Our invention relates to jets, and more particularly to an air jet operated by flowing liquid.

In fighting a fire within the basement, or in an inclosed place within the building, the confined smoke and gases, together with the heat, make it extremely dangerous, and usually practically impossible for firemen to enter such places in order to reach the seat of the fire with a stream of water. Consequently, the usual method of fighting a basement fire is to play a number of streams of water into the basement from the outside, in an attempt to literally drown everything in the basement, including the fire. The outcome of this method in many instances, even though everything is done that can be done, is that the fire gets beyond control. In other instances, even though the fire is extinguished, the damage to the property by the water is great.

It is our theory that if the heated gases and smoke could be quickly gotten out of the basement, and fresh air simultaneously caused to take their place, it would enable firemen to enter the basement and concentrate the application of the water upon the seat of the fire where it would do the most good. The result would be the elimination of much danger to the firemen and the prevention of much loss of property.

The objects of our invention are to provide a hydraulic air jet which is new, novel, practical and of utility, which is operated by attachment to a usual fire hose; which will quickly and efficiently withdraw heated gases and smoke from basements and other inclosures; which will be portable; which will be simple in construction, and comparatively cheap in manufacture; which will have no moving parts to become worn or get out of order; which will be strong and durable; and, which will be efficient in accomplishing all of the purposes for which it is intended.

With these and other objects in view as will more fully appear, our invention consists in the construction, novel features, and combination of parts, hereinafter more fully described, pointed out in the claims hereto appended, and illustrated in the accompanying one sheet drawing, of which, Figure 1 is a longitudinal sectional view of the device;

Fig. 2 is an end elevation of the discharge end of the device, and,

Fig. 3 is an elevational view of the intake end of the device.

Like characters of reference designate like parts in the drawings and figures.

It is understood that various changes in the form, proportion, size, shape, weight, and other details of the construction, within the scope of our invention, may be resorted to without departing from the spirit or broad principle of our invention and without sacrificing any of the advantages thereof; and it is also understood that the drawing is to be interpreted as being illustrative and not restrictive.

One practical embodiment of our invention, as illustrated in the drawing, comprises:

A hollow cylindrical metal housing or Venturi tube 1 having an intake end 2 and a discharge end 3, both or either of which are adapted to be connected by any usual means, such as flanges 4 to a pipe or pipes 5. Within said housing 1 is provided a hollow false wall 6 which at its outer ends is made integral with or is welded to the inner wall surface of the housing, and the bore of which is reduced in diameter at substantially its midpoint, as best seen in Fig. 1 and as is indicated by the reference numeral 7.

A preferred 90 degree pipe bend 8 passes laterally through the wall of said housing 1 and through said false wall 6 and its inner end 9 terminates in axial alinement with the bore of said false wall 6 at the point 7 at which said bore is the smallest in diameter. At the points where said bend 8 passes through the housing and through the false wall, it is rigidly and hermetically welded in position. The inner or discharge end 9 of said bend 8 is rigidly held in position by being welded to the inner ends of a plurality of webs 10 the outer ends of which are made integral with or are rigidly welded to the inner surface of said false wall 6. The outer end of said bend 8 is provided with a coupling 11 adapted to attach to a usual fire hose, not shown.

A conical baffle 12 is provided in the orifice of the end 9 of said bend 8 and is held in spaced relation with the end 9 by a plurality of webs 13 which are rigidly positioned by welding, or the like, within said end 9.

In operation, the pipe 5 which is connected to the intake end 2 of the housing 1 will be extended into the basement, preferably through a hole cut in the floor above, and sacks or other packing will be placed around it so that no substantial amount of air can enter the basement through the cut hole. A fire hose will then be attached to the coupling 11, and the water under high pressure will be turned on. The water in leaving the end 9 of said bend 8 will strike against the baffle 12 and be diverted to the inner surface of the false wall 6 at a point adjacent said discharge end 3 of the housing, as illustrated by the dotted lines and
arrows in Fig. 1. There will be a substantially conical sheet of water traveling from said baffle 12 to the point where the major portion of the water strikes said false wall 6. This traveling conical sheet of water will cause air, heated gases and smoke to be drawn into the intake end 2, and the air, gases and smoke will be discharged through the outlet end 3 with the water.

If found desirable, in order to decrease the resistance to the moving smoke and gases, that portion of said bend 8 which lies within said false wall 6 nearest said intake end 2, may be bevelled to a knife edge 14.

Due to the fact that water is substantially eight hundred times as heavy as air, it may be understood that if the conical sheet of water is traveling at a high velocity, a tremendous suction will be exerted through said intake end 2, and that a large volume of the smoke and gases can be handled through our device in a short period of time.

Obviously, the invention is susceptible of embodiment in forms other than that which is illustrated in the accompanying drawing and described herein, and applicable for uses and purposes other than as detailed, and we therefore consider as our own all such modifications and adaptations and other uses of the form of the device herein described as fairly fall within the scope of our invention.

Having thus described our invention, what is claimed and desired to be secured by Letters Patent, is:

1. A hydraulic air jet, embodying a hollow duct having a bore restricted in diameter at a substantially medial point, said bore gradually sloping away from the stricture toward the ends of the duct to a greater diameter, a liquid conveying pipe having its outlet end axially positioned within the stricture in spaced relation to the walls thereof, and a baffle adjacent the outlet orifice of said pipe for directing the liquid toward the sloping inner wall of the duct.

2. A hydraulic air jet, embodying a hollow duct having a bore restricted in diameter at a substantially medial point, said bore gradually sloping away from the stricture toward the ends of the duct to a greater diameter, a liquid conveying pipe having its outlet end axially positioned within the stricture in spaced relation to the walls thereof, and a conical baffle adjacent the outlet orifice of said pipe for directing the liquid to the sloping inner wall of the duct.

3. A hydraulic air jet, embodying a hollow duct having a bore restricted in diameter at a substantially medial point, said bore gradually sloping away from the stricture toward the ends of the duct to a greater diameter, a liquid conveying pipe having its outlet end axially positioned within the stricture in spaced relation to the walls thereof, and a baffle adjacent the outlet orifice of said pipe for directing the liquid toward a point on the wall of the bore adjacent the outlet end of the duct.

4. A hydraulic air jet, embodying a hollow duct having a bore restricted at a point intermediate its ends, said bore being gradually enlarged from the stricture to the ends of the duct, a liquid conveying pipe, means for holding said bore in spaced relation to the outlet end of said pipe.

5. A hydraulic air jet, embodying a hollow duct having a bore restricted at a point intermediate its ends, said bore being gradually enlarged from the stricture to the ends of the duct, a liquid conveying pipe having its outlet end exterior to and its outlet end within said duct, means for holding said baffle in spaced relation to the outlet end of said pipe.

6. In a hydraulic air jet, a liquid pressure line, a Venturi tube concentrically surrounding the discharge end of the line, the reduced portion of said tube located adjacent said discharge end, and a baffle adjacent said discharge end for deflecting liquid from the discharge end of the line to the walls of the tube in a conical sheet.

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