

is lined with felt, so that it closes hermetically and the heat is well insulated. If it is not necessary to illuminate the interior of the chamber a felt shade is placed in front of the door, which is covered with oil cloth.

The other parts of the heating chamber are completely surrounded by the water compartment W, the sides of which are about 2½ cms. apart. The inner side consists of corrugated metal, so that the largest possible heating surface is obtained. The compartment is filled through the little pipe (a) at the top. It must be filled either with distilled or with rain water, and as soon as it is full the water begins to overflow through the opening (r) in the side. Before being filled in the water should be heated to a temperature about 10° higher than the temperature required in the heating chamber. By this means the latter is attained almost immediately. The water is let off through the little pipe (r¹) in the side of the compartment, near the bottom. This pipe is closed by means of a cork.

The compartment X, which surrounds the water compartment described above, contains a layer of some good insulating material, about 5 cms. thick. The inner side of this insulating layer assumes and retains the temperature of the water, and thereby currents in the fluid are avoided, which would otherwise be caused by the sides of the compartment becoming cooler. When the required temperature has once been attained in the apparatus, the very slight currents in the water which are caused by heating the bottom of the water compartment with hot air are of no consequence, as they counteract each other immediately.

The heating arrangement consists firstly of the long pipe CC, which is bent into the shape of a U, and runs along the bottom of the water compartment, inside same. The metal box M is screwed, by means of two joints, to the two open ends of this pipe and thus fixed to the side of the apparatus. Perpendicularly through this box, which contains a thick layer of insulating material, passes the metal chimney SS. When a petroleum lamp is used for heating, same is placed in such a manner beneath the box that its chimney reaches just up to the above mentioned metal chimney. Where a Bunsen gasflamme or Bunsen spiritlamp, or a benzoline lamp represents the means of heating, the flame must ascend right into the metal chimney.

The selfacting temperature regulating device „Simplex“ is constructed as follows: The cylinder K contains a drum which is so constructed, that an increase or decrease of its volume, when caused by a change of temperature, can only take place and manifest itself in the rising or sinking of its upper convex surface, this consisting of a very thin and elastic metal leaf, which is very sensitive to a change of temperature. The movements of this metal leaf are transmitted to the lever (h) on the top of the apparatus. Close to the fulcrum of this lever and passing through the latter, there is an adjusting screw (j), the point of which rests on a shaft, which latter in turn rests in a conical dent in the centre of the upper surface of the drum. By turning the adjusting screw the distance between the lever and the drum can be regulated. At the other end of the lever (h) there is a chain, which hangs down perpendicularly and has attached to its lower end the cover (d). The cover must hang so, as to be close above the top of the metal chimney. There are three metal teeth, about 1 cm long, round the edge of the cover, to prevent it from falling into the chimney. When the lever sinks, that is, when the temperature becomes cooler, the cover sinks too and closes the chimney, consequently the hot air is forced to enter pipe CC and raises the temperature of the water surrounding the pipe. When the temperature rises the cover is naturally lifted off the top of the chimney and the hot air escapes.

In order to be able to regulate closely the temperature, which is indicated on the thermometer (t) to 1/5° Celsius, the running weight (g) is provided. When the thermometer indicates the required temperature, the weight is placed in such a position that the cover just touches the top of metal chimney. If after some time it is found that the temperature has increased considerably, the adjusting screw is turned slightly, if the increase of temperature is only small, the running weight (g) is moved a little towards the fulcrum of the lever; both actions have the effect of raising the cover from the top of the chimney. The reverse is done, of course, if the temperature is too low. Two drums are supplied with each apparatus free of charge, while each further one required is charged for at the rate of 3½ Marks. They can easily be taken out and replaced, and are so constructed that each one will regulate the temperature within 10° Celsius, i. e. between 20 and 30°, between 30 and 40° and so on. The highest temperature for which the apparatus has hitherto been constructed is 70° Celsius.

The Germania regulating device,

D. R. G. M. No. 64448 — British Patent No. 8341 — Belgian Patent No. 126244

is constructed to regulate the temperature within much closer limits. It consists mainly of the ball (b), which is balanced on hard pointed screws and connected with rod (f) by shaft (g). The regulating is done by means of screw (a) at the end of pipe (r), which latter is connected with rod (f) and through which shaft (g) passes. No change is necessary in the device, as it will regulate any temperature between 20 and 70° Celsius.

The apparatus further contains an arrangement for ventilating with moist air. For this purpose there is at the bottom of the heating compartment a conduit (u), longer than it is deep and running parallel with the glass door, which passes through compartments W and X. At the top there are two conduits, of equal size, one just behind the glass door, the other opposite the first at the back of the apparatus. The lower openings of these conduits are in the shape of slits. These conduits pass in slanting direction through the water and insulating compartments till they meet near the centre of the top of the apparatus. Their combined opening at this end is octangular, but of the same size as the two lower openings would be if combined. Over the opening at the top there are two perforated metal plates, of which one can be pushed over the other in such a way, that either the holes in both are opposite each other and allow air to pass through, or they are not and close the conduits. When moist ventilation is required the box (dd), in which wet linen has been spread out, is pushed in at the side of the apparatus. The water required to keep the linen wet is contained in the „Erlenmeyer“ flask (b) at the side of the apparatus, from where it trickles in the desired quantities into the box.

Whatever heating method is used in connection with the apparatus, it is important that the quantity of heat should always be sufficient; it is even desirable that a little more heat is generated than is actually necessary to produce the temperature desired in the heating chamber, as neither a too large flame nor the fluctuating pressure of gas have any effect upon the temperature in the chamber.

Nouvelle Etuve de Sartorius

à combustible quelconque pour l'incubation de bacilles, bactéries et pour la culture de préparations microscopiques dans la paraffine.

décrite par Mr. le Dr. Koch à Goettingue, dans la „Revue périodique de la Microscopie scientifique“, volume X, fascicule 2, et par Mr. le Dr. Hans Reichenbach à Goettingue, dans la „Feuille centrale pour la bactériologie et la Science des Parasites“, volume XV, No. 22, et dans la „Revue périodique de la Science des Instruments“ 1894, fascicule 2.

Description:

L'espace intérieur de l'appareil représente une étuve dont le dessin ci-joint montre la forme. Suivant la dimension des récipients qu'on y veut placer, cette étuve peut être divisée en un ou plusieurs compartiments au moyen de plaques en tôle