

E. PIELOCK & C. ZÜBLIN.
HEAT EXCHANGING DEVICE.
APPLICATION FILED FEB. 27, 1911.

1,015,831.

Patented Jan. 30, 1912.

Fig. 1.

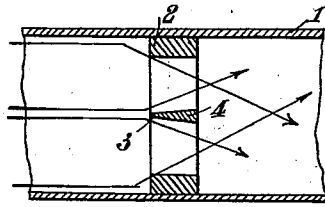


Fig. 2.

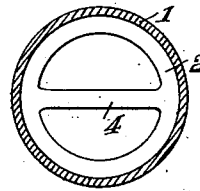


Fig. 3.

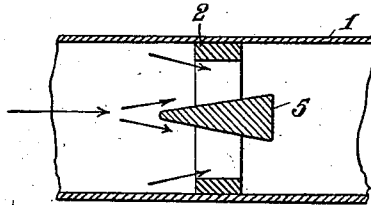


Fig. 4.

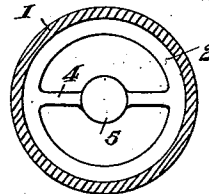


Fig. 5.

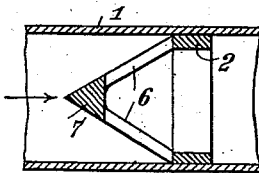
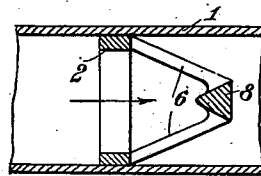


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

EDUARD PIELOCK AND CARL ZÜBLIN, OF BERLIN, GERMANY.

HEAT-EXCHANGING DEVICE.

1,015,831.

Specification of Letters Patent.

Patented Jan. 30, 1912.

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To all whom it may concern:

Be it known that we, EDUARD PIELOCK and CARL ZÜBLIN, subjects of the German Emperor, and residents the former at Berlin, W. 30, Landshuterstrasse 14, and the latter at Halensee, Joachim Friederichstrasse No. 7, Berlin, Germany, have invented certain new and useful Improvements in Heat-Exchange Devices.

Our present invention relates to devices used in connection with conveying pipes for liquids, gases, etc., and more particularly to a device which will disturb the regular flow of the matter conveyed in such a manner that the central flow of matter is diffused with the peripheral flow with the attained result,—that the properties given out or taken in by the liquid, gas or the like are equally distributed.

In conveying materials, as for instance a liquid, through pipes, and especially those having a comparatively smooth interior, it is found that the resistance of the pipe interior is not sufficient to mix the liquid and that the peripheral flow will give up, or receive, heat while the center flow will, except to a slight extent, be little affected.

The objects of our invention are therefore, to provide a device which may be readily inserted in a pipe, that will deflect the center and peripheral flow of the material therein, to accomplish this deflection with the least possible resistance to the flow, and without materially reducing the capacity of the pipe line.

We attain these objects by the construction and arrangement of parts shown in the accompanying drawing, in which,—

Figure 1 is a central longitudinal section through a pipe and current diffusing device embodying my invention. Fig. 2 is a transverse section through a pipe, the current diffusing device being shown in elevation. Fig. 3 is a central longitudinal section through a pipe showing a modification of my invention. Fig. 4 is a transverse section through a pipe showing this modification in elevation. Figs. 5 and 6 are central longitudinal sections of pipes showing further modifications of my invention.

Throughout the several views, similar reference characters refer to similar parts.

With reference to Figs. 1 and 2, reference character 1 designates a pipe for conveying liquids or gases and contains therein a current diffusing device comprising an annular ring 2 having an external diameter substantially that of the internal diameter of the pipe, and a diametrically disposed web 4 having deflecting faces diverging in the direction of the current flow.

In the drawings, the arrows indicate the effect of the diffusing device upon the central and peripheral flow of the liquid or gas from which it will be seen that the currents are thoroughly mixed giving out or taking in properties of a uniform degree of temperature.

With reference to Figs. 3 and 4 a pipe 1, is here shown ring 2 and diametrical web 4, the latter being provided with a conical member 5 disposed concentrically with its axis coinciding with the axis of the pipe and its apex foremost in the direction of the flow of liquid.

In the modification shown in Fig. 5, the ring 2 is provided with a plurality of webs converging at a point 7 foremost in the direction of flow of the liquid, and as shown in Fig. 6 the webs may diverge from a conical member 8 securing the latter to the ring 2, the conical member 8 being arranged concentrically with respect to the pipe 1 and with its apex foremost in the direction of liquid flow.

From the foregoing description it will be seen that by placing the current diffusing devices at intervals throughout a pipe line, the current will be disturbed in such a manner that the deflecting faces of the device will dislocate the center and peripheral flow of the liquid allowing it to give out or take in a uniform degree of heat or cold.

We claim:—

The combination with a fluid conveying pipe of substantially uniform diameter, of diffusing means therefor including a transversely disposed annular wall disposed with its periphery in engagement with the interior of the wall of said conveying pipe, to deflect the peripheral flowing fluid toward the center of said conveying pipe, a member having faces diverging in the di-

rection of current flow and disposed cross-
wise with respect to said annular wall,
whereby the centrally flowing fluid is de-
flected toward the periphery of said con-
veying pipe and encountering said centrally
5 deflected fluid to thoroughly diffuse the
fluid in said conveying pipe.

In testimony whereof we have hereunto
set our hands in presence of two witnesses.

EDUARD PIELOCK.

CARL ZÜBLIN.

Witnesses:

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