

UNITED STATES PATENT OFFICE.

MAURICE LEBLANC, OF PARIS, FRANCE, ASSIGNOR TO STE. ANONYME POUR L'EXPLOITATION DE PROCÉDÉS WESTINGHOUSE LEBLANC, OF PARIS, FRANCE.

EXHAUST ARRANGEMENT FOR STEAM EJECTORS.

Application filed October 27, 1916. Serial No. 128,012.

To all whom it may concern:

Be it known that I, MAURICE LEBLANC, a citizen of France, residing at Paris, France, have invented certain new and useful Improvements in Exhaust Arrangements for Steam Ejectors, of which the following is a specification.

When steam ejectors are employed to extract and compress gases, it is, in most cases, desirable to condense the residual steam which issues from the ejector. If, for example, in a steam engine installation having a condenser for condensing the steam from the engine, an ejector is employed as a vacuum pump for extracting the air and non-condensable gases from the condenser, it is advantageous to cause the ejector to exhaust into the feed water tank for the boilers. Where the condenser is a "surface condenser," the ejector is arranged to exhaust into the discharge pipe for the condensate. The steam from the ejector is thereby condensed, the water and the heat from the condensation of the exhaust steam from the ejector being, at the same time, recovered.

The steam at the exit of the ejector always possesses a certain residual velocity; when the ejector discharges directly into water, shocks are caused which give rise to disagreeable noises, and which occasionally interfere with the regularity of action of the apparatus, especially in the case of an ejector having a high ratio of compression of the type described in United States Patent No. 1,175,461, dated March 14, 1916. This disadvantage is avoided by the employment of the means, embodiments of which are shown in the accompanying drawings, wherein Figure 1 is a view in section of the combination constituting the invention. Figure 2 is a sectional view of another form of condenser connected with the exhaust from the ejector. In Figure 1, A designates an ejector of any suitable kind having an inlet a^1 for steam, and inlet a^2 connected with a condenser or other receptacle from which gas or the like is to be removed and a^3 is an outlet connected with a device or condenser B by means of which the residual steam from the ejector is introduced into a body or tank of water, and condensed therein in a relatively constant

manner, whereby fluctuations in the state of vacuum in the outlet a^3 and ejector A are suppressed or practically minimized.

The device B may be in the form of a shell (Fig. 1), pierced with holes d parallel to the axis of the said shell. In this manner, the velocity of the steam is substantially uniform at all points of the device B, the paths of the exhaust jets are free, a very energetic circulation of the water is established at the exhaust point of the steam in the water, and, at the same time, the steam does not produce any sensible noises or shocks in the condensation tank, and the vacuum has perfect stability, however high it may be.

Finally, as shown in Fig. 2, the ejector A may be arranged to discharge into a feed tank s enclosing a water jet condenser B^4 of the Körting type serving as the escapement of the ejector. This apparatus consists, as is known, of radially converging passages u , in the portion v' of a tube v , surrounded by a steam jacket v^2 the two ends of which tube v are submerged in the water of condensation. The steam from the ejector A enters the condenser B^4 through the inlet r in the jacket v^2 , and through the passages u into the tube v , there mixing with the water in contact with which it is condensed, giving up its vis viva to the water, and communicating thereto, in consequence, a movement which insures the circulation of the water in the direction of the arrow w through the tube v .

In this manner, shocks and noises are avoided, and, at the same time, a certain vacuum is produced at the discharge of the ejector. The ratio of compression is thus reduced, and consequently the consumption of steam, the regularity of action of the ejector being, at the same time, increased.

I claim—

1. Apparatus for stabilizing an ejector having a high ratio of compression and acting as the air pump of a condenser, this apparatus comprising a perforated member adapted to engage the end of the discharge tube of the ejector, a reservoir into which said discharge tube extends, said perforated member being situated coaxially with said tube and the perforations in said member being so disposed that the jets of vapor es-

caping through these perforations have substantially the same direction.

2. An apparatus as described, comprising a condenser, a steam ejector for the discharge of the air, a feed water tank and an ogival perforated member disposed at the end of the discharge passage of the said ejector and immersed in the tank, the said ogival member having formed therein a plurality of apertures parallel to the axis there-

of, whereby a suitable circulation of the water in the said tank is obtained.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

MAURICE LEBLANC.

Witnesses:

CHAS. P. PRESSLY,
EMILE BERTRAND.