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(54) A method and a device for cleaning a drying tunnel

(57) The invention relates to method and a device for cleaning a drying tunnel (1) intended for drying bricks (8). Transport means (4) supporting bricks (8) to be dried are passed one after the other through the drying room during use of the drying tunnel (1). A cleaning device (9) is passed through the tunnel (1) between two successive transport means (4). The device is provided with a frame

(11), which can be passed through a drying tunnel (1) or a drying room in a similar manner as a transport means (4) supporting bricks (8). A suction unit (13) is mounted on the frame (11) for sucking up material to be removed from the drying room.

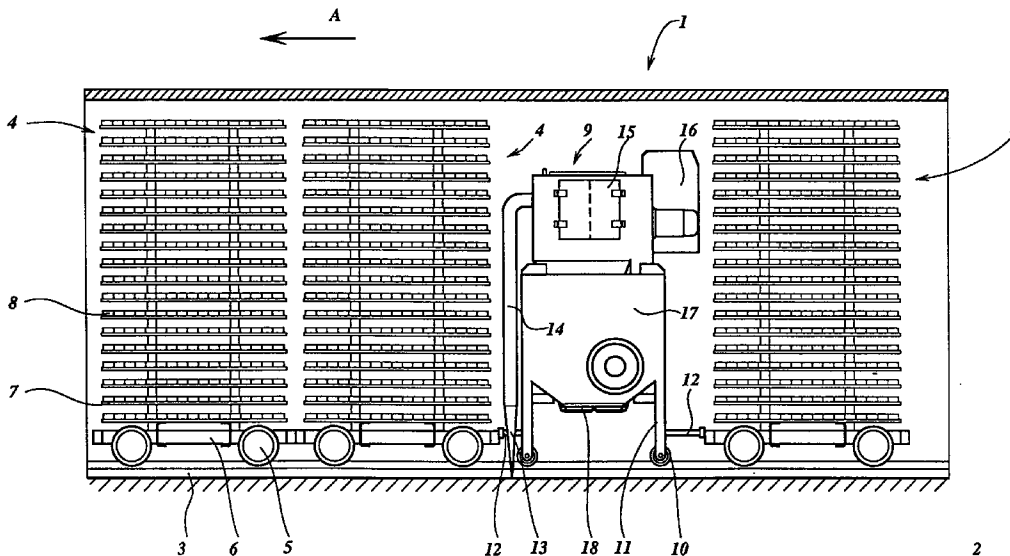


Fig. 1

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Description

The invention relates to a method for cleaning a drying tunnel intended for drying bricks, whereby transport means supporting bricks to be dried are passed one after the other through the tunnel during use of the drying tunnel.

Drying tunnels intended for drying bricks have been used in brickworks for many years already. A problem that occurs thereby is that during the transport through the tunnel sand and/or grit falling from the bricks lands on the floor of the drying tunnel and accumulates there. After some time there may be so much material on the floor that it interferes with the intended even and unobstructed passage of the transport means. Consequently the material which is present on the ground must be removed at regular intervals. In order to do so the transport of bricks through the drying tunnel in question is interrupted and the material lying on the floor is discharged from the drying tunnel, whereby personnel is needed to carry out said cleaning operation. On the one hand this interferes in a disadvantageous manner with the regular transport of the bricks, not only through the drying tunnel, but also in the further production process of the bricks. In addition to that the removal of said material from the drying tunnel is a very unpleasant activity, because of the dusty and hot atmosphere in the drying tunnel.

Consequently the object of the invention is to provide a method of the above kind, wherein the drawbacks of the method used so far, whereby employees are needed to carry out the operation, can be avoided.

According to the invention this objective can be accomplished in that a cleaning device is passed through the tunnel between two successive transport means.

When using the method according to the invention the transport of the bricks to be dried can take place practically continuously, whilst use may be made of a substantially automatically operating cleaning device moving through the tunnel without supervising personnel being present, by means of which device the material in question can be removed in an effective manner.

According to another aspect of the invention it is possible thereby to use a device provided with a frame, which can be passed through a drying tunnel in a similar manner as a transport means supporting bricks, whilst a suction unit is mounted on the frame for sucking up material to be removed from the drying tunnel.

The drying tunnel does not have to be fitted with special provisions for moving a device of this type there-through, whilst it is possible to remove the material from the drying tunnel in an effective manner by means of the device.

The invention will be explained in more detail hereafter with reference to the accompanying Figures.

Figure 1 is a diagrammatic sectional view of a drying tunnel, showing transport means provided therein and a diagrammatically illustrated embodiment of a device

according to the invention disposed between said transport means.

Figure 2 is a diagrammatic side view of the device shown in Figure 1.

Figure 3 is a diagrammatic plan view of the device shown in Figure 1.

Figure 4 diagrammatically illustrates the arrangement of a few drying tunnels disposed in side-by-side relationship, wherein it is indicated in the Figure how the transport means for the bricks and the device according to the invention can be passed through the tunnel.

Figure 1 shows a diagrammatic longitudinal section of a part of a drying tunnel 1, on the floor 2 of which conventional rails 3 are provided. Transport means 4 in the shape of frames 6 supported by wheels 5 can be moved over said rails 3, said frames being provided with racks 7 for supporting bricks 8 to be dried. During use of the drying tunnel such transport means are moved through the drying tunnel in the direction indicated by the arrow A, whereby the bricks 8 supported by the transport means are dried during the transport of said transport means through the drying tunnel.

As will furthermore be apparent from Figure 1, the frames 6 project from the racks 7 supporting the bricks 8 at the front and rear sides of the car, whereby the parts of the transport means or drying cars projecting from the racks may abut against each other, so that the successive drying cars 4 can push each other along.

The practice of drying bricks in drying tunnels, wherein drying cars of this kind are used, has been known for several decades already and consequently need not be explained in more detail herein.

According to the invention and as illustrated in Figure 1, a cleaning device 9 may be disposed between successive brick cars. Said cleaning device 9 comprises a frame 11 supported by wheels 10. The wheels 10 are thereby arranged in such a manner that the device 9 can be supported on the rails 3 by means of the wheels 10 and be moved along said rails 3.

At its front and rear sides the frame 11 is furthermore provided with buffer means or stop means 12, which are positioned at substantially the same height as the frames 6 of the drying cars 4, so that, when the cleaning device 9 is disposed between successive drying cars 4, said buffers can make contact with the ends of the frames 6 of the drying cars 4 disposed on either side of the cleaning that are facing the cleaning device 9, as a result of which the cleaning device can be passed through the drying tunnel in the same way as the drying cars 4.

The cleaning device of the illustrated embodiment is provided with four suction nozzles 13 arranged in side-by-side relationship, seen in the intended direction of movement according to the arrow A, said suction nozzles being connected, via pipes 14, to a fan and filtering device 15. The air which exits the filtering device during operation may be discharged via a sound absorber 16. Material which is separated in the filtering device can be caught in a bunker 17 forming part of the cleaning device, which bunker may be emptied by an opening provided

near the bottom side of said bunker, which opening can be closed by means of valves 18.

It will be apparent that during operation, when the cleaning device is being moved in the direction according to the arrow A, material present on the floor 2 on either side of the rails 3 can be sucked up by means of the suction nozzles 13, in that a sub-atmospheric pressure is generated in the suction nozzles 13 and in the pipes 14 connected thereto, by means of a fan forming part of the fan and filtering device. The sucked-up material will be separated in the fan and filtering device and be caught in the bunker 17, in order to be discharged again at a suitable moment, via the opening which can be closed by valves 18.

It will be apparent that by placing the cleaning device between two successive drying cars 4 at regular intervals and passing said cleaning device 1 through the drying tunnel 1 along with the drying cars 4, an effective cleaning of the drying tunnel can be achieved without having to put the drying tunnel for drying bricks out of operation and without employees operating the device having to enter the drying tunnel. After all, the device will be provided with its own driving unit for driving the fan and will furthermore be passed through the drying tunnel in the same manner as the drying cars 4 moving ahead of and behind said device.

Figure 4 furthermore shows a plan view of a number of drying tunnels 1, 1' and 1'' arranged in side-by-side relationship.

As is indicated by means of arrow B, the drying cars can be moved along a track in the direction according to arrow B to the drying tunnels, and, after having passed any one of the drying tunnels, be discharged along another track in the direction according to the arrow C. Between the two aforesaid tracks, parallel to the drying tunnels, a diversion track 19 is provided for the cleaning device. When not being used the cleaning device can be parked on said cleaning track 19. After having passed any one of the drying tunnels 1, 1', 1'' the cleaning device can furthermore be returned from one end of the drying tunnels, via the diversion track, to the other end of the drying tunnels, and subsequently be moved through a desired drying tunnel.

In the above the invention has been explained by means of drying tunnels, whereby the drying cars are moved in at one end and moved out at the other end. It will be apparent, however, that the device according to the invention may also be used with so-called drying rooms, that is drying spaces, which are only accessible at one end. When using drying rooms of this type the drying cars or the like are moved into the drying room from said one end in order for the bricks to be dried, and, once the bricks have been sufficiently dried, the drying cars are moved out of the drying room again via the same end of the drying room.

After the drying cars have thus been moved out of the drying room, the cleaning device may be moved to and fro in the drying room in order to clean the drying

room, after which drying cars may be moved into the drying room again.

Claims

1. A method for cleaning a drying tunnel intended for drying bricks, whereby transport means supporting bricks to be dried are passed one after the other through the tunnel during use of the drying tunnel, characterized in that a cleaning device is passed through the tunnel between two successive transport means.
2. A method according to claim 1, characterized in that material present on the floor of said drying tunnel is sucked up by means of said cleaning device.
3. A method according to claim 1 or 2, characterized in that said cleaning device and said transport means supporting the bricks to be dried are passed through the drying tunnel along the same guide means.
4. A method according to any one of the preceding claims, characterized in that a cleaning device is pushed through the tunnel by means of a transport means moving behind said cleaning device.
5. A method for cleaning a drying tunnel intended for drying bricks, whereby transport means supporting bricks to be dried are introduced into the drying room from one end in order to dry the bricks and are removed from the drying room via the same end of said drying room after drying, characterized in that a cleaning device is moved to and fro through the drying room after the drying room has been emptied, after which bricks to be dried are introduced into the drying room again.
6. A device for carrying out the method according to any one of the preceding claims, said device being provided with a frame, which can be passed through a drying tunnel or a drying room in a similar manner as a transport means supporting bricks, whilst a suction unit is mounted on the frame for sucking up material to be removed from the drying room.
7. A device according to claim 6, characterized in that said device is provided with a few suction nozzles which are located side by side, seen in the intended direction of movement of the device.
8. A device according to claim 6 or 7, characterized in that said device is provided with a bunker for receiving sucked-up material.
9. A device according to any one of the claims 6 - 8, characterized in that said device is provided with a frame supported by ground wheels.

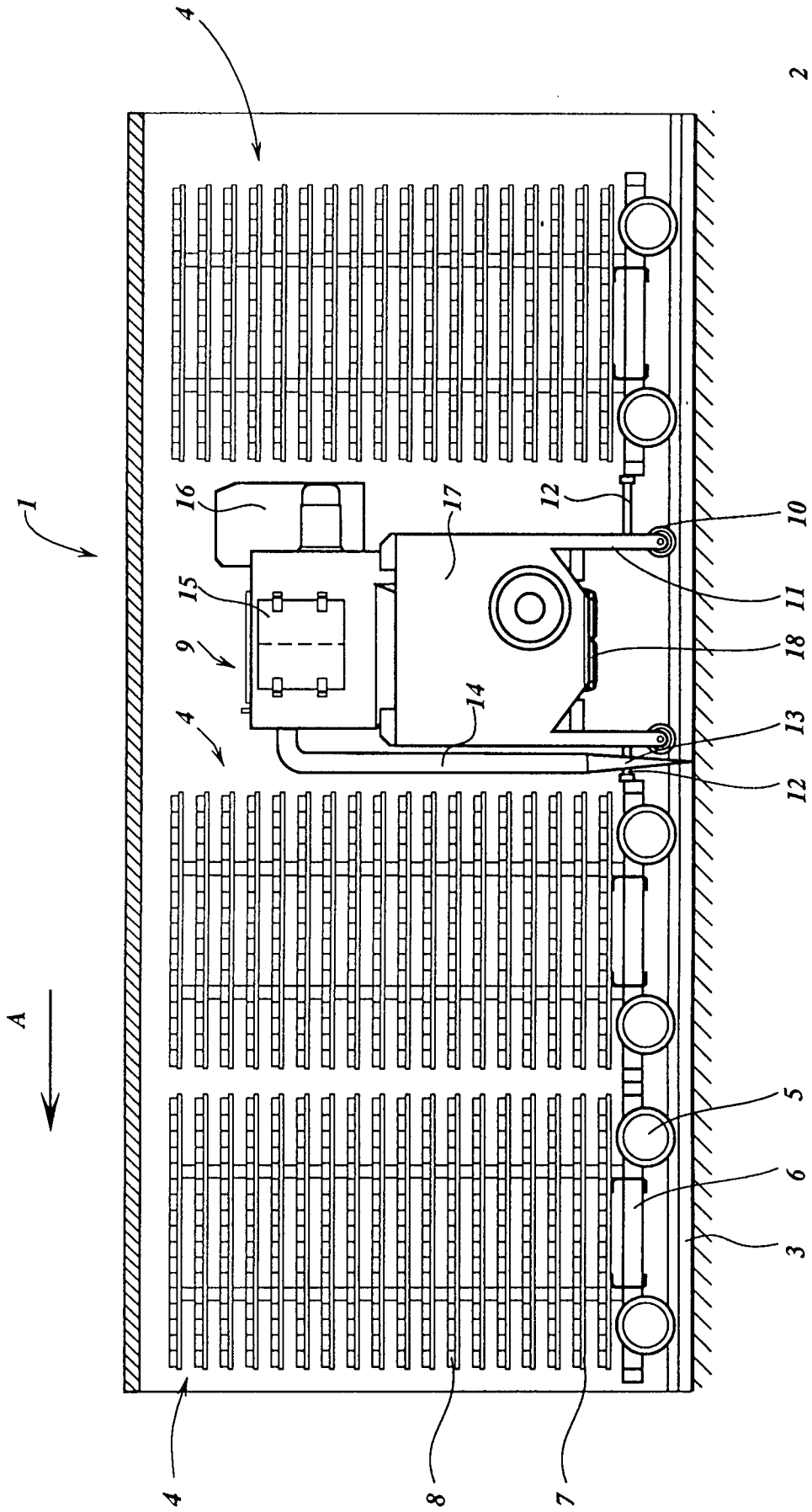


Fig. 1

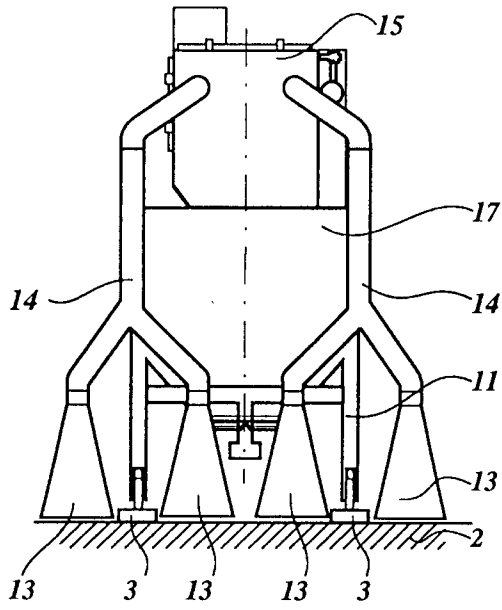


Fig. 2

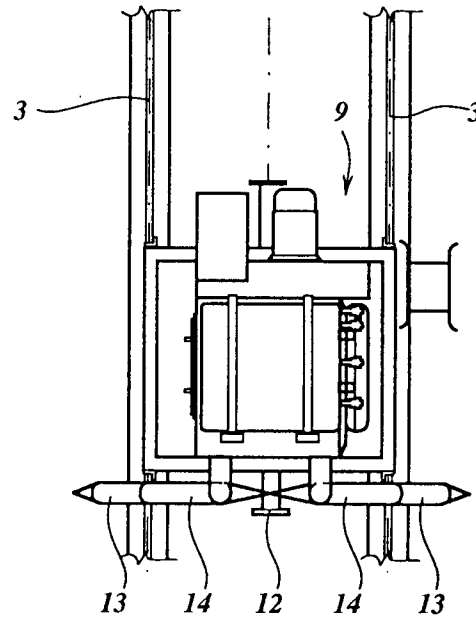


Fig. 3

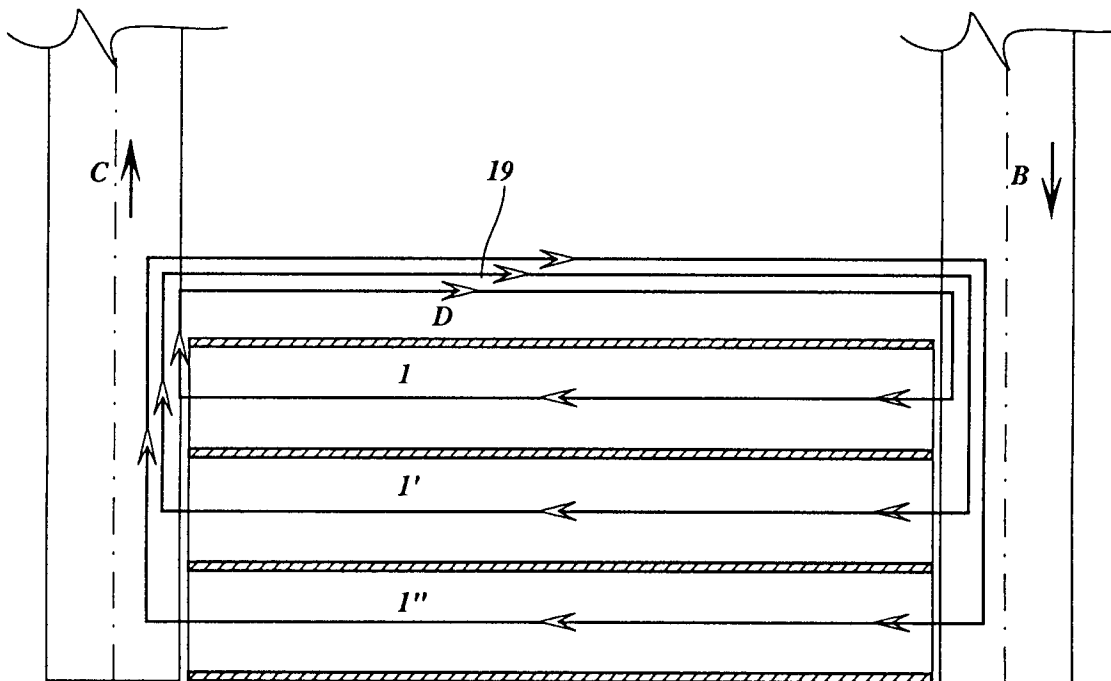


Fig. 4



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EUROPEAN SEARCH REPORT

Application Number
EP 95 20 2593

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	EP-A-0 024 475 (FUCHS & CO. AKTIENGESELLSCHAFT ETC.) 11 March 1981 * the whole document * ---	1,6	F26B25/00 F26B15/16
A	DE-A-41 41 225 (KUNZ ET AL) 17 June 1993 * the whole document * -----	1,6,8,9	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			F26B F27D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 2 February 1996	Examiner Silvis, H
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