W. A. KENNEDY AND A. J. MOTTLAU.

MULTIPLE UNIT ELECTRIC HEATER.

APPLICATION FILED MAY 26, 1920.

1,395,584.

Patented Nov. 1, 1921.

2 SHEETS—SHEET 1.

Fig. 2.

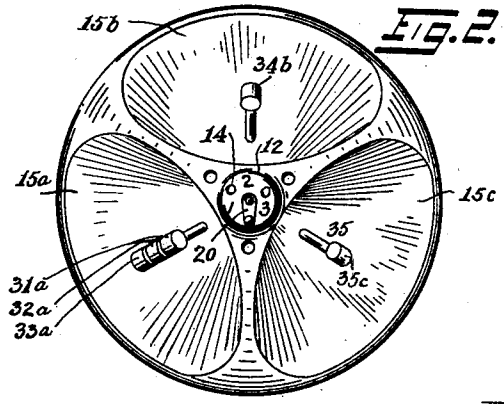



Fig. 1.

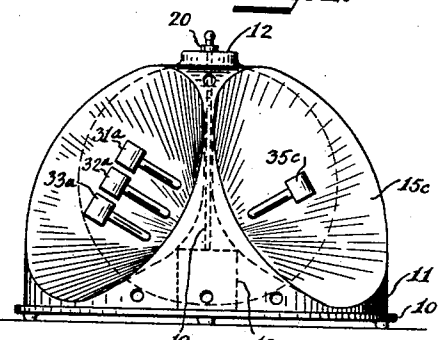



Fig. 3.

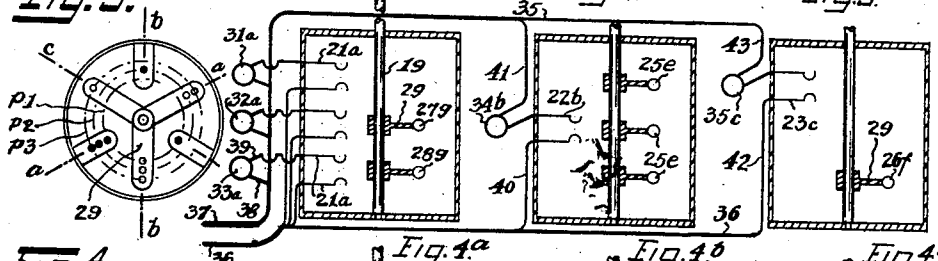



Fig. 3.a

Fig. 3.b

Fig. 3.c

Fig. 4.

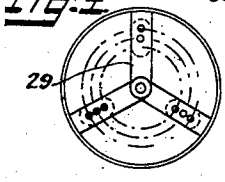



Fig. 4.a

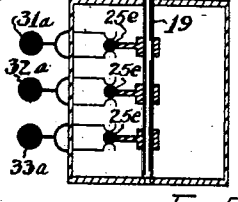



Fig. 4.b

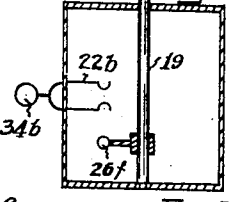



Fig. 4.c

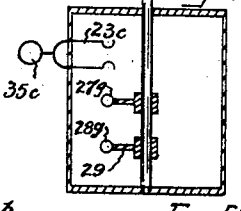



Fig. 5.

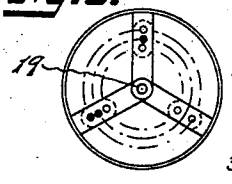



Fig. 5.a

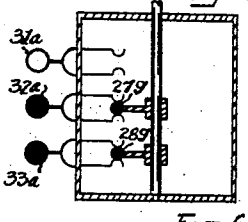



Fig. 5.b

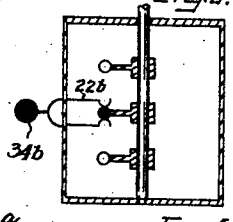



Fig. 5.c

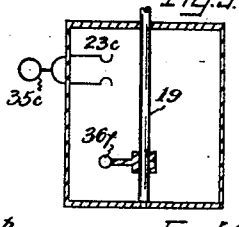



Fig. 6.

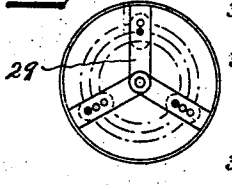



Fig. 6.a

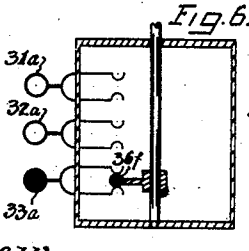



Fig. 6.b

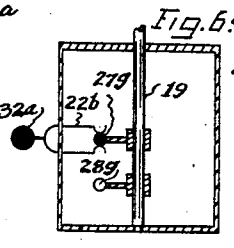
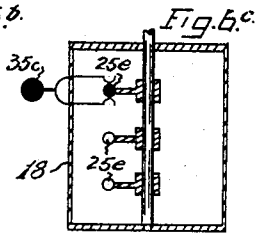



Fig. 6.c




By their Att'y,

F. H. Richards.

Inventors:

W. A. Kennedy & A. J. Mottlau,

W. A. KENNEDY AND A. J. MOTTLAU.

MULTIPLE UNIT ELECTRIC HEATER.

APPLICATION FILED MAY 26, 1920.

1,395,584.

Patented Nov. 1, 1921.

2 SHEETS—SHEET 2.

Fig. 8.

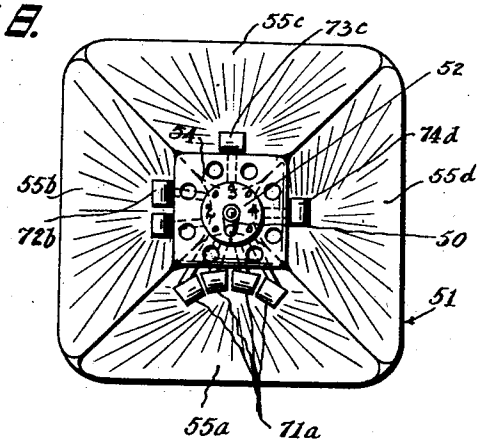



Fig. 7.

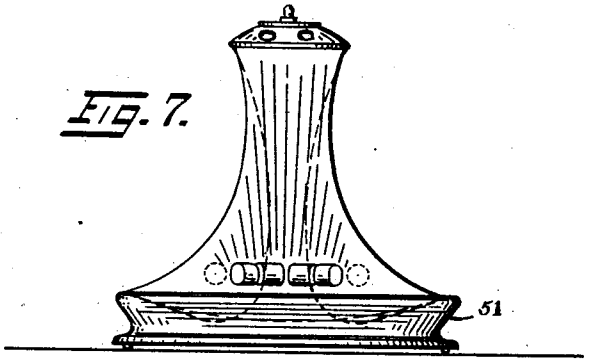



Fig. 9.

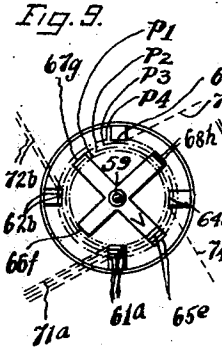



Fig. 10.

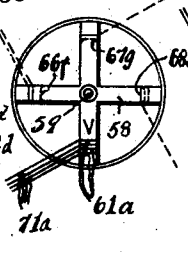



Fig. 11.

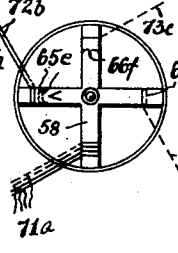



Fig. 12.

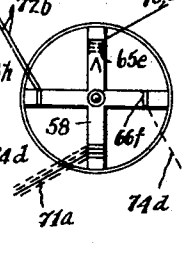
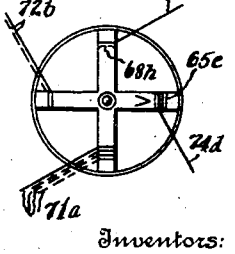



Fig. 13.




Inventors:

W. A. Kennedy,

A. J. Mottlau,

By F. H. Richards

Their Attorney

# UNITED STATES PATENT OFFICE.

WILLIAM A. KENNEDY, OF LEONIA, NEW JERSEY, AND AUGUST J. MOTTLAU, OF FAR ROCKAWAY, NEW YORK; SAID MOTTLAU ASSIGNOR TO SAID KENNEDY.

## MULTIPLE-UNIT ELECTRIC HEATER.

1,395,584. Specification of Letters Patent. Patented Nov. 1, 1921.

Application filed May 26, 1920. Serial No. 384,445.

*To all whom it may concern:*

Be it known that we, WILLIAM A. KENNEDY, a citizen of the United States, residing at Leonia, in the county of Bergen and State of New Jersey, and AUGUST J. MOTTLAU, a subject of the King of Denmark, residing at Far Rockaway, in the county of Queens and State of New York, have invented certain new and useful Improvements in Multiple-Unit Electric Heaters, of which the following is a specification.

This invention relates to electric heaters, for heating rooms, offices and other inclosures; and has for an object to provide a heater of this kind of artistic appearance; which may be easily and economically manufactured and operated; which will be durable in operation and not get out of order; with which heat may at will be projected; intensified in one direction or equally or unequally projected in all directions around the heater, or with adjustable intensities in one or more directions, and with which the heat may be varied by cutting in or out one or more separate heating units in various numbers and combination.

Other objects are to provide a switch of general application which will make connections for performing the operations above mentioned, and which may be operated by a single handle.

Other objects of the invention will appear as the description proceeds; and while herein minute details of the invention are described, the invention is not limited to these, since many and various changes may be made without departing from the scope of the invention as claimed.

In the accompanying drawing, showing by way of example two of many possible embodiments of the invention,

Figure 1 is an elevation of one form of the invention;

Fig. 2 is a plan thereof;

Fig. 3 is a diagrammatic horizontal sectional view of the electric switches;

Figs. $3^a$, $3^b$ and $3^c$ are diagrammatic vertical sectional views taken on the lines *a*—*a*, *b*—*b* and *c*—*c* respectively of Fig. 3 and showing the switches open; Figs. 4 to $6^c$ are views similar to Figs. 3 to $3^c$ respectively and showing different closed portions of the switch.

Figs. 7 and 8 are views similar to Figs. 1 and 2 and showing another form of the invention, and

Figs. 9 to 13 are diagrammatic views similar to Figs. 4, 5, 6 and 8.

The form of heater shown in Figs. 1 to $6^c$, comprises a base 10 (Fig. 1) on which rests a housing 11 having a circular top dial 12 with position indications 14 (Fig. 2) thereon, and three outwardly and upwardly inclined parabolic reflectors $15^a$, $15^b$ and $15^c$ disposed at equal angles apart though the invention is in no way limited as to the number of reflectors.

Within the housing 11 is a cylindrical switch casing 18 on said base 10 and co-axial with the housing and in which is disposed a switch spindle 19 co-axial with the casing and housing extending up through said dial 12 where it is provided with a manipulating indicator-handle 20 disposed over said indications 14.

Pairs of receiving spring switch-contacts $21^a$ (Fig. $3^a$), $22^b$ (Fig. $3^b$) and $23^c$ (Fig. $3^c$) are disposed in said casing 18 in vertical planes *a*—*a*, *b*—*b* and *c*—*c* (Fig. 3), 120 degrees apart and in three horizontal planes or paths diagrammatically indicated at $p^1$, $p^2$, and $p^3$ (Fig. 3), the first vertical plane *a*—*a* (Fig. $3^a$) containing a pair $21^a$ in each horizontal plane or path $p^1$, $p^2$ and $p^3$, the second vertical plane *b*—*b* (Fig. $3^b$) containing one pair $22^b$ in the middle plane or path $p^2$, and the third vertical plane *c*—*c* (Fig. $3^c$) containing one pair $23^c$ in the top plane or path $p^1$.

Switch knives $25^e$ (Fig. $3^b$) $26^f$ (Fig. $3^c$) $27^g$ and $28^g$ (Fig. $3^a$) are carried on arms 29 fixed on said spindle and adapted to be adjusted to engage between and electrically connect said contacts of each pair, the knives being disposed in said horizontal planes or paths $p^1$, $p^2$ and $p^3$, and in vertical planes or assemblies 120 degrees apart and corresponding to said first named vertical planes adapted at times to register with said first named vertical planes respectively. The first vertical plane or assembly (Fig. $4^a$) contains knives $25^e$ in all three horizontal planes. The second plane or assembly (Fig. $4^b$) comprises one knife $26^f$ in the lowest horizontal plane or path $p^3$ and the third plane or assembly (Fig. $4^c$) contains two knives $27^g$ and $28^g$, one each in the two lowest planes or paths $p^2$ and $p^3$.

Three heating units, $31^a$, $32^a$, $33^a$ are disposed substantially in the focus of said reflector $15^a$ and connected in series respectively with the switch contacts $21^a$ of said first vertical plane $a$—$a$; one heating unit $34^b$ in the focus of the reflector $15^b$ and heating unit $35^c$ associated with reflector $15^c$ are each connected in series with the pairs of switch contacts $21^a$, $22^b$ and $23^c$ respectively by means of conductors 36, 37, 38, 39, 40, 41, 42 and 43, by means of which current is supplied from any suitable source.

The operation of the device is very simple. If the handle 20 is moved to one of the three positions marked "0" on the dial 12, the various switch knives will take up portions midway between the pairs of contacts, as in Fig. 3, and no electrical contact will be made, as indicated by the uninked circles $31^a$ to $35^c$ in Figs. $3^a$ to $3^c$.

If, however, the handle 20 assumes the position indicated by numeral "1", the knives will assume the position indicated in Figs. 4 to $4^c$, and knives $25^e$ will bridge the spring contacts passing current through units $31^a$, $32^a$ and $33^a$ as indicated by the inked circles in Fig. $4^a$. At this position, however, the knife $26^f$ being in path $P^3$ does not register with contacts $22^b$, the latter being in path $P^2$. In like manner, knives $27^g$ and $28^g$ do not register with contacts $23^c$. Therefore, units $34^b$ and $35^c$ are not heated, as indicated by the uninked circles, and the heat of the three units $31^a$, $32^a$ and $33^a$ is projected substantially in a single direction.

In the second position (Figs. 5 to $5^c$), the heat of two units $32^a$ and $33^a$ is projected in one direction, and the heat of the single unit $34^b$ is projected in another direction, while the unit $35^c$ is cold.

In the position of Figs. 6 to $6^c$, the current is on only one unit of each reflector, units $31^a$ and $32^a$ being cold. Thus the heat is substantially evenly distributed all around the heater.

In the form of the invention shown in Figs. 7 to 13, the housing 51 comprises a circular top dial 52 having position indications 54 thereon, and form outwardly and upwardly inclined parabolic reflectors disposed equal 90 degrees apart.

In this form the switch-contacts are disposed in four different divisions 90 degree angles apart and in four different paths, $P^1$, $P^2$, $P^3$ and $P^4$ (Fig. 9), the first division containing four contacts $61^a$, one in each path. The second division contains contacts $62^b$ in the third and fourth paths $P^3$ and $P^4$. The third division contains one contact $63^c$ in the fourth path, and the fourth division contains one contact $64^d$ in the third path $P^3$.

Switch knives are carried on arms 58 (Fig. 10) fixed on the spindle 59 and are adapted to engage the contacts, said knives being disposed in said paths, and in four movable assemblies equal 90 degrees apart and arranged in the same order as said divisions and each adapted to become associated with any one of the said divisions respectively. The first movable assembly contains knives $65^e$ (Fig. 9) in all four paths; the second assembly contains one knife $66^f$ in the first path $P^1$; the third assembly contains one knife $67^g$ in the third path $P^3$; and the fourth assembly contains two knives $68^h$, one each in the third and fourth paths $P^3$ and $P^4$.

Four heating units $71^a$ are associated with the reflector $55^a$ and are connected with the switch contacts $61^a$ respectively of said first division; two heating units $72^b$ are associated with the reflector $55^b$ and connected to the contacts $62^b$ of the second division; one heating unit $73^c$ associated with the reflector $55^c$ and is connected in series with the contacts $63^c$ of the third division; and one heating unit $74^d$ associated with the $55^d$ reflector and is connected in series with the contacts $64^d$ of the fourth division.

The operation of the form of invention of Figs. 8 to 13 is very similar to that of Figs. 1 and 2. If the handle 50 is moved to one of the four positions marked "0" on the dial 52, the various switch knives will take up positions midway between the pairs of contacts, as in Fig. 9, and no electrical contact will be made, as indicated by the dotted lines $71^a$ to $74^d$ in Fig. 9; these dotted lines representing the heating units when no current is on. The same lines solid represent heating units with current and heat on.

If, however, the handle assumes the position indicated by the numeral "1" on the dial, the knives will assume the position of Fig. 10, and will engage the contacts $61^a$ passing current through the four units $71^a$ as indicated by the solid lines in Fig. 10. At this position, however, the knife $66^f$ being in path $P^3$ does not register with either contact $62^b$, the latter being in paths $P^3$ and $P^4$.

In like manner, knives $67^g$ and $68^h$ do not register with contacts $67^g$ and $68^h$. Therefore, units $72^b$ and $75^c$ are not heated, and the heat of the four units $71^a$ is projected substantially in a single direction.

In the second position (Fig. 11), the heat of two units $71^a$ is projected in one direction, as indicated by the solid lines, and the heat of the two units $72^b$ is projected in another direction, while the units $73^c$ and $74^d$ are cold, as indicated by dotted lines.

In the third position (Fig. 12), the heat of two units $72^b$ is projected in one direction, and the heat of single unit $73^c$ and one of units $71^a$ is projected in other directions, while the units $74^d$ and three of units $71^a$ are cold.

In the position of Fig. 13, the current is on only one unit of each reflector, three of

units $71^a$ and one of units $72^b$ being cold. Thus the heat is substantially evenly distributed all around the heater.

We claim:

1. In combination, a plurality of reflectors outwardly pointing in different directions as much as 90 degrees apart; heating units associated with the reflectors in different numbers respectively; and means for supplying current to said units in various numbers.

2. In combination, a plurality of reflectors disposed in different outward directions, the sum of the angles between said directions being greater than 90 degrees; heating units associated with the reflectors; and means for energizing to said units.

3. In combination, a plurality of reflectors disposed in different directions; heating units associated with the reflectors in various numbers; and means for energizing to said units in various numbers and combinations.

4. In combination, a plurality of reflectors outwardly pointing in directions equal angles apart, the sum of said angles equaling 360 degrees; and heating units associated with the reflectors.

5. In combination, a plurality of heating devices adapted to direct heat in different outward directions; and means for causing said devices to give off heat in various different combinations and intensities.

6. In combination, a plurality of heating devices and means for causing said devices to give off different heat intensities.

7. In combination, a plurality of heating devices and means for causing said devices to give off heat in various combinations and intensities.

8. In combination, a plurality of heating devices adapted to direct heat in different outward directions as much as 90 degrees apart.

9. In combination, a plurality of reflectors outwardly pointing in directions equal angles apart; a group of heating units associated with one of said reflectors; heating units associated with the other reflectors; and means for supplying current to said units in various numbers and combinations.

10. In combination, a plurality of switches adapted to be closed in different numbers and combinations; a plurality of reflectors; and heating units associated with the reflectors and connected with the respective switches.

11. In combination, a plurality of switch contacts disposed in several different divisions, some divisions containing more contacts than others; switch knives adapted to electrically engage or disengage different numbers and combinations of contacts at different positions of the knives; and heating units connected with the respective contacts.

W. A. KENNEDY.
A. J. MOTTLAU.

Witnesses:
H. D. PENNEY,
ACHILLES ROREGNO.