

Nov. 1, 1932.

A. W. STEWART
VENTILATING APPARATUS

1,886,313

Filed May 20, 1931

3 Sheets-Sheet 1

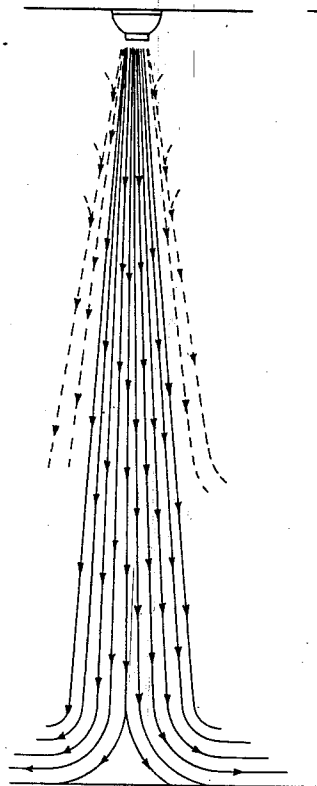


FIG. 1.

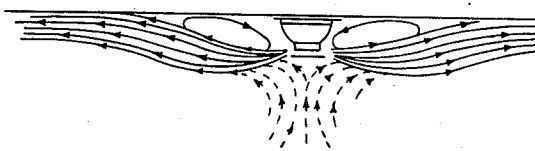


FIG. 2.

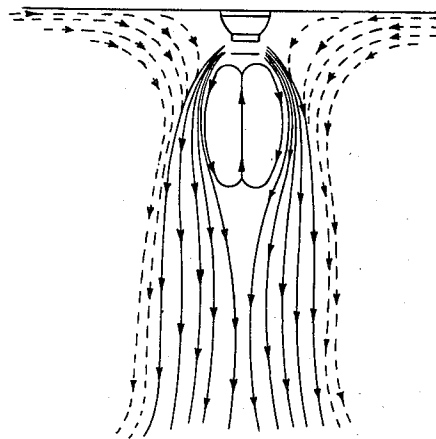


FIG. 3.

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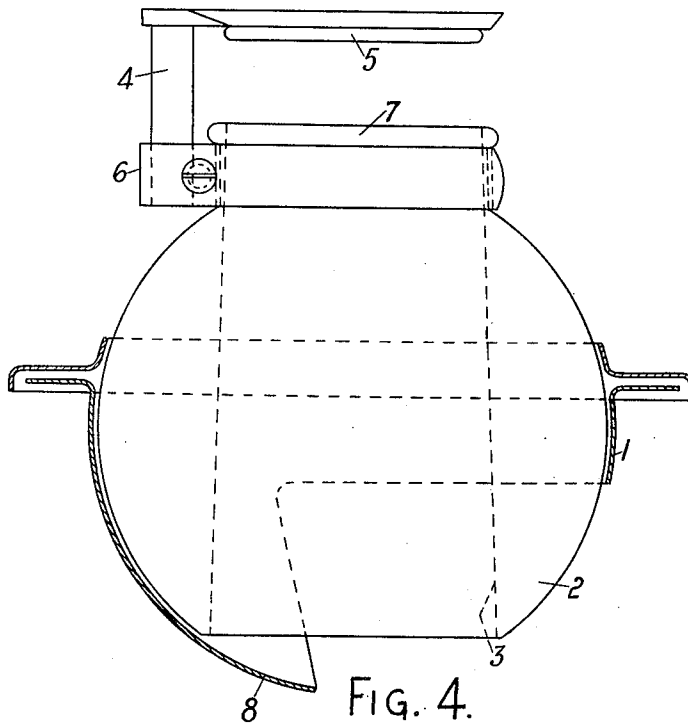
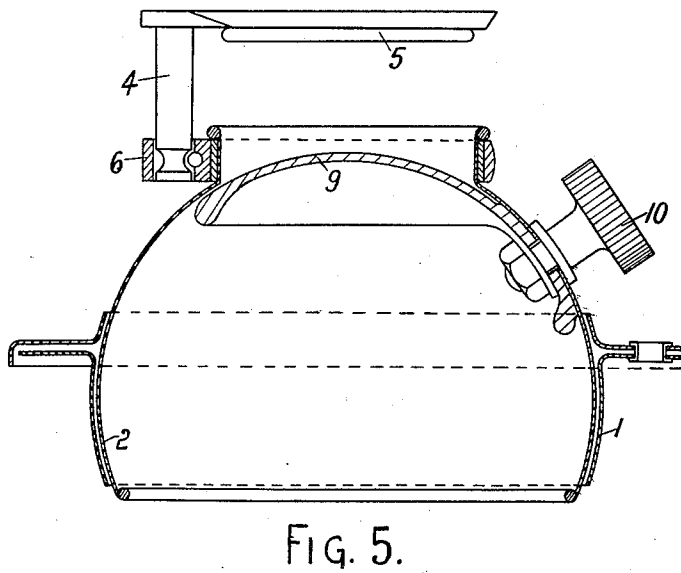
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3 Sheets-Sheet 2



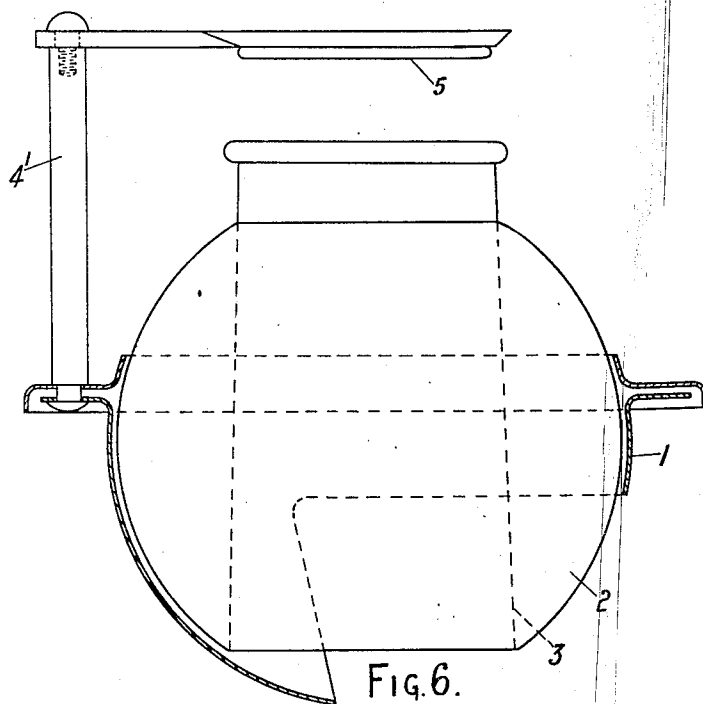
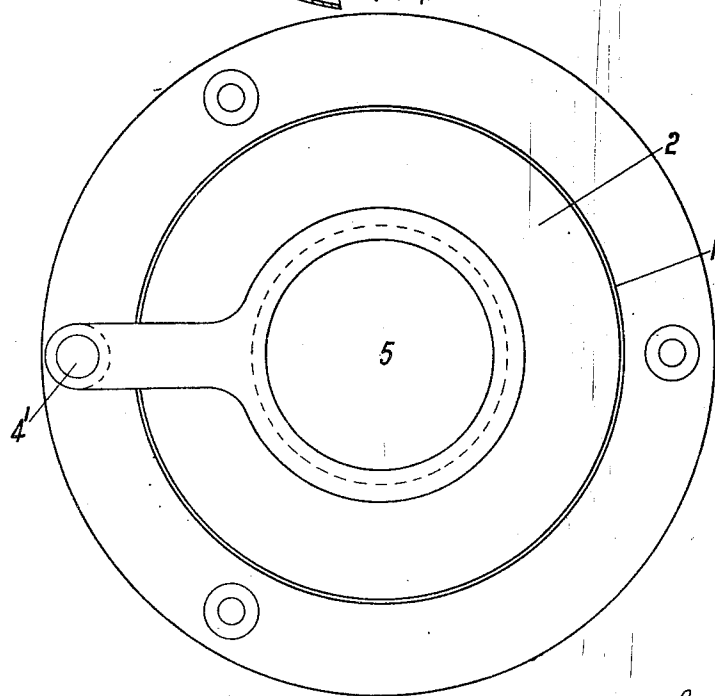
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3 Sheets-Sheet 3



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VENTILATING APPARATUS

Application filed May 20, 1931, Serial No. 538,717, and in Great Britain June 12, 1930.

This invention relates to improvements in ventilating apparatus, being particularly concerned with an improved construction of air outlet device for discharging directly into the atmosphere a stream of air at relatively high velocity in any desired direction covering a spherical radius of about 180°.

A known form of outlet device of this type comprises a ball socket applied to an air duct or to an air box connected to a duct and a ball penetrated by an air passageway and universally adjustable in the socket substantially within the range of a hemisphere whereby to effect delivery of a stream of air in any desired direction at a velocity corresponding to the pressure within the air duct.

In warm weather it may be convenient to deliver the air stream at high velocity to produce the effect of a punkah or of a propeller fan, it being understood that at all times the supply of fresh air into a compartment or the like is desirable in that it prevents stagnation or temperature stratification in the space ventilated. In certain circumstances, however, high velocity of delivery of the air may not be desirable.

The present invention provides an improved device which permit of high velocity delivery with directional control as well as low velocity delivery of the air delivered.

Fig. 1 of the accompanying drawings indicates diagrammatically the form of a free air jet from a directional air outlet device at typical velocity.

Fig. 2 is a similar view showing how the air jet is modified by disposition of a flat disc in front of the outlet of the device.

Fig. 3 is a similar view showing the effect of increasing the distance from the device of the flat disc in question.

Figs. 4 and 5 each show in vertical section two air outlet devices with deflectors according to the invention.

Fig. 6 is a vertical section of a modification.

Fig. 7 is a plan of this modification.

It is to be understood that the air outlet device is fitted to an air box or air duct, as disclosed, for example, in the specification of U. S. Letters Patent 1,559,057, dated October 27, 1925.

In the practical construction illustrated in vertical section in Fig. 4 the air outlet device comprises a ball socket 1 in which is mounted for universal movement a nozzle 2 in the form of a ball or spherical segment traversed by a tube or passage 3. In the figure the ball is shown in its mean position for discharge of air in a direction at right angles to the plane containing the edge of the socket. To one side of the axis of the air passage 3 and parallel thereto is fixed to the outer face of the ball 2 a pillar 4 to which is fixed a disc 5 of suitable diameter suitably spaced from the discharge end of the passage 3 and constituting a deflector or diffuser for the air stream. The pillar 4 may be rotatable in a bearing presented by a clamp 6 surrounding an extension of the ball; or the disc may be rotatable around the axis of the pillar, so that the disc may be swung into a position clear of the jet of air discharged through the passage 3.

In lieu of the fitting illustrated the pillar may be screw-threaded into the clamp or other provision may be made for adjusting the distance of the disc from the outlet to give the desired conditions of air delivery.

As shown, the disc is of compound structure comprising a circular plate covered with a ply of felt, velvet or other soft fabric for the purpose of reducing or eliminating the noise of impact of air.

It will be observed that the socket 1 has a cup-like extension 8 acting as a valve which in a given position of the ball cuts off the air discharge through the air passage 3.

In the modified construction shown in vertical section in Fig. 5, which is otherwise similar to that shown in Fig. 4, volumetric control of the air delivery is effected by adjustment of the valve 9 in the form of a spherical segment movable about the axis of the hand wheel 10.

With the disposition of the pillar 4 eccentric to and parallel with the passageway the adjustment of the disc by the occupant of the compartment being ventilated can be readily effected.

In the further modified construction shown in vertical section and in plan in Figs. 6 and

7, respectively, the pillar 4' carrying the disc 5' is fitted to the socket 1'.

What I claim is:—

In ventilating apparatus, an air outlet device comprising, in combination, a ball socket, a ball member penetrated by an air passageway and universally adjustable in said socket, a clamp engaging said ball member, a pillar fitted to said clamp, said pillar being disposed external to and parallel with said passageway in all positions of adjustment of said ball member in said socket, and a flat deflector rotatable about the axis of said pillar to occupy a position intercepting the stream of air delivered through said passageway and rotatable to occupy a position out of register with said passageway.

In testimony whereof I have signed my name to this specification.

ALEXANDER WILLIAM STEWART.

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