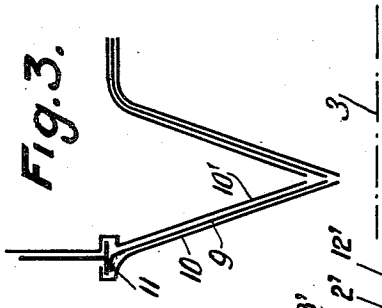
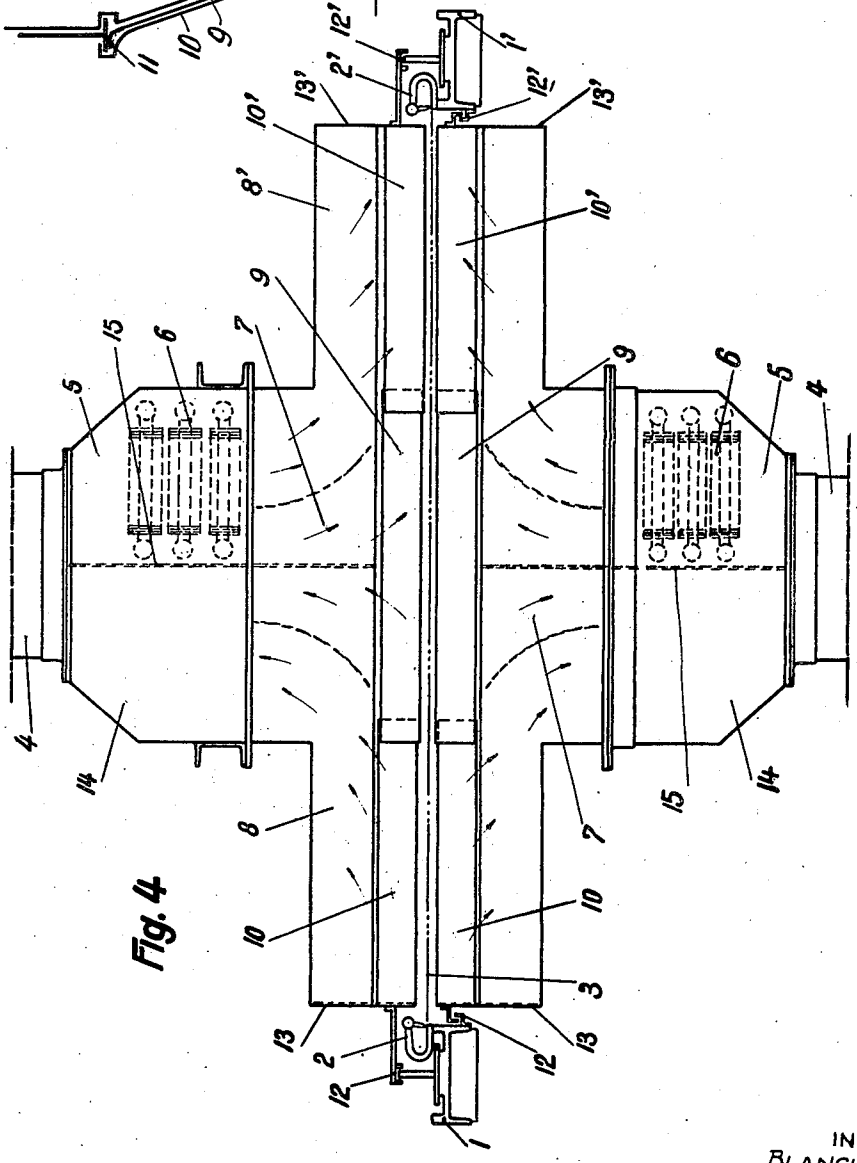


Fig. 4



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TENTER FOR THE TREATMENT OF CLOTH

Blanche Willen, Basel, Switzerland

Application May 23, 1940, Serial No. 336,693

1 Claim. (Cl. 26—60)

The invention relates to clips, pins or hooks tentering machines, and other like machines for drying cloths, and more particularly to those which have been well known for a long time, on which the drying fluid, in this case the hot air, is projected on to the cloth through groups of nozzles which are arranged on either side of the plane of passage of the cloth.

It is known that, owing to the fact that the width of the cloths that may have to be treated on the same tenter varies considerably, often in a proportion of one to three, it was necessary to arrange the nozzles at some distance, of the order of about ten to fifteen centimetres, from the surfaces of the cloth, so as to allow the guide rails projecting above and below the plane of the cloth, and possibly the clips located above said plane to pass during their transverse movement which is necessary for the treatment of cloths of smaller width than the maximum.

It has been admitted that this necessity of placing the blowing nozzles such a long distance above or beneath from the cloth offers serious drawbacks, in view of the fact that with such an arrangement, the velocity of the air at the outlet of the nozzles decreases very rapidly owing to the formation of an air cushion between the orifices of the nozzles and the cloth. This is the reason why the present day arrangements very considerably decrease the practical efficiency of the tentering machines, since such efficiency largely depends on the velocity of the currents of hot air at the instant when they touch the cloth.

The purpose of the present invention is to remedy this drawback by creating the possibility of arranging the nozzles level with the cloth, so that the currents of hot air reach it at their initial velocity of projection from the nozzles.

For this purpose, the invention has for its object an improvement which consists, in principle, in providing nozzles whereof the length is variable according to the width of the cloths treated and the adjustment of which is preferably effected by the actual movement of the chain guide rails when the spacing of same is altered.

According to a preferred embodiment of the invention, each of the nozzles which are respectively located above and below the cloth and the orifices of which open level with the surface of said cloth, includes a fixed part, whereof the length corresponds to the minimum width of the cloths to be treated, combined with extensions which are slidably mounted on the fixed part and are responsive to the movements of the chain-guide rails.

Owing to this fact, whatever be their total height, the chain-guide rails in no way hinder the construction of the device and the length of the nozzles always corresponds to the width of the cloth, so that the tenter constantly operates with its maximum efficiency. Furthermore, the moving of the rails closer together in no way affects the lateral evacuation of the saturated air, since the ends of the nozzles always remain the same distance from the rails.

Owing to the very high efficiency obtained by means of the invention, for drying on tenters, it is possible, either to reduce the length of the novel drying tenters while retaining the same output, or to increase considerably the output of existing tenters.

One embodiment of the invention is described hereinafter and diagrammatically illustrated simply by way of a non-limitative example, in the accompanying drawings in which:

Fig. 1 is a transverse vertical section of a tenter with self-feeding clips, provided with a hot air blowing device constructed according to the invention;

Fig. 2 is a transverse section of the nozzles;

Fig. 3 is a fragmentary detail view, in transverse section and on an enlarged scale, showing the arrangement of the fixed part of a nozzle and its extensions; and

Fig. 4 shows a modification of Fig. 1.

In these figures, 1 and 1' are the chain-guide rails of a tenter with self-feeding clips 2—2'; 3 is the cloth being treated.

Respectively above and below the cloth 3, there are placed similarly constructed arrangements, each including a pipe 4 for supplying air which is set in motion by a fan and passes through a chest 5 provided with heating elements 6. The chest 5 communicates with a distributing manifold 7 which is provided with extensions forming lateral conduits 8—8'. Below the manifold 7 (the ensuing description applying to the upper arrangement) and communicating with same, there is arranged the fixed medial part 9 of each of the nozzles. On either side of each fixed part 9, there is provided an extension 10—10' respectively, which is shaped like the fixed part and can extend the latter more or less according to requirements. The extension 10 slides externally, whereas the extension 10' slides internally, when the distance between the rails 1—1' is reduced, said extensions being supported and guided by their slide-ways which are engaged

on flanges 11 provided at the lower part of the lateral conduits 8—8'.

The extensions 10—10' are made responsive to the transverse movements of the rails 1—1' by means of fixing members 12—12'.

The closing of the outer ends of the conduits 8—8' is effected by means of movable end members 13—13' which are rigidly secured to the end members of the extensions 10—10' and are provided with fluid-tight packings which follow the cross-sectional shape of said conduits.

The hot air under pressure is projected through the slits in the nozzles 9—10—10' on to the cloth 3 which passes a few millimetres from said slits; the air becomes saturated with moisture and escapes from the blowing device through the free spaces between the nozzles.

In Fig. 1, the adjustment of the blowing system is assumed to be effected for cloths of maximum width, in the case in which cloths of smaller widths are to be treated, the rails 1—1' are moved towards each other and the extensions 10—10' automatically move the same amount inwards.

In the modification of Fig. 4, there is provided, on either side of the cloth, sets of separate nozzles which successively alternate, the ones being blowing nozzle, the others sucking nozzles. The first are connected to the manifold 5 which conveys the hot air from the fan and the others to a suction manifold 14, said manifolds being separated by a partition 15.

It is also possible to provide blowing nozzles on one side of the cloth and suction nozzles on the other side.

It is of course understood that it is possible, without exceeding the scope of the invention, to imagine modifications and improvements of details, and also to consider the use of means that form equivalents of those which are given by way of examples, thus, the adjustment of the length of the nozzles may be effected otherwise than by means of the chain-guide rails themselves.

It is of course also understood that the invention is applicable not only to single path tenters, but to those with stages. In this latter case, the chest containing the heating elements is placed outside the path.

It is obvious that it is also applicable to tenters which are only provided with nozzles on one side of the cloth, either above, or below.

It is also possible to consider the application of the invention to similar machines.

The invention has for its object:

In a drying tentering machine and the like, in combination, a fixed nozzle situated close to the plane of a stretched cloth, the length of said nozzle corresponding to the minimum width of the cloth to be treated, extension nozzles situated on both sides of said fixed nozzle and slidable relatively thereto to vary the total operative length of the nozzles depending upon the width of the cloth to be treated, said nozzles having rows of openings directed toward the cloth, a distributing manifold communicating with said fixed nozzle and having lateral extensions communicating with said extension nozzles, means connected with said distributing manifold for supplying a fluid thereto, chain-guide rails situated on both sides of the nozzles, clips carrying said cloth and supported by said chain-guide rails, and members connecting said chain-guide rails with said extension nozzles, whereby the total operative length of the nozzles is varied when the spacing of the chain-guide rails is altered.

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