No. 654,546. Patented July 24, 1900.

W. N. KEEN.

COOLING APPARATUS FOR STEAMSHIPS.

(Application filed Feb. 23, 1900.)

(No Model.)

Fig. 1.

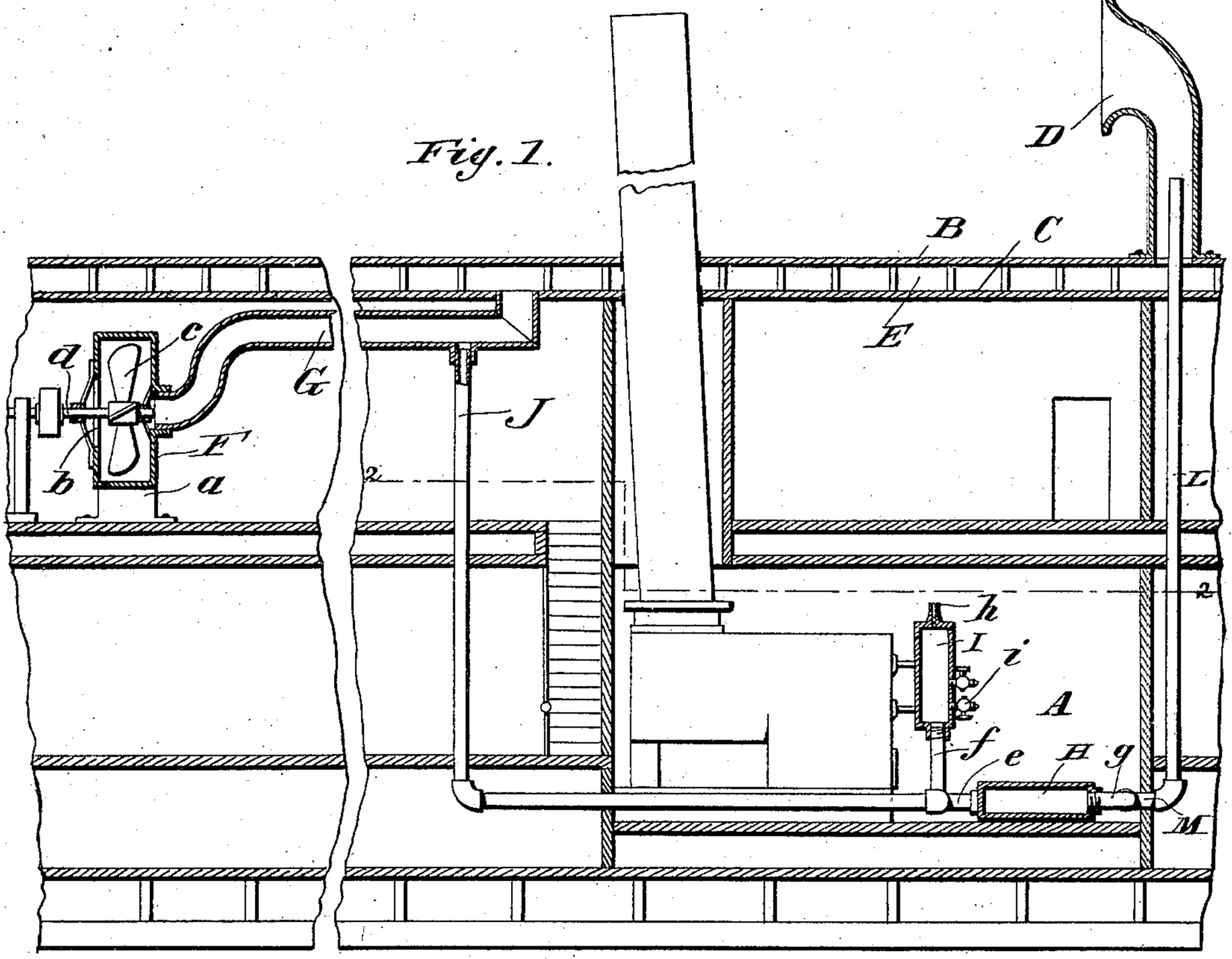
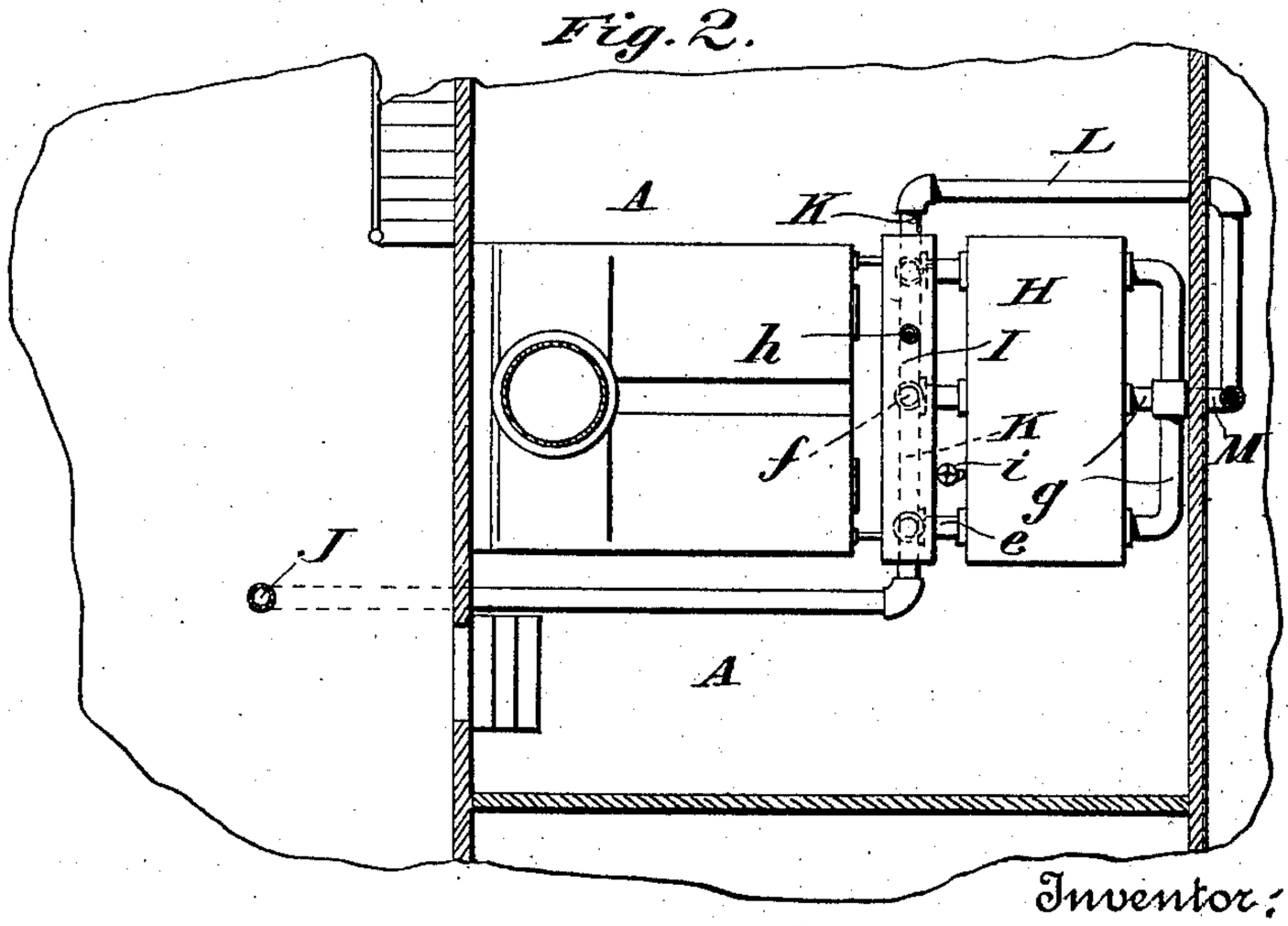


Fig. 2.



Witnesses
C. H. Sadler
T. E. Tripp

Inventor:
W. N. Keen
By James J. Healy
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM N. KEEN, OF NEW ORLEANS, LOUISIANA.

COOLING APPARATUS FOR STEAMSHIPS.

SPECIFICATION forming part of Letters Patent No. 654,546, dated July 24, 1900.

Application filed February 23, 1900. Serial No. 6,267. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. KEEN, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Cooling Apparatus for Steamships, of which the following is a specification.

My invention relates to steamships, and contemplates the provision of a simple and inexpensive apparatus through the medium of which a comfortable temperature may be maintained in the furnace-rooms or stoke-holes of steam vessels.

The invention also contemplates the provision of an apparatus which when used on a modern war vessel is calculated, in addition to maintaining a comfortable temperature in the furnace-room or stoke-hole, to cool and keep cool the protective decks with which such vessels are ordinarily provided.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a broken longitudinal section of a war vessel equipped with my improved cooling apparatus. Fig. 2 is a detail horizontal section taken on the broken line 2 2 of Fig. 1.

Referring by letter to the said drawings, A is the furnace-room or stoke-hole of a war vessel, in which boilers and furnaces are arranged, as shown.

B is a protective deck, of steel or other suitable material, arranged about the proportional distance illustrated above the deck proper, C, of the vessel.

D is a fixed cowl communicating with the space E between the decks B C and arranged adjacent to the bow of the vessel, and F is a blower which in the preferred embodiment of the invention is arranged between decks and adjacent to the stern of the vessel. This blower may be of any suitable construction, but is here shown as comprising a casing *a*, having a central opening *b* in one of its side walls, and a fan *c*, arranged within said casing and fixed on a shaft *d*, designed to be rotated by any suitable motor. (Not shown.) Leading from the casing *a* at a point opposite to the opening *b* is a conduit G, which communicates with the space E between the decks B C and is designed, when the blower is in operation, to convey a continuous blast of cool air to the said space. From the space E the air passes out through the cowl D, and hence it will be seen that a circulation of air is maintained through the said space, with the result that the protective deck B is kept constantly cool.

H is a horizontally-disposed air-tank, of steel or other material, which rests on the floor of the room A in advance of the furnaces and boiler therein and is designed to afford a stand for the firemen or stokers.

I is a vertically-disposed air-tank which rests in front of the boilers and is suitably supported in a plane above the doors of the furnaces, as shown, so as not to interfere with the operations of placing fuel in or removing ashes from the furnaces, and J is a pipe which is connected with the conduit G, at an intermediate point in the length of the latter, and is designed to convey cool air from said conduit to the tanks H I. As best shown in Fig. 2 of the drawings, this pipe J merges into a pipe K, which is arranged between the tanks H I and is connected by three (more or less) branches *e* to the former and by three (more or less) branches *f* to the bottom of the latter. The pipe K merges in turn into a pipe L, which extends forwardly and laterally to a point in front of the tank H, and thence upwardly to a point within the cowl D, as shown in Fig. 1. This pipe L is connected with the interior of the tank H, at the forward side thereof, through the medium of a pipe M and its three branches *g*, as best shown in Fig. 2.

By reason of the construction thus far described it will be seen that when the blower F is in operation a circulation of cool air is maintained through the space E for the purpose of keeping the protective deck B cool, and at the same time a continuous blast of air is forced through the tanks or vessels H I, with the result that a comfortable temperature is maintained in the furnace-room or stoke-hole A, which is an important desideratum.

In order to supply the furnace-room A with a continuous supply of fresh cool air, I contemplate providing the tank or vessel I with one or more vents *h*, as best shown in Fig. 1. I also contemplate arranging two (more or less) cocks *i* on the front wall of said tank I,

these latter being provided in order to enable a fireman to turn a blast of air upon and thereby cool himself when desired.

It will be appreciated from the foregoing that while my improvements are simple and inexpensive and take up but little of the space in a steamship they are calculated to render the furnace-room comfortable at all times, and thereby increase the efficiency of the firemen. It will also be appreciated that when the blower F and the cowl D are connected with the space E between the protective deck B and deck proper, C, my improvements are enabled to keep the protective deck cool, which is a highly-important advantage.

When desirable or necessary, the air may be cooled or refrigerated before it enters the blower or while it is *en route* through the conduit G by any suitable means, which I have not deemed it necessary to illustrate.

I have entered into a specific description of the construction and relative arrangement of the parts embraced in the present embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to such specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my claims.

Having thus described my invention, what I claim is—

1. An apparatus for cooling the furnace-room or stoke-hole of a steamship comprising a horizontally-disposed air tank or vessel located on the floor of the furnace-room or stoke-hole, a discharge-pipe leading from said tank to the open air, and a blower connected to said tank or vessel for forcing cool fresh air through the tank or vessel and the discharge-pipe leading therefrom, substantially as specified.

2. An apparatus for cooling the furnace-room or stoke-hole of a steamship, comprising a horizontally-disposed air tank or vessel located on the floor of the furnace-room or stoke-hole, a vertically-disposed air-tank arranged in front of the boiler in said room or stoke-hole and supported in a plane above the door of the furnace therein, a discharge-pipe leading from said tanks or vessels to the open air, and suitable means for forcing fresh cool air to and through said tanks or vessels, substantially as specified.

3. An apparatus for cooling the furnace-room or stoke-hole of a steamship, comprising a horizontally-disposed air tank or vessel located on the floor of the furnace-room or stoke-hole, a vertically-disposed air-tank arranged in front of the boiler in said room or stoke-hole and supported in a plane above the door of the furnace therein, a discharge-pipe leading from said tanks or vessels, a cowl receiving said discharge-pipe and communicating with the open air, and a blower connected with and adapted to force fresh cool air to and through the tanks or vessels, substantially as specified.

4. An apparatus for cooling the furnace-room or stoke-hole of a steamship, comprising a horizontally-disposed air tank or vessel located on the floor of the furnace-room or stoke-hole, a vertically-disposed air-tank arranged in front of the boiler in said room or stoke-hole and supported in a plane above the door of the furnace therein; said vertically-disposed tank or vessel having one or more vents and one or more discharge-cocks, a discharge-pipe leading from the tanks or vessels to the open air, and means for forcing fresh cool air to and through the tanks or vessels, substantially as specified.

5. An apparatus for cooling the protective deck and furnace-room or stoke-hole of a warship, comprising a cowl communicating with the space between the protective deck and deck proper of the ship, an air vessel or tank arranged in the furnace-room or stoke-hole of the ship, a discharge-pipe leading from said air vessel or tank to the cowl, and suitable means for forcing fresh cool air to and through the space between the protective deck and deck proper of the ship and to and through the air tank or vessel, substantially as specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM N. KEEN.

Witnesses:
WM. GAZIN,
L. EBERT.