

April 21, 1925.

1,534,278

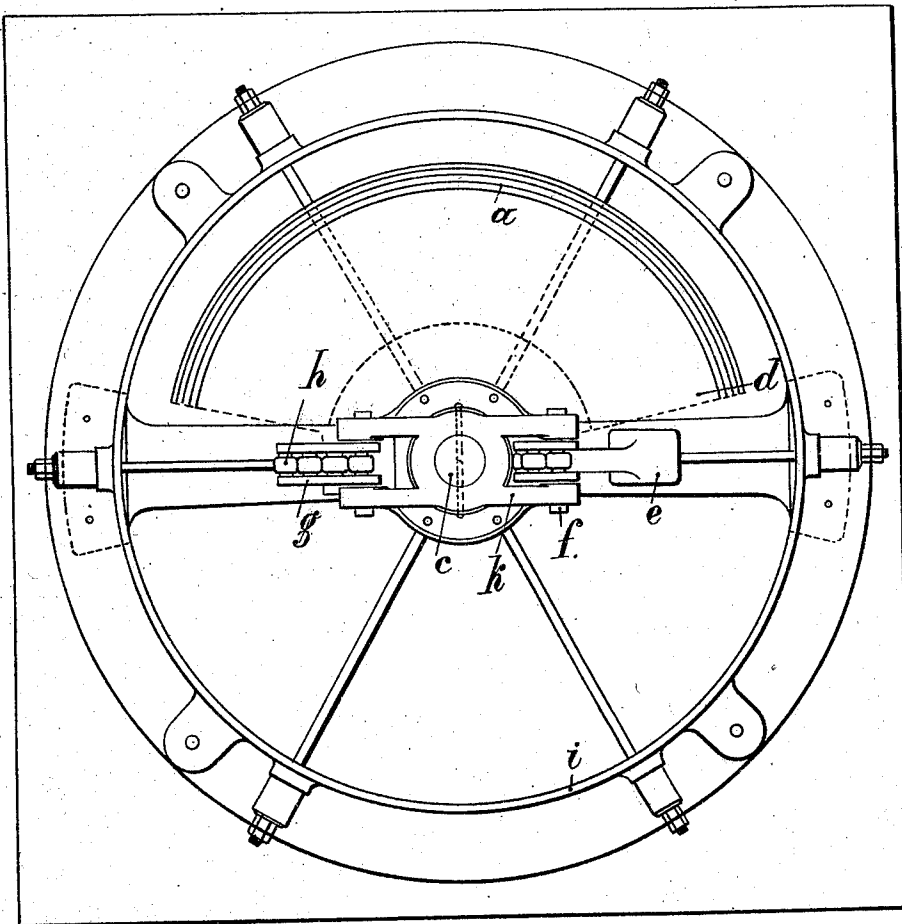
C. LUMPP

HYDRO-EXTRACTOR

Filed Feb. 25, 1921

2 Sheets-Sheet 2

FIG. 2



INVENTOR:
Charles Lumpp
By Wm Wallace White
ATTY.

UNITED STATES PATENT OFFICE.

CHARLES LUMPP, OF LYON, FRANCE.

HYDRO-EXTRACTOR.

Application filed February 25, 1921. Serial No. 447,659.

To all whom it may concern:

Be it known that I, CHARLES LUMPP, a citizen of the French Republic, of Lyon, France, have invented certain new and useful Improvements in Hydro-Extractors, of which the following is a specification.

This invention relates to centrifugal drying machines, the object of the invention being to provide an improved machine of this character by means of which the material to be dried can be placed in the machine and discharged therefrom without discontinuing the operation of the machine.

A further object of the invention is to provide a machine of the character set forth in which the receptacle for the substance to be dried is provided with a movable bottom, the movements of which are controlled by the speed of rotation of said receptacle.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention consists in the novel features of construction and combination of parts which will be more fully described hereinafter and particularly pointed out in the claims.

In the drawings accompanying and forming part of this specification,

Fig. 1 is a vertical, central section of a machine illustrating a preferred embodiment of the present invention; and

Fig. 2 is a plan view thereof, the upper portion of the casing being omitted and only a portion of the basket and its movable bottom being shown.

The same characters of reference designate the same parts in the different figures of the drawings.

The top and bottom of the machine illustrated in the drawings are of the usual well-known form and carry bearings for supporting a central shaft *c* for rotation. These members are all old in the art and therefore no detailed description thereof is necessary.

The apparatus is provided with an outer casing comprising two superposed members. The lower member *i*, which is preferably of cylindrical form, is provided at its upper edge with an inwardly extending flange *i'* lying in a plane inclined upwardly from the horizontal, and with an exterior horizontally extending flange or collar *i''*. The upper casing member *j* is preferably of frusto conical form and of ogee contour in vertical section, the top portion thereof being

flanged inwardly and downwardly to form a funnel-shaped opening. The lower edge of this upper member *j* rests upon the flange *i''* of the lower casing member, said member *j* being provided adjacent to its lower edge with a plurality of radially extending outlet ports *j'*.

The basket for receiving the substance to be dried comprises an inclined perforated annular wall *a* secured to the ends of arms *b* which extend radially from a hub that is fixed on the central shaft *c* for rotation therewith within the casing member *j*. The wall *a* is provided with a pair of rings *a'* and *a''* encircling its upper and lower ends respectively. The bottom of the basket is formed of a disk or plate *d* carried by a hub mounted on the shaft *c* below the basket and adapted to slide axially on said shaft. The disk *d* is so formed at its edge as to provide a shoulder adapted to closely fit within the lower end of the wall *a* and a flange adapted to underlie said wall and the ring *a''* thereby to form a tight joint between the disk and wall.

Below the disk *d*, a hub *k* is secured to the shaft *c*, which hub is provided with a pair of arms or brackets extending radially therefrom at diametrically opposite points, and in each of said brackets is mounted on a pivot *f* a bell-crank lever, one arm *e* of each of which carries a counterweight, while the other arm *g* is of curved cam formation and is provided with a plurality of rollers *h* adapted to contact with the underside of the disk *d*.

The shaft *c* may be rotated in any suitable manner, either by being geared directly to an electric or other motor, or motion may be transmitted thereto from any convenient source of power by belt, chain or any other suitable transmission.

The operation of the apparatus is as follows: Rotary motion is imparted to the shaft *c* and when the same has acquired a high velocity the counterweights carried on the lever arms *e* will be swung outward by centrifugal force, thus carrying the arms *e* nearly to a horizontal position, as shown in dotted lines in Fig. 1, while the arms *g* are carried into substantially vertical position so that their rollers have raised the disk *d* into engagement with the lower edge of the wall *a*, thereby tightly closing the bottom of the basket. With the shaft continuing to rotate at sufficient speed to maintain the

disk in this position, the material to be dried is charged into the basket through its funnel-shaped upper end. This speed of rotation is maintained until all the liquid has
5 been ejected by centrifugal force through the perforated wall *a*, which liquid will be thrown against the inner wall of the casing member *j* and will pass down said wall to the bottom thereof, whereupon it will be
10 deflected by the flange *i'* and caused to pass out through the ports *j'* at the outer ends of which it may be collected in any suitable manner. As soon as the material is sufficiently dried, the speed of rotation of the
15 shaft *c* is reduced sufficiently to permit the counterweighted arms *c* to fall back to their vertical position, thus permitting the disk *d* to drop away from the basket wall *a* and leaving a circumferential opening between
20 the basket and disc through which the dried material will be ejected by centrifugal force, said material falling within the lower casing *i*, from whence it may be removed in any convenient manner. After the basket
25 has been emptied, the speed of rotation of the shaft is increased so as to again carry the disk into engagement with the basket in order to permit refilling of the same.

From the foregoing it will be seen that I
30 have provided an apparatus which is comparatively simple in construction and extremely economical in operation, since all that is necessary is to regulate the speed of

rotation of the shaft *c* in order to permit the charging and discharging of the material without stopping the machine. 35

While I have described in detail the device herein illustrated, it is to be understood that I do not thereby limit my invention to the precise features of construction shown, 40 as I am aware that many mechanical changes and modifications may be made therein without departing from the spirit and scope of the claim hereto appended.

Having thus described my invention, what I claim is: 45

A centrifugal drying machine, comprising, in combination, a rotatable shaft, a basket secured to said shaft for rotation therewith and having a bottom slidable on said 50 shaft, a pair of bell-crank levers carried by said shaft, one arm of each of said levers forming a cam member supporting said bottom and the other arm having a counterweight adapted to swing the lever on its pivot 55 thereby to cause said bottom to slide into and out of contact with said basket, the action of said counterweights being controlled by the speed of rotation of the shaft.

In witness whereof I have signed this specification in the presence of two witnesses. 60

CHARLES LUMPP.

Witnesses:

GASTON BERTRAND,
JULIAN AMBLE SMEDLEY.