No. 851,516. PATENTED APR. 23, 1907.

A. S. HICKLEY.

MEANS FOR REMOVING MOISTURE FROM CLOSED CASES.

APPLICATION FILED OCT. 23, 1906.

2 SHEETS—SHEET 1.

Fig. 2

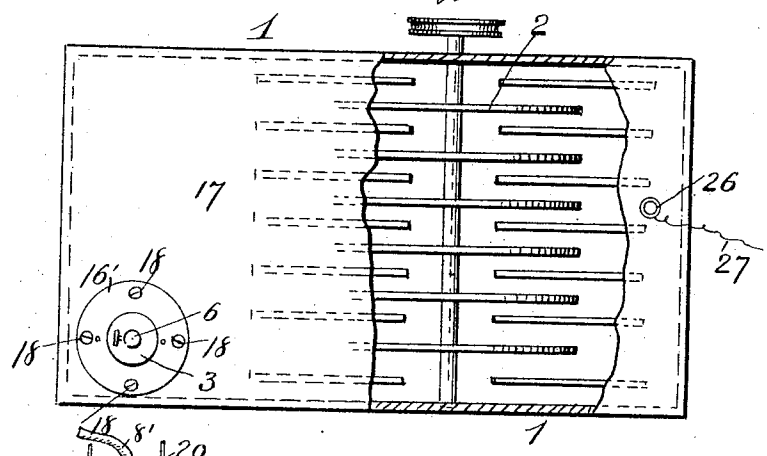
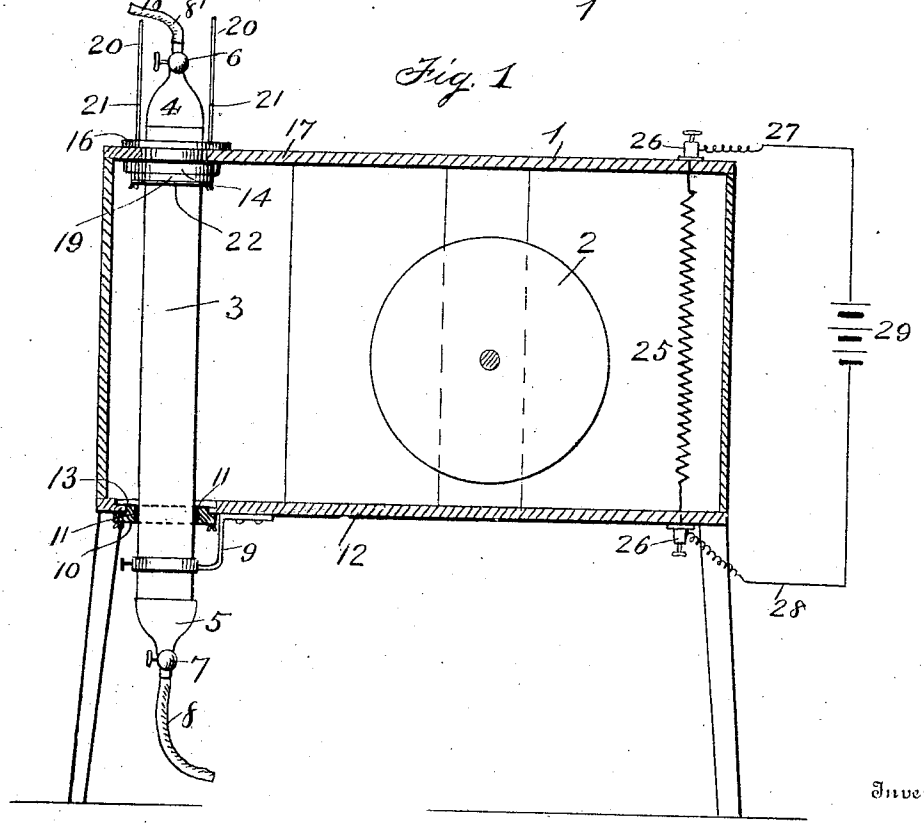


Fig. 1



Witnesses

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Fig. 3.

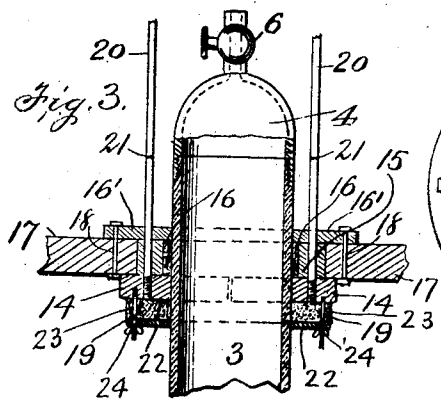


Fig. 4.

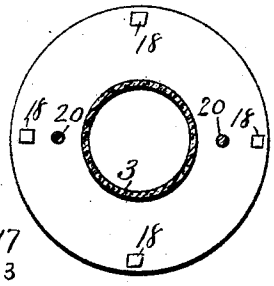


Fig. 5.

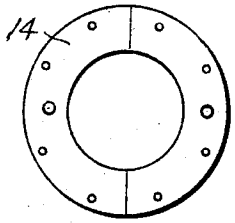


Fig 6

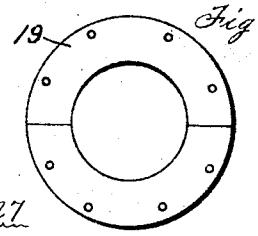


Fig. 7.

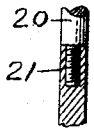
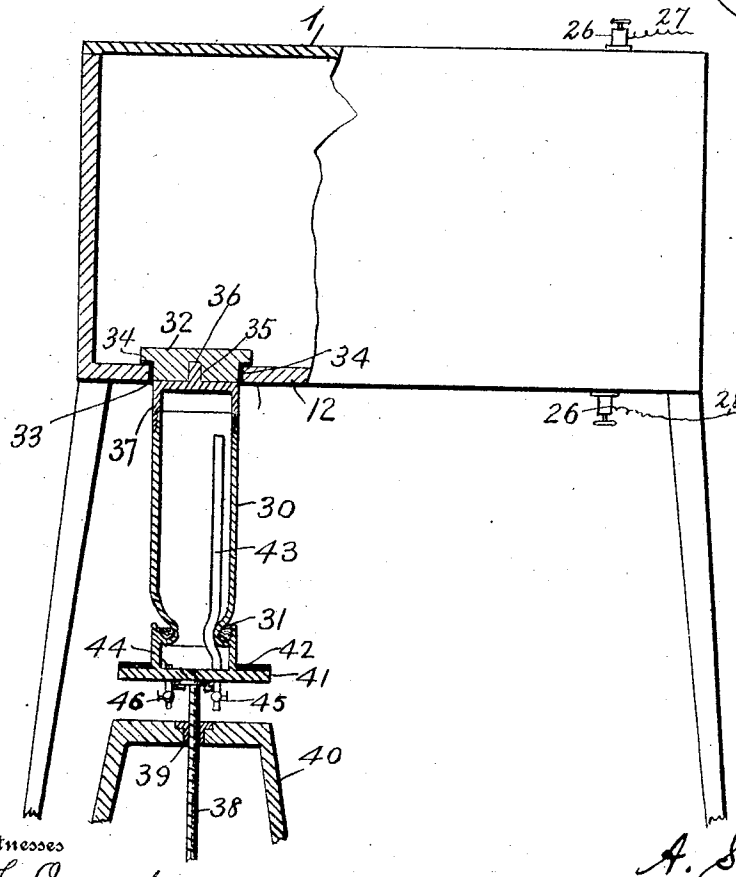


Fig. 8.



Witnesses

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MEANS FOR REMOVING MOISTURE FROM CLOSED CASES.

No. 851,516. Specification of Letters Patent. Patented April 23, 1907.

Application filed October 23, 1906. Serial No. 340,183.

To all whom it may concern:

Be it known that I, ARTHUR S. HICKLEY, a subject of the King of Great Britain, residing at Manasquan, in the county of Monmouth and State of New Jersey, have invented certain new and useful Improvements in Means for Removing Moisture from Closed Cases; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates primarily to machines used for electrical purposes, has for its object the extraction of moisture from the contents of the case enclosing the revoluble sparking apparatus, and the invention consists in certain improvements in construction, which will be fully disclosed in the following specification and claims.

The prevailing practice of treating the air or gases in such apparatus to overcome the moisture, has been to open the case and insert a chemical such as chloride of calcium in an open vessel to absorb the moisture, or to insert a vessel containing a refrigerant, such as ice and salt, which attracts the moisture in the case to the exterior surface of the receptacle. The frozen vapor on the outside of the receptacle soon melts and again fills the case with moisture unless the receptacle containing the refrigerant is removed, when the act of removing the receptacle allows the surrounding moist-atmosphere to enter the case and renew the conditions which prevailed before the refrigerant was inserted. The same effect is produced in opening the case to renew the chemical.

It is my purpose to extract the moisture from the air or gases in such cases and exclude the outside atmospheric air from entering the case while the refrigerant or moisture extracting medium is being supplied.

In the accompanying drawings, which form part of this specification:—Figure 1 represents a vertical section partly in elevation of an influence machine provided with my invention. Fig. 2 a top plan view partly in section. Fig. 3 an enlarged detail section of the stuffing box in the top of the case. Fig. 4 a detail plan view of the stuffing box. Fig. 5 a detail plan view of the wiper-carrier. Fig. 6 a like view of the carrier. Fig. 7 a sectional detail of the joint in the rods for operating the wiper, and Fig. 8 a vertical section partly in side elevation showing a modified construction of my invention.

Reference being had to the drawings and the designating characters thereon, the numeral 1 indicates the case of an electrical apparatus, 2 the friction or influence generator, only so much being shown as is required to identify such a machine.

3 indicates a tube or like receptacle, preferably of glass, porcelain or of sheet metal which extends through the top and bottom of the case, and in the present form of construction is provided with detachable end pieces or caps 4, 5, each having a stop-cock 6, 7, respectively, each adapted to have a pipe or tube 8, 8′ attached thereto for supplying a refrigerant, such as liquid carbonic acid gas, ether or the like.

9 is a bracket for supporting the tube 3. 10 a ring of wood or other suitable material surrounding the tube 3 and provided with a packing 11 to prevent the escape of the air or gases in the case, or the entrance of atmospheric air around the lower end of the tube. In the upper side of the botom 12 of the case is a recess 13 to receive the wiper-carrier 14.

15 is a wooden or other ring supporting a packing 16 which engages the tube 3 and prevents the escape of the air or gases in the case, or the entrance of atmospheric air around the upper end of the tube. Above the ring 15 is an annular plate 16′ which is secured to the top 17 of the case by bolts 18, and holds the packing in position around the receptacle 3.

14 indicates an annular wiper-carrier, which may be made of wood, and in two pieces, as shown in Fig. 5.

19 is the wiper, made of felt or other absorbent material, or of rubber, and in two pieces, as shown in Fig. 6, so that the holder and the wiper may be readily applied to and removed from the tube 3. The wiper may be saturated with linseed oil or other absorbent of gases before it is inserted in the case.

20, 20 are rods which engage the wiper-carrier 14, extend through the parts 15 and 16, and are provided with a screw-threaded joint 21, as shown in Fig. 7, so that the upper part of the rods may be removed when not in use, and the joints present a smooth exterior, so that the rods can be pushed down through the parts 15 and 16, to force the

wiper 19 down over the receptacle 3, to wipe off the condensed moisture in the air or gases in the case 1, which has collected on the exterior of the receptacle. The rods 20 are preferably provided with suitable packing, not shown, to prevent the passage of air around them as they move up and down through the ring 15.

The receptacle 3, may be filled with fine or small pieces of ice and salt, by removing the upper cap 4, or carbonic acid gas, in liquid state, or other refrigerant may be supplied through the tube 8 and stop cock 7, by opening the stop cock 6, and allowing the gas to flow through the receptacle until the temperature in the receptacle has been reduced sufficiently to cause the moisture in the case to be attracted to and deposited on the outer surface of the receptacle 3, when the friction generator or electrical apparatus begins to give off sparks when set in motion. When the frozen moisture on the receptacle begins to melt, the wiper 19 is pushed down over the receptacle, carrying with it, or absorbing the condensation on the receptacle and leaving the interior of the case 1 dry and in condition for use.

The ring 10 may now be removed and the wiper 19 and its carrier 14, pushed down to the bottom of the case 1, when the carrier 14 will rest in the recess 13 and prevent the escape of the dry air or gases in the case, or atmospheric air entering the case, while the wiper 19 is being removed to be dried and a dry wiper supplied in its place. The wiper may be provided with an annular metallic, hard rubber, or other follower 22, to secure the wiper to the wiper-carrier 14 by bolts 23 and thumb nuts 24, and it need not be removed from the receptacle.

25 indicates a high resistance coil within the case 1, attached to binding posts 26, and from the binding posts extend wires 27, 28 to a generator of electricity, such as a battery 29. The high resistance coil is heated by the passage of the electric current from the battery controlled by suitable switches, not shown, and serves to heat the air or gases in the case, which raises the dew point and enables the air or gases to hold more moisture in suspension, thereby removing the moisture from the glass plates of the friction generator or other apparatus, or other contents of the case, which moisture is then condensed upon the outside of the receptacle 3 containing the refrigerant.

In Fig. 8, I have shown a modification of my invention, and in which a receptacle 30 is provided to contain a refrigerant, and in its wall is a pocket 31 to receive a suitable chemical, such as chloride of calcium, or a gas absorbing oil to absorb the condensation from the surface of the receptacle, or the nitrous acid gas in the case.

In the bottom 12 of the case is a cover 32 to close the opening 33, and is provided with a packing ring 34, which normally seals the case, and engages the wall of the receptacle 30 as it is pushed in or drawn out of the case and prevents the escape of the air or gases from the case and atmospheric air entering the case. The cover 32 is provided with a recess 35 engaged by a pin 36 on the removable cap or top 37 of the receptacle 30 and is carried up into the case with the receptacle as it is raised by a screw 38 engaging a nut 39 in a stand 40, by turning or revolving the screw in any preferred manner, and when the receptacle has been pushed up into the case 1, the opening 33 is closed by a flange 41 having a packing 42, on the lower end of the receptacle.

The receptacle is provided with pipe 43 and 44, having stop-cocks 45 and 46, respectively for supplying carbonic acid or other gas as a refrigerant. In supplying such gas, the pipe 44, is the inlet and 43, the escape pipe, and when ice and salt are used as the refrigerant, the pipe 43 serves as an escape for the water from the receptacle.

It is obvious that my invention may be applied to other purposes than that described, such as extracting the moisture from cases containing jewels and the like, and that many changes may be made in details of construction without departing from the spirit of my invention, which, broadly speaking, lies in means for extracting moisture from such cases, without allowing the air or gases in the case to escape, or atmospheric air to enter the case after the case has been closed, preparatory to use.

Having thus fully described my invention, what I claim is

1. A closed case, means for collecting the moisture from the air and gases in said case, comprising a receptacle for containing a refrigerant and extending through the bottom of the case, and means for forcibly removing the condensation from the receptacle.

2. A closed case, a receptacle extending through the wall of the case for collecting moisture from the contents thereof, means for removing the condensation derived from the moisture, and means around the receptacle for preventing the escape of air or gases from the case, and atmospheric air entering the case.

3. A closed case, a receptacle for containing a refrigerant and extending through the wall of the case, means for removing condensation from the exterior of said receptacle, and means for preventing the escape of air or gases from the case and atmospheric air entering the case.

4. A closed case, an electrical apparatus within the case, a receptacle for containing a refrigerant and extending through the wall of the case, means for removing condensation from the exterior of said receptacle, and

means around said receptacle for preventing the escape of air or gases from the case and atmospheric air entering the case.

5. A closed case, a receptacle extending through the wall of the case and provided with means for supplying a refrigerant in transit through said receptacle, means for removing condensation from the exterior of said receptacle, and means for preventing the escape of air or gases from the case and atmospheric air entering the case.

6. A closed case, a receptacle for containing a refrigerant, a wiper engaging the exterior of said receptacle, means extending through the case for operating the wiper, and means around said receptacle for permitting the removal of the wiper from the case.

In testimony whereof I affix my signature, in presence of two witnesses.

ARTHUR S. HICKLEY.

Witnesses:
ESTHER SLOCUM,
EDWARD C. WYCKOFF.