

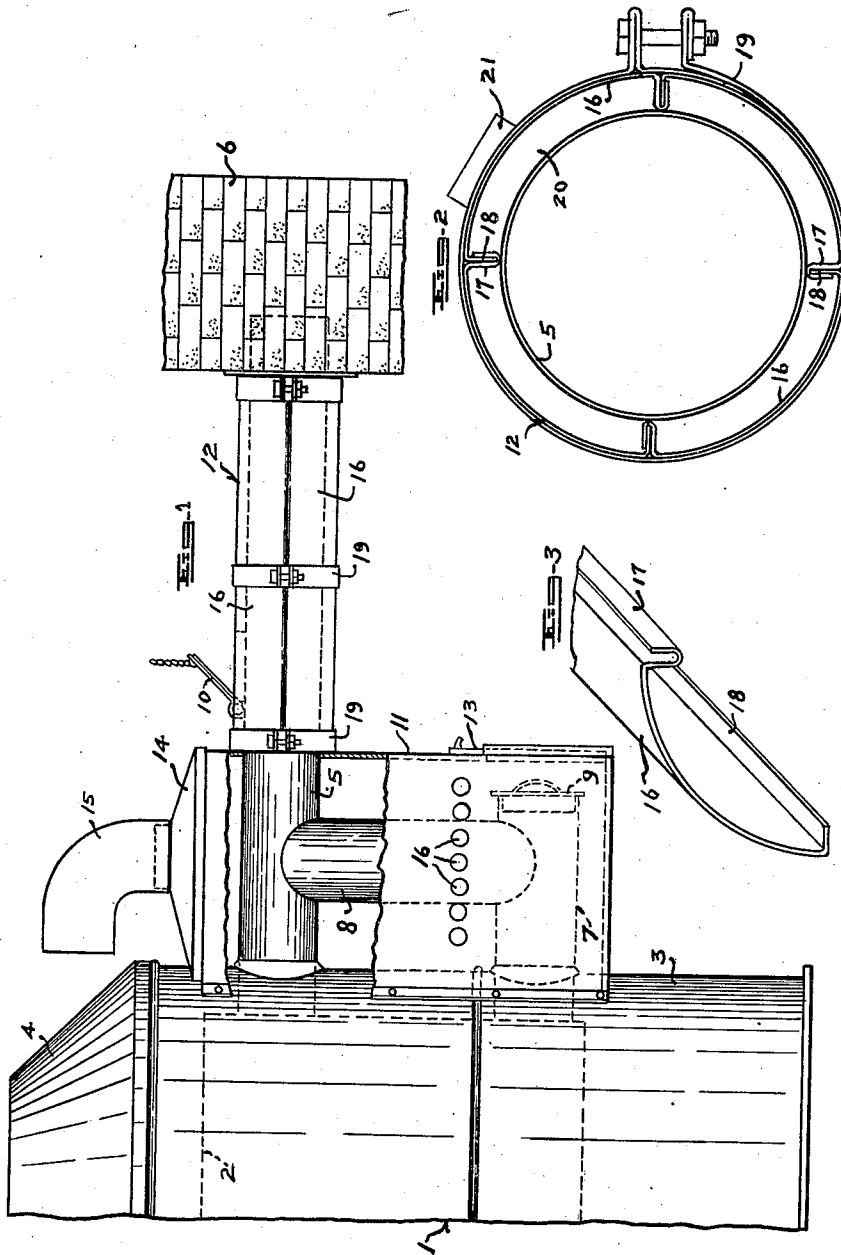
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J. H. MESSER

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PROTECTIVE COVER FOR SMOKE PIPES

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INVENTOR

JOHN H. MESSER

BY *John H. Messer*
ATTORNEY

UNITED STATES PATENT OFFICE

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PROTECTIVE COVER FOR SMOKE PIPES

John H. Messer, Pittsburgh, Pa.

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1 Claim. (Cl. 126—307)

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This invention relates to a protective cover for conduit pipes conveying smoke and other products of combustion from a combustion chamber to the cooperant draft flue or chimney, and while the disclosure of the invention is herein illustrated and described as embodied in a hot air heating furnace, it will be obvious that the invention may be successfully employed in connection with the conventional types of stoves, furnaces, or any other heating apparatus wherein it is found to be applicable.

Important objects and advantages of the invention are to provide a protective cover of the character described, which will entirely eliminate fire hazards due to the overheating of a smoke pipe enclosed thereby, which may be successfully and effectively employed for utilizing the otherwise dissipated heat emanating from the smoke pipe, which may be readily installed on or removed from furnace pipes without disturbing the furnace structure, which is simple in its construction and arrangement, durable and efficient in its use, compact, and comparatively economical in its manufacture, installation, operation, and maintenance.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the novel construction, combination, and arrangement of parts herein specifically described and illustrated in the accompanying drawing, but it is to be understood that the latter is merely illustrative of an embodiment of the invention, and that changes in the form, proportions and details of construction may be resorted to that come within the scope of the claim hereunto appended.

In the drawing wherein like numerals of reference designate corresponding parts throughout the several views:

Figure 1 is a side elevational view, with parts broken away, of a furnace structure embodying the present invention.

Figure 2 is an enlarged end view of the smoke pipe and of the enclosing protective cover.

Figure 3 is an enlarged, fragmentary, perspective view of a quadrant jacket section.

Referring in detail to the drawing 1 represents a conventional type of hot air heating furnace structure, embodying the combustion chamber 2 and the cylindrical enclosing shell 3, which latter is topped by the heat distributing dome 4 in the usual manner.

A smoke pipe 5 connects the furnace combustion chamber 2 with the draft chimney 6. A relatively short cleaning pipe 7, joined with the fur-

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nace structure 1, is disposed below and parallel to the smoke pipe 5, and a drop pipe 8 connects the latter with the cleaning pipe. The free end of the cleaning pipe 7 is provided with a removable lid 9, whereby accumulations of combustion, dropping from the smoke pipe through the drop pipe into the cleaning pipe, may be readily removed when required. The smoke pipe is provided with a check damper 10 operable for controlling combustion in the usual manner.

The above described arrangement of the smoke pipe 5, the cleaning pipe 7, and the drop pipe 8 is not novel, but is in common use and is known as the T-type pipe arrangement in the art to which the invention appertains.

The primary aim and purpose of the present invention is to entirely eliminate fire hazards due to inadvertently overheated, corroded, or broken smoke pipes. In furnace installations the smoke pipes are frequently positioned in proximity to wooden or other inflammable structures, which latter are thoroughly dried from constant heat exposure, and are consequently susceptible to ignition from the slightest fire particle that may drop on and from an overheated or otherwise defective smoke pipe.

To provide full protection against such fire hazards, the forward end portion of the smoke pipe 5, together with the cleaning and drop pipes 7 and 8, are completely housed or enclosed in a pipe casing 11, while the portion of the smoke pipe 5, extending from the pipe casing 11 to the chimney 6, is enclosed in a pipe jacket 12. It is, of course, apparent that in furnace installations that do not incorporate the aforementioned T-type pipe arrangement, the entire length of the smoke pipe 5 from the furnace 1 to the chimney would be enclosed by the pipe jacket 12 only.

The pipe casing 11 is secured against and extends rearwardly from the furnace casing 3. A vertically slidable door 13 is mounted at the lower end of the rear wall of the pipe casing to provide access to the cleaning pipe 9 and lid 9 when effecting cleaning operations.

The pipe casing 11 is provided with a top 14, which is preferably removable to permit inspection and repairs to the smoke, cleaning, and drop pipes 5, 7, and 8 housed within the pipe casing. It is obvious that the portion of the smoke pipe housed in the pipe casing becomes intensely heated during the operation of the furnace and generates a considerable amount of heat. The heat emanating from such heated smoke pipe section or portion is confined to within the pipe

casing, and may be economically utilized by directing and conveying such heat from the pipe casing to the distributing dome 4 of the furnace, or to some room in the building that is being heated by the furnace. A pipe elbow conduit 15 is illustrated in Figure 1 as communicably joined with the top 14 of the pipe casing, whereby the heat conveying pipes may be readily and communicably joined with the pipe casing. If the heat from the pipe casing is not to be directed and conveyed, the opening in the casing top 14 may be screened and the heat allowed to issue to heat the basement or other enclosure in which the furnace is located. Suitable air vents 16 are provided in the side walls of the pipe casing to promote the circulation of the air through the pipe casing.

The most important feature of the present invention consists in the novel sheet metal pipe jacket 12, which, in the embodiment of the invention herein illustrated, covers the smoke pipe 5 from the pipe casing 11 to the chimney 6. The pipe jacket is a sectional assembly and comprises four separate jacket sections 15 of uniform lengths and identical construction.

Each of the jacket sections 15 is a quadrant and one-quarter round or circular in transverse cross section. One side edge margin of each of the jacket sections is shaped to form a connecting groove 17, while the other side edge margin thereof is formed to provide a connecting lip 18. The groove 17 and the lip 18 extend inwardly and throughout the length of the jacket section, and are disposed radially relatively to the axial center of the latter.

In the assembly of the pipe jacket 12, the lip 18, of each of the jacket sections 15, has an interlocking engagement with the groove 17 of the adjacent jacket section. Such interengagement assembly of the four complementary jacket sections provides the cylindrical pipe jacket 12, which surrounds and completely covers the smoke pipe 5, as clearly illustrated in Figures 1 and 2.

While the pipe jacket 12 is herein shown as applied to a straight smoke pipe 5, it will be evident that said pipe jacket may be constructed to adapt same to enclose smoke pipe elbows or any other smoke pipe curvatures. Further, the pipe jacket may be made in proper lengths facilitating its handling and installation. Adjustable clamping bands 19 surround the pipe jacket 12 and are employed for maintaining the latter in the assembled position on the smoke pipe 5. Depending on conditions, the pipe jacket may be advantageously applied to the smoke pipe either prior or subsequent to the installation of said smoke pipe to the furnace and chimney structures.

It will here be noted that the inwardly dis-

posed, interlocked grooves and lips 17 and 18, of respective jacket sections 15, in the manner stated, form regular and uniformly arranged spacing elements for providing and maintaining the proper concentric position of the pipe jacket 12 relatively to the enclosed smoke pipe 5, and provide an air chamber 20 of considerable area between the smoke pipe and said pipe jacket. The pipe jacket may be provided with a suitable connecting collar connecting flange 21, whereby a hot air pipe may be communicably joined with the pipe jacket to convey heated air from the jacket chamber 20 to wherever required.

The present invention provides a most efficient device of its kind, which may be economically manufactured, and successfully employed to eliminate all fire hazards from overheated or impaired smoke pipes, and to provide means for utilizing otherwise dissipated heat emanating from the smoke pipe and generated by the passage of the products of combustion through the smoke pipe.

What I claim is:

A protective cover for a smoke pipe comprising a cylindrical jacket for enclosing the smoke pipe and consisting of four quadrant jacket sections, one side edge of each of said sections being shaped to form a groove and the other side edge thereof being formed to provide a lip, the lip of each of said sections engaging in the groove of the adjacent section for connecting said sections together, said inter-engaging lips and grooves being disposed inwardly and serving to concentrically maintain said jacket in spaced relation with respect to the smoke pipe, and clamping bands mounted on said jacket for securing the latter in the assembled position.

JOHN H. MESSER.

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