

No. 813,367.

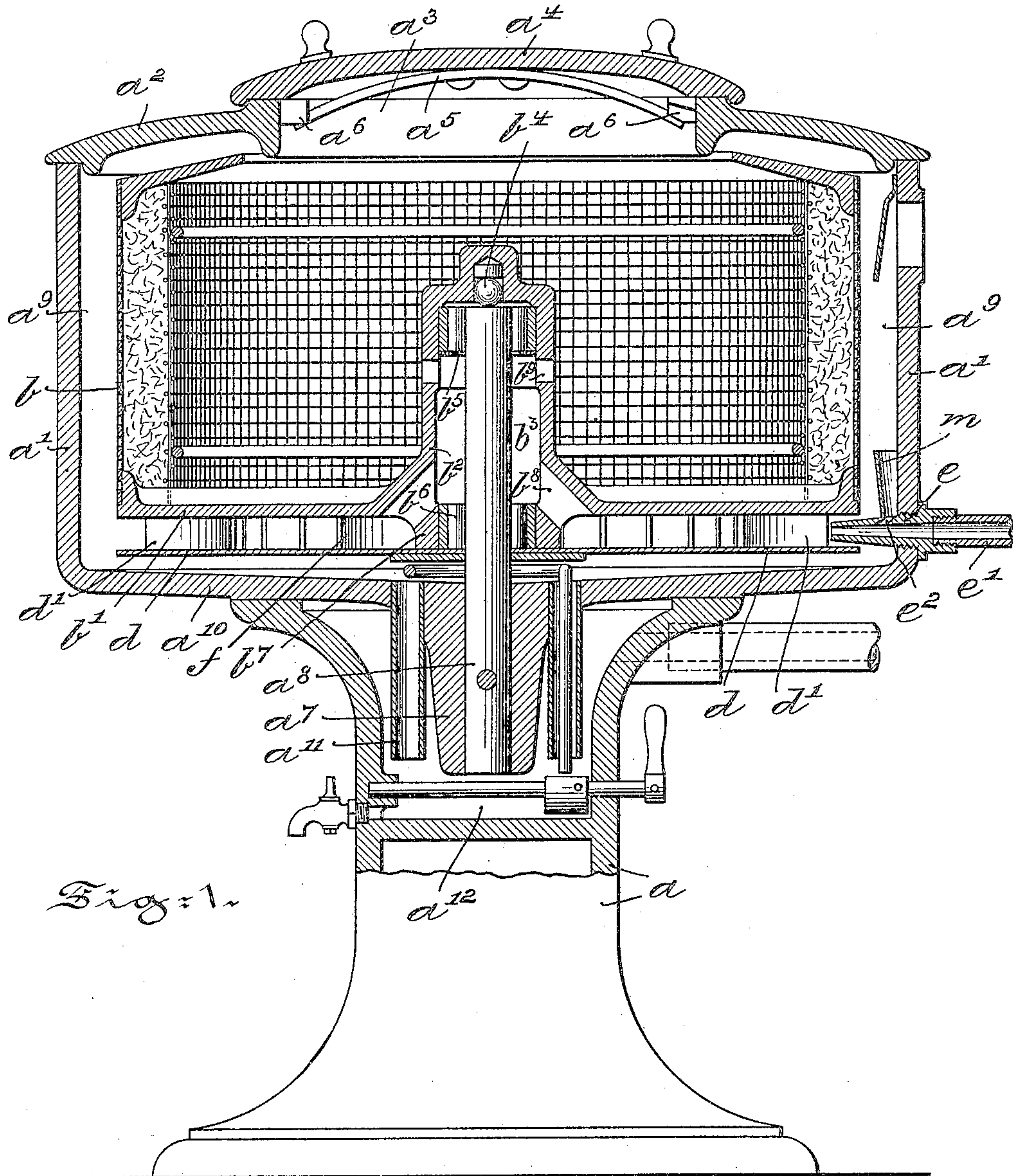
PATENTED FEB. 20, 1906.

E. H. DUTCHER.

LUBRICATING DEVICE FOR CENTRIFUGAL OIL EXTRACTING MACHINES.

APPLICATION FILED OCT. 7, 1905.

2 SHEETS—SHEET 1.



Witnesses:  
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Thomas M. Smith.

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Fig. 2.

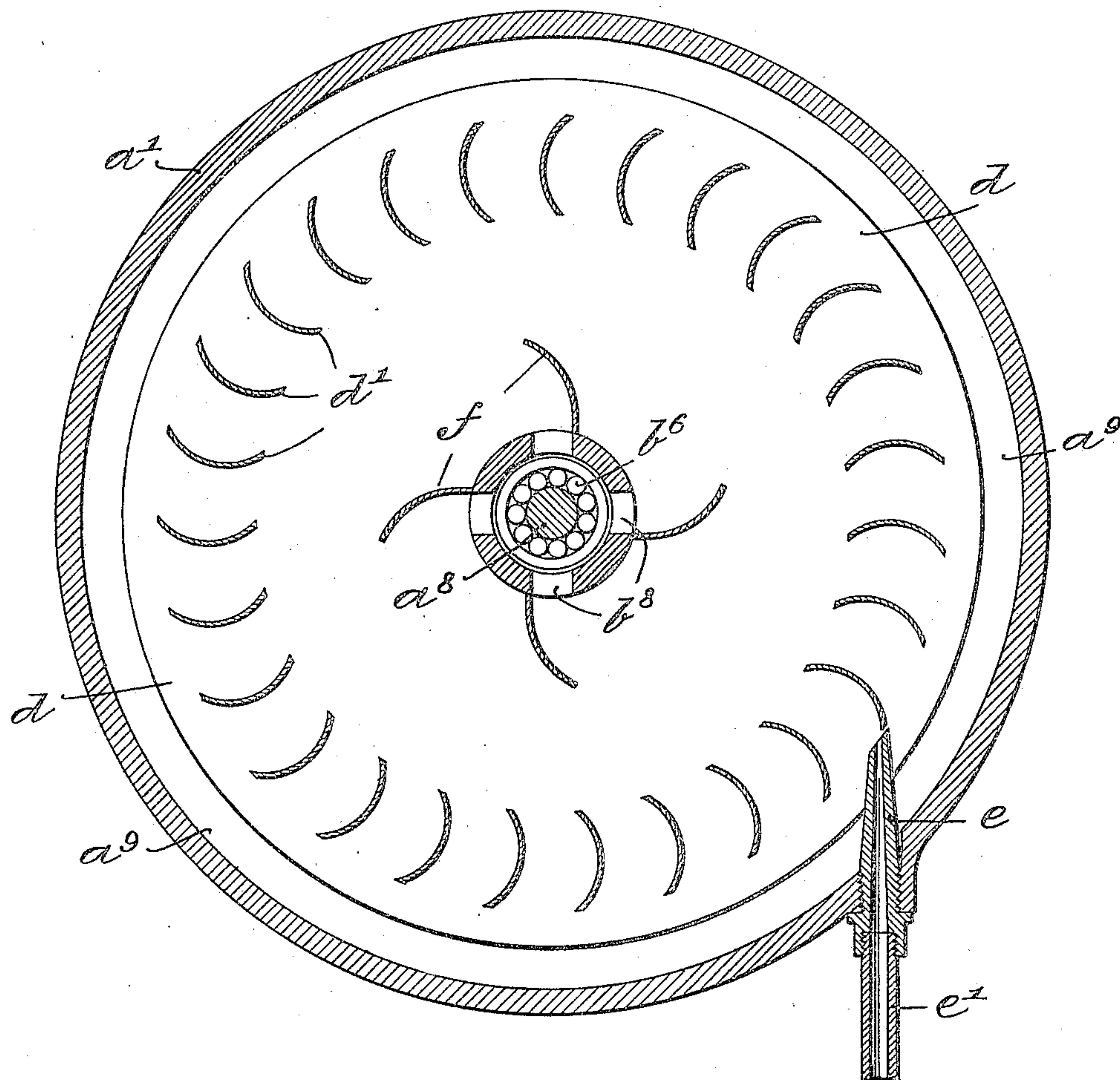
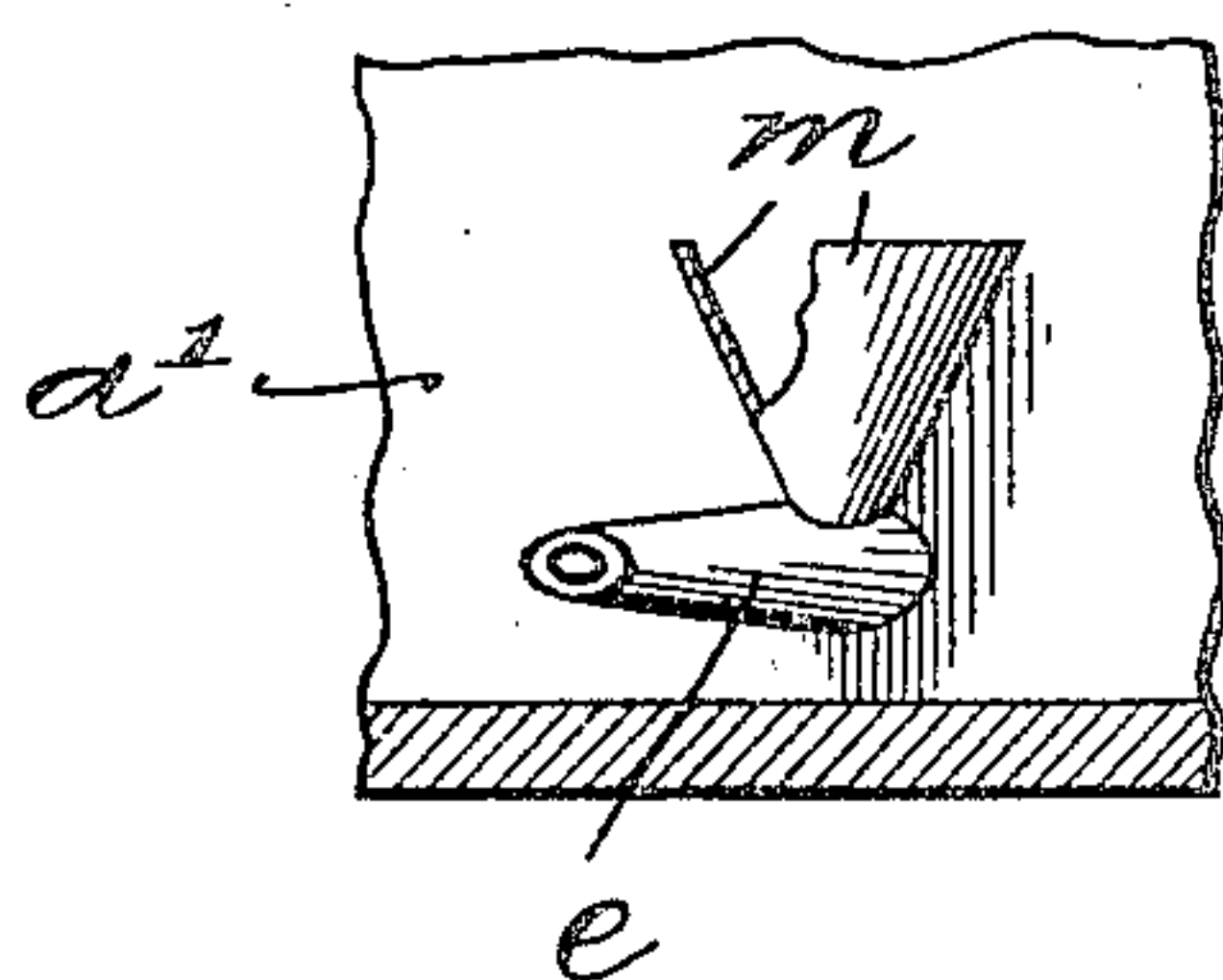


Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## LUBRICATING DEVICE FOR CENTRIFUGAL OIL-EXTRACTING MACHINES.

No. 813,367.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Original application filed July 3, 1905, Serial No. 268,105. Divided and this application filed October 7, 1905. Serial No. 281,740.

*To all whom it may concern:*

Be it known that I, EDWARD H. DUTCHER, a citizen of the United States, residing at Siegfried, in the county of Lehigh and State of Pennsylvania, have invented certain new and useful Improvements in Lubricating Devices for Centrifugal Oil Extracting and Filtering Machines, of which the following is a specification.

My invention has relation to a lubricating device for a centrifugal oil extracting and filtering machine, and in such connection it relates more particularly to the construction and arrangement of such a device, and being a division of an application for a patent filed by me under date of July 3, 1905, under the Serial No. 268,105.

The principal object of my invention is to provide a centrifugal oil extracting and filtering machine with means for collecting and introducing a portion of the oil extracted from waste material and filtered by the machine into a steam-nozzle, the steam passing therethrough, in conjunction with a turbine-wheel actuating the machine, and also utilizing the steam to conduct oil to bearings and other parts of the machine to lubricate the same.

The nature and scope of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a view, partly in front elevation and partly in vertical central section, illustrating the basket for the oily material and the means for introducing oil into a nozzle, to utilize the steam actuating the receptacle to conduct oil to the bearings and other parts of the machine constituting main features of my said invention. Fig. 2 is a horizontal sectional view of the upper portion of the housing of the machine of Fig. 1, and a basket for oily material arranged therein and also illustrating in section the steam-nozzle arranged in the housing, a turbine-wheel and means for conducting the oil-saturated steam into an internal extension of said housing supporting the bearings; and Fig. 3 is a detail view illustrating, partly in section and partly in elevation, a receptacle connected with the steam-

nozzle to collect and conduct oil into the same and the steam passing therethrough.

Referring to the drawings, *a* is the standard of the machine, to the upper end of which is suitably secured a housing *a'*, annular in cross-section, having a covering *a<sup>2</sup>*, provided with an opening *a<sup>3</sup>*. This opening is normally closed by a lid *a<sup>4</sup>*, which, by means of a leaf-spring *a<sup>5</sup>*, secured to the under side of the lid *a<sup>4</sup>*, is removably connected with the housing *a'* by engaging projections *a<sup>6</sup>* of the cover *a<sup>2</sup>*, as shown in Fig. 1. The housing *a'* is provided with a centrally-arranged projection *a<sup>7</sup>*, extending into the standard *a*, which serves as a support for a shaft *a<sup>8</sup>*. The shaft *a<sup>8</sup>* within the housing *a'* serves as a support for a basket *b*, adapted to receive material more or less saturated with oil, which is to be extracted therefrom. The basket *b* preferably consists of an annular disk or bottom plate *b'*, having a central upwardly-projecting portion *b<sup>2</sup>*, forming a chamber *b<sup>3</sup>* and a support for a ball-bearing *b<sup>4</sup>*, centrally engaging the upper surface of the shaft *a<sup>8</sup>* and a roller-bearing *b<sup>5</sup>*, surrounding the shaft adjacent to the ball-bearing *b<sup>4</sup>*. These bearings *b<sup>4</sup>* and *b<sup>5</sup>*, in conjunction with a roller-bearing *b<sup>6</sup>*, arranged in an extension *b<sup>7</sup>* of the projection *b<sup>2</sup>*, serve to support the plate *b'* on the shaft *a<sup>8</sup>* and permit of an easy turning of the same thereon. As shown in Figs. 1 and 2, below the bottom plate *b'* and secured to the extension *b<sup>7</sup>* of the projection *b<sup>2</sup>* is arranged an annular disk *d*, which is provided adjacent to its outer periphery with curved blades *d'*, radially arranged with respect to the shaft *a<sup>8</sup>*. This disk *d* in conjunction with a nozzle *e*, arranged tangentially with respect to the blades *d'* in the wall of the housing *a'*, forms a turbine, and the motive power is furnished by steam introduced into the nozzle *e* by means of a pipe *e'* from any suitable generator. (Not shown.) The jet of steam issuing from the nozzle *e'* and impinging against the blades *d'* sets the disks *d* and the basket *b* in rapid rotation, and by the same and the centrifugal force all the oil in the material placed in the basket *b*, as well as the impurities and other extraneous matter in the same, is liberated therefrom by readily passing through the side walls thereof. Owing to the centrif-



ugal force, this oil is forced through the chamber  $a^9$ , formed between the basket  $b$  and the housing  $a'$ , and against the inner wall thereof and by flowing downward thereon is finally conducted by the inclined bottom  $a^{10}$  of the housing  $a'$  and tubes  $a^{11}$ , arranged therein, into a settling-chamber  $a^{12}$ , formed in the standard  $a$ . In order to conduct the steam into the basket  $b$  and to bring the same in contact with the bearings  $b^4$ ,  $b^5$ , and  $b^6$ , the extension  $b^7$  is provided with curved blades  $f$ , forming an exhaust-fan, which during the rotation of the basket  $b$  conducts the steam leaving the turbine-blades  $d'$  through openings  $b^8$ , arranged in the plate  $b'$ , into the chamber  $b^4$  of the projection  $b^2$  and from the same by means of openings  $b^9$  into the interior of the basket  $b$ .

The nozzle  $e$  is provided with an opening  $e^2$  into which by means of a receptacle  $m$ , preferably formed integral with the housing  $a'$ , a certain portion of the extracted and filtered oil descending on the inner wall of the housing  $a'$  is collected by flowing into the receptacle  $m$ . This oil by passing through the opening  $e^2$  is conducted into the steam passing through the nozzle  $e$ , which vaporizes and is carried in this state into the chamber  $b^3$  of the basket  $b$  and to the ball and roller bearings  $b^4$ ,  $b^5$ , and  $b^6$  arranged therein. Thus the bearings are continuously lubricated during rotation of the basket  $b$ , and all moving parts are coated with oil, which renders the same rust-proof.

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

1. In a lubricating device for oil extracting and filtering machines, a housing having a basket for oil-containing material adapted to extract oil and force the same against said housing, a shaft terminating in said basket, bearings interposed between said shaft and basket and adapted in conjunction with said shaft, to support said basket, means adapted to conduct steam into the housing to rotate said basket and means adapted to collect a

portion of the extracted oil and conduct the same into the steam-inlet means to utilize the steam in conducting oil to said bearings. 50

2. In a lubricating device for oil extracting and filtering machines, a housing having a basket for oil-containing material provided with an extension, said basket adapted to extract oil and force the same against said housing, a disk having blades secured to said basket, a nozzle carried by said housing and adapted to introduce and direct against said blades a jet, as of steam, to rotate said basket to extract the oil therefrom, by centrifugal force, and to force the same against the interior wall of said housing, means connected with said nozzle and adapted to collect and conduct a portion of the oil in said nozzle into the steam passing therethrough so as to utilize the same in conducting the oil in the extension of said basket to lubricate the bearings therein. 55 60 65

3. In a lubricating device for oil extracting and filtering machines, a stationary housing having a shaft, a basket for oil-containing material having a central extension forming a chamber, bearings interposed between said shaft and extension and adapted to support said basket, a disk having blades secured to said basket, a nozzle carried by said housing and adapted to introduce and direct against said blades a jet, as of steam, to rotate said basket to extract oil therefrom, by centrifugal force, and conduct onto the interior wall of said housing, a receptacle connected with said nozzle and housing adapted to collect and conduct a portion of the oil to said nozzle into the steam passing therethrough to lubricate the bearings in the extension of said basket by conducting oil introduced into said nozzle to the same. 70 75 80 85

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

EDWARD H. DUTCHER.

Witnesses:

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R. L. COPE.