

E. WAGNER.
COMBINED SETTLER AND FILTER.
APPLICATION FILED AUG. 12, 1911.

1,041,533.

Patented Oct. 15, 1912.

Fig. 1.

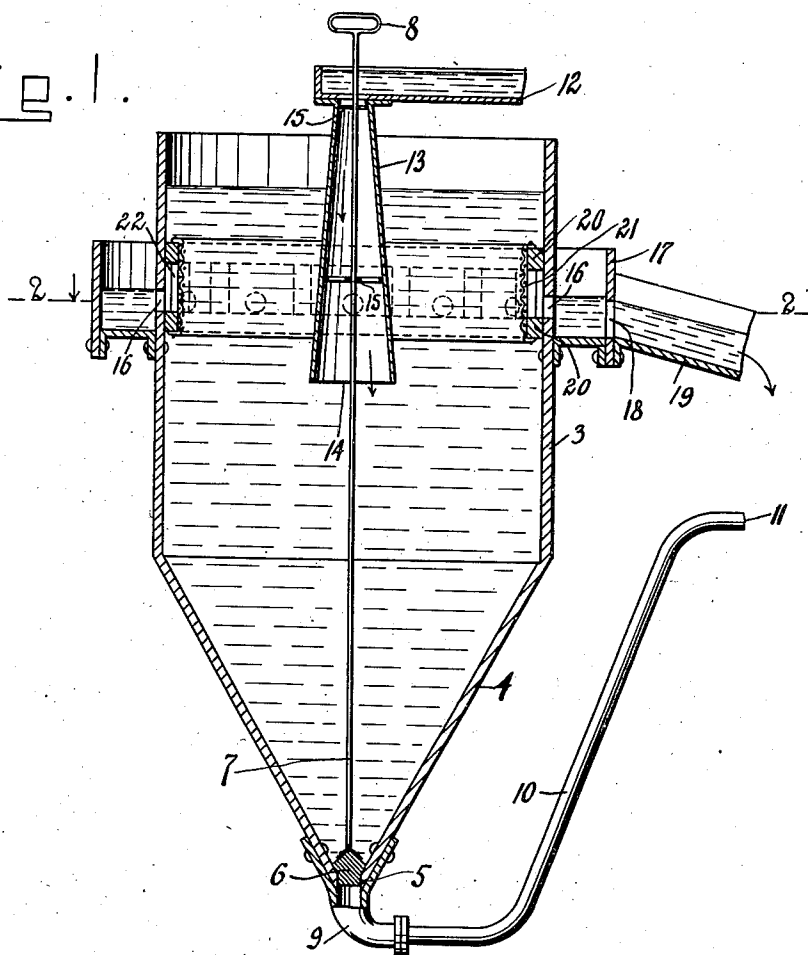
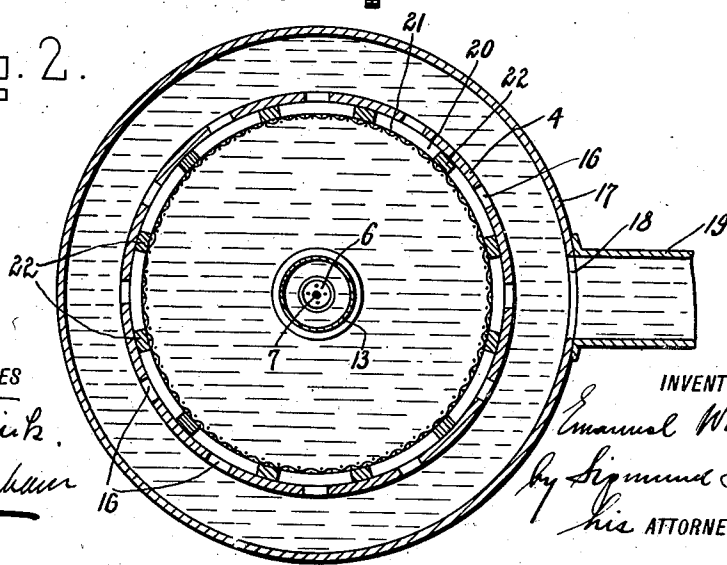


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

EMANUEL WAGNER, OF NEW YORK, N. Y.

COMBINED SETTLER AND FILTER.

1,041,533.

Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed August 12, 1911. Serial No. 643,740.

To all whom it may concern:

Be it known that I, EMANUEL WAGNER, a subject of the King of Hungary, and resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Combined Settlers and Filters, of which the following is a specification.

The present invention relates to improvements in metallurgical apparatus.

One of the objects of the invention is to provide a combined settler and filtering tank for separating metallic precipitates from solutions obtained by the cyanid, hyposulfid or other processes. Primarily the invention has for its objects to produce an apparatus of this type which is simple and inexpensive in construction, efficient in operation, and wherein the settling and filtering operations may be carried on simultaneously, continuously and automatically.

Another object of the invention is to provide an apparatus of this character which is economical in that it avoids all losses, and which obviates the necessity of filtering presses used heretofore for similar purposes, or reduces, at least, considerably the size of such presses.

A further object of the invention is to construct a simple apparatus for the purpose specified which does not require power machinery for its operation.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and minor details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical longitudinal section of the apparatus; and Fig. 2 is a section taken on line 2—2 of Fig. 1.

In the drawings, the numeral 3 indicates a receptacle or tank of, preferably, cylindrical shape with a conical bottom 4, which tank may be mounted upon a supporting frame, not shown in the drawings. The

tank may be made of iron, wood or other suitable material, according to the requirements. The outlet of the conical bottom is designated by the numeral 5, and forms a seat for a valve 6, which is attached to a valve stem 7, extending, preferably, centrally upward above the tank, where it is provided with an operating handle 8. The outlet 5 of the tank communicates through a junction member 9 with a, preferably, flexible pipe 10, the discharge end 11 of which may be raised or lowered to suit the requirements.

The solution carrying the precipitates is introduced by a trough or pipe 12 into a funnel shaped member 13, which widens toward its lower end 14. This funnel shaped member is located, preferably, centrally in the tank 3, and is provided with spiders 15, serving as guiding means for the valve stem 7.

The tank has a plurality of outlets 16, a substantial distance below its upper edge, and communicates through the same with a launder 17, encircling the tank. The launder has a discharge opening 18, leading to trough or pipe 19, which conveys the liquid contents of the tank to a storage tank or other suitable receptacle. Above and below the outlets 16 are arranged rings 20, 20 upon the inner surface of the tank, and to these rings is fastened in any suitable manner a filtering medium, for instance a fine-meshed fabric 21, through which the precipitate bearing solution is caused to pass in its flow toward the launder 17. In order to properly support the fabric, a plurality of slats 22, 22 are located between the rings 20, their inner faces being arranged flush with the inner free surfaces of the rings.

The operation of the device is as follows: Let us suppose that the tank is empty and its outlet 5 closed by the valve 6. When the solution, carrying the precipitates, is admitted, the heavy particles will settle to the bottom of the tank, and the liquid, when reaching the level of the filtering medium, will pass through the latter into the launder 17, to be led into a storage tank, or wherever it may be desired. After a certain time the solution in the tank will rise to such a high level that the outflow thereof will be equal to the quantity flowing into the tank, and this level will remain constant, if the quantity of solution flowing into the tank during a given time interval remains constant.

It is, of course, understood that the sum of the areas of the minute openings of the filtering medium, and so also of the outlets 16, must be at least equal to the cross-section 5 of the inlet pipe, which conveys the solution to the tank. The floating precipitates will collect on the filtering medium, as the liquid passes through the same, and are removed from time to time by hand or by mechanical 10 cleaning means. This operation will, at the same time, prevent the clogging of the filtering material, which would otherwise result in a rising of the level of the solution in the tank.

15 The precipitates, collecting in the cone-shaped portion of the tank, may be either drawn off continuously, if sufficient material collects, or they may be removed from time to time by unseating the valve 6.

20 The apparatus is especially useful in connection with precipitating apparatus which deliver a continuous flow of precipitates. It may be used, however, in other cases whenever the material to be collected is of 25 greater specific gravity than the carrying solution, and the floating particles form only a small part of the bulk.

What I claim is:—

30 1. In an apparatus of the character described, the combination with a tank having a plurality of discharge openings arranged all over the surface of said tank in a zone

included between two parallel horizontal planes below its top, a conduit for supplying a precipitate carrying solution thereto, 35 and a filtering medium covering said discharge openings.

2. In an apparatus of the character described, the combination with a tank having a plurality of discharge openings arranged 40 all over the surface of said tank in a zone included between two parallel horizontal planes below its top, a launder encircling said tank communicating through said openings with said tank, a conduit for supplying 45 a precipitate carrying solution to said tank, and a filtering medium covering said discharge openings.

3. In an apparatus of the character described, the combination with a tank having 50 a plurality of discharge openings in a zone included between two parallel horizontal planes below its top, of a conduit for supplying a precipitate carrying solution thereto, and a filtering medium covering said discharge openings. 55

Signed at New York, in the county of New York and State of New York, this 11th day of August, A. D. 1911.

EMANUEL WAGNER.

Witnesses:

SIGMUND HERZOG,
Z. KLINK.