

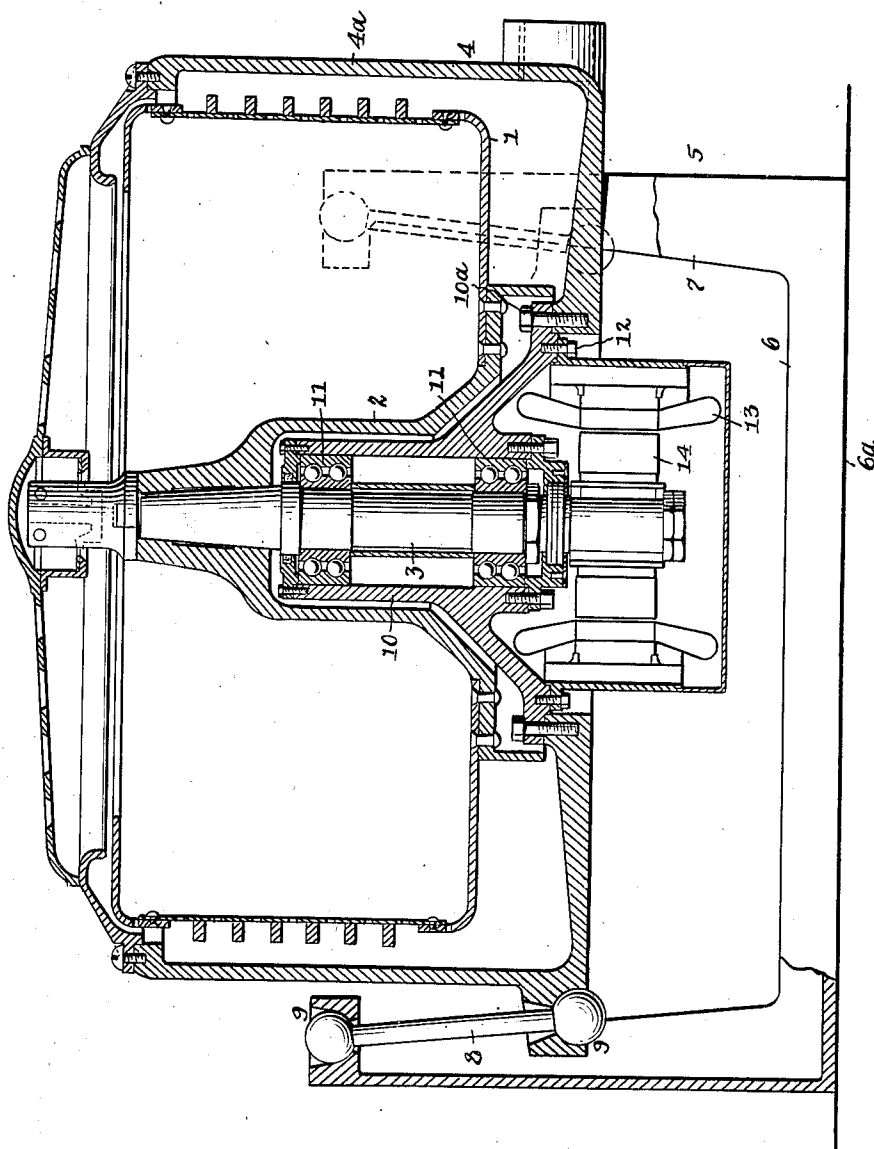
July 28, 1931.

H. H. STEPHENS ET AL

1,815,934

CENTRIFUGAL MACHINE

Filed Feb. 27, 1930



INVENTORS
Harry H. Stephens, ^{and}
BY Jacob E. Haring.
J. H. Haring
ATTORNEY

UNITED STATES PATENT OFFICE

HARRY H. STEPHENS AND JACOB L. HARING, OF GLEN ROCK, NEW JERSEY

CENTRIFUGAL MACHINE

Application filed February 27, 1930. Serial No. 431,702.

This invention relates to centrifugal machines of the class in which the basket for containing the material to be centrifuged is rotated within the container therefor on an upright axis. For the driving of the basket the prime mover, as an electric motor, is commonly offset with respect to the shaft or equivalent axial portion of the basket,—a construction which is mechanically inferior, especially in view of the heavy loads frequently carried by the basket and the necessity for often stopping and starting and if, as usual, the transmission takes the form of a belt; this construction has the advantage that the top of the basket is entirely clear for loading and unloading, although the driving means presents an encumbrance at one side of the machine. The mechanically correct location of the drive is one in which the prime mover is of course axially aligned with the basket so that a direct drive ensues: In one type responding to this description the motor has been arranged above the machine, but then the support for the motor if not the motor itself does not allow clear access to the basket. In another type the motor has been placed below the machine, being housed in a pit in the floor on which the machine rested and having its shaft coupled to the shaft of the basket in some way. This involved the advantage of a direct drive, but the motor's location was such as to invite its being neglected and care was necessary to align its axis with the basket axis, and the machine could not be conveniently shifted to some other location. By the present invention we attain the direct drive and avoid the necessity for providing a pit for the motor, at the same time preserving the space both over and around the machine entirely clear of all encumbrance incident to the driving means. And this we do by causing the container to afford a space between it and the floor or other surface on which the base of the stationary supporting structure of the machine rests and arranging one of the elements (as the field) of the motor in said space and affixed to said structure, and by forming the other element (as the armature) as a part of a unitary structure revoluble in the station-

ary structure and including the basket. This construction leads to a further advantage, to wit, that by making the basket and one element of the motor a unitary structure one set of bearings—for the motor—may be eliminated.

The drawing shows the improved machine in vertical substantially central section.

Let 1 designate the basket proper supported on the basal flange of a centrally located upstanding hollow support 2 forming therewith the basket, and let 3 designate a vertical shaft keyed or otherwise secured in said support and depending therefrom, here below the plane of the bottom of the basket proper.

The supporting structure for the basket here includes, with the container 4 of usual form, a frame or stand 5, characterized by a base 6 and several standards 7 (as three, only two being shown), and links 8 which have ball-and-socket connections 9 with the container and said standards and by which the former is suspended. The container 4 itself includes a curb 4a and a centrally located upstanding bearing column 10 (they being two parts secured together by screws 10a) through which shaft 3 depends and over which the hollow support 2 of the basket proper is set, and between this column or bearing member and said shaft are the bearings 11 for the revoluble structure of which the basket and shaft form parts, said bearings being preferably of the anti-friction type. This particular type of supporting structure is not indispensable, though it is material that a part of the container affords a space between it and the floor or other surface 6a on which the base of said structure rests.

Occupying said space and affixed to the supporting structure, here the column or bearing member 10, as by the screws 12, is one of the complementary elements, as the field 13, of an electric motor, the other of such elements, the armature 14, being affixed to the shaft 3. The motor is shown more or less in outline.

Thus we attain perfect clearance above and also around the machine, we avoid the neces-

55

60

65

70

75

80

85

90

95

100

sity for a pit to accommodate the motor, we obtain the direct drive, and we make necessary only one set of bearings, to wit, the bearings 11, besides, there can be no disturbance of the relation or disalinement of the axes of the motor elements incident to the flexing possible by links 8, or from any other cause.

On removal of the basket from the shaft access may be had to the screws 10a to remove them, whereupon the entire system comprising column 10 and the shaft, together with the motor elements, may be lifted out of the container, for instance, to have access to the motor when repairs or adjustment thereof is necessary.

Having thus fully described our invention what we claim is:

In a centrifugal machine, the combination with a base and stand, a container mounted on the stand and having a bottom with a central opening, a central column in the container having a base covering the opening and detachably secured to the bottom of the container, a rotary basket in the container, a shaft carrying the basket journaled in the column, an electric motor for rotating the shaft hung from the underside of the base of the column and located above the floor level on which the base of the stand rests, said shaft and motor having their bearings located wholly above the motor and in the column and means for securing the motor to the column base, said means being independent of the means that secures the column base to the container bottom, the motor being removable in assembled relation with the column base through the opening in the bottom of the container.

In testimony whereof we affix our signatures.

HARRY H. STEPHENS.
JACOB L. HARING.

45

50

55

60

65