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E. S. LYNGER

APPARATUS FOR TRANSMISSION OF HEAT FROM ONE MEDIUM TO ANOTHER

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Fig. 2.

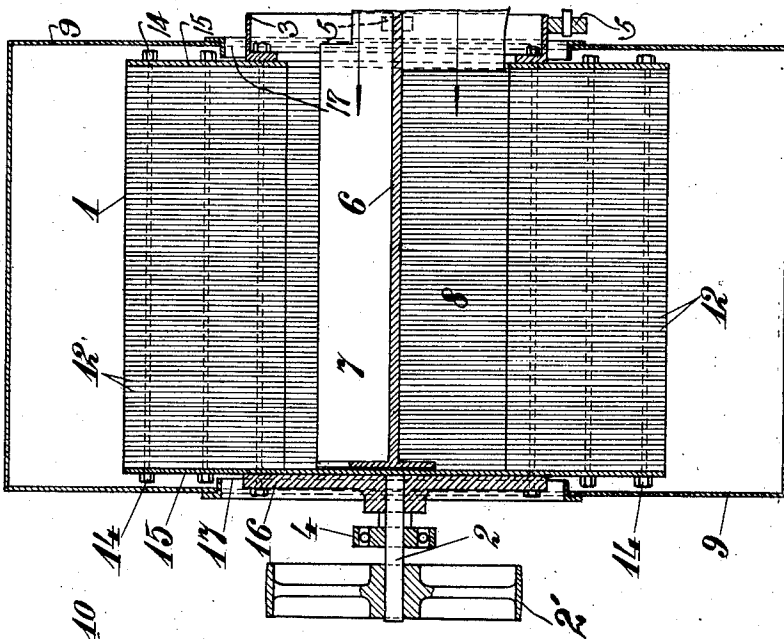
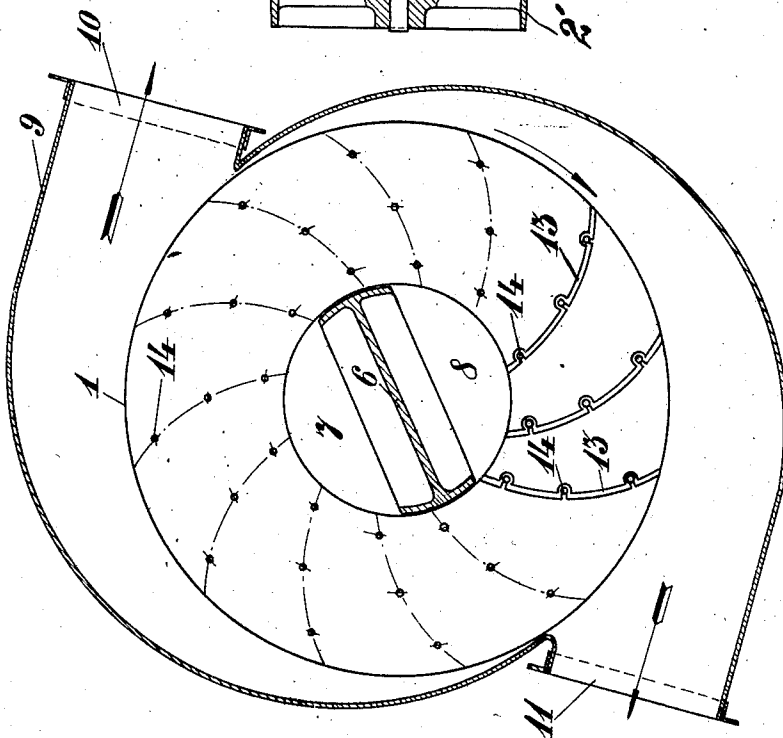


Fig. 1.



Inventor:
Erik Sigfrid Lynger
By *[Signature]*
Attorney.

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UNITED STATES PATENT OFFICE.

ERIK SIGFRID LYNGER, OF LILJEBOLMEN, SWEDEN.

APPARATUS FOR TRANSMISSION OF HEAT FROM ONE MEDIUM TO ANOTHER.

Application filed June 12, 1924, Serial No. 719,643.

To all whom it may concern:

Be it known that I, ERIK SIGFRID LYNGER, a subject of the King of Sweden, residing at Liljeholmsvagen 4, Liljeholmen, Sweden, have invented certain new and useful Improvements in Apparatus for Transmission of Heat from One Medium to Another, of which the following is a specification.

This invention relates to an apparatus for transmission of heat from one medium to another. For such transmission of heat, for instance from hot flue gases to air, it is known to arrange rotary discs or drums in such a manner that one portion of the drum or disc is in the air conduit and another in the gas conduit. During the rotation, heat is absorbed by the drum or the like from the gas conduit, and such heat is delivered to the air when the hot parts of said drum or the like rotate through the air conduit.

This known arrangement, however, offers a very great resistance to the passage of the media through the conduits, which necessitates the use of blowers or the like for forcing the media through said conduits, thus increasing the cost of installation and of operation and causing the apparatus to become more complicated and to occupy more space.

The primary object of the present invention is to eliminate these drawbacks by providing an apparatus for the heat transfer referred to above, which apparatus consists of a centrifugal blower or pump, by means of which the two media are transmitted at the same time. During the rotation, the vane wheel absorbs heat from one of the media and delivers the same to the other.

One embodiment of the invention is represented by way of example in the accompanying drawing, wherein—

Fig. 1 shows a longitudinal section and Fig. 2 a cross sectional view of the apparatus.

The vane wheel 1 of the centrifugal blower is supported at one side by a shaft 2 in a bearing 4 and at the opposite side by an annular roller race 3 running on rollers 5. The vane wheel is driven in any suitable manner, for instance by means of a pulley 2' fixed on the shaft 2. The inlet of the vane wheel 1 is divided into two or more compartments by means of one or more partition walls arranged in the plane of the axis of the wheel or in parallel planes, so that the wheel revolves about the said walls.

In the form shown, said inlet is divided into two compartments 7 and 8 by means of a fixed wall 6.

The clearance between the wall 6 and the vane wheel should be as small as possible, but in all events sufficient to permit free rotation of the vane wheel without coming in contact with the wall 6. The blower casing 9 is provided with two outlets 10 and 11 through which the media are delivered.

The vane wheel 1 consists of a plurality of annular plates or sheets 12 of suitable material, between which distance pieces or spacers 13 are provided. The spacers 13 have a curvature corresponding to the curvature of the vanes in a centrifugal blower, as shown in the drawing. They may, as shown, consist of iron or steel wires of any suitable cross section, said wires being bent into the desired shape and provided with loops or eyes for the connecting bolts 14, or they may have any other suitable construction. The side plates 15 of the vane wheel should be thicker than the discs 12. A cover plate 16 is provided on the opposite side of the wheel from the annular roller race 3.

In order to restrict the play between the vane wheel and the casing, flanges 17 are provided on the latter.

A larger space may be given to that portion of the blower through which the hot gases pass, by placing the partition 6 at a certain radial distance from the axis of the wheel.

If the pipes or conduits offer too great a resistance to the passage of the media, auxiliary blowers may be used in case of need.

On account of the centrifugal power produced during the rotation of the wheel, soot and other impurities are effectively prevented from sticking to the plates 12 and spacers 13 and thus the apparatus is self-cleansing to a certain degree.

In apparatus of smaller size the wheel may be mounted overhung without using any roller race or rollers.

I claim:

1. Apparatus for transmission of heat from one medium to another, comprising a centrifugal blower including a vane wheel, the inlet of which is divided into different compartments for the different media by means of a wall adapted to conduct the media to different portions of the inner cir-

cumference of the blower in such a way that a medium drawn in by the vane wheel is delivered into an outlet belonging to said medium.

- 5 2. Apparatus for transmission of heat from one medium to another, comprising a centrifugal blower including a vane wheel, means for separately conducting the different media to the blower, and means for delivering said media from the same, said vane
10 wheel consisting of a plurality of annular discs with interposed spacers having the bent form of blower vanes.

3. Apparatus for transmission of heat from one medium to another, comprising a centrifugal blower including a vane wheel, means for separately conducting the different media to the blower, means for delivering said media from the same, and a roller-supported annular race carrying the vane
20 wheel at one side thereof, said annular race having a diameter larger than the inlet of the blower.

In testimony whereof, I have signed my name to this specification.

ERIK SIGFRID LYNGER.