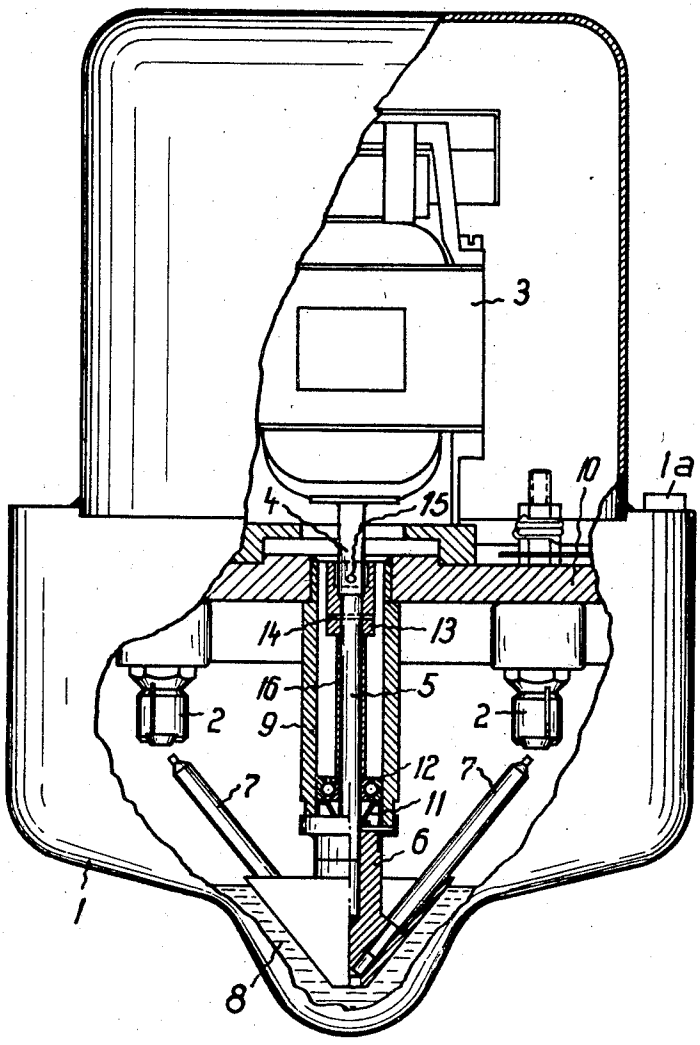
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D. C.-A. C. INVERTERS

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D. C.-A. C. INVERTERS

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3 Claims. (Cl. 200—32)

This invention relates to apparatus for the inverted conversion of direct electric current to alternating electric current. More in particular, this invention relates to the driving means for impelling the centrifuge in a turbo-liquid jet D. C.-A. C. converter.

It is the object of this invention to provide for a driving arrangement for impelling the centrifuge in a turbo-type liquid jet D. C.-A. C. inverted converter that assures in a simple and uncomplicated manner an exact, uniform and non-excentric rotation of the centrifugal cone of the centrifuge.

It is known in the art to install the centrifugal cone of turbo liquid jet inverters in a comparatively low position in the casing of such inverters. For this reason the driving shaft extending downwardly from the motor installed in the upper part of the casing, is considerably elongated.

The disadvantage of this arrangement, however, is that the shaft must rotate with great accuracy in order to prevent the centrifugal cone from executing eccentric movements.

This disadvantage has been avoided by providing separate and independent bearings for the driving shaft on the one hand and the centrifugal cone shaft on the other hand. However, the advantage of this construction is compensated by the concurring drawback of its being relatively complicated and consequently expensive.

These drawbacks are avoided and the objects of my invention achieved by providing a drive for inverted converters which comprises the feature of mounting the bearings for the centrifugal cone shaft on the body of the centrifugal cone proper and by coupling the centrifugal cone shaft with the driving shaft.

The invention will be more fully understood and its distinctive features and advantages over the known art will be more fully appreciated by a detailed description of the accompanying drawing in which:

The single figure represents a partially sectional front view of a preferred embodiment of the apparatus according to our invention, from which part of the casing has been removed.

More in particular, the casing **1** which is evacuated through stud **1***a* encloses a plurality of circularly positioned contacts **2** and a motor **3**. The short stump of driving shaft **4** extends from the motor **3** in downward direction. This shaft **4** is connected in a manner to be described presently with the shaft **5** of the centrifugal cone **6**. The centrifugal cone **6** bears at its lower end two jet arms **7** extending in upward direction and forming an acute angle with the longitudinal center line of cone **6**. The jet arms **7** raise the liquid **8**—preferably mercury—from the tapering bottom of the casing **1** forming a small tank and jet the liquid against the contacts **2**.

In substantially the central horizontal plane of the casing a separating wall **10** separates the motor **3** from the centrifugal jet device described above. A hollow shank **9** is fastened to and partly inserted into this separating wall and extends in downward direction into the lower part of casing **1**, and encloses both shaft **4** and shaft **5**. At the lower end and inside of this shank **9**, bearing means are mounted consisting in the preferred embodiment of the invention shown by the figure of a retaining or sealing ring **11** and a ball bearing **12**. The stump of the motor shaft **4** and the shaft **5** are joined together by a coupling element **13** which is connected by pegs **14** and **15** both to shaft **4** and to shaft **5** so that the parts **13**, **14**, **15** act as a universal type connecting means for connecting the shafts **4** and **5** for rotation in unison with each other. Preferably a distancing sleeve **16** is interposed between the bearing **12** and the coupling element **13** in order to prevent the driving shaft from sliding downwardly.

It will be understood that this invention is susceptible to further modification and, accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claims.

What we claim is:

1. A D. C.-A. C. current converter of the mercury jet type, comprising a casing, a horizontal wall therein dividing said casing into an upper and a lower chamber, an electric motor in said upper chamber, a motor shaft extending downwardly into said lower chamber, a centrifuging cone in said lower chamber, a cone shaft on the lower end of which said centrifuging cone is mounted for rotation therewith, said cone shaft being aligned with said motor shaft, universal type connecting means for connecting said motor shaft with the upper end of said cone shaft for rotation in unison therewith, bearing means comprising a tubular member extending downwardly from said horizontal wall and enclosing the junction between said cone shaft and said motor shaft, a single rotary antifriction bearing mounted inside said tubular member toward the lower end thereof and supporting said cone shaft near the lower end thereof close to said centrifuging cone, and a distancing sleeve inside said tubular member enclosing said cone shaft between said rotary bearing and said connecting means and supporting said connecting means and the motor shaft connected thereto on said rotary bearing.

2. A D. C.-A. C. current converter as described in claim 1 wherein said junction between said cone shaft and said motor shaft is located near the upper end of said tubular member.

3. A D. C.-A. C. current converter as described in claim 1, wherein said universal type connecting means are located entirely within said tubular member.

References Cited in the file of this patent

UNITED STATES PATENTS

688,068	Cunningham	Dec. 3, 1901
866,289	Luschka	Sept. 17, 1907
895,044	Rothenstein	Aug. 4, 1908
940,069	Rowe	Nov. 16, 1909
2,163,507	Wolczek	June 20, 1939
2,195,909	Wagner	Apr. 2, 1940
2,444,687	Widakowich	July 6, 1948
2,795,662	Bohm	June 11, 1957

FOREIGN PATENTS

334,301	Germany	Mar. 11, 1921