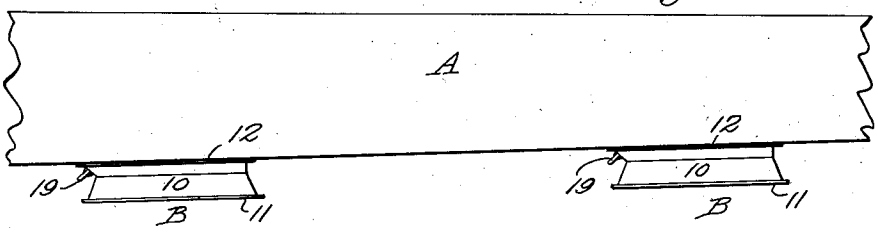
Aug. 24, 1926. **1,596,900**

A. E. STACEY, JR

OUTLET AND REGULATOR FOR AIR AND THE LIKE DUCTS

Filed July 28, 1921 2 Sheets-Sheet 1

Fig. 1.



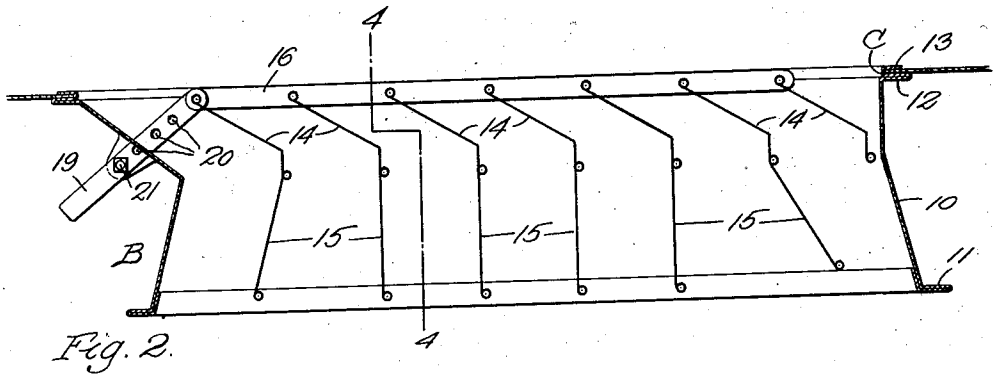


Fig. 2.

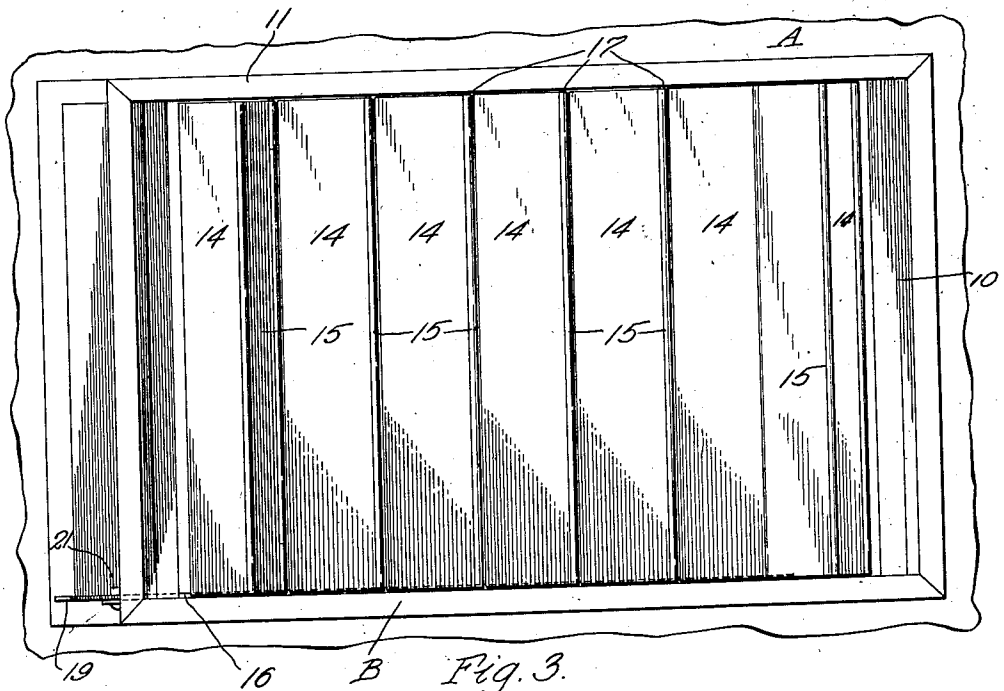


Fig. 3.

INVENTOR.
Alfred E. Stacey Jr.
by Parker & Rockwood.
ATTORNEYS.

Aug. 24, 1926. 1,596,900

A. E. STACEY, JR

OUTLET AND REGULATOR FOR AIR AND THE LIKE DUCTS

Filed July 28, 1921 2 Sheets-Sheet 2

Fig. 4

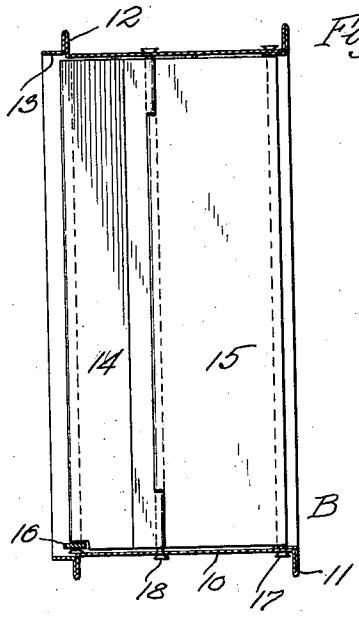


Fig. 5.

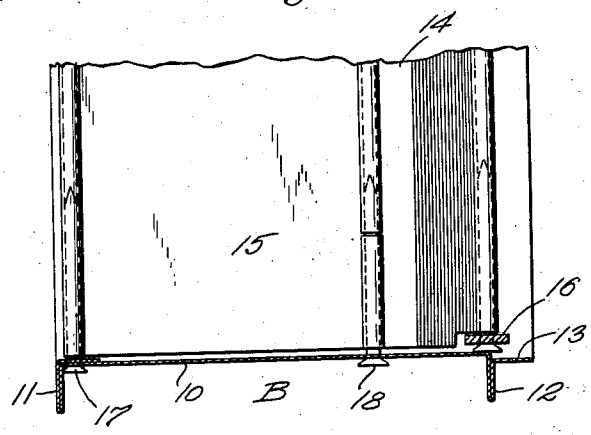


Fig. 6.

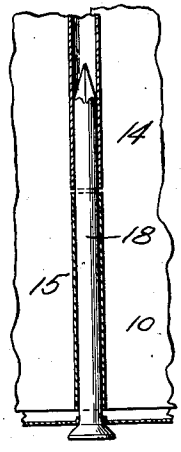
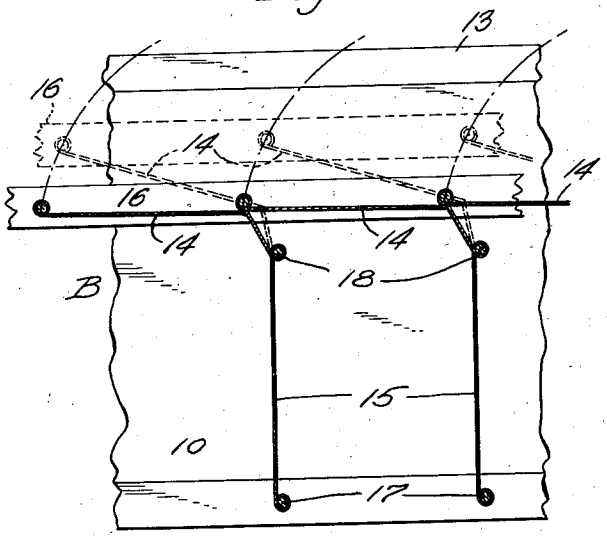


Fig. 7



INVENTOR.
Alfred E. Stacey Jr.
by Parker & Rockwood
ATTORNEYS.

Patented Aug. 24, 1926. 1,596,900

UNITED STATES PATENT OFFICE.

ALFRED E. STACEY, JR., OF ESSEX FELLS, NEW JERSEY, ASSIGNOR TO CARRIER ENGINEERING CORPORATION, OF NEWARK, NEW JERSEY.

OUTLET AND REGULATOR FOR AIR AND THE LIKE DUCTS.

Application filed July 28, 1921. Serial No. 488,236.

This invention relates to outlets or discharge regulating means for air ducts such as are employed in ventilating, air conditioning and other systems for delivering air at required places in the rooms of buildings.

It is usual in such systems having air supply ducts, to extend the ducts along the building or room to which the air is to be supplied and to provide the same with one or more outlets located along the side or sides of the duct as may be necessary to discharge the air at the required points. Means of some sort are commonly provided at the outlets for regulating the discharge of the air. In some instances pivoted dampers or shutters are used. Deflectors arranged in the duct, adjacent to the forward ends of the discharge openings, where one duct is provided with a plurality of the outlets at different points in its length, have also been employed to insure the proper discharge of the air from the several outlets. Such deflectors are objectionable as they obstruct more or less the flow of air in the duct and also tend to cause the discharge of a greater volume of air from the ends of the outlets at which the deflectors are located, thus causing an unequal discharge of the air from different parts of the outlets. The pivoted dampers or shutters enable the volume of the discharge from the outlet to be regulated by opening or closing the dampers or shutters more or less, but in thus adjusting the dampers or shutters, their angularity with reference to the outlet is changed, so that the air is delivered in different directions in the different adjustments, and the discharge of the air cannot be regulated, and at the same time, the air caused to be delivered always in the same direction, which is usually important.

One object of this invention is to provide an outlet for air ducts and the like, which is equipped with regulators or deflectors so constructed and arranged that the volume of discharge from the outlet can be regulated as required, while nevertheless insuring an equal distribution of the discharging air throughout the area of the outlet and preventing a change in the direction of discharge of the air.

Other objects of the invention are to provide an outlet equipped with deflectors or regulators, which is made as a complete unit and can be readily applied to the duct simply by attaching the casing of the outlet to the wall of the duct at the required point; and also to improve the construction of the outlets and discharge regulators for air ducts in the other respects hereinafter described and set forth in the claims.

In the accompanying drawings:

Fig. 1 is a plan view of an air duct provided with a plurality of outlets embodying the invention.

Fig. 2 is an enlarged sectional plan view of one of the outlets.

Fig. 3 is a front elevation thereof.

Figs. 4 and 5 are sectional elevations thereof on line 4—4, Fig. 2, Fig. 5 being on a larger scale.

Fig. 6 is a detail section of one of the hinge joints for the regulator plates.

Fig. 7 is a fragmentary sectional plan view of the outlet showing by full and broken lines, the closed and partly opened positions of the regulator plates.

A represents an air duct which may be of any usual or suitable construction and B represents the outlets, of which any desired number, one or more, may be used on the duct.

Each outlet comprises an open ended frame or casing 10 preferably made of sheet metal and of rectangular shape, carrying regulators and deflectors and adapted to be secured to the wall of the duct so as to project outwardly therefrom around an outlet opening C in the wall of the duct. As shown, the casing of the outlet is stiffened or strengthened at its outer end by folding over the edge of the sheet metal from which the casing is made and bending the doubled portion to form an outwardly projecting marginal flange 11; and the inner end of the casing is bent to form a double thickness shoulder 12 which is adapted to bear against the outer face of the wall of the duct, and an inwardly projecting flange or edge 13 which is adapted to extend into the duct through the outlet opening C in the wall of the duct, and to be bent over the edges of the opening to firmly secure the outlet casing to the duct.

Within this casing of the outlet is arranged a series of pivoted plates 14 which are adjustable for regulating the volume of discharge through the outlet, and a series of cooperating stationary deflector blades or plates 15 for causing the air always to

discharge in the same direction from the outlet regardless of the angular adjustment of the regulating plates. The adjustable plates are pivoted at their outer ends in the casing at or adjacent to the inner ends of the stationary deflector plates, and their inner ends are adapted to swing for varying the opening of the outlet and thus regulating the discharge of the air through the same. Preferably, one of the adjustable plates is hinged to the inner end of each of the stationary deflector plates so as to form an adjustable continuation of the latter, and the inner ends of the adjustable plates are pivoted or otherwise suitably attached to a connecting bar 16 whereby the several regulator plates are caused to swing in unison. As shown in the drawings, the outer ends of the stationary deflector plates are secured in the casing 10 by nails 17 driven through holes in the top and bottom walls of the casing into tubular beads formed on the ends of the plates, and the inner ends of the plates are secured in the casing, and the adjustable plates hinged thereto in a similar manner, by nails 18 driven through holes in the top and bottom walls of the casing and through alined tubular beads formed on the adjacent ends of the stationary and adjustable plates. This manner of securing the plates produces a desirable and inexpensive construction, but the deflector plates and regulator plates could be mounted in the casing in any other suitable way. The pivoted plates can be secured to the connecting bar 16 in any suitable way, as for instance, by nails passing through holes in the bar into tubular beads formed on the inner ends of the plates. The bar is thin and lies between one wall of the casing and the adjacent ends of the plates and is adapted to slide on said wall.

Any suitable means may be provided for securing the pivoted regulator plates in adjusted positions. For instance, as shown, a bar 19 provided with a series of holes 20 is attached to one end of the connecting bar 16, and a securing bolt or fastening device 21 of any suitable sort connected to the casing 10 can be secured in one or another of the holes 20 in the bar 19 to secure the regulator plates in the desired position.

The swinging regulator plates 14 being pivoted to the inner ends of the stationary deflector plates 15 form in effect, adjustable continuations or sections of the latter so that while the volume of the discharge can be regulated as required by appropriate adjustments of the pivoted inner sections of the deflectors, the stationary outer sections of the deflectors always direct the discharge of the air in the same direction from the outlets, that is preferably substantially perpendicularly from the duct A. Since there are a plurality of the deflectors disposed substantially equidistant across the width of the outlet, they cause a substantially uniform discharge of the air from all portions of the outlet. Preferably the swinging sections of the deflectors terminate at their inner ends about at the plane of the outlet opening C in the wall of the duct so that they tend to deflect the air outwardly through the outlet, but they do not project far enough into the duct to objectionably obstruct the flow of air therethrough, and preferably, the stationary sections of the deflectors extend perpendicularly to the length of the duct A, except the two end plates, which diverge outwardly somewhat.

I claim as my invention:

1. The combination with a duct for air and the like having a lateral outlet opening in a longitudinal wall thereof, of regulator plates which are arranged adjacent said opening for controlling the discharge therefrom and are adjustable from a closed position outside of said duct to an inclined open position in which their inner edges are opposed to the direction of flow of the fluid through the duct and terminate substantially in alinement with the wall of the duct, and relatively stationary deflectors which extend outwardly beyond said regulator plates at angles to said wall.

2. An outlet for ducts for air and the like, comprising a casing which surrounds a lateral outlet opening in the duct between the ends thereof and projects laterally outward from the duct at an angle to the direction of flow of the fluid through the duct, regulator plates which are mounted in said casing and disposed substantially wholly outside of the column of fluid flowing through the duct and are adjustable to different angles to the direction of flow of the fluid through the duct for regulating the volume of discharge from the duct, the free inner edges of said regulator plates terminating substantially in the plane of said opening when the plates are open and relatively stationary deflectors carried by said casing and extending at an angle to the longitudinal axis of the duct for determining the direction of the discharge from said outlet casing.

3. An outlet for ducts for air and the like, comprising a casing which surrounds a lateral opening in the duct between the ends thereof and projects laterally outward from the duct at an angle to the direction of flow of the fluid through the duct, and a plurality of spaced deflectors in said casing for equalizing the discharge from different portions of the outlet opening and determining the direction of the discharge, said deflectors having relatively stationary outer sections extending at an angle to the direction of flow of the fluid through the duct, and inner sections which are pivoted at their outer

edges adjacent the inner edges of said outer sections and extend inwardly from said outer sections and are adjustable to different angles relatively to the direction of flow of fluid through the duct for regulating the volume of the discharge, said inner sections when open terminating substantially in the plane of said outlet opening.

4. An outlet for air and the like ducts, comprising an open ended casing provided at one end with bendable attaching flanges for securing it to the side of a duct so as to project outwardly therefrom around an outlet opening in said side of the duct, spaced deflectors mounted in said casing for equalizing the discharge from different portions of the outlet opening and determining the direction of the discharge, and regulator plates mounted in said casing and which are adjustable to different angles to the direction of flow of the air through the duct for regulating the volume of the discharge.

5. An outlet for air and the like ducts, comprising a casing which projects outwardly from the duct around an outlet opening therein, deflector and regulator plates arranged in said casing, a pair of nails for each deflector plate passing through holes in opposite walls of said casing and fitting tightly in a tubular bead at one end of said deflector plate, and a pair of nails for each deflector plate passing through holes in said walls of the casing into alined tubular beads on the adjacent end of said deflector plate and one of the regulator plates, whereby said deflector and regulator plates are respectively secured and pivoted in the casing.

ALFRED E. STACEY, JR.