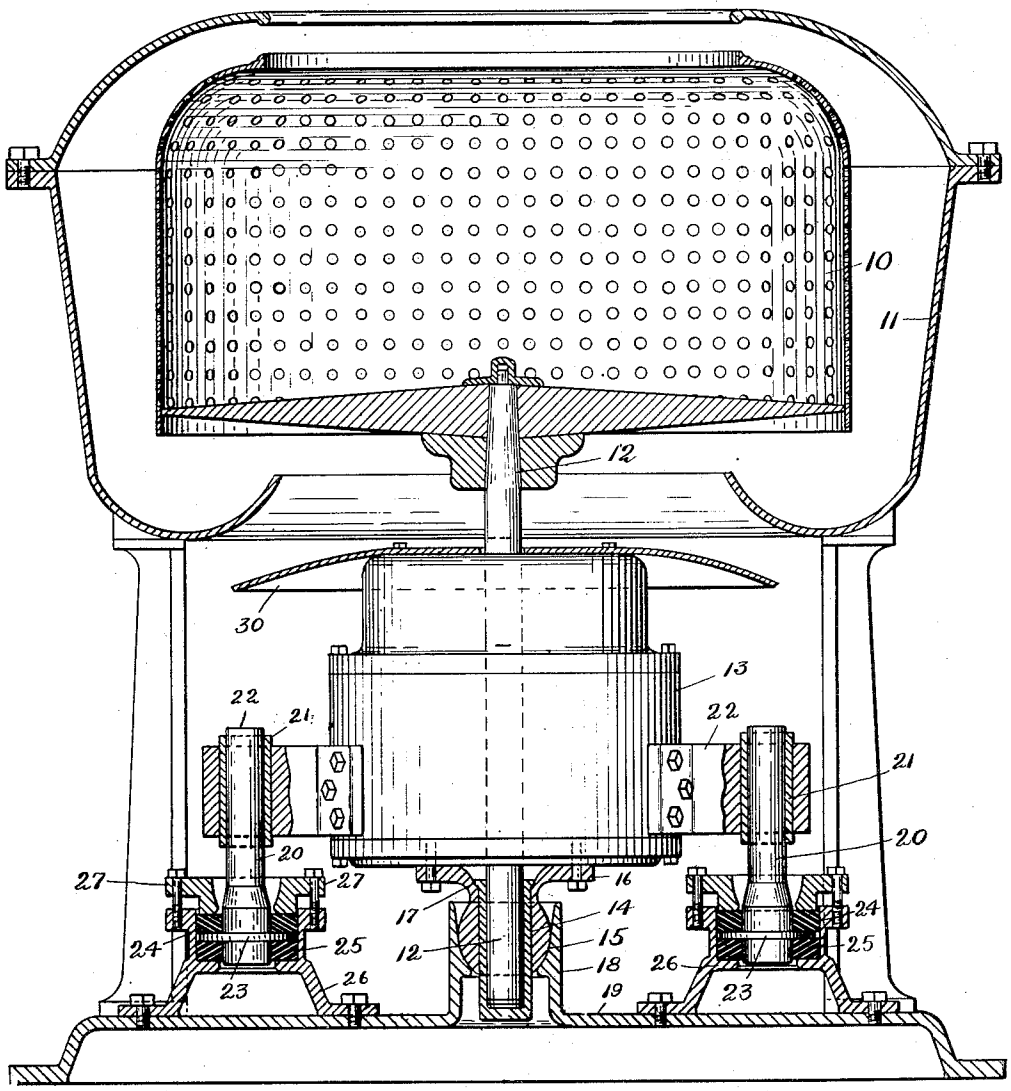
E. F. POLAND.

CENTRIFUGAL EXTRACTOR.

APPLICATION FILED FEB. 16, 1911.

1,094,589. Patented Apr. 28, 1914.



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UNITED STATES PATENT OFFICE.

EDWARD F. POLAND, OF BOSTON, MASSACHUSETTS.

CENTRIFUGAL EXTRACTOR.

1,094,589. Specification of Letters Patent. Patented Apr. 28, 1914.

Application filed February 16, 1911. Serial No. 608,937.

To all whom it may concern:

Be it known that I, EDWARD F. POLAND, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented an improvement in Centrifugal Extractors, of which the following is a specification.

This invention relates to centrifugal extractors, and has for its object to provide an extractor with improved electrically-operated means to operate it.

In accordance with this invention an electric motor is arranged in vertical position with its shaft constructed and arranged to serve as the revolving spindle of the extractor, and a universal step bearing arranged on a base is provided for the lower ends of said shaft and the motor case, and yielding means are connected with the base and lower end portion of the motor case to hold the motor in vertical position and prevent its case from revolving, which permits gyratory movement of the shaft and corresponding limited oscillations in all directions of the case.

The figure is a vertical sectional elevation of a centrifugal extractor embodying this invention.

10 represents the usual receptacle of a centrifugal extractor, contained in the usual outer case or shell 11. Said receptacle is connected to the upper end of a revolving vertical spindle 12, by any usual or suitable means. Said spindle is designed to serve as the shaft of an electric-motor of any usual or suitable type, of which, 13 is the motor-case to which the stationary field-magnets are connected.

The lower end of the spindle 12 enters or is contained in a cylindrical socket 14, arranged in and extended diametrically through a spherical support 15, which support is provided with a flange 16 for attaching it to the lower end of the motor-case 13. Said socket 14 has a flange 17 at its upper end which rests on a seat provided at the top of the spherical-support and has a small hole at the bottom. Said spherical support rests in a spherically formed recess in a hollow step 18, arranged on a base 19, the lower ends of said support and socket being exposed within the hollow step at the bottom of the recess. Said spherical-support, constructed and arranged as shown, provides for gyratory movement of the vertical spindle, and also serves as a support for the motor-case, to permit oscillations of said case in all directions to correspond with the gyratory movement of the spindle.

To hold the motor-case from revolving and also to admit of oscillations thereof, corresponding to the gyration of the spindle, and to hold the motor-shaft 12 in vertical position, means are arranged at one or more sides of the motor-case, which, as shown in the figure consists of an upright stub-shaft 20 having its upper end free to slide in a bushing 21, arranged in an arm 22, attached to the motor-case, said stub-shaft having its lower end formed with a horizontal, annular flange 23, which is placed between substantially constructed rubber rings 24 and 25, which are held securely in a box comprising a bottom part 26 adapted to be secured to the base, and a top part 27, adapted to be detachably connected with the bottom part.

In operation, as the current is turned on the motor shaft 12 revolves, carrying with it the receptacle, and gyratory movement of said shaft is permitted by the universal step-bearing, and corresponding oscillations of the motor-case likewise permitted, and said case is held against rotation and the spindle held in vertical position by the stub-shaft, which is yieldingly supported, and slidably connected.

The electric-motor is inclosed in a case to prevent the water from coming in contact with it, but to more fully protect it a shield 30 is attached to its case, or may be otherwise supported, which is arranged beneath the receptacle 10, and above the motor.

I claim:—

In an electrically operated centrifugal extractor, the combination of a receptacle, an electric-motor arranged in vertical position, to the upper end of the shaft of which motor said receptacle is secured, a spherical boss detachably connected to the lower end of the motor-case having a center-hole through it, a stationarily supported spherical step-bearing for said boss, a flanged socket contained in the center hole in the boss which extends below the boss and receives the lower end of the motor-shaft whereby the motor-case is caused to oscillate to correspond with the gyrations of said shaft, one or more arms rigidly attached to the lower end portion of the motor-case and radially extended therefrom, each arm having a vertical hole through its outer end-portions, a sleeve arranged in said hole, an upright shaft arranged in said sleeve in parallel relation

with the motor shaft and a yielding element connected with the lower end of said upright shaft which admits of an oscillating movement of said shaft in all directions, substantially as described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

EDWARD F. POLAND.

Witnesses:
H. B. DAVIS,
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