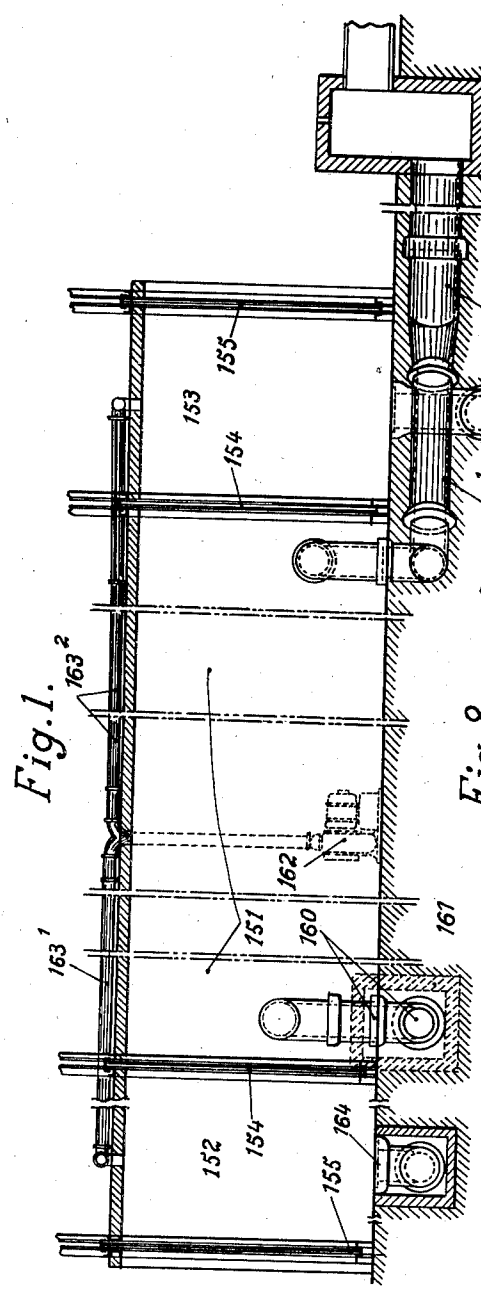
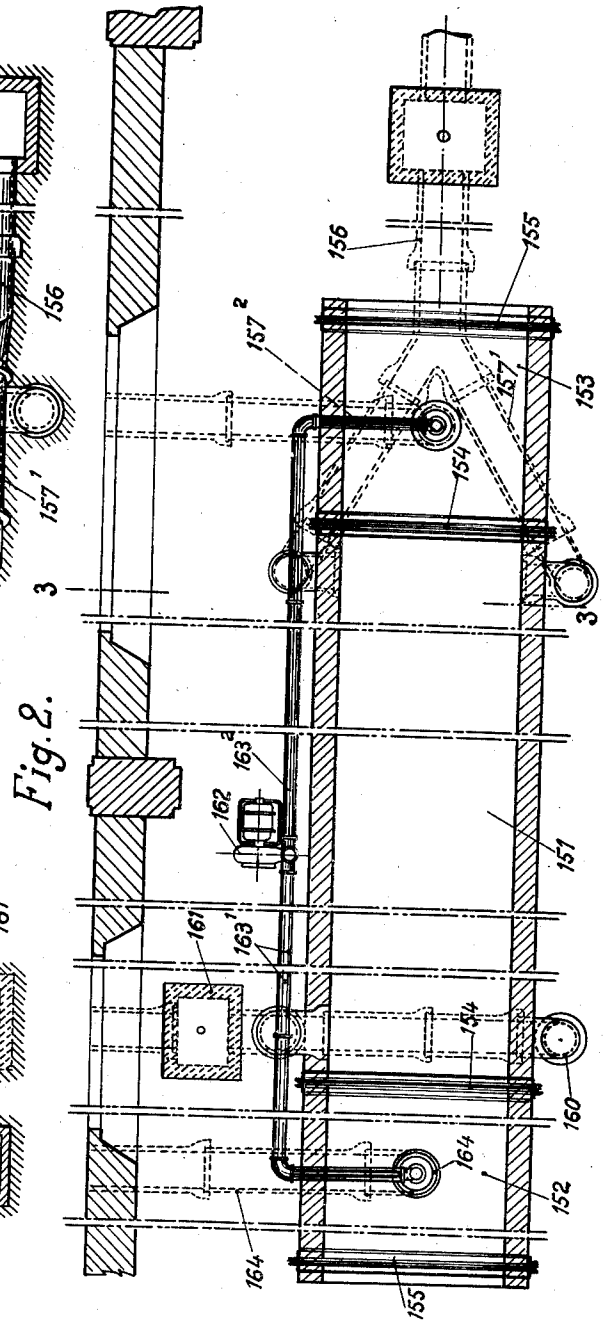
March 11, 1930. E. CRESPI ET AL 1,750,093

APPARATUS FOR BLEACHING TEXTILE FIBERS WITH A GASEOUS CURRENT SUCH AS OZONIZED AIR

Filed June 15, 1928 6 Sheets-Sheet 1





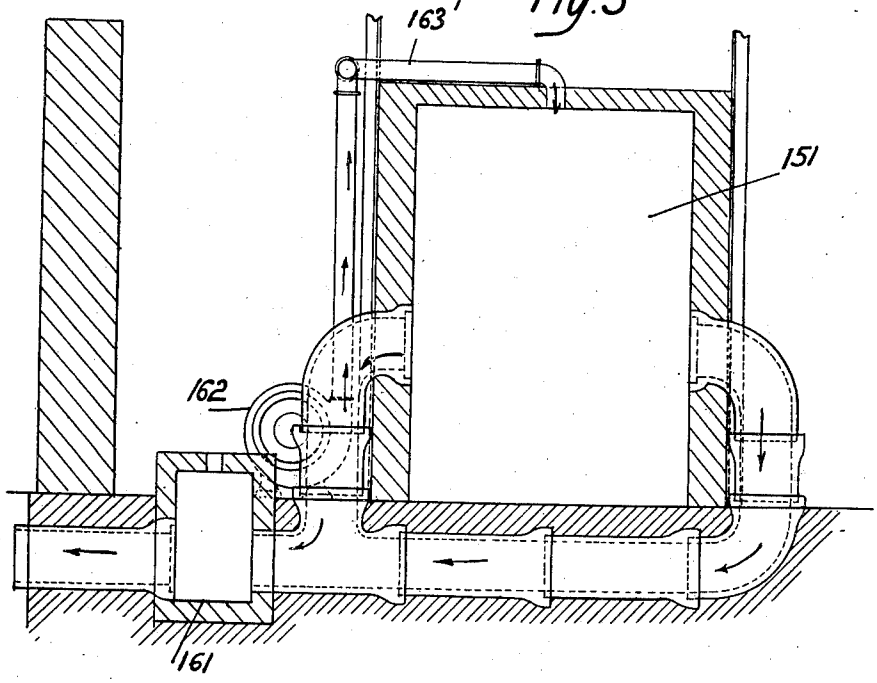
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APPARATUS FOR BLEACHING TEXTILE FIBERS WITH A GASEOUS CURRENT SUCH AS OZONIZED AIR

Filed June 15, 1928 6 Sheets-Sheet 2

Fig. 3



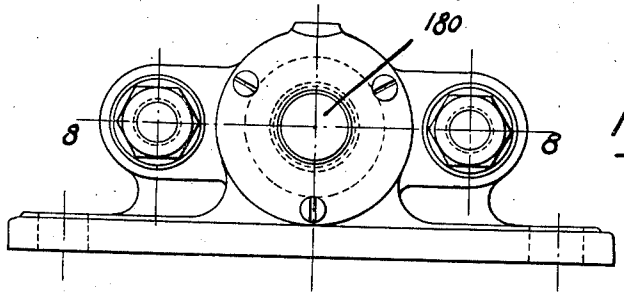


Fig. 7

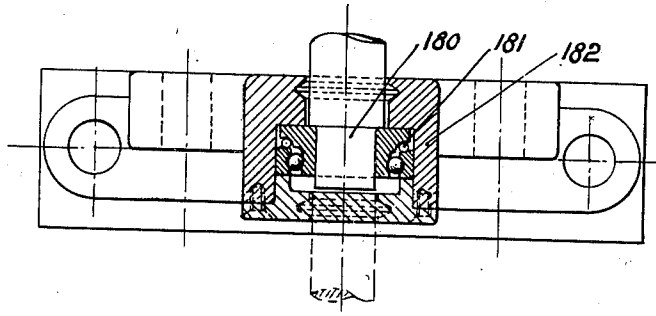


Fig. 8

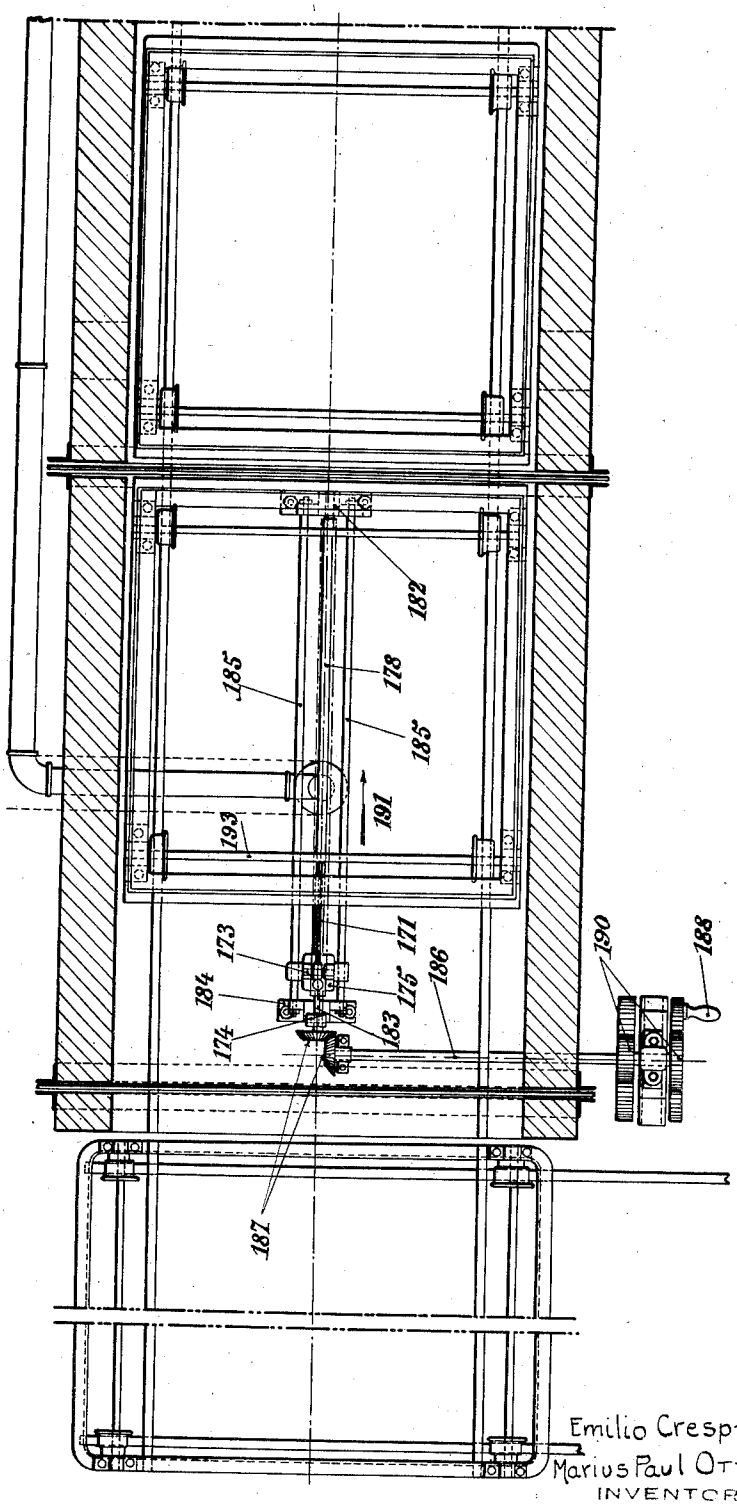
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Filed June 15, 1928 6 Sheets-Sheet - 3

Fig. 4.



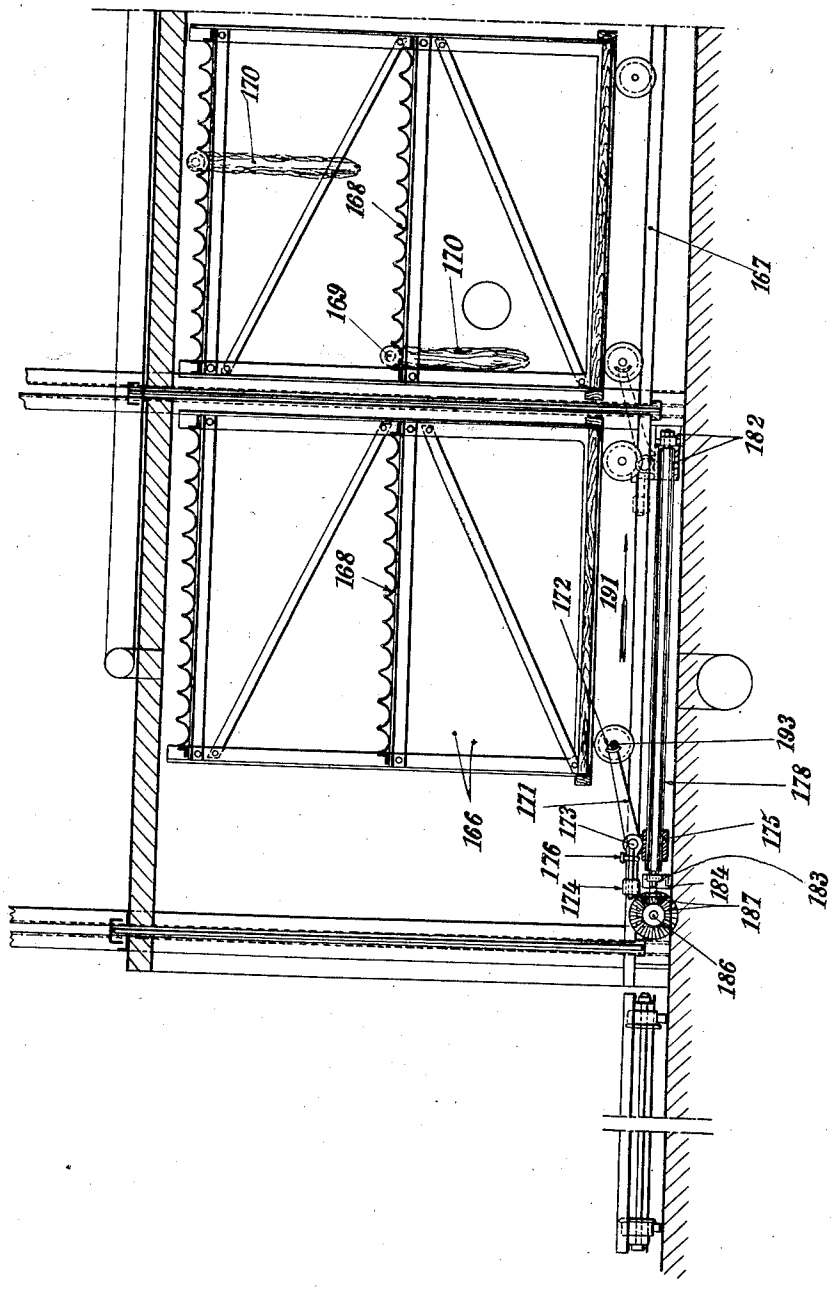
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APPARATUS FOR BLEACHING TEXTILE FIBERS WITH A GASEOUS CURRENT SUCH AS OZONIZED AIR

Filed June 15, 1928 6 Sheets-Sheet 4

Fig. 5.



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Filed June 15, 1928 6 Sheets-Sheet 5

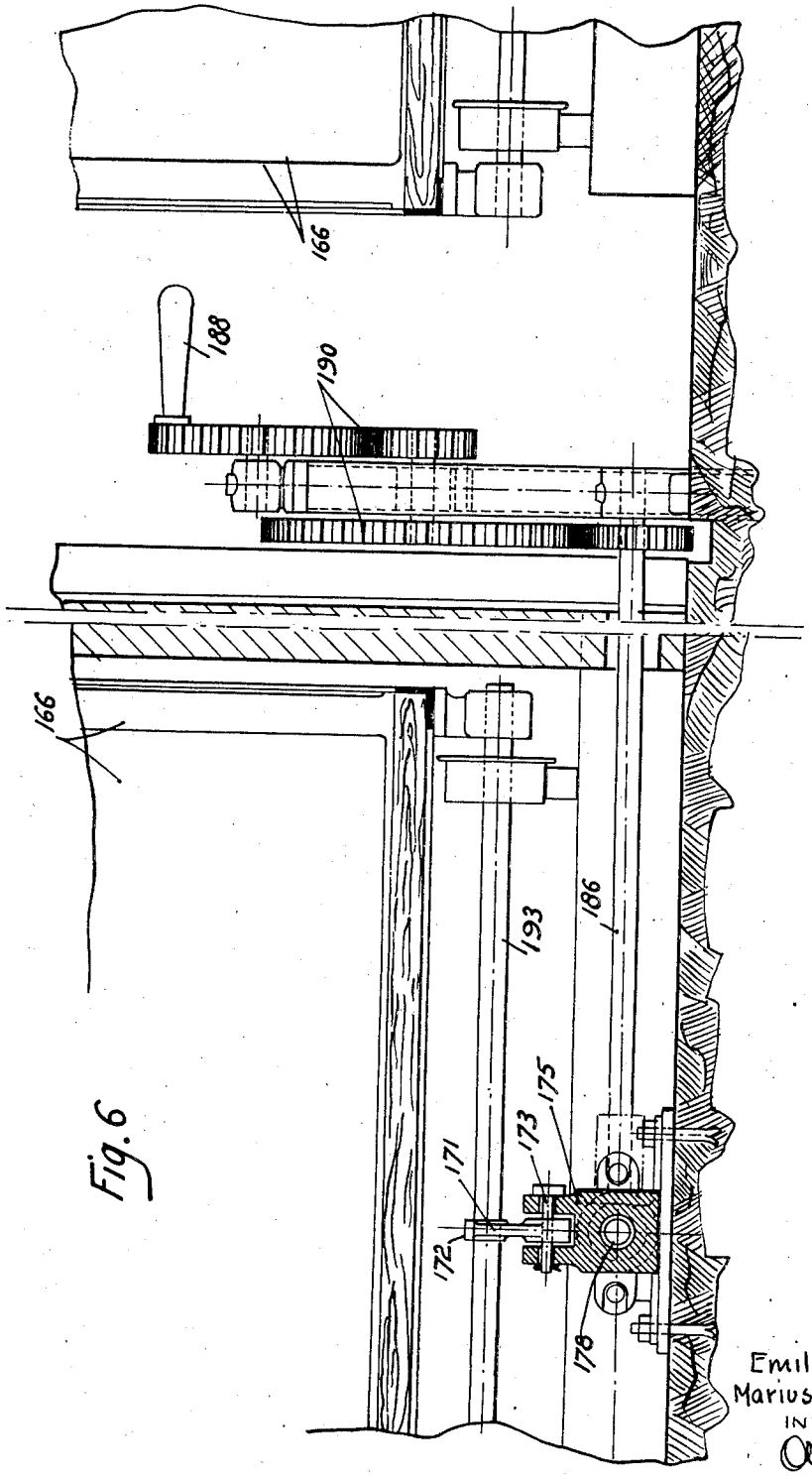


Fig. 6

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APPARATUS FOR BLEACHING TEXTILE FIBERS WITH A GASEOUS CURRENT SUCH AS OZONIZED AIR

Filed June 15, 1928 6 Sheets-Sheet 6

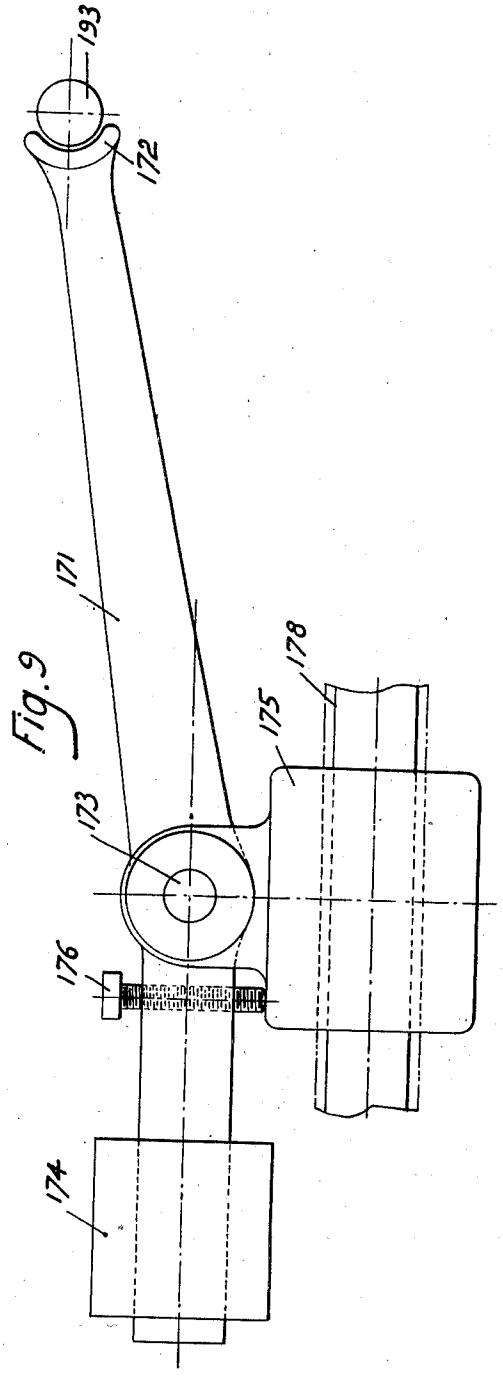


Fig. 9

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UNITED STATES PATENT OFFICE

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APPARATUS FOR BLEACHING TEXTILE FIBERS WITH A GASEOUS CURRENT SUCH AS OZONIZED AIR

Application filed June 15, 1928, Serial No. 285,674, and in France February 2, 1926.

The object of the present invention is to provide machines and apparatus which are particularly suitable for the exposure of yarns to gaseous bleaching currents (for example, currents of ozonized air) in order to obtain a uniform distribution of the gaseous current over all the material to be bleached, and which are capable of practical continuous working, simultaneously utilizing all the gas produced and safeguarding the health of the workmen engaged thereon.

These machines are intended for the treatment of hanks of raw fiber.

The preferred form of the invention is illustrated in the accompanying drawings, in which

Figs. 1 and 2, respectively, represent an axial longitudinal section through a vertical plane and a horizontal section of a tunnel plant according to the invention;

Fig. 3 is a transverse section of this plant on the line 3, 3 of Fig. 2;

Figs. 4 and 5 show, respectively, a horizontal section and a longitudinal vertical section of the tunnel of the plant in Figs. 1 to 3;

Fig. 6 is a partial transverse section of this tunnel;

Fig. 7 is an elevation of the bearing supporting the shaft of the endless screw which drives the truck;

Fig. 8 is a horizontal section of this bearing;

Fig. 9 is an elevation of the impulse lever of the truck axle.

The plant shown in Figs. 1 to 9 comprises a tunnel in which the truck loaded with tanks run, the current of ozonized air also circulating in the said tunnel.

This tunnel 151 ends in two chambers 152 and 153 for the entrance and exit of the trucks; there are regulators 154, 155 by means of which these chambers can be cut off from the tunnel and from the outside.

Circulation of ozonized air in the tunnel is produced as follows: A channel 156 conveys the ozonized air from the ozonizer into the tunnel, this said channel having forked branches 157^1—157^2 resting against the side walls of the tunnel, in such a way as to give a regular intake of ozonized air in the tunnel.

The ozonized air escapes at the other end of the tunnel through a passage 160 which runs to an exit flue 161.

The chambers 152 and 153 are provided with means to rapidly expel the ozonized air which leaks from the tunnel into the chambers. For this purpose there is a fan which sucks air from the outside and forces it through two pipes 163^1, 163^2 which run to the top of the two chambers 152, 153. Pipes 164 for the escape of the ozonized air leads from the bottoms of the chambers 152, 153 to outside the tunnel.

When a chamber has to be opened to remove or load a truck, the two regulators 154—155 are first shut, and then the fan 162 is set working. This fan drives a considerable quantity of air from outside through 163^1, 163^2 into the chamber, this said air itself forcing, through pipes 164, the ozonized air which has entered from the tunnel into the chambers 152—153.

The workman can then open the regulators 155 and remove the truck from the chamber without any risk of being inconvenienced in any way by ozone.

The trucks 166 running on rails 167 carry the irons 168 provided with teeth between which the rods 169 are mounted to hold the hanks.

By the aid of a mechanical device a truck can easily be run into the chamber 151. This device consists essentially of a central screw which revolves without advancing to push forward, without turning, a carriage forming a nut and screwed on the said screw; this carriage is provided with members which gear with the truck and push it out of the tunnel.

A form of construction of this mechanical device is shown in Figs. 4 to 9; this device consists essentially of an impulse swing bob lever 174 with a bent end 172 (Fig. 9).

This lever is hinged on the axis 173 carried by the carriage 175. A screw 176 carried by the lever 171 acts as a regulatable stop and impinges on the carriage 175, this said screw thus making it possible to regulate, as required, the position of the impulse lever 171.

The carriage 175 is mounted on a screw

178, with horizontal axis, which can turn freely on this axis without being able to advance in relation therewith. It is in fact, to be noted, in Figs. 7 and 8, that the end 180 of this screw is engaged with a bearing 182 by means of a ball thrust bearing 181.

The other end 183 of the screw 178 rests on a second bearing 184. Bolts 185 connect the two bearings 183, 184 one with the other and act as guides for the sliding carriage 175.

The screw 178 is driven by a shaft 186 through the intermediary of a cone pinion transmission 187, this shaft 186 being itself worked by a crank 188 and a speed reducing mechanism 190.

This device works as follows: The crank 188 is turned thus making the intermediary shaft 186 rotate and consequently the screw 178. This screw is prevented from advancing by the two bearings 182, 184 and therefore causes the carriage 175 to advance, as indicated by the arrow 191, the said carriage being also prevented from turning by the bolts 185 on which it slides.

The impulse lever 171 is driven by the carriage 175 in the direction of arrow 191; at first it takes up the position shown in full lines in Fig. 5, a position in which this lever engages with the axle 193 of the truck.

The carriage 175 moving forwardly draws the truck running on the rails and passes from the chamber 152 into the tunnel 151, pushing back all the set of trucks, and the impulse lever 171 and the carriage 175 then come into the positions shown in broken lines in Fig. 5.

The last truck of the set finally leaves the tunnel 151 running on the inclined plane at the exit from the chamber 153.

This movement can easily be obtained by hand owing to the greatly reduced speed of the transmission mechanism 190.

The carriage 175 can be brought back quickly to its initial position by turning the crank 188 in the opposite direction.

We claim:—

1. In a plant for bleaching textile fibers with a gaseous mixture such as ozonized air, the following combination; a tunnel (151); a chamber (152, 153) at each end of the tunnel; means for blowing the outer air into these chambers and for expelling the gaseous mixture which filters into them; trucks carrying hanks of yarn (170) and running in the tunnel (151); and means for pushing the trucks (166) from the chambers (152, 153) into the tunnel (151).

2. In a plant for bleaching textile fibers with a gaseous mixture such as ozonized air, the following combination; a tunnel (151); a chamber (152, 153) at each end of the said tunnel; trucks (166) carrying hanks of yarn (170) and running in the tunnel (151); an impulse member (171) engaging with the truck 156, and pushing it out of the chamber (152) into the tunnel (151); a carriage 175 forming a nut and carrying the impulse member (171); a central screw (178) screwed into this carriage; means (188) for making this screw (178) turn on its axis; and means (182, 184) for preventing the screw from advancing parallel to its axis.

3. In a plant for bleaching textile fibers with a gaseous mixture such as ozonized air, the following combination; a tunnel (151); a chamber, (152) (153) at each end of the tunnel; trucks (166) carrying hanks of yarn (170) and running in the tunnel (151); a lever 171 with swing bob 174 hinged on its axis (173) and engaging with the truck (156) to push it out of the chamber (152) into the tunnel (151); a carriage (175) carrying the axis of the impulse lever (171); and means for imparting to the carriage rectilinear to-and-fro movements.

4. In a plant for bleaching textile fibers with a gaseous mixture such as ozonized air, the following combination; a tunnel (151); a chamber (152) at each end of the tunnel; trucks (166) carrying hanks of yarn (170) and running in the tunnel (151); an impulse member (171) engaging with the truck (155) and pushing it out of the chamber (152) into the tunnel (151); a carriage (175) forming a nut and carrying the impulse member (171); a central screw (178) screwed into this carriage; means (188) for turning screw (178) on its axis; two thrust bearings (182, 184) in which the screw (178) is engaged; and bolts (183) connecting these bearings one with the other.

In testimony whereof we affix our signatures.

EMILIO CRESPI.
MARIUS PAUL OTTO.