June 11, 1946. G. B. BROWN ET AL 2,401,902

VENTILATOR

Filed April 12, 1944

Fig. 1.

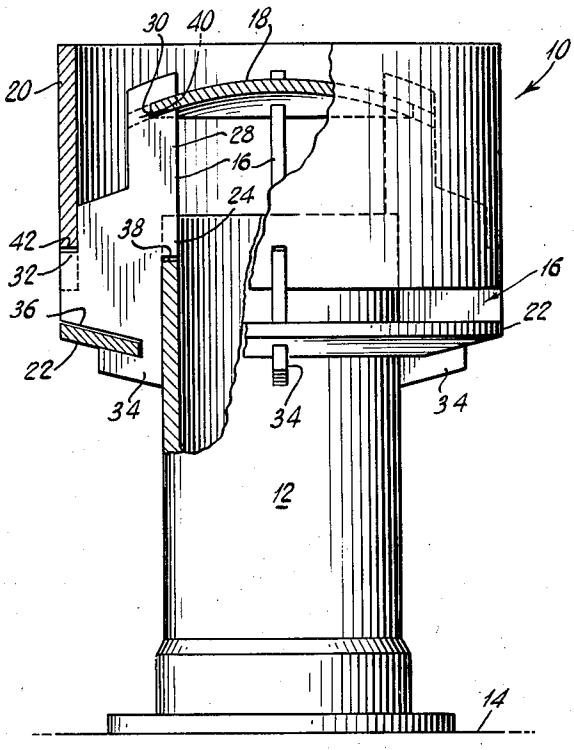


Fig. 2.

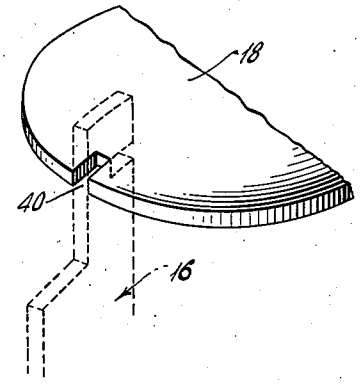


Fig. 3.

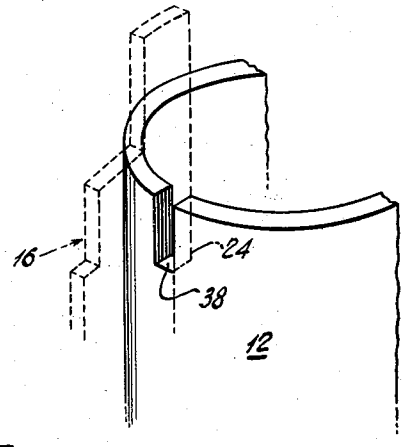
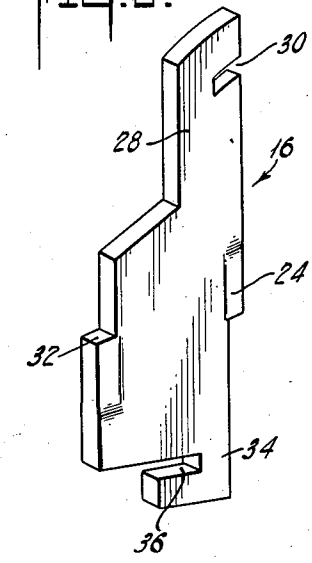


Fig. 5.



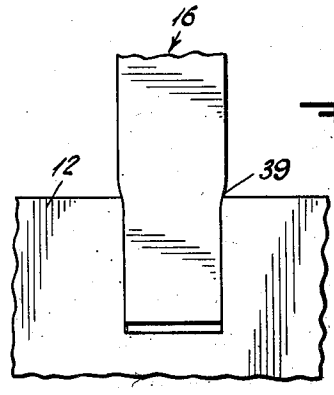


Fig. 4.

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2,401,902

VENTILATOR

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Application April 12, 1944, Serial No. 530,650

11 Claims. (Cl. 98—84)

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The instant invention relates to ventilators for buildings and like structures and, more particularly, to improvements in ventilator constructions of the type disclosed in the co-pending application of Edward M. Jenkins, Serial No. 488,345, filed May 25, 1943, now Patent #2,392,742, issued January 8, 1946. Such ventilators comprise an air eduction pipe or stack communicating with the interior of the building or structure to be ventilated, and a weather protecting hood to prevent the entry of rain or other precipitation into the eduction pipe. The hood comprises a cap member overlying the stack and a storm band surrounding the cap member and stack end. Under certain conditions an annular baffle is also employed, the baffle being spaced below the storm band and surrounding the stack.

In the prior constructions, as disclosed in the said copending application, the several component parts are held in assembled relationship on the eduction pipe or stack by means of brackets to which they are bolted. The necessity of using bolts or similar fasteners has exhibited certain disadvantages with respect to the fabrication of the parts, the erection of the ventilator and the service qualities of the ventilator. Thus, for example, due to the character of the construction, the provision of numerous bolt holes entails hand labor adding to the manufacturing cost and also requiring a considerable degree of skill in properly placing the bolt holes to insure substantially exact alignment when the ventilator is assembled on the job. Also, even if all parts are correctly fabricated, alignment of the bolt holes during erection can present substantial difficulty, particularly where the larger sizes of ventilators are involved, entailing relatively heavy component parts.

Ventilators of the above type present the distinct improvement that their major parts are formed of asbestos-cement material which is highly resistant to corrosive fumes and weathering conditions. However, the necessity of employing bolts or similar metal fasteners has also proved an obstacle to securing the entire benefit of this improvement. Although th difficulty may be overcome in part by countersinking the bolt heads and covering the same with a sealing compound or the like, such expedients are not necessarily of a permanent nature and also their effectiveness is dependent upon the skill and conscientiousness of the workman on the job.

A principal object of the invention is the provision of a ventilator of the type referred to in which the necessity of extraneous fastening

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means is entirely eliminated and the assembly is secured by inter-engagement of the several parts.

Another object of the invention is the provision of a ventilator construction composed entirely, or substantially entirely, of non-corrosive, hardened, compressed asbestos-cement material.

A further object of the invention is the provision of a ventilator which may be readily assembled on the job.

A still further object of the invention is the provision of a ventilator susceptible to mass production.

Our invention will be more fully understood and further objects and advantages thereof will become apparent when reference is made to the more detailed description of the preferred embodiment thereof which is to follow and to the accompanying drawing in which;

Fig. 1 is a view, partially in elevation and partially in section, of a ventilator in accordance with the invention;

Fig. 2 is a detail view of a cap member, illustrating its method of attachment;

Fig. 3 is a detail view of the stack member or eduction pipe, illustrating the attachment of a bracket thereto;

Fig. 4 is a detail view on an enlarged scale, illustrating the interfitting engagement of a bracket with a receiving slot in the stack member; and

Fig. 5 is a perspective view of a bracket as employed in the instant invention.

Referring now to the drawing, there is shown a ventilator 10, comprising an eduction pipe 12, supported on a roof or other building structure 14, and communicating with the interior of the building. The ventilator shown is mounted on a flat surface, such as a flat roof, but it will be appreciated that by properly shaping the lower portion of the eduction pipe and other base elements, the construction may be accommodated to roofs of various pitches and various types. Supported from the eduction pipe 12 by brackets 16, is a hood comprising a cap member 18 and a storm band 20. The brackets are equally spaced around the circumference of the eduction pipe and any suitable number may be used, for example four, as shown. An annular baffle ring 22 may be employed where found necessary or desirable, the baffle ring also being supported by the brackets 16. The several elements of the ventilator are of relatively heavy construction and are suitably formed of hardened, highly compressed, asbestos-cement material, such as that known in the trade as "Transite." The particular weights

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or thicknesses of the parts will depend of course upon the size of the ventilator.

In accordance with the invention, extraneous fastening means for securing the several parts of the ventilator hood to the supporting bracket 16 and the brackets to the stack 12, are eliminated, integral, interlocking connections being provided in each instance. Referring specifically to Figs. 1 and 5, bracket 16, preferably composed, as indicated above, of hardened, compressed, asbestos-cement material, is molded or otherwise shaped into the form illustrated. The bracket includes a tongue portion 24 on its inner edge for cooperation with the stack, an upwardly extending section 28 having an inwardly opening notch or recess 30 for cooperation with the cap, a tongue portion 32 on its outer edge for cooperation with storm band 20, and a depending supporting portion 34, notched or recessed, as indicated at 36, for supporting cooperation with baffle 22. In those instances where the baffle ring is not employed, depending portion 34 with its notch 36 may be omitted.

Eduction pipe 12 is provided with a plurality of relatively deep, upwardly opening notches or recesses 38, four being employed in the construction illustrated (see Figs. 1, 3 and 4), of a width to snugly receive tongue portions 24 of the brackets. The number of notches will depend upon the number of brackets necessary for support of the hood elements, and the notches will preferably be spaced equally around the circumference of the eduction pipe.

Cap member 18 has notches or recesses 40 (see Figs. 1 and 2) spaced about the periphery of the cap in conformity with the spacing of recesses 38 in the eduction pipe to receive the extending sections 28 of the brackets. Storm band 20 is likewise provided with a plurality of similarly spaced recesses or notches 42. In this case the recesses extend upwardly from the lower edge of the storm band to receive tongue portions 32 of the brackets.

In the assembly as shown in Fig. 1, tongue portion 24 of each bracket fits within its corresponding recess 38 in the eduction pipe. Recess 30 in the upper end of the bracket, and recess 40 in the cap member cooperate in a double locking action, and tongue portions 32 of the brackets are received within recesses 42 of the storm band. When the hood is in place on the eduction pipe, storm band 20 serves in effect as a retaining ring or member, holding the brackets and cap member 18 in assembled relationship, and holding the bracket members in fixed position on the eduction pipe with respect to all disturbing influences except upward lifting forces, which of course are opposed by the combined weight of the several parts of the hood. Where baffle ring 22 is employed, it is mounted in recesses 36 as shown, and additionally serves as a confining or retaining ring. The several elements are thus maintained in assembled position by the provision of mutually interlocking connections.

As shown, particularly in Fig. 4, tongue portion 24 of the bracket is preferably machined to be of slightly less thickness than the normal thickness of the bracket, and of a length slightly less than the depth of slot 38, the area of reduced thickness tapering out at its upper end to the thickness of the body portion of the bracket as indicated at 39. This arrangement provides a driving fit between the parts. Inasmuch as the weight of the several members is carried solely by the tongue 24, the tongues are pressed firmly within slots 38.

Tongue portions 32 interfitting in slots 42 of the storm band are preferably similarly machined to secure a driving fit in recesses 42 as indicated in Figs. 1 and 5.

As shown in Fig. 1, slot 36 in the depending lower portion of the brackets is made slightly wider than the thickness of baffle ring 22 to permit a certain amount of play of the ring within the slots, as is necessary for the assembly of the parts.

In the erection of a ventilator in which a baffle ring 22 is to be incorporated, the several elements of the hood are assembled prior to being placed in position on the eduction pipe 12. Preferably the brackets are first mounted on ring 22 with the ring received in slots 36 and with the brackets in spaced positions around the ring as determined by the spacing of recesses 38 in the eduction pipe. The brackets are then spread radially outwardly, sufficiently to permit insertion of cap member 18 in position with the cap member entering recesses 30 of the brackets, and the brackets entering recesses 40 of the cap in mutually cooperating relationship. This temporary spreading of the brackets is permitted by the relatively loose fit of ring 22 in slots 36. Storm band 20 is then lowered in position to receive tongue portions 32 within recesses 42. Eduction pipe 12 is preferably mounted on the roof in the place provided, and the assembled hood lowered into position on the eduction pipe with the tongue portions 24 of the brackets sliding into the notches 38 in the eduction pipe. However, the assembled hood may be mounted on the eduction pipe before the latter is hoisted in position on the roof if desired. In those instances where the baffle 22 is not required, the several elements of the hood may be assembled directly on the eduction pipe, either before or after mounting of the same on the roof.

As pointed out above, a ventilator in accordance with the invention requires no bolts or other similar fastening means which promote difficulties in fabrication and erection. Also there are no parts of the ventilator which are subject to attack by corrosive fumes or by the elements, the ventilator being composed entirely of corrosion-resistant asbestos-cement or similar material. In addition, the individual parts of the ventilator lend themselves to mass production.

Having thus described our invention in rather full detail it will be understood that these details need not be strictly adhered to but that various changes and modifications may suggest themselves to one skilled in the art, all falling within the scope of the invention as defined by the subjoined claims.

What we claim is:

1. In a stationary ventilator, an eduction pipe having notches opening into the upper edge thereof, a cap member spaced from and overlying said eduction pipe, and a storm band surrounding said cap member and the end of the eduction pipe, bracket members having integral tongue portions interfitting in said notches in said eduction pipe and having interlocking connections with said cap member and storm band, and supporting said storm band and cap member from the eduction pipe, said eduction pipe, storm band and cap member being composed of a highly compressed and densified asbestos-cement material.

2. In a ventilator comprising an eduction pipe having notches opening into the upper edge thereof, a notched cap member spaced above and overlying said eduction pipe, and a storm band mem-

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ber surrounding said cap member and the end of the eduction pipe, brackets removably interfitting in the notches in the eduction pipe and including notches adjacent their upper ends removably interengaging with the notches in said cap member, and means on said brackets for removably receiving said storm band member whereby said members are supported by the brackets from the eduction pipe.

3. In a ventilator comprising an eduction pipe having notches opening into the upper edge thereof, a cap member spaced above and overlying said eduction pipe and having recesses extending inwardly from the marginal edge thereof, brackets having tongue portions interfitting in said notches in said eduction pipe and having recessed upper edges interengaging with said recesses in said cap member, and a storm band member surrounding said cap member and the end of said eduction pipe, said storm band member being supported on said brackets and maintaining them in assembly with the cap member and eduction pipe.

4. In a ventilator comprising an eduction pipe having notches opening into the upper edge thereof, a cap member spaced above and overlying said eduction pipe and having outwardly opening recesses, brackets having tongue portions interfitting in said notches in said eduction pipe, said brackets having inwardly opening recesses in their upper ends interengaging with said outwardly opening recesses in said cap member, and a storm band member surrounding said cap member and the end of the eduction pipe, said storm band member including recesses receiving portions of said brackets, said eduction pipe, storm band and cap member being composed of a hardened plastic material.

5. In a ventilator comprising an eduction pipe having notches opening into the upper edge thereof, a cap member spaced above and overlying said eduction pipe and having outwardly opening recesses, brackets having tongue portions interfitting in said notches in the eduction pipe, said brackets having inwardly opening recesses adjacent their upper ends interengaging with said outwardly opening recesses in said cap member, a storm band surrounding said cap member and the end of said eduction pipe and including downwardly opening recesses receiving portions of said bracket for support thereon, an annular baffle member below said storm band, and openings in said brackets receiving said baffle.

6. In a ventilator comprising an eduction pipe having notches opening into the upper edge thereof, a cap member spaced above and overlying said eduction pipe and having outwardly opening notches, brackets having tongue portions interfitting in said notches in said eduction pipe, said brackets having inwardly opening recesses in their upper ends removably interengaging with said outwardly opening notches in said cap member, and a storm band member surrounding said cap member and the end of the eduction pipe, said storm band member including downwardly opening recesses receiving portions of said brackets, said eduction pipe and said members being composed of a hardened, compressed, asbestos-cement material.

7. In a ventilator comprising an eduction pipe

having notches opening into the upper edge thereof, a cap member spaced above and overlying said eduction pipe, brackets providing tongue portions having a driving fit in said notches in said eduction pipe, interlocking connections between said brackets and said cap member, a storm band surrounding said cap member and the end of said eduction pipe, recesses in the lower end of said storm band, said brackets having other tongue portions engaging with a driving fit in said recesses of the storm band.

8. A ventilator bracket for mounting a cap member and storm band member in assembled relationship to an eduction pipe, said bracket comprising a member composed of a hardened, compressed, asbestos-cement material and having a tongue portion in its inner edge to interfit in a recess in the eduction pipe, an inwardly opening edge notch adjacent its upper end to receive an edge of said cap member, and a tongue portion on an outer edge to interfit in a recess in the storm band member.

9. A ventilator bracket for mounting a cap member, a storm band member and an annular baffle in assembled relationship to an eduction pipe, said bracket comprising a flat member composed of a hardened, compressed, asbestos-cement material and a tongue portion on its inner edge to interfit in a recess in the eduction pipe, an inwardly opening edge recess adjacent its upper end to receive an edge of said cap member, a tongue portion on its outer edge to interfit in a recess in the storm band member, and an outwardly opening recess adjacent its lower end to receive said annular baffle.

10. In a ventilator comprising an eduction pipe having notches opening into the upper edge thereof, a cap member spaced above and overlying said eduction pipe, a storm band surrounding said cap member and the end of the eduction pipe and having recesses opening into the lower edge thereof, and brackets supporting said cap member and storm band from said eduction pipe, each of said brackets comprising a member composed of a hardened plastic material and having a tongue portion in its inner edge interfitting in one of said notches in the eduction pipe, an inwardly opening edge notch adjacent its upper end receiving an edge of said cap member, and a tongue portion on an outer edge to interfit in one of said recesses in the storm band.

11. In a ventilator comprising an eduction pipe having notches opening into the upper edge thereof, a cap member spaced above and overlying said eduction pipe and having recesses extending inwardly from the marginal edge thereof, brackets having tongue portions interfitting in said notches in said eduction pipe and having recessed upper edges inter-engaging with said recesses in said cap member, a storm band member surrounding said cap member and the end of said eduction pipe and resting on said brackets, recesses in said brackets below said storm band member, and an annular baffle member received in said last-named recesses, said eduction pipe, storm band and cap member being composed of a hardened, plastic material.

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