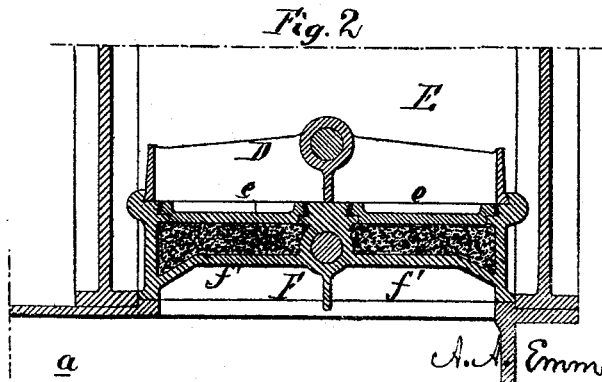
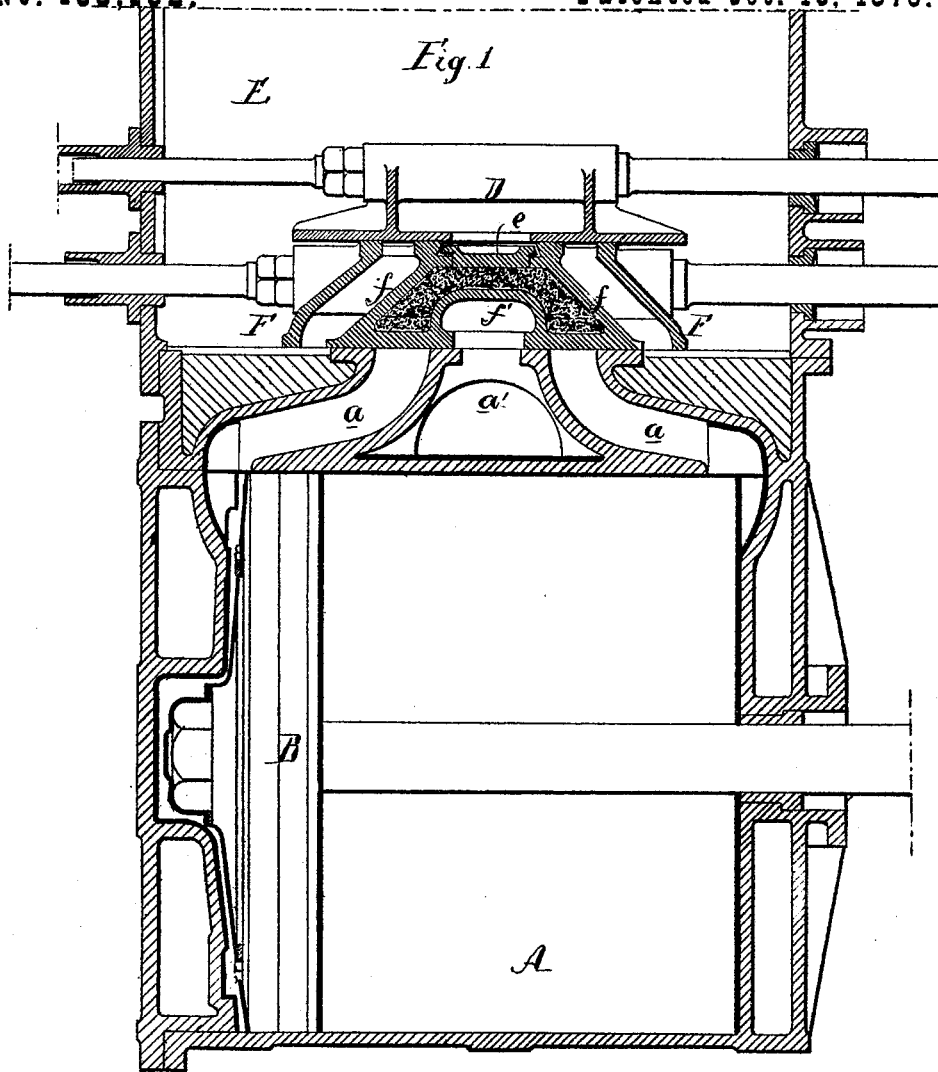


A. A. E. LISSIGNOL.  
STEAM-ENGINES.

No. 183,182.

Patented Oct. 10, 1876.



Witnesses,  
J. G. Skidmore  
Henry Bowson Jr

And Emmanuel Lissignol  
by his attorneys  
Howson and Son

# UNITED STATES PATENT OFFICE.

A. A. EMMANUEL LISSIGNOL, OF BRUSSELS, BELGIUM, ASSIGNOR TO HENRY G. HAUTERMANN, PRESIDENT OF THE SOCIÉTÉ ANONYME LE PROGRÈS, OF SAME PLACE.

## IMPROVEMENT IN STEAM-ENGINES.

Specification forming part of Letters Patent No. 183,182, dated October 10, 1876; application filed April 3, 1876.

*To all whom it may concern:*

Be it known that I, A. A. EMMANUEL LISSIGNOL, of Brussels, Belgium, have invented certain Improvements in Preventing Condensation in Steam-Engines, of which the following is a specification.

The object of my invention is to prevent the condensation of steam in steam-engines due to the different degrees of temperature of the steam contained in adjoining chambers or conduits of the engine; and this object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a longitudinal section of the cylinder and steam-chest of a steam-engine with my improvements, and Fig. 2 a transverse section of the slide-valve.

A is the cylinder of the steam-engine, *a a* being the steam-ports, and *a'* the exhaust-port. These parts, with the piston B, steam-chest E, and cut-off-valve D, are of the usual construction. The slide-valve F, however, which

constitutes the main part of my improvement, I construct in the following manner: The exhaust steam passing to the exhaust-port, being of a lower temperature than the fresh steam on the other side of the slide-valve of the steam-engine as ordinarily constructed, tends to lower the temperature of this fresh steam, and consequently produce condensation. In order to prevent this, I make the slide-valve double, and the space between its walls *f f'* I fill with charcoal or other non-conducting material, which is inserted through openings closed by the covers *e e*, the edges of the latter being sealed by plastic material.

I claim as my invention—

The within-described slide-valve, consisting of the walls *f f'* and detachable covers *e e*, the whole being arranged for the reception of a non-conducting substance, as set forth.

A. A. EML. LISSIGNOL.

Witnesses:

P. VANOFBERG,  
A. VANDERSTEER.