H. GUELS.

DEVICE FOR PREVENTING THE NOISE OF ESCAPING STEAM.

No. 195,003. Patented Sept. 11, 1877.

Fig. 1.

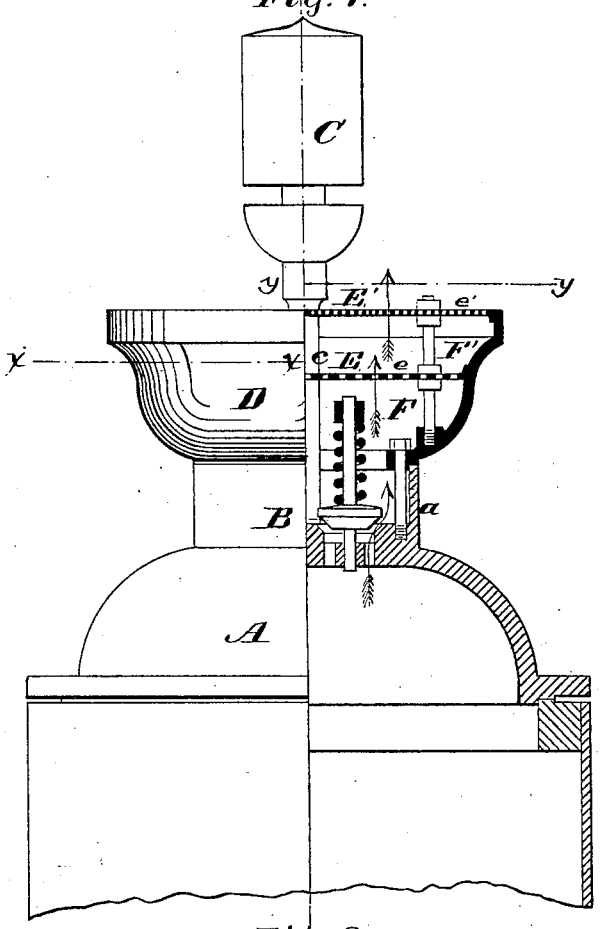
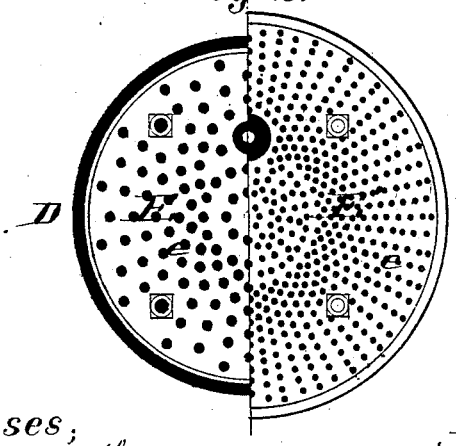


Fig. 2.



Witnesses;
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UNITED STATES PATENT OFFICE.

HERMAN GUELS, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF HIS RIGHT TO WILLIAM E. POLLOCK, OF SAME PLACE.

IMPROVEMENT IN DEVICES FOR PREVENTING THE NOISE OF ESCAPING STEAM.

Specification forming part of Letters Patent No. **195,003**, dated September 11, 1877; application filed June 27, 1877.

To all whom it may concern:

Be it known that I, HERMAN GUELS, of St. Louis, Missouri, have invented a new and useful Device for Preventing the Noise of Steam Escaping from Safety and other Steam Valves, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification.

Figure 1 is an elevation, partly in section, of the dome of a locomotive having the invention attached, and Fig. 2 a horizontal section, taken on the lines *x x y y* of Fig. 1.

Similar letters refer to similar parts.

Steam escaping from confinement—as past the safety-valve of a boiler—makes a sharp hissing that is disagreeable to the ear, and frequently the occasion of trouble. This is especially noticeable in a locomotive, where a high steam-pressure is maintained, and at a railway-station, where the steam, accumulating rapidly during the stoppage, suddenly lifts the valve, alarming the bystanders, and frightening the horses that are apt to be present at such places.

To obviate this difficulty is mainly the aim of this invention.

The improvement is also valuable as a means for preventing an improper interference with the safety-valve of a steam-generator.

In the annexed drawing, A represents the dome of a locomotive, having the usual safety-valve B and whistle C.

An extension, D, preferably of the bowl shape shown, is attached to the top of the dome, its lower edge resting upon the rim *a* that surrounds the safety-valve, and its upper edge extending above the valve.

E E′ represent a series of two, three, or more perforated plates, arranged one above another across the bowl, above the valve B. The perforations *e e′*, respectively, are preferably very fine, and extend throughout the plates, as shown, and the aggregated areas of the perforations in any one plate must be equal or thereabout to that of the safety-valve opening. A further important feature of the perforations is, that in each successive plate they, preferably, are made finer and finer.

In this manner, a series of chambers are formed without the safety-valve, through which the escaping steam-current must pass, and, in passing, is divided into smaller currents in consequence of the perforations.

I have found, in practice, that a single plate does not accomplish my design, but when two or more plates are used the first set of currents, or those formed by the first plate, are caused to interfere to such an extent before and in passing the second plate, that the sound is largely prevented, and when a third plate is used the sound is hardly noticeable.

The desired result is better attained by reducing the size and increasing the number of the perforations in the second plate, and so on in the third plate; but, whatever number of plates are used, the outer plate must be entirely open to the atmosphere, and nothing must be placed between the plates, or between the inner plate and the valve, that has a tendency to cramp the action of the valve by interposing a barrier between it and the atmosphere.

While shown in connection with the safety-valve of a locomotive, the improvement for the purpose described is valuable in many other positions where it is desired to prevent the noise incident to the passage or escape of steam.

The improvement is further useful as a convenient means for preventing the improper interference of an engineer with the safety-valve of a boiler. Frequently an engineer, to temporarily increase the power of the locomotive, is apt to weight the safety-valve above the pressure that he is authorized to carry. I utilize the diaphragms E E′ as a means for preventing this.

The whistle-stem *c*, that passes down through the diaphragms into the dome beneath, is, just above the diaphragm E′, made so that the latter cannot be displaced without first detaching the whistle-stem from the dome; but, as the removal of the whistle-stem would liberate all the steam from the locomotive-boiler, and as the safety-valve cannot be reached without first removing the diaphragm, the valve is safe from interference as long as steam is up in the locomotive.

I claim—

1. The series of plates E E′, perforated as described, and arranged above the valve B, as and for the purpose set forth.

2. In a device for preventing the noise of escaping steam, a series of plates, E E′, perforated as described, the outer plates having finer and more perforations than the inner plates, substantially as described.

3. In a device for preventing the noise of escaping steam, one or more plates, E E′, perforated as described, the outer plate being directly exposed to the atmosphere, and having no barrier between the plates or between the inner plate and the valve, substantially as described.

4. The combination of the dome A, valve B, whistle-stem *c*, bowl D, and diaphragm E′, substantially as described.

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