

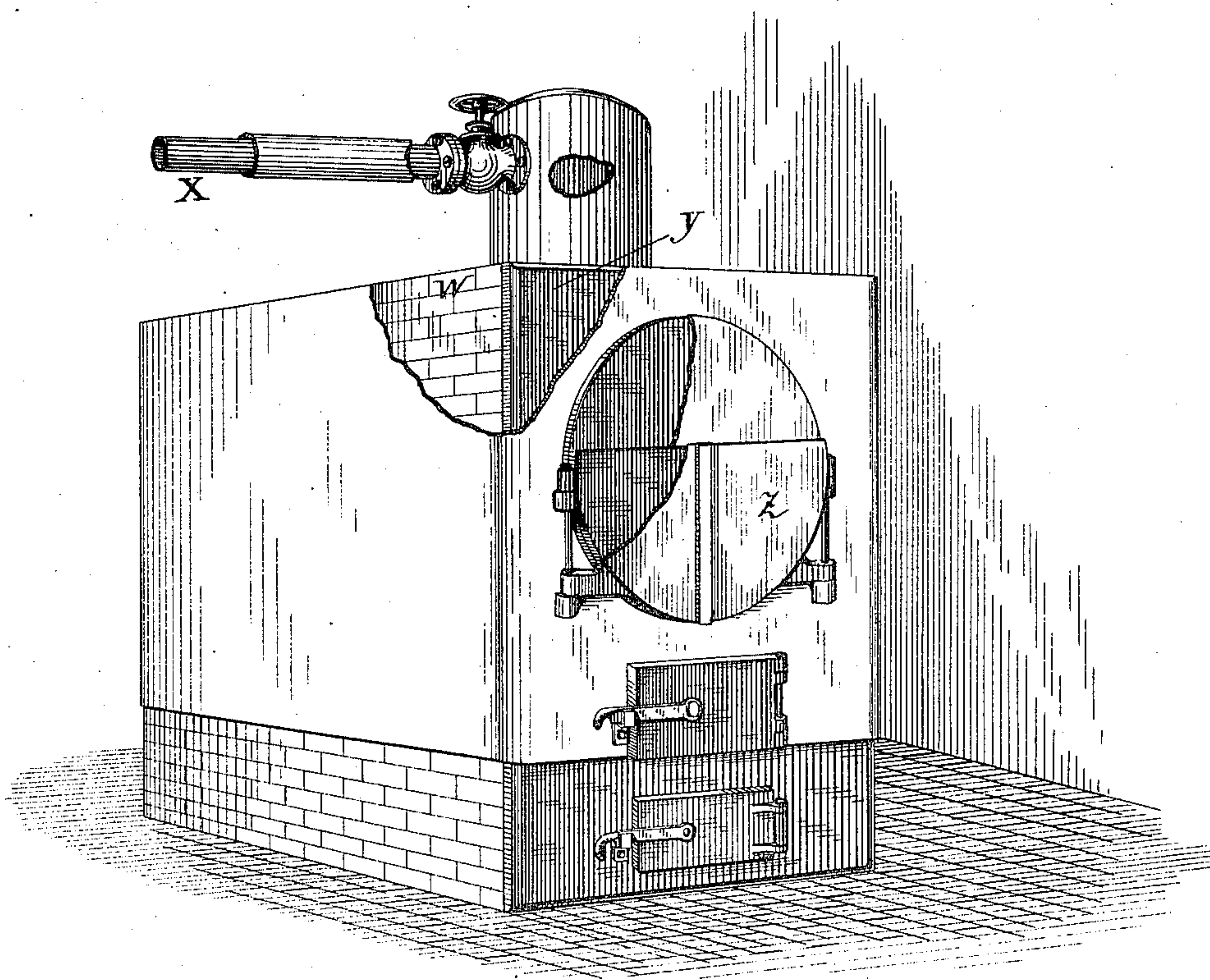
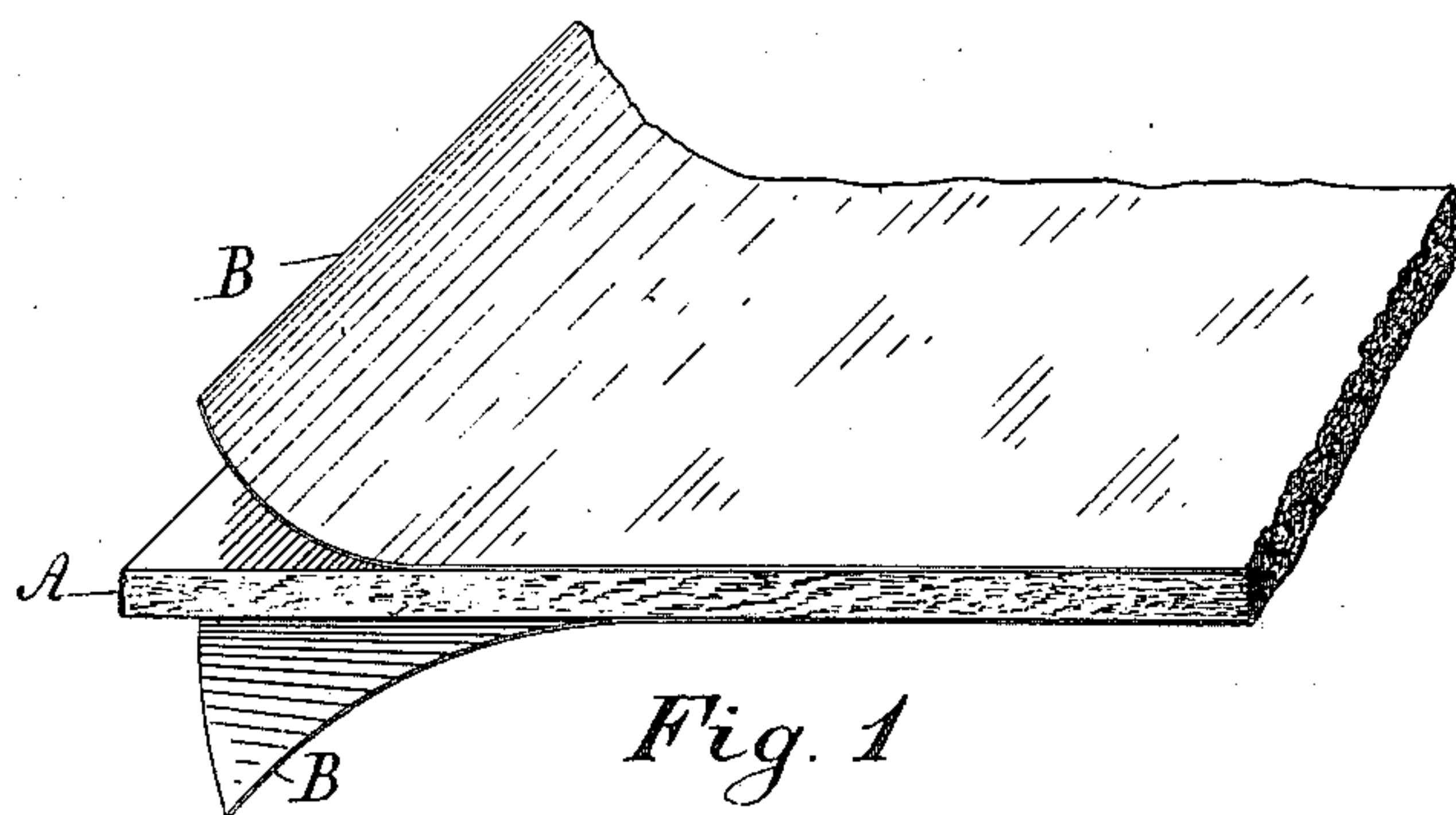
(No Model.)

G. C. HICKS.

COVERING FOR STEAM BOILERS, &c.

No. 294,780.

Patented Mar. 11, 1884.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE CLEVELAND HICKS, OF CHICAGO, ILLINOIS.

COVERING FOR STEAM-BOILERS, &c.

SPECIFICATION forming part of Letters Patent No. 294,780, dated March 11, 1884.

Application filed July 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE CLEVELAND HICKS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Coverings for Steam-Boilers, &c., of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The present invention has for its object to prevent loss of heat by radiation from boilers, retort-benches, and other furnaces and the masonry, iron-work, and pipes thereof, and to so reduce the temperature of the working-rooms of such furnaces that it shall be less severe upon the men employed therein.

To this end my invention consists, first, in applying directly to metallic heat-radiating surfaces, preferably by means of a soluble silicate, (water-glass,) a shield or covering composed of a layer of asbestos or equivalent non-conducting substance placed intermediately between two sheets of tin-foil or equivalent reflecting and non-radiating surfaces; and, second, said invention consists in a shield or covering for heat-radiating surfaces, composed of a layer of asbestos or equivalent non-conducting substance faced with tin-foil.

In the accompanying drawings, Figure 1 is a perspective view of my improved shield or covering, the component parts being partially separated for better illustration; and Fig. 2 is a perspective view of a portion of a boiler-furnace to which my improved covering has been applied.

The body A of the shield or covering consists, preferably, of a sheet of asbestos-board, to each face of which is firmly united by a suitable cement, preferably water-glass; (soluble silicate of soda or potash,) a sheet or coating of tin-foil, B. The action of this covering, when placed upon or adjacent to a heat-radiating surface, is as follows: The heat-rays, striking first the polished surface of the nearest sheet of tin-foil, are reflected therefrom, such heat as passes through the same by conduction being opposed by the non-conducting body of asbestos. The heat received by this non-conducting body A in radiating therefrom

is reflected by the inner polished surface of the outer sheet of foil, and this foil, being a poor radiating substance, allows but few of the heat-rays to pass therefrom. Although the covering be placed adjacent to or upon a highly-heated surface, the heat radiated from the outer face of the covering is scarcely appreciable, so that the loss by radiation is in great measure prevented, and the temperature of the working-room is reduced much below that usual in furnace-rooms.

A covering constructed as above described will not be injuriously affected by intense heat, and has the further advantage that it can be placed in direct contact with metallic surfaces without the danger of corrosion encountered when an unprotected covering of asbestos, mineral wool, or the like is so applied.

While asbestos is the preferred substance for forming the body of the covering, I do not wish the invention to be understood as restricted thereto, as it is evident that straw-board, felt, wood veneer, or like non-conducting substance may, for many uses, be substituted therefor.

In cases where the covering may be exposed to moisture—as, for example, about the joints of steam-pipes—a cement of lead-pigment or other water-proof material may be employed, if desired, instead of the water-glass for uniting the tin-foil to the body.

In the drawings the improved covering is shown as applied to the masonry W, the steam-dome and discharge-pipe X, the iron facing Y, and the doors Z of a steam-boiler furnace; and it will be readily understood that the attachment may be made in any approved manner.

In applying the invention to the heat-radiating surface, said shield or covering, formed as above described, is coated upon one face with water-glass cement, and is then placed upon the metallic surface to be covered, and is pressed firmly thereon by means of a pad or rubber preferably faced with tin-foil to avoid tarnishing the surface of the outer foil. When thus placed upon the metallic surface, the covering will effectually prevent the radiation of heat therefrom, will remain securely in place, will be uninjured during intense heat, and will avoid the danger of cor-

rosion incident to the direct attachment of asbestos, mineral wool, or the like.

I am well aware that highly-polished metallic surfaces possess the quality of reflecting rays of heat, and the same is not to be understood as of my invention, which consists, rather, in impressing upon the usual non-conducting flexible packing of asbestos, straw-board, or the like, employed to protect steam-boilers, pipes, and other heat-radiating surfaces, the additional characteristics of a reflector and poor radiator, which advantages result from the close union with the covering of a material having these qualities in high degree, and, like the covering, readily adapted to any irregularities of contour in the surfaces to be protected.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the heat-radiating surface, of a protective covering therefor, the same consisting of a layer of asbestos or the like faced with tin-foil, substantially as described.

2. The protective covering for heat-radiating surfaces, the same consisting of a layer of asbestos or the like having its face coated with tin-foil, substantially as described.

3. The protective covering for heat-radiating surfaces, the same consisting of a layer of asbestos or the like having both of its faces coated with tin-foil, substantially as described.

In testimony whereof I have hereunto set my hand.

GEORGE CLEVELAND HICKS.

Witnesses:

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