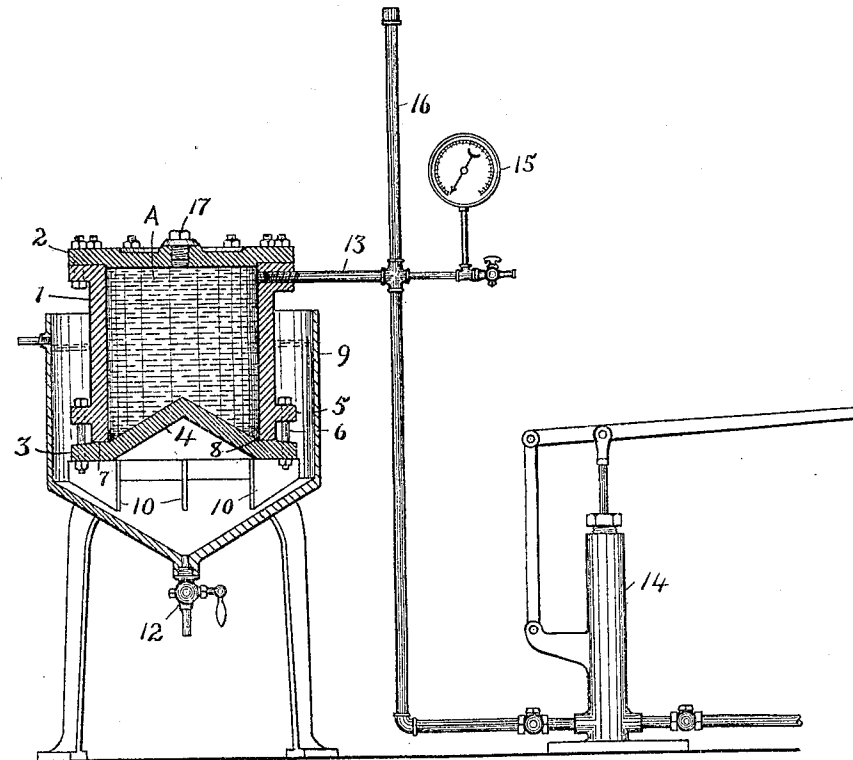


No. 807,620.

PATENTED DEC. 19, 1905.

H. J. HORSTMANN.  
MERCURY AND AMALGAM SEPARATOR.  
APPLICATION FILED SEPT. 23, 1903.



WITNESSES:

*Wm. H. Burmann*

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# UNITED STATES PATENT OFFICE.

HENRY J. HORSTMANN, OF FORT WAYNE, INDIANA.

## MERCURY AND AMALGAM SEPARATOR.

No. 807,620.

Specification of Letters Patent.

Patented Dec. 19, 1905.

Application filed September 23, 1903. Serial No. 174,272.

*To all whom it may concern:*

Be it known that I, HENRY J. HORSTMANN, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Mercury and Amalgam Separators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in mercury and amalgam separators; and the object thereof is to provide means by which sufficient hydraulic pressure can be employed in connection with a separating vessel to effect separation of mercury from the amalgam contained in said vessel. This object is accomplished by the construction illustrated in the accompanying drawing, which shows this invention in vertical central section and with a pump connected therewith.

Referring now to the numerals and letters of reference, 1 is a hollow cylinder having heads 2 and 3 attached, respectively, to its ends to form an inclosed chamber A. The lower head 3 has a central cone 4, which extends into the cylinder 1 and cones downward from its apex to a marginal line adjacent the inner lower edge of the cylinder. An annular flange 5 projects from the cylinder in a plane slightly above the lower end thereof and is suited to engage the bolts 6, which connect said flange and the head 3 to secure the latter in place. The joint 7 between the end of the cylinder and the head 3 is closely fitted, so as to prevent the passage through the joint of any material contained in the cylinder other than mercury.

9 is a receptacle suitable for containing water and having radial wings 10 arranged in its bottom to afford supports for the cylinder 1 and its attachments. The bottom of the receptacle 9 cones downward, and a tap 12 is arranged at its apex, through which the contents of the receptacle is adapted to be drawn off.

A pipe 13 leads from a pump 14 into the chamber A, and the said pump is of the known type suited to generate hydraulic pressure. A pressure-gage 15 and an air-chamber 16

have connections with the pipe 13 and serve, respectively, the usual purposes in hydraulic-pressure generators.

In using this invention the chamber A is filled with water, and a quantity of mercury (which contains amalgam) is also placed therein. This for convenience may be fed into the chamber by removing the plug 17 from the head 2, which will afford an opening suitable for the purpose. The mercury, with its contained amalgam, because of its greater specific gravity will form in a circular body at the base of the cone 4, adjacent the joint 7. The receptacle 9 is then filled with water to a level above the joint 7. The chamber A is then closed tightly, and then sufficient additional water is driven into the chamber by means of the pump 14, which will generate such pressure within the chamber as to drive the mercury through the joint 7 into the receptacle 9. As before mentioned, said joint is closely fitted so as to prevent the passage through it of any material other than mercury, and therefore the amalgam is retained within the chamber, while the mercury is freed from it, as the mercury passes through said joint into the chamber 9. The mercury thus separated is received in the water which is placed in the receptacle 9 to prevent it from becoming sprayed into the air, and thereby lost. The amalgam is removed from the chamber by disconnecting the head 2 from the cylinder and scraping the collected amalgam from the bottom of the chamber, and the mercury is drawn off from the receptacle through the tap 12.

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

1. In a device of the class described, a receptacle adapted to contain water; a cylinder having heads attached to its ends forming an inclosed chamber, and having also a closely-fitted joint at its bottom affording a passage-way for mercury from said chamber into said receptacle, the said joint ranging beneath the level of water in said receptacle; and means to produce hydraulic pressure within said chamber to thereby drive mercury from within said chamber through said joint.

2. In a device of the class described, a stationary receptacle; a stationary inclosed chamber mounted in said receptacle, and having a closely-fitted joint at its bottom afford-

ing a passage-way for mercury therefrom, the  
said joint ranging beneath the level of water  
in said receptacle; and means having a connec-  
tion with said chamber for producing hydrau-  
lic pressure therein to drive mercury from  
5 within said chamber through said joint.  
3. In a device of the class described, a cyl-  
inder having heads at its ends forming an in-  
closed chamber, the lowermost of said heads  
10 being fitted closely with the cylinder and thus  
providing a passage-way, through the joint  
thus formed, for mercury; a cone extending  
centrally within the bottom of the chamber  
and ranging upward from the marginal line  
15 adjacent said joint; and means to produce hy-  
draulic pressure within said chamber to there-

by drive mercury therefrom through said  
joint.

4. In a device of the class described, a re-  
ceptacle adapted to contain water; and an in-  
closed chamber adapted to contain water un-  
der pressure, arranged in said receptacle, and  
having a closely-fitted joint at its lower part  
for the purpose specified, the said joint being  
located below the level of water in said recep-  
2 tacle.

In testimony whereof I affix my signature in  
presence of two witnesses:

HENRY J. HORSTMANN.

Witnesses:

WM. H. BRUSMANN,  
WM. E. NINCLE.