(No Model.) 2 Sheets—Sheet 1.

E. H. HILL.

APPARATUS FOR GALVANIZING WIRE.

No. 255,785. Patented Apr. 4, 1882.

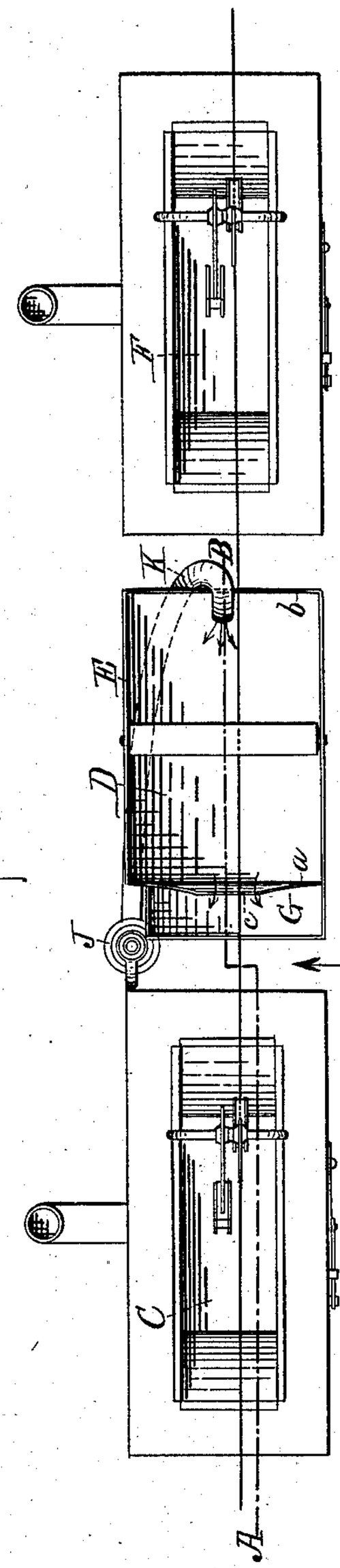

Fig. 1.

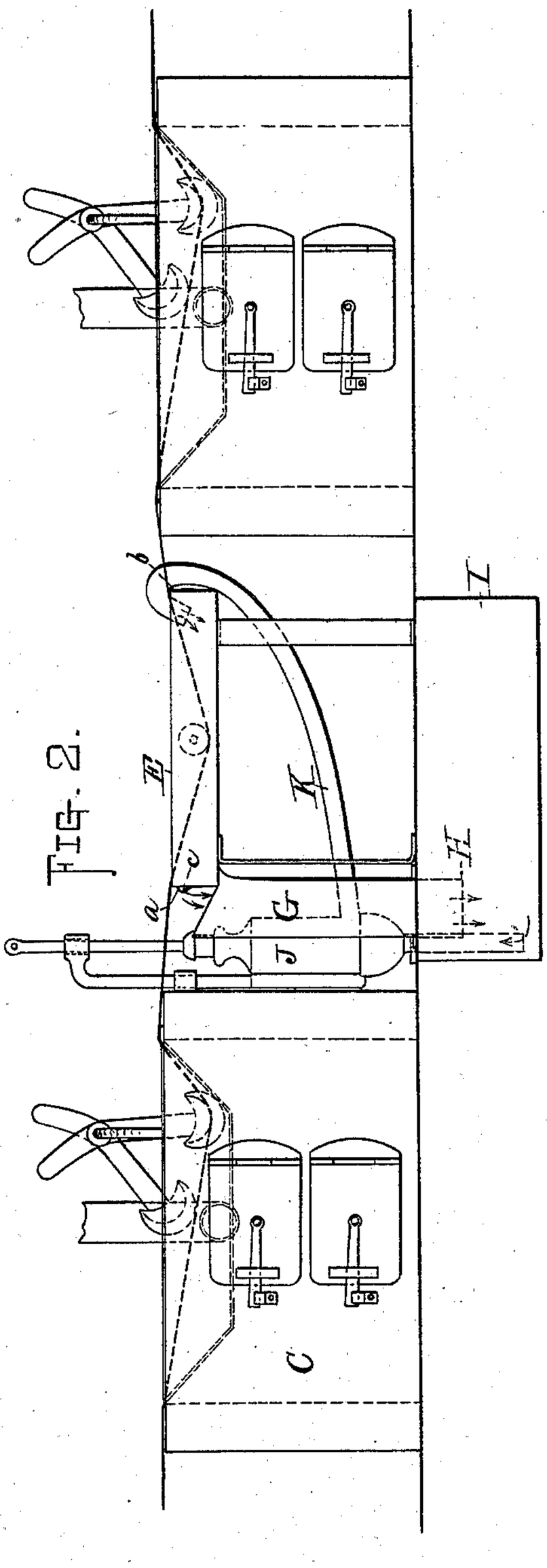

Fig. 2.

Witnesses,
Thos. B. Dodge
Edwin E. Moore

Inventor,
Edwin H. Hill

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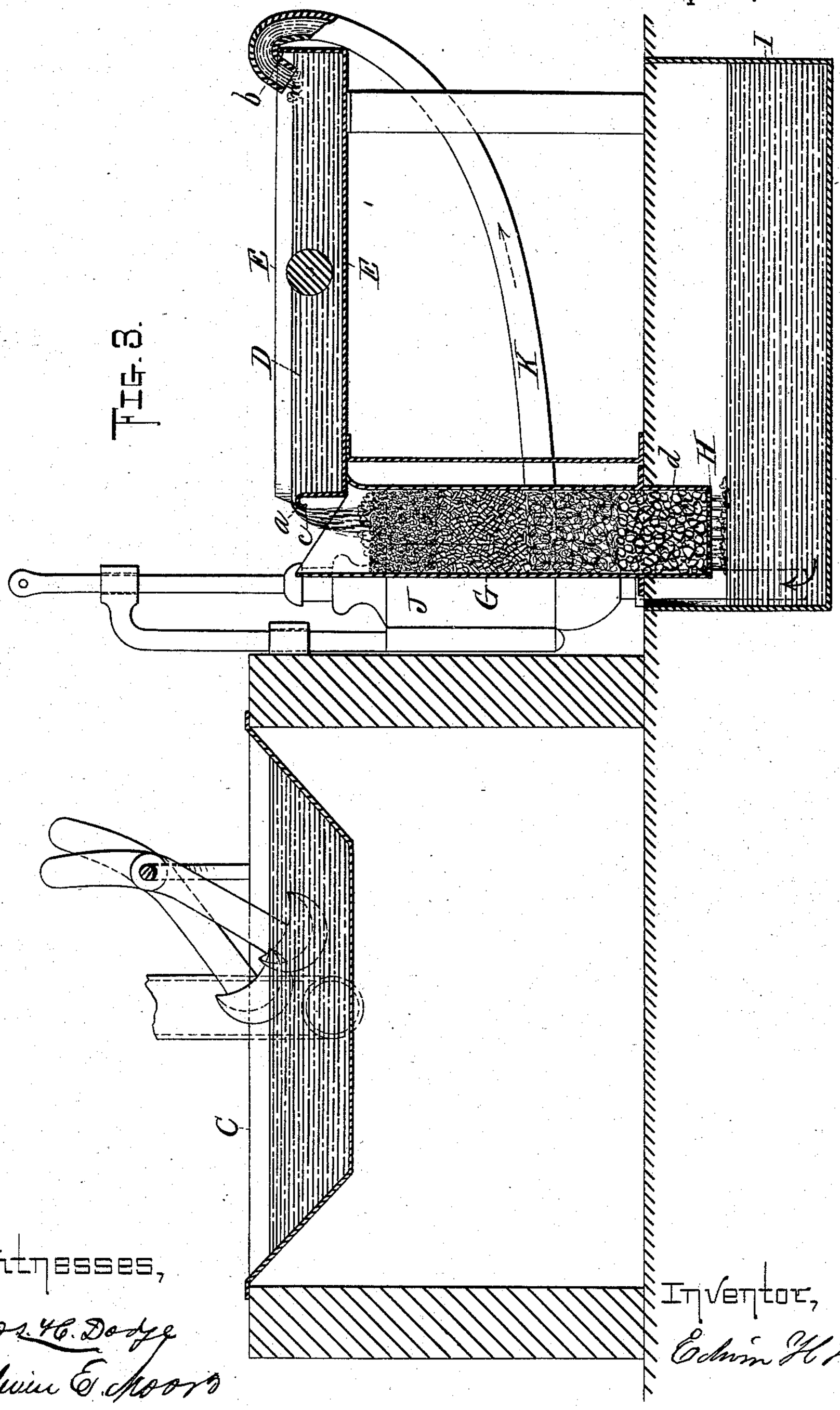
FIG. 3.



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Edwin H. Hill

UNITED STATES PATENT OFFICE.

EDWIN H. HILL, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE WASHBURN & MOEN MANUFACTURING COMPANY, OF SAME PLACE.

APPARATUS FOR GALVANIZING WIRE.

SPECIFICATION forming part of Letters Patent No. 255,785, dated April 4, 1882.

Application filed April 1, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDWIN H. HILL, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Apparatus for Galvanizing Wire; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a top or plan view of a galvanizing apparatus with my improvements applied thereto. Fig. 2 represents a side view of the parts shown in Fig. 1, looking in the direction of the arrow, same figure; and Fig. 3 represents, upon an enlarged scale, a longitudinal vertical section through a portion of the apparatus on line A B, Fig. 1.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

The nature of my invention consists in the combination, with the acid bath of a galvanizing apparatus, of a filtering-chamber, acid-reservoir, pump, and return-pipe, as will be hereinafter more fully described.

In the drawings, the part marked C represents the lead bath and its furnace for annealing the wire; the part marked D the acid-bath, through which the wire passes after leaving the lead annealing-bath C, and by means of which its surface is scaled and cleaned; and the part marked F is the zinc bath and its furnace, and all these parts thus mentioned may be made in the usual manner, excepting in the particulars now to be described, and which relate specially to the acid bath.

As the process of galvanizing wire was carried on before my said invention, the acid bath soon became thick and dirty with the scales, dirt, and other impurities removed from the wire, and had to be drawn off and be passed through a filter containing charcoal and pebbles; but said filter being separate from the apparatus, the efforts to use the impure acid as long as possible often led to the production of more or less imperfect wire, and it was a study with me for some fifteen years as to how the difficulty could be obviated, and which study at last led to my present invention.

The acid-reservoir E is made with the top of one end, *a*, lower than the other, *b*, and from such lower end the acid can flow over a lip, *c*, into a filtering-chamber, G, which may be filled as follows: small pebbles *d* first; then asbestus or asbestus and coarse gravel; then sal-ammoniac; then at top fine charcoal or sand. It may be filled, however, with any proper and good filtering material or materials, and through this the acid passes and is filtered and cleaned from its impurities, after which it runs through the perforated bottom H into the bottom reservoir, I, from which it is pumped back into the acid bath D, in this instance by means of pump J, which forces it through pipe K into the acid bath at the end *b*, as indicated in Fig. 3. By this mode of operation the acid is kept constantly in motion, passing through the circuit above described, whereby it is purified, and at the same time is kept in a comparatively cool state, both of which results tend greatly to the perfection of the operation, while at the same time the former great expense for acid is obviated and saved.

Those skilled in the art understand that the cooler the wire when it passes from the acid bath to the zinc bath the more perfect will be the zinc coating.

The filtering-chamber G is so made that it can be easily lifted out of its base-support and emptied and refilled as occasion requires.

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

1. In a galvanizing apparatus, the combination of a zinc bath, F, an acid bath, D, having an opening, *a*, at one end thereof, and the cooling-reservoir I, with the filtering-chamber G, containing filtering material, substantially as described, pump J, and pipe K to return the acid in the opposite end of the acid-tank from which it escapes, substantially as and for the purpose described.

2. The combination of the acid bath D, having an overflow-opening, *a*, at one end and a return-pipe, K, with its opening at the opposite end, with filtering-chamber G, cooling-reservoir I, and the pump J, connected with the reservoir I and pipe K, substantially as and for the purposes described.

EDWIN H. HILL.

Witnesses:
THOS. H. DODGE,
EDWIN E. MOORE.