(No Model.)

E. S. HAYDEN.

SIPHON.

No. 459,838. Patented Sept. 22, 1891.

Fig. 1

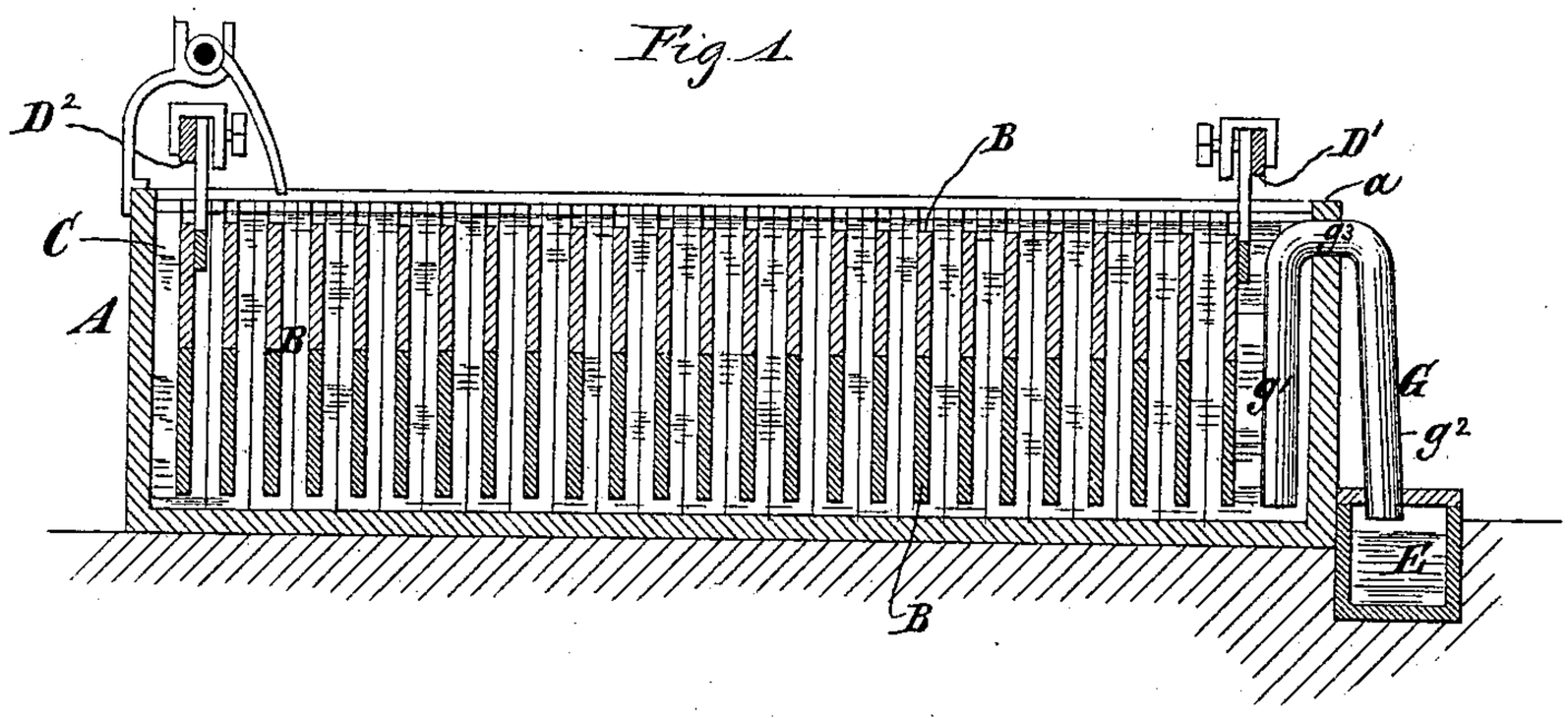

Fig. 2.

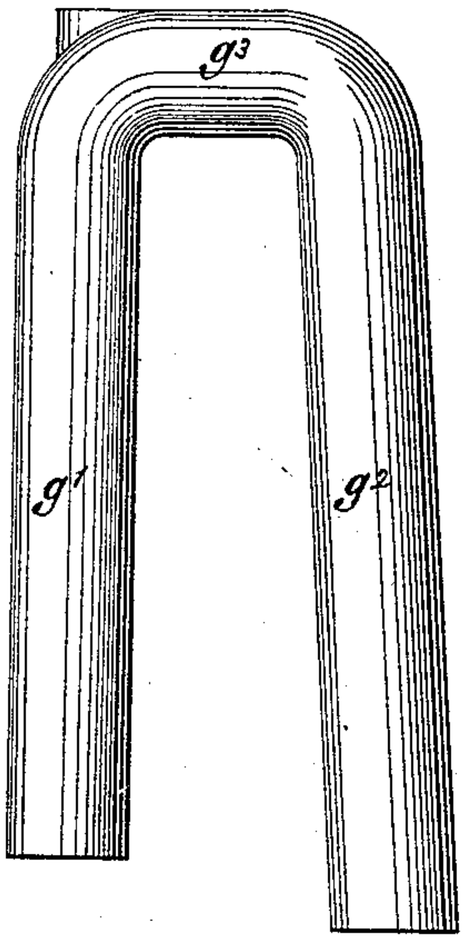

Fig. 3

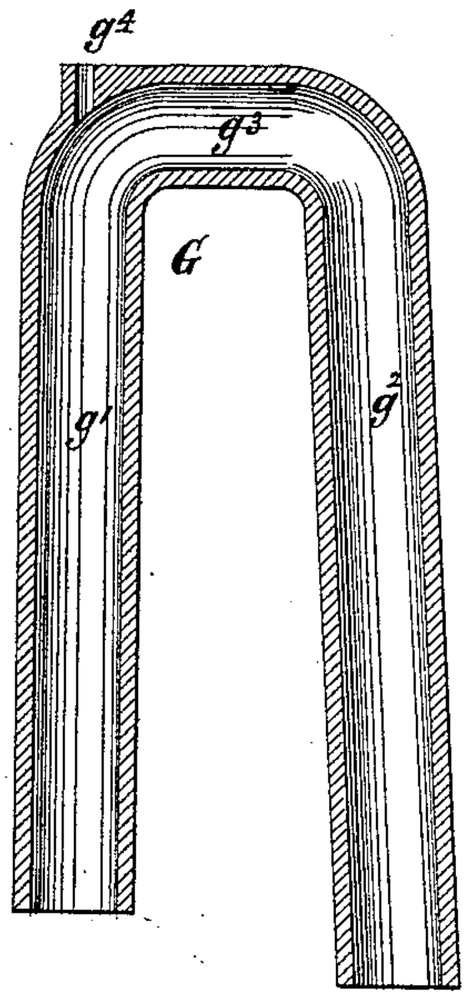

Fig. 4

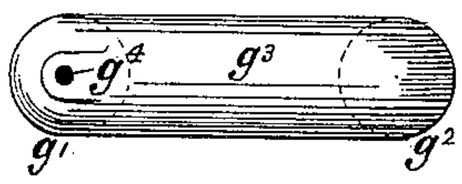

Fig. 5

WITNESSES:

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HIS ATTORNEYS.

UNITED STATES PATENT OFFICE.

EDWARD S. HAYDEN, OF WATERBURY, CONNECTICUT.

SIPHON.

SPECIFICATION forming part of Letters Patent No. 459,838, dated September 22, 1891.

Application filed October 14, 1889. Serial No. 326,949. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. HAYDEN, of Waterbury, in the county of New Haven and State of Connecticut, have invented a certain new and useful Improvement in Siphons Combined with a Bath, of which the following is a specification.

I will describe a siphon and bath embodying my improvement, and then point out the novel features in a claim.

In the accompanying drawings I have illustrated my combined siphon and bath for treating metals.

Figure 1 is a central longitudinal section of a bath containing a number of plates of metal and having combined with it a siphon embodying my improvement. Fig. 2 is a side view of the siphon. Fig. 3 is a central vertical section of the siphon. Fig. 4 is a top view of the siphon. Fig. 5 is a bottom view of the siphon.

Similar letters of reference designate corresponding parts in all the figures.

A designates the bath, and B designates a series of plates of metal arranged therein.

C designates a solution in the bath, and D′ D^2 designate wires forming part of an electric circuit used with the bath.

The construction of the parts and the composition of the solution referred to may be of any suitable kind. Below the bath is a trough E, into which solution removed from the bath may be discharged.

G designates a siphon for removing some of the solution from the bath whenever it may be necessary to do this. As here shown, the siphon is of round cross-section and consists of two vertical arms or limbs g' g^2 and an intermediate horizontal portion g^3. The limb g^2 is longer than the limb g'. The shorter limb g' extends into the bath and, as here shown, nearly to the bottom thereof. The horizontal portion g^3 extends across one of the end portions of the bath, and the longer limb g^2 extends downwardly outside the bath to the trough E. As here shown, the horizontal portion g^3 of the siphon does not extend over the top of the wall of the bath, which it crosses, but passes through an opening in the same. This opening may be closed at the top by a removable cap *a*. Preferably each siphon will be cemented in tight to prevent leakage.

The siphon, it will be seen, is provided with a hole g^4 in the upper part of that portion of the siphon which is within the bath. As here shown, the hole is located in the horizontal portion g^3 of the siphon, just over the shorter limb g'. This hole renders the operation of the siphon automatic, for whenever the solution rises within the bath sufficiently to cover the hole g^4 of the siphon the siphon will become operative as a siphon and will thereafter continue to siphon out the solution from the lower part of the bath until the top of the solution is lowered below the hole g^4. After this the solution may still flow through the siphon so long as its level remains above the lower part of the interior surface of the horizontal portion of the siphon, but during this time the operation of the siphon will be merely that of an overflow-pipe. When the solution is lowered below the level of the lower part of the interior surface of the horizontal portion of the siphon, the discharge of the solution through the siphon ceases and will not recur until the solution shall have again risen sufficiently to cover the hole g^4 of the siphon.

This siphon may be made of any suitable material, preferably of gutta-percha or india-rubber.

The siphon described is particularly advantageous in connection with a bath such as I have described, although it may be applied to other baths or receptacles for liquid.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with a bath for a solution, of a siphon having one arm extended within the bath, the other extended outside the same, a horizontal portion extended below the top of the bath through a wall thereof near its top and connecting the two arms, and the said horizontal portion having an opening within the bath above the lower part of the interior surface of the horizontal portion, so that the siphon will act as an overflow when the level of the solution is between the said lower interior surface and the opening, substantially as specified.

EDWARD S. HAYDEN.

Witnesses:

FARNHAM C. FOX,

GEORGE S. HAWLEY.