

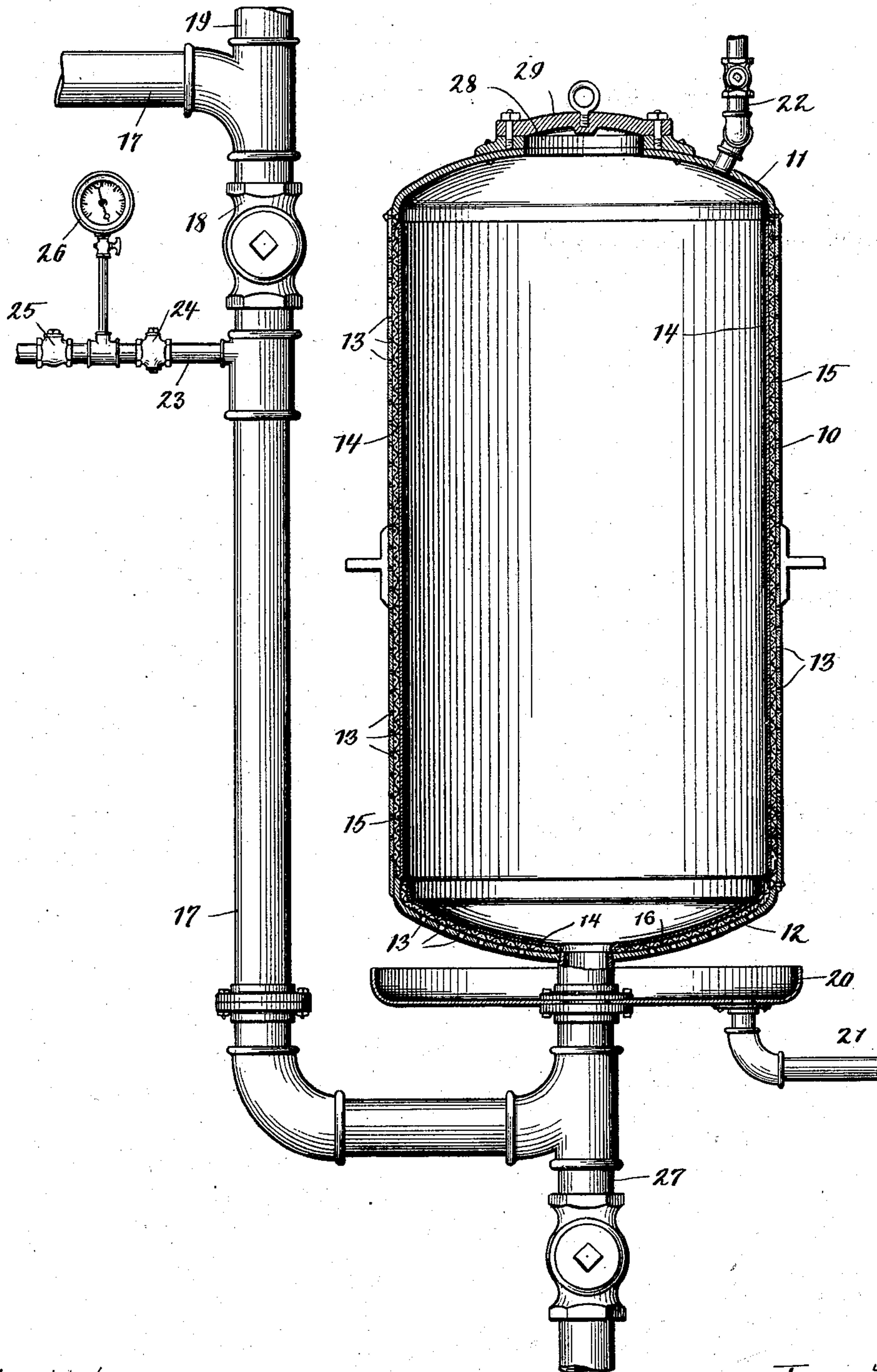
No. 702,064.

Patented June 10, 1902.

F. H. LONG.
METALLURGICAL FILTER.

(Application filed June 24, 1901. Renewed Feb. 27, 1902.)

(No Model.)



Witnesses:
Fredrick
Torris H. Alford

Inventor:
Frederic H. Long.
By *Pierce & Fisher*
Attorneys.

UNITED STATES PATENT OFFICE.

FREDERIC H. LONG, OF CHICAGO, ILLINOIS.

METALLURGICAL FILTER.

SPECIFICATION forming part of Letters Patent No. 702,064, dated June 10, 1902.

Application filed June 24, 1901. Renewed February 27, 1902. Serial No. 95,945. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC H. LONG, a resident of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Metallurgical Filters, of which the following is a full, clear, and exact description.

In wet methods for extracting metals from their pulverized ores by aid of proper solvents the refuse gangue left at the close of the extraction stage necessarily retains a notable percentage of rich solution. Under careful washing and filtration of the gangue this associated solution is oftentimes recovered and utilized.

The present invention seeks to provide an apparatus primarily suited for rapid treatment of the refuse gangue, a charge thereof, together with the residual solution which accompanies it, being repeatedly washed under hydrostatic pressure to promote rapid filtration of the solution.

The accompanying drawing displays the preferred form of the invention in longitudinal vertical section.

The filter-tank consists of a cylindric shell 10, to which the top and bottom heads 11 12 are tightly riveted, the several parts being preferably of sheet metal to better withstand heavy pressure. The tank interior is coated over with asphalt or other suitable paint to prevent corrosion. The body 10 and bottom 12 of the tank have numerous small vents which are covered at the inside by a filter-septum 14, generally of canvas or cotton duck. The ends of the fabric overlap the edges of a wire-netting 15 16, which rests against the tank-walls and serves as a stretcher to trimly sustain the septum in place. The netting is of mesh small enough to prevent the fabric from working through or being torn at the vent-holes. Feed-pipe 17, having a control-valve 18 and a relief branch 19 for escape of confined gases, leads into the tank centrally at the bottom and conveniently sustains the drip-pan 20, with its exit-tube 21, said pan serving to catch the filtrate expelled through the holes of the main vessel. As the charge

to be filtered flows into the tank the top cock 22 stands open for release of air and separated gases, but, together with valve 18 in the feed-pipe, is quickly closed again when the tank becomes full. A supply of wash-water under heavy pressure—e. g., two hundred pounds—is now admitted by tube 23 into pipe 17. The water rises through the tank-bottom and because of its high head soon banks the gangue against the filter-septum for thorough scouring, the clear solution or filtrate being forced out at the vent-holes and thence into the drip-pan beneath. Water-pipe 23 is equipped with regulating-cock 24, check-valve 25, and pressure-gage 26 for better control. With the close of the treatment pipe 23 is shut off, while valved outlet 27 at bottom and cover 29 for manhole 28 at top of the tank are thrown open for rapid discharge of the refuse, a hose-stream introduced through the manhole soon clearing the filter from any adherent slimes.

The details of structure can be varied in keeping with the mechanic's skill without departing from the essentials of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In metallurgic filters, the combination with the closed perforated tank having an internal fabric septum with stretcher-frame therefor to rest against the tank-walls of the feed-pipe leading into the tank-bottom and the separate wash-water-pressure tube united to said feed-pipe between the inlet and outlet valves thereof, substantially as described.

2. In metallurgic filters, the combination with the closed, perforated tank having an internal fabric septum and external drip-pan, of the feed-pipe opening into the tank-bottom and the separate wash-water-pressure tube, substantially as described.

3. In metallurgic filters, the combination with the closed, perforated tank having an external drip-pan and an internal fabric septum with stretcher-frame therefor to rest against the tank-walls, of the feed-pipe leading into the tank-bottom and the separate

wash-water-pressure tube united to said feed-pipe between the inlet and outlet valves thereof, substantially as described.

5 4. In metallurgic filters, the combination with the closed perforated vertical tank having an internal fabric septum with stretcher-frame therefor to rest against the tank-walls of the feed-pipe discharging into said tank

and the wash-water-pressure tube leading into the tank-bottom, substantially as described. 10

FREDERIC H. LONG.

Witnesses:

ALBERTA ADAMICK,
HARRY L. CLAPP.