

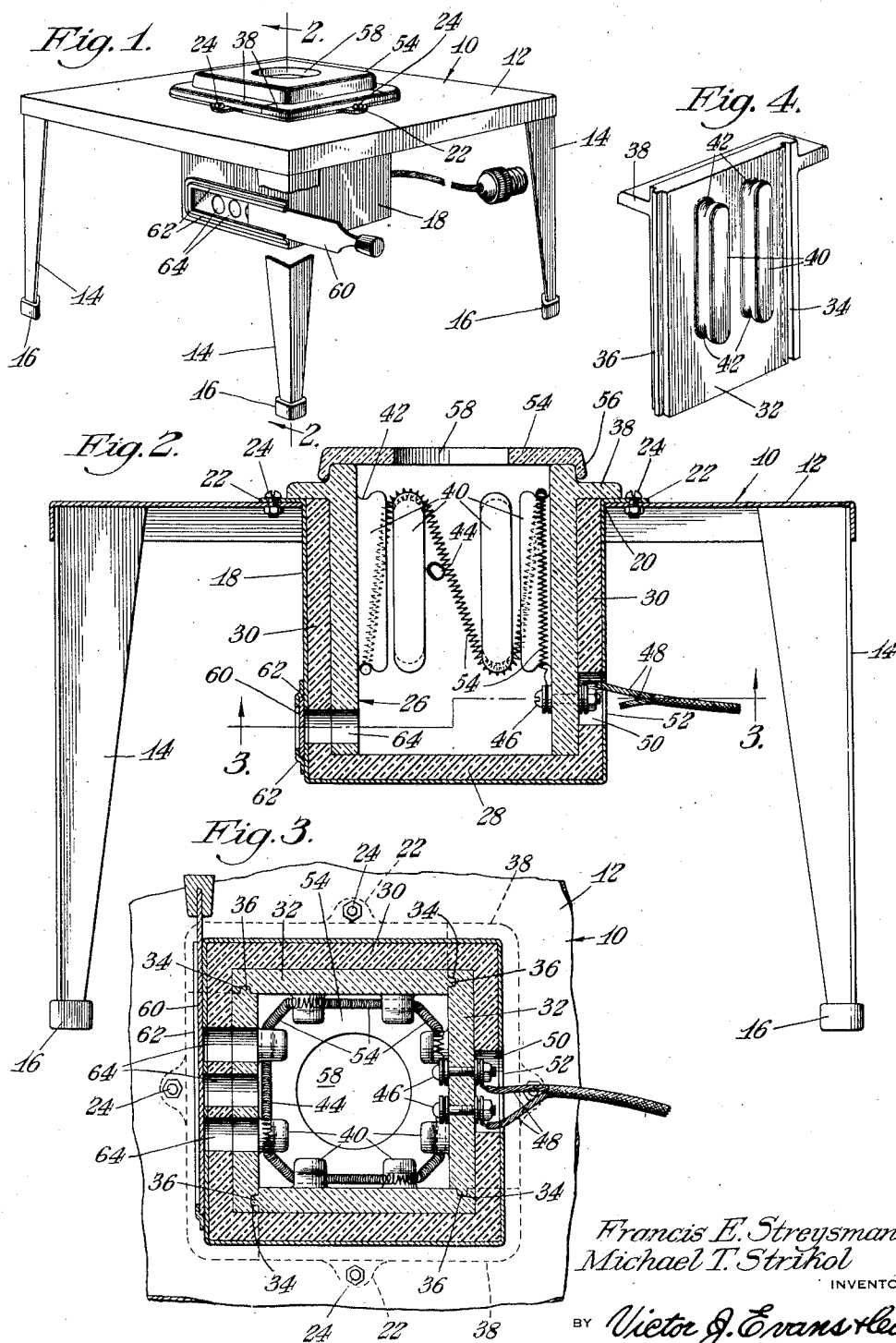
April 6, 1937.

F. E. STREYSMAN ET AL

2,076,485

LABORATORY EQUIPMENT

Filed Dec. 4, 1933



Francis E. Streysman &
Michael T. Strikol
INVENTORS

BY Victor J. Evans & Co.
THEIR ATTORNEYS

UNITED STATES PATENT OFFICE

2,076,485

LABORATORY EQUIPMENT

Francis E. Streysman and Michael T. Strikol,
Chicago, Ill.

Application December 4, 1933, Serial No. 700,896

3 Claims. (Cl. 219—35)

Our invention relates to laboratory equipment, and includes among its objects and advantages an improved electrical heater in the nature of a Bunsen burner.

5 This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in 10 the appended claims.

In describing our invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:

15 Fig. 1 is a perspective view illustrating our device;

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1;

20 Fig. 3 is a sectional view taken along the line 3—3 of Fig. 2; and

Fig. 4 is a perspective view of a portion of the device.

In the embodiment selected to illustrate our invention, we make use of a small table 10 comprising a sheet metal top 12 about five inches square mounted upon legs 14. Each leg is provided with a small cushion 16 at its end to prevent scratching of table and desk tops.

A metal cup 18 projects through an opening 20 30 in the top 12 and is provided with a flange 22 extending over the top and secured thereto by means of screws 24. This cup comprises the outer wall of an electric furnace made up of an inner jacket 26 of insulating material, such as porcelain, and resting with its open bottom on a layer 28 of insulating material, such as asbestos. The asbestos insulating material extends upwardly between the jacket 26 and the cup 28, as at 30.

Referring to Fig. 3, the inner jacket 26 comprises four separate pieces 32, each having an edge groove 34 arranged to receive a tongue 36 carried by the adjacent piece. Thus, the parts 32 are effectively connected together when the rectangular assembly is fitted snugly within the asbestos walls 30. Each piece 32 is provided with a flange 38 extending over the ends of the asbestos walls 30 and the flange 22. Two ribs 40 are formed integrally with each piece 32 and are provided with recesses 42 in their ends arranged to receive a heating element 44 in the nature of a wire coil. The ends of the heating element are connected with terminal screws 46, to which conductors 48, supplying current to the heating element, may be fastened. We cut out the asbestos 55

insulation and the cup 18 at 50 and 52 to accommodate the electric cord.

The electrical element 44 is wound over one rib and under the next rib to provide a plurality of diagonal reaches 54 surrounding the wall of the furnace. The opening defined by the inner jacket is sufficiently large to freely receive test tubes of conventional size and design. It will be noted that the ribs 40 project beyond the heating element 44. This arrangement protects the heating element from being bent or damaged by devices placed within the furnace. The ribs also prevent a direct contact between the test tubes and the heating element, thus protecting the tube.

A cover 54 is arranged to close the upper end 15 of the furnace and is provided with a flange 45 fitting snugly about the inner jacket 26. This cover is provided with a vent 58 to permit heated air to pass from the furnace. We provide a draft regulator comprising a closure plate 60 slidably retained within supporting flanges 62 welded to the jacket 18. This plate is arranged to uncover openings 64 in one wall of the furnace near its bottom, to provide the necessary draft in the furnace.

In operation, a number of covers 54 may be provided with openings of different diameters to accommodate devices of different dimensions and to change the nature of the convection current passing from the furnace. Our invention functions as a full equivalent to devices in the nature of Bunsen burners. There are added advantages in that our electrical unit leaves no deposit upon test tubes and devices such as frequently occur with the use of a flame. The closure plate 60 may be operated to vary the draft to suit different operating conditions. Thus, by adjusting the plate 60 and using a cover 52 with an opening of predetermined diameter, the velocity of the convection current and its operating altitude may be accurately controlled. We have found that the present device generates sufficient heat to boil liquids in test tubes held at a considerable distance above the furnace in the path of the convection current. The device is also an ideal unit for heating crucibles which may be positioned within the furnace. The cover 54 provides an ideal support for the crucibles.

It will be understood that heating elements other than a coiled wire may be employed in lieu of the unit illustrated. We may also provide the draft openings 64 in the bottom of the furnace instead of its side. Our pieces 34 comprising the inner jacket 30 are identical in construction, thus simplifying the construction and 55

reducing the cost of manufacture. We prefer to make the inner jacket in a number of parts to eliminate breakage due to expansion and contraction in the material. Our cover 52 is made of the same material as the inner jacket. The unit is light in weight, which makes it an ideal portable unit for laboratory work. While we have illustrated the furnace as being rectangular in cross section, it will be understood that a circular design may be used with equal advantage. The legs 14 support the furnace in spaced relation with its supporting surface, thus protecting the supporting surface from the heat of the furnace. The heat is not intense in view of the insulation provided. A further advantage lies in the fact that our invention is entirely devoid of flame interference, thus providing complete visibility under all conditions of operation.

In addition, our device may be connected with ordinary wall outlet sockets, thus eliminating the necessity for a special gas conduit as is required in connection with Bunsen burners. Then too, there are large areas in which gas is not provided so that it is necessary to employ improvised devices, such as oil burners and alcohol lamps.

Without further elaboration the foregoing will so fully explain our invention that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

We claim:

1. A laboratory device comprising a table having legs and an opening in its top, a metal cup positioned within said opening and having a flange extending over a portion of the table top, means fastening said flange to said table top, an insulating material jacket lining the inner wall and bottom of said cup, an inner wall of insulating material fitting snugly within said insulating jacket and having its end extending slightly above the table top, a flange formed integrally with said wall of insulating material and extending over the top of the insulating jacket and a portion of said first-named flange, an electrical heating element mounted upon supporting lugs projecting inwardly from the inner side of said inner wall, said furnace being provided with a plurality of draft openings, and a plate slidably associated with the furnace for opening and closing said draft openings.

2. A laboratory device comprising a table having legs and an opening in its top, a metal cup

positioned within said opening and having a flange extending over a portion of the table top, means fastening said flange to said table top, an insulating material jacket lining the inner wall and bottom of said cup, an inner wall of insulating material fitting snugly within said insulating jacket and having its end extending slightly above the table top, a flange formed integrally with said wall of insulating material and extending over the top of the insulating jacket and a portion of said first-named flange, an electrical heating element mounted upon supporting lugs projecting inwardly from the inner side of said inner wall, said furnace being provided with a plurality of draft openings, and a plate slidably associated with the furnace for opening and closing said draft openings, said inner wall comprising a plurality of pieces, and each piece being provided with a tongue and a groove arranged to co-operate with the tongue and groove of a companion piece, to connect the pieces into a unitary structure.

3. A laboratory device comprising a table having legs and an opening in its top, a metal cup positioned within said opening and having a flange extending over a portion of the table top, means fastening said flange to said table top, an insulating material jacket lining the inner wall and bottom of said cup, an inner wall of insulating material fitting snugly within said insulating jacket and having its end extending slightly above the table top, a flange formed integrally with said wall of insulating material and extending over the top of the insulating jacket and a portion of said first-named flange, an electrical heating element mounted upon supporting lugs projecting inwardly from the inner side of said inner wall, said furnace being provided with a plurality of draft openings, and a plate slidably associated with the furnace for opening and closing said draft openings, said inner wall comprising a plurality of pieces, and each piece being provided with a tongue and a groove arranged to co-operate with the tongue and groove of a companion piece, to connect the pieces into a unitary structure, said lugs projecting beyond the heating element, to provide abutments preventing direct contact between a device inserted in the furnace and said electric element.

FRANCIS E. STREYSMAN.
MICHAEL T. STRIKOL.