

W. R. SEIGLE.

SMOKE JACK.

APPLICATION FILED FEB. 10, 1910.

955,290.

Patented Apr. 19, 1910.

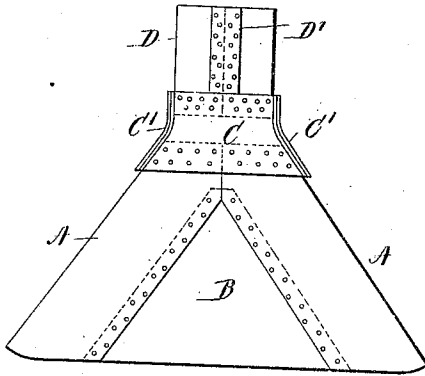


Fig. 1.

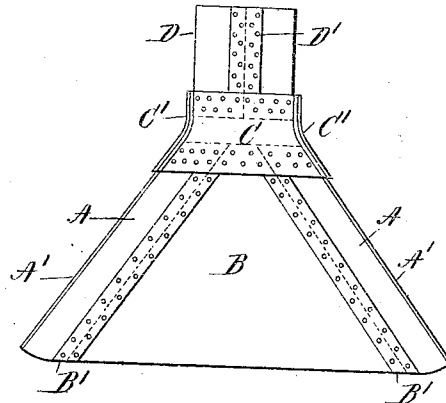


Fig. 3.

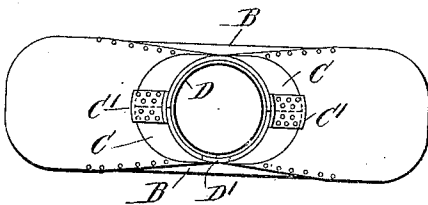


Fig. 2.

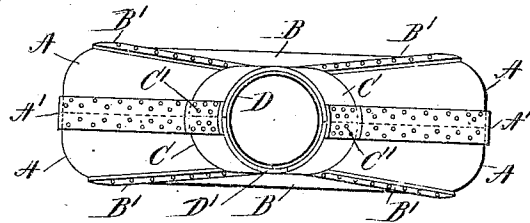


Fig. 4.

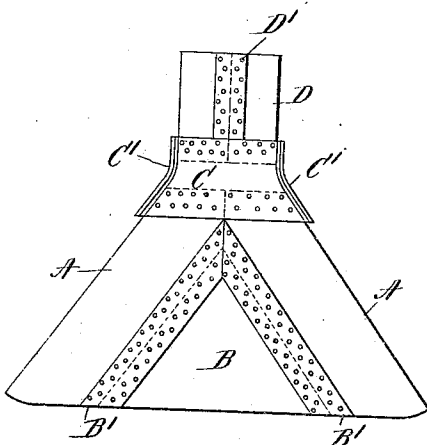


Fig. 5.

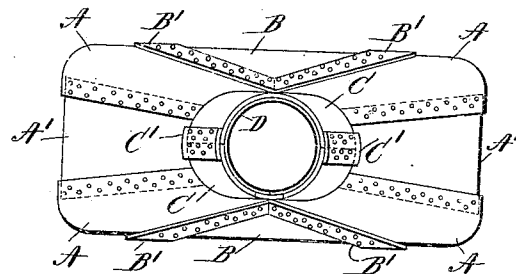


Fig. 6.

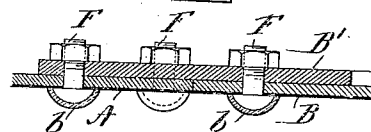


Fig. 7.

WITNESSES:

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SMOKE-JACK.

955,290.

Specification of Letters Patent.

Patented Apr. 19, 1910.

Application filed February 10, 1910. Serial No. 543,138.

To all whom it may concern:

Be it known that I, WILLIAM R. SEIGLE, a citizen of the United States, and resident of Nashua, in the county of Hillsborough and State of New Hampshire, have invented new and useful Improvements in Smoke-Jacks, of which the following is a specification.

My invention relates to the construction of smoke jacks and analogous ventilating funnels, and consists in improvements in the structure of such contrivances whereby smoke jacks or the like are rendered more durable than such structures have been heretofore.

In particular, my improved smoke jacks are designed for use in locomotive round-houses, where the conditions are exceptionally severe. Round-house smoke jacks are constructed, necessarily, of heat and fire resisting material, and except for a few unsuccessful attempts to use incorrodible refractory materials, they have been, so far as I am informed, made of sheet iron or steel, reinforced at joints by iron angles. The life of such metal smoke jacks is very short, usually not exceeding nine or ten months; the gases emitted from the locomotive funnels are acidulous and corrode the metal of the smoke jacks especially at vulnerable points, and these destructive conditions are aggravated by the pulsations in pressure due to the locomotive exhaust, which strains the smoke jack at the corners and destroys the fastenings.

Where smoke jacks have been constructed of flat plates of refractory material, secured to angle iron framework, the destruction of the framework and the fastenings has proceeded in the same way and from the same causes, rendering the smoke jack unfit for further use or even successful repair after a comparative short term of service. Square, or angle corners are thus proved to be detrimental in any case, whatever the material used may be.

In my improved smoke jack I have adopted materials and shapes of the several members, corner members in particular, which remedy the defects in smoke jack construction heretofore existing, and have thus reduced the number of metal fastenings materially, and made it comparatively easy to

protect the exposed portions of metallic fastenings against corrosion.

The preferable and, I believe, indispensable, qualities of material for the construction of smoke jacks of the character and for the uses referred to are ample physical strength, incombustibility and incorrodibility in the presence of acidulous gases. The desirable and, I believe, indispensable features of structure are the provision of curved members at the otherwise vulnerable corners of the smoke jack and the elimination by means of such curved members of metallic framework angle irons and the like.

The material which I select for my improved construction comprises the above enumerated desirable qualities. I first make a mixture of substantially equal quantities by weight of very short asbestos fibers, or the asbestiform fibers produced by grinding serpentine rock and a cementitious material which may be either Portland cement or finely comminuted magnesium oxid. With these solid ingredients I make a pulp or dough using a weight of water therefor about equal to the total weight of the solids. Immediately after the formation of the wet pulp I subject it to a pressure of about 1000 pounds to the square inch in a hydraulic filter press, withdraw the felted sheet thus made and then drench the sheet with water. The sheet absorbs this supplemental supply of water to such an extent as to render the sheet plastic, and it retains this plasticity for a time sufficient to allow the sheet to be molded into almost any desired curve formed over suitably shaped wooden molds. As the cementitious material in these plastic bodies begins to set from the time the wet pulp is made, it is necessary to give the sheets their final desired shape before the setting operation has proceeded too far. In practice, I have found it necessary to complete the manufacture of the molded sheets within fifteen or twenty minutes after the sheet has been taken from the press. The method of manufacturing and manipulating plastic felted, cemented sheets of this character forms the subject matter of an application for United States Patent Serial No. 534,186, filed by me on or about December 20, 1909. When sheets of the character described are formed

and set they can readily be drilled and shaped with ordinary tools and by reason of their heat and acid resisting quality, are well adapted to the construction of my improved smoke jack.

In the drawings hereto annexed which illustrate examples of my invention,—Figure 1 is a side elevation of a smoke jack, and Fig. 2 is a top plan view of the same; Fig. 3 is a side elevation of another form of smoke jack; Fig. 4 is a top plan view of the jack shown in Fig. 3; Figs. 5 and 6 are a side elevation and top plan view respectively of another modification of smoke jack construction, and Fig. 7 is a detail showing a joint and appropriate fastenings.

Referring to Figs. 1 and 2, the smoke jack is built up in the following manner: A combined end and corner member A is made of plastic felted cemented incorrodible material produced preferably in the manner hereinabove described. The corner portions of these members are molded to an easy curve and the two sides thereof taper from the bottom to the top. Two such end and corner members are united by a lap joint to two flat triangular gusset plates which are preferably of the same material as that which composes the end and corner members. The members A and B are developed so that when the members A are molded to shape and the members B secured thereto, they form a flattened funnel rounded at the corners in an easy curve and truncated at the top. To the truncated top of this flattened funnel there is then secured a thimble C constructed as follows:

Sheets of material the same or similar to that of which the end and corner members A are constructed, are molded into conical form, the two halves of the conoid being joined by cover strips C'; the base of the thimble thus made is shaped to fit over the truncated top of the funnel made of members A and B and the upper end of the thimble is so proportioned as to make a fit with the substantially cylindrical stack which surmounts the structure. The stack D is made by rolling or molding a sheet of the same kind of material as that which composes the members A and thimble C into substantially cylindrical form abutting the meeting edges and securing them with a cover strip D' of the same or similar material. The lower end of the stack D slips into and is fastened to the upper and substantially cylindrical portion of the thimble C. The fastenings employed are preferably screw bolts such as F shown in Fig. 7 which are inserted in holes drilled in the members, to be applied preferably with their heads on the inside of the jack and with the nuts on the outside. A liberal coating of resistant cement paint is then applied to the ex-

posed portions of these bolts to protect them against the injurious effect of gases inside the jack. It will be observed that the fastenings F pass through the members of which the funnel is composed in a region removed from the curved corner and pass through and secure the flat portions of the members A and B. Consequently, any strains due to pulsations of locomotive exhaust do not tend to bend the material of which the jack is composed in those regions where the fastenings are applied. The easy curves at the corners of the end members A sustain the strains of pulsation without allowing the effect to be localized at any point and by so distributing the strains preserve the integrity of the structure. In the upper portions of the jack where the members approach more nearly to circular cross section such strains are evenly distributed and have little or no tendency to injure the fastenings at any one place.

Referring to Figs. 5 and 6, which illustrate a slightly modified construction, the end and corner members A are united by a lap joint to a tapered flat plate A' and by a butt joint with a cover plate B' to the triangular gussets B. The construction of the thimble C and stack D is the same as shown in Figs. 1 and 2.

In Figs. 3 and 4 still further modifications in detail are suggested. Here the end and corner pieces A meet at a butt joint which is covered by the plate A which performs in general the same functions as the wider plate A' shown in Fig. 4.

Smoke jacks constructed as above described may be erected or suspended in any approved manner and will be found to resist successfully the conditions which have proved destructive of smoke jacks heretofore provided.

What I claim and desire to secure by Letters Patent is:

1. In a smoke jack, the combination of a truncated pyramidal base comprising curved corner pieces and gusset plates a conoidal thimble surmounting the truncated apex of the base, and a stack surmounting the thimble, those members having curved surfaces being composed of molded felted homogeneous cement-united asbestiform fiber.

2. In a smoke jack, the combination of a truncated pyramidal base comprising curved corner pieces with substantially flat margins, flat gusset plates, fastened to the flat margins of the corner pieces, a conoidal thimble surmounting the truncated apex of the base, and a stack surmounting the thimble, those members having curved surfaces being composed of molded felted homogeneous cement-united asbestiform fiber.

3. In a smoke jack, a truncated pyramidal box comprising curved corner pieces and

gusset plates, the curved members being composed of molded felted homogeneous cement-united asbestiform fiber.

composed of molded felted homogeneous cement-united asbestiform fiber.

Signed by me at Lockport, New York this 7th day of February, 1910.

W. R. SEIGLE.

Witnesses:

FRED R. OLIVER,

H. J. EMERSON.

5 4. In a smoke jack, a truncated pyramidal box comprising curved corner pieces with substantially flat margins, and flat gusset plates fastened to the flat margins of the corner pieces, the curved members being