Dec. 6, 1955 F. LORENZO 2,726,034

COMBINATION TABLE FAN AND ELECTRIC LAMP

Filed Aug. 23, 1954 4 Sheets-Sheet 1

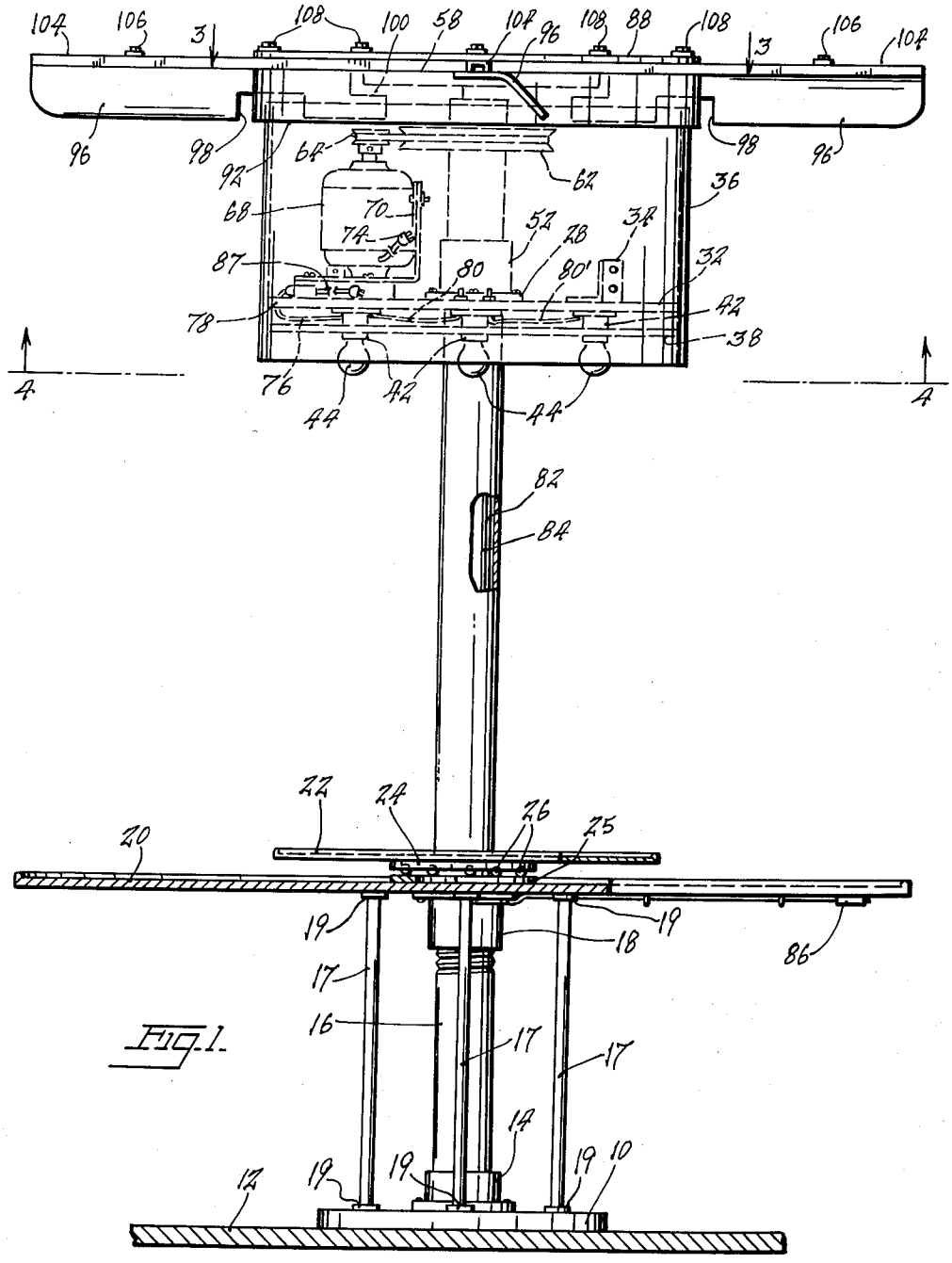


Fig. 1.

INVENTOR.
FRANCISCO LORENZO
BY
ATTORNEY

Dec. 6, 1955 F. LORENZO 2,726,034

COMBINATION TABLE FAN AND ELECTRIC LAMP

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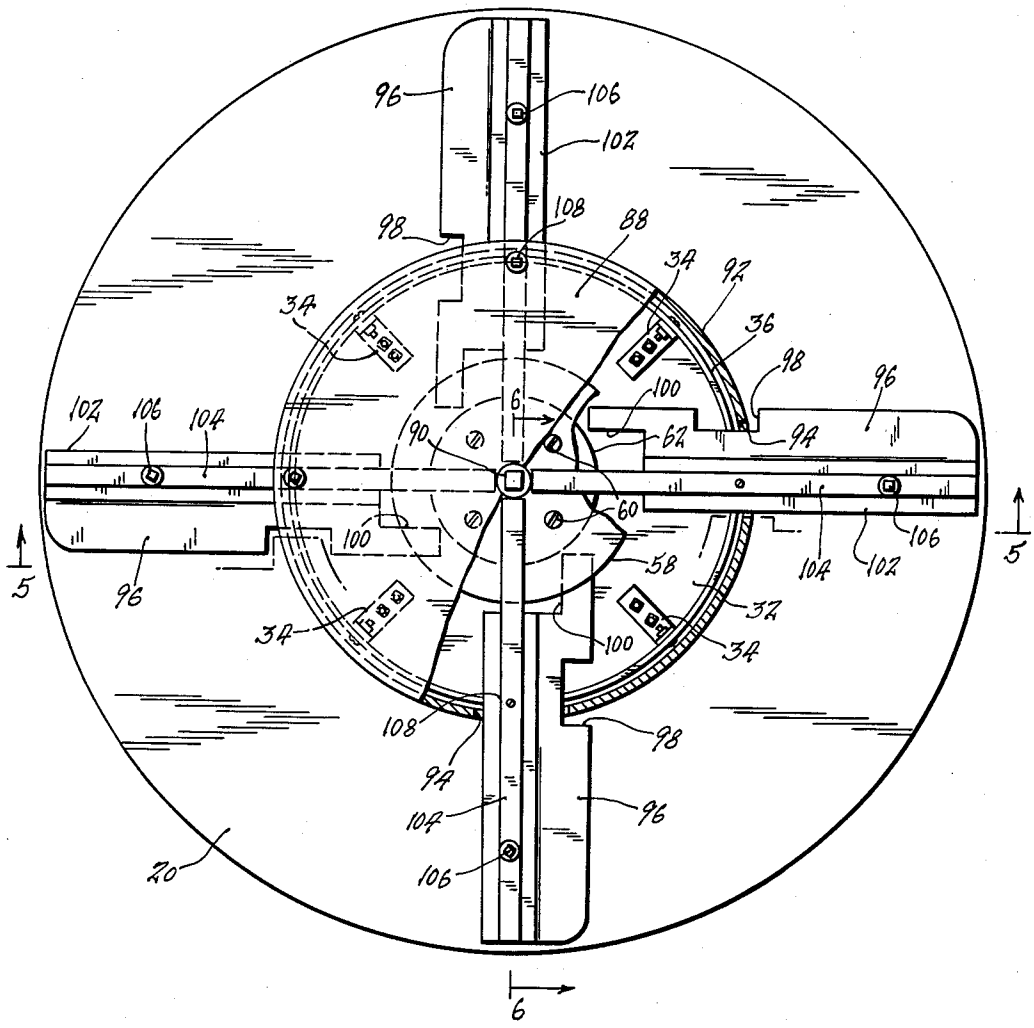


Fig. 2.

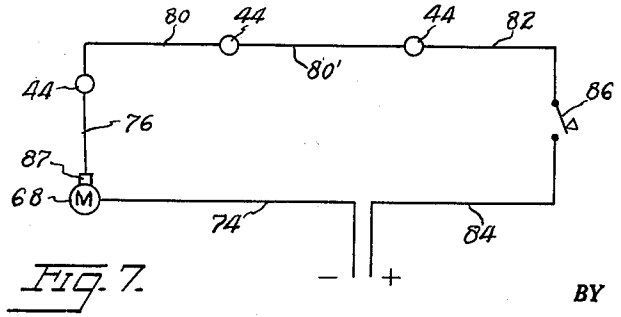


Fig. 7.

INVENTOR.
FRANCISCO LORENZO
BY
ATTORNEY

Dec. 6, 1955 F. LORENZO 2,726,034

COMBINATION TABLE FAN AND ELECTRIC LAMP

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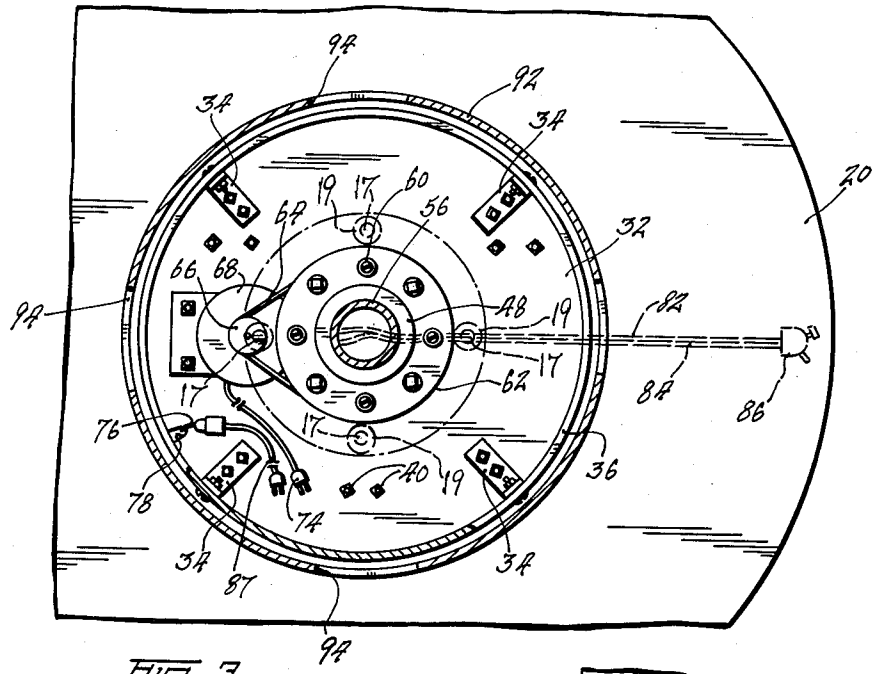


FIG. 3.

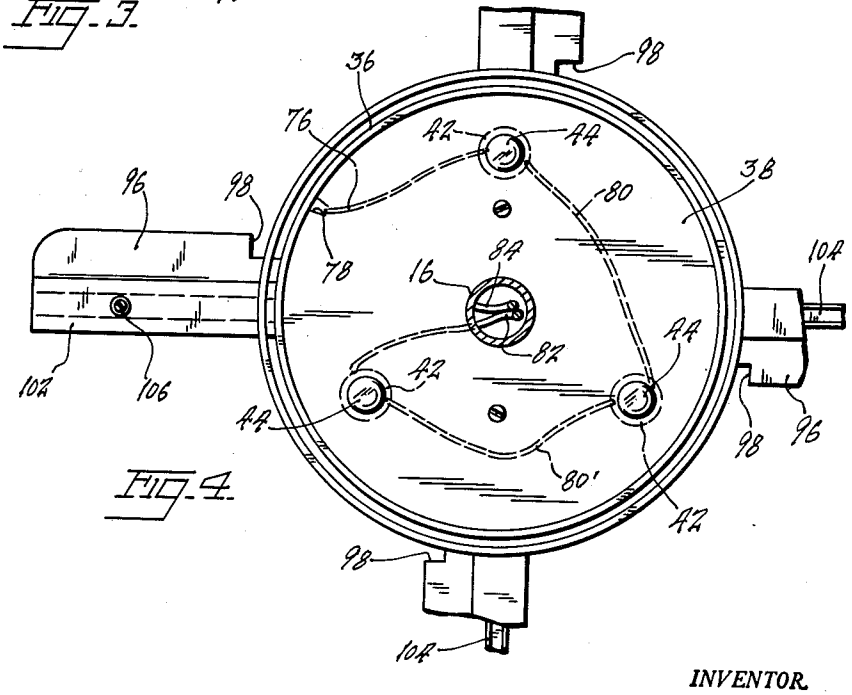


FIG. 4.

INVENTOR
FRANCISCO LORENZO
BY
ATTORNEY

Dec. 6, 1955 F. LORENZO 2,726,034

COMBINATION TABLE FAN AND ELECTRIC LAMP

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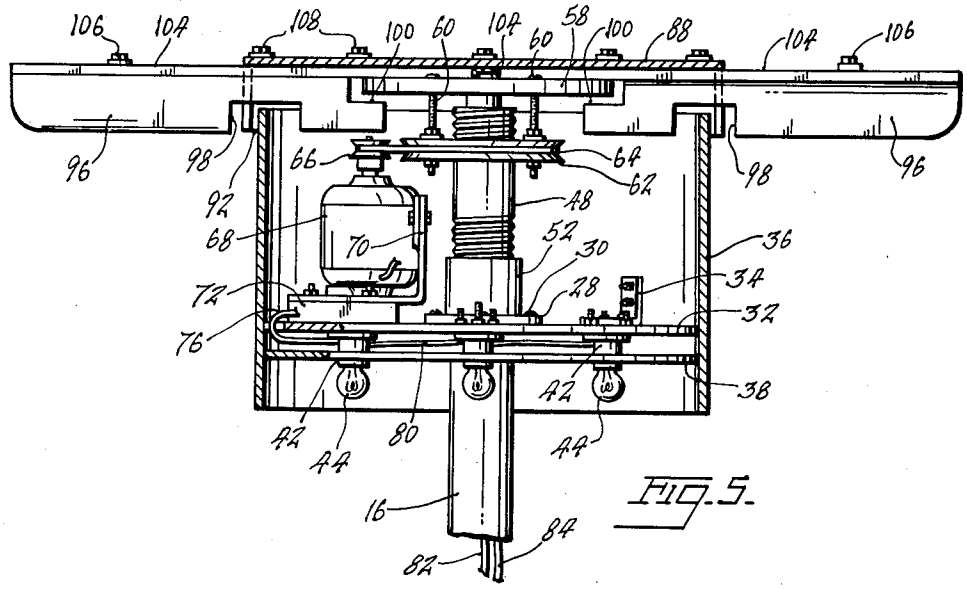


FIG. 5.

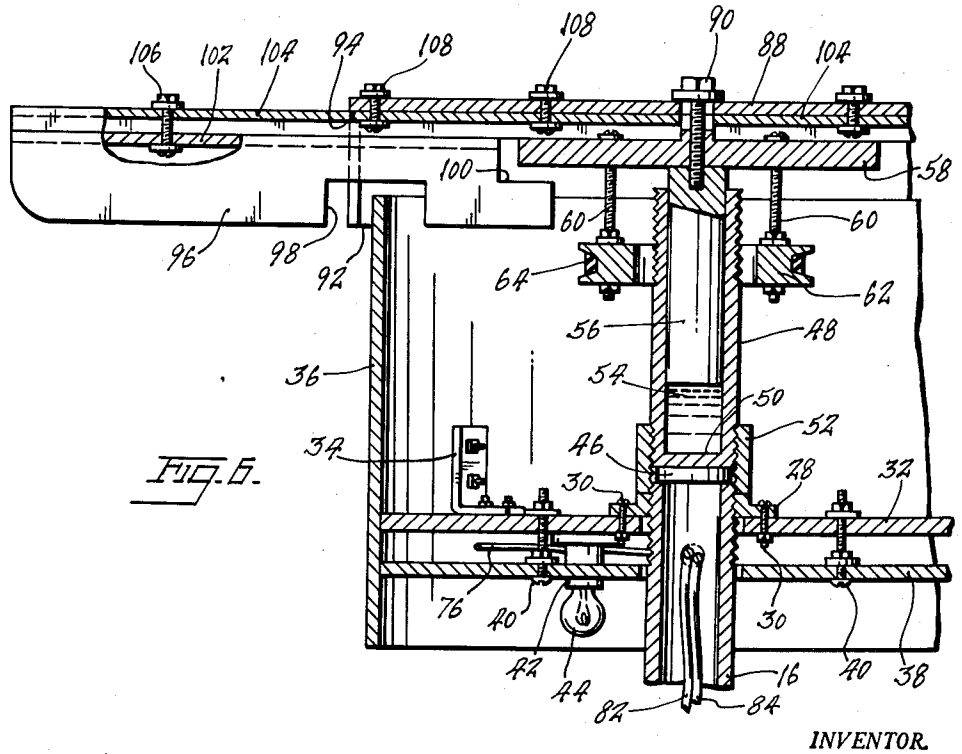


FIG. 6.

INVENTOR.
FRANCISCO LORENZO
BY Zoltan A. Polacsek
ATTORNEY

United States Patent Office 2,726,034
Patented Dec. 6, 1955

2,726,034

COMBINATION TABLE FAN AND ELECTRIC LAMP

Francisco Lorenzo, New York, N. Y.

Application August 23, 1954, Serial No. 451,634

9 Claims. (Cl. 230—241)

This invention relates to a combination dining table, overhead lamp for illuminating the same, and fan for directing a cooling breeze upon those seated at the table.

Among important objects of the invention are the following:

To incorporate a fan, table, and lamp in a single unitary structure usable to advantage in restaurant dining rooms and similar establishments, as well as in the home;

To novelly design the fan whereby it will also cool the motor associated therewith;

To locate, in a readily accessible location, switch means for the lamp and fan;

To associate with the table a readily rotatable condiment holder of the "Lazy Susan" type; and

To facilitate the assembly and disassembly of the structure, and particularly to novelly design the rotatable mounting of the fan blade structure so that it will be supported for rotation in a quantity of fluid, which will also act to lubricate the fan bearing.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a side elevational view of the combination structure embodying my invention.

Fig. 2 is a top plan view in which a part has been broken away.

Fig. 3 is a sectional view on line 3—3 of Fig. 1.

Fig. 4 is a sectional view on line 4—4 of Fig. 1.

Fig. 5 is a sectional view on line 5—5 of Fig. 2.

Fig. 6 is a sectional view on line 6—6 of Fig. 2.

Fig. 7 is a diagrammatic view showing the electric circuit.

A flat, circular, heavy base **10** is supported upon a floor **12**, and may be bolted thereto if desired. Centrally of the base, an upwardly opening, cylindrical, flanged socket **14** is bolted to the base. Threaded into the socket is the lower end of an elongated, vertical tubular standard **16**. External threads are provided on the standard intermediate its ends, said threads being closer to the lower than to the upper end of the standard. A sleeve **18** is internally threaded for engagement with the threads of the standard, the standard extending upwardly through said sleeve. On the upper end of sleeve **18**, an outwardly directed, circumferential flange has spaced apertures receiving bolts connected to a flat table **20** of circular outer configuration, formed to a large diameter to permit a number of persons to be seated therearound. Table **20** has a center opening through which standard **16** extends and is made rigid by a plurality of supporting posts **17** having end flanges **19** which are in turn secured to the top of the base **10** and to the bottom of the table **20**.

A flat, circular condiment holder or "Lazy Susan" **22** of substantially smaller diameter than that of the table **20** is centrally provided with a depending, circular boss

24 having a ball race therein in which ball elements **26** are disposed, said ball elements contacting a complementary race on a circular metal ring **25** secured on the table top, to support the holder **22** for free rotation upon the table top.

At its upper end (Fig. 6) standard **16** is externally threaded to engage internal threads on a connecting flange **28** having a circumferential series of apertures receiving bolts **30** passing through registering apertures spaced about the center opening of a flat, horizontally disposed, circular plate **32**.

Spaced 90° apart about the outer periphery of plate **32** (Fig. 3) are angle brackets **34** of L-shape, each having a horizontal leg bolted to and arranged radially of plate **32**, and a vertical leg extending upwardly from the horizontal leg. The vertical legs are apertured to receive bolts, that pass through registering apertures of a cylindrical housing **36**. Housing **36** is formed open at its upper and lower ends, and is vertically disposed in concentric relation to standard **16** and plate **32**. The marginal portion of the plate is in contact with the inner surface of the housing, intermediate opposite ends of the housing, but closer to the lower than to the upper end of the housing.

A circular bottom plate **38** is of a diameter equal to that of plate **32**. Plate **38** is spaced from plate **32**, being disposed below the plate **32** in contact with the inner surface of housing **36**. Bolts **40** arranged in an annular series pass through registering openings of plates **32**, **38** to fixedly connect the same. Mounted in openings formed in plate **38** (Fig. 4) are vertically disposed lamp sockets **42**, opening downwardly to receive depending lamps **44**, disposed to cast their beams upon the table **20**.

On the upper end of standard **16** (Fig. 6) a flat, circular plug **46** of wood or the like is seated. A vertical, tubular shaft housing **48** has a permanently closed lower end **50** engaged against plug **46**, housing **48** being externally threaded at its lower end to engage internal threads of a coupling sleeve **52**, that is also engaged with the upper end of standard **16**. A quantity of oil **54** or other lubricant is provided in shaft housing **48**, and extending within the shaft housing **48** is a vertically disposed, solidly formed spindle or stub shaft **56**, the upper end of which projects above shaft housing **48** and supports the center portion of a flat, circular center plate **58** of a fan blade structure.

A circumferential series of openings formed in center plate **58** receives downwardly extending connecting bolts **60**, passing through registering openings of the horizontally rotating pulley **62** circumposed about shaft housing **48**, out of contact with the shaft housing. A belt **64** is trained about pulley **62**, and also (Fig. 3) about a smaller drive pulley **66** secured to the upwardly extending shaft of an electric motor **68** mounted (Fig. 5) on an L-shaped bracket **70** carried by a motor mount **72** that is secured to and is supported upon plate **32**.

An electric cord **74** extends from motor **68** and is provided with a conventional electric plug insertable in a suitable receptacle, not shown, of an ordinary house circuit.

The motor is controlled from a switch located under the table top **20**, and connected in series with the motor are the several electric lamps. Thus, a conductor **76** extends from the motor through a notch **78** formed in the marginal part of plate **32**. Cord **76** (Fig. 4) extends to one of the lamp sockets, and extending from said one lamp socket is a lead **80** to the next lamp socket, another lead **80'** being extended to the last lamp socket. A lead **82** extends from said last lamp socket into standard **16**, and also extending into the standard **16** is a lead **84**. Leads **82**, **84** are connected to opposite sides of a

switch **86** mounted upon the underside of table **20** (Fig. 1).

An electric plug **87** connected to lead **76** is adapted to be plugged into a receptacle that is provided upon the motor, to connect the switch and lamp electrically to the motor. The arrangement is such as to cause movement of the switch to "on" position to be effective for closing a circuit through the lamps and motor, to operate the motor for turning a fan blade structure, simultaneously with illumination with table **20**.

The fan blade structure includes a flat, horizontally disposed blade support plate **88** that overlies and is spaced above the open upper end of housing **36**. A center opening of blade support plate **88** receives downwardly extending bolt **90** (Fig. 6) threaded into an upwardly opening, axial socket of spindle **56**, said bolt also being threaded into a center opening of plate **58**. In this way, spindle or stub shaft **56**, plate **58**, and plate **88** are all connected for joint rotation, the bolt **90** having a washer that bears tightly against the plate **88** to bind the same against rotatable movement relative to plate **58**.

Integrally formed upon the marginal part of the plate **88** is a depending skirt **92**, formed to an inner diameter slightly greater than the outer diameter of housing **36**, and slightly lapping the housing **36** as best shown in Figs. 5 and 6.

Recesses **94** are formed in the skirt (Fig. 2) and extending through the recesses are fan blades **96**. Four blades, spaced 90° apart, are provided in the illustrated example. However, the number can be increased or decreased as desired.

Blades **96** are pitched obliquely to the horizontal plane in which they rotate, so as to direct air downwardly toward the table top **20**. Blades **96** are formed, intermediate their ends, with downwardly opening notches **98** of rectangular shape, said notches being provided in the lower longitudinal edges of the blades **96** and receiving the upper end of housing **36**. Also formed in blades **96**, at the inner ends thereof, are right-angular recesses **100** providing a clearance for the marginal portion of center plate **58**.

The upper longitudinal edges of blades **96** are integrally formed with attaching flanges **102** lying in horizontal planes. Overlying flanges **102** in contact therewith, and arranged longitudinally and centrally of flanges **102** are downwardly facing channel bars or arms **104**. Arms **104** have openings receiving bolts **106**, passing also through registering openings of flanges **102** to fixedly secure the blades to the arms. The inner ends of the arms project inwardly a substantial distance beyond the inner ends of blades **96**, and are interposed as spacers between plates **98**, **88**. Registering openings are formed in plate **88** and the inner end portions of the arms **104**, receiving bolts **108** that fixedly connect the arms to the plate **88**.

By reason of the arrangement illustrated, the major portions of the fan blades are disposed externally of housing **36** to direct cooling air against the users of the table. However, the blades also have inner end portions, constituting the parts of the blades that extend from the inner end of the blades to the notches **98** within the housing **36**, which direct cooling air downwardly within housing **36** against motor **68**.

It is to be noted that the lubricating oil **54** supports the entire fan blade structure in the illustrated position, and of course, in a commercial embodiment, a suitable packing gland might be provided at the outer end of the shaft housing **48**, surrounding the spindle **56**, to insure against leakage of oil between the contacting surfaces of the spindle and shaft housing. The oil, at the same time, lubricates the stub shaft bearing defined by housing **48**, during rotation of the fan blades structure.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. A combination table, lamp, and fan comprising a standard, a table top supported thereby, a housing on the standard, a fan blade structure rotatable on the standard at one end of the housing in position to direct air against the table top, lighting means carried by the housing in position to illuminate said table top, a motor in the housing for driving said fan blade structure, and means electrically connecting the lighting means and motor for joint operation, the standard including at its upper end a detachable, axial, tubular extension constituting a shaft housing, the fan blade structure including a stub shaft extending vertically within said housing and freely rotatable within the housing.

2. A combination table, lamp, and fan comprising a standard, a table top supported thereby, a housing on the standard, a fan blade structure rotatable on the standard at one end of the housing in position to direct air against the table top, lighting means carried by the housing in position to illuminate said table top, a motor in the housing for driving said fan blade structure, and means electrically connecting the lighting means and motor for joint operation, the standard including at its upper end a detachable, axial, tubular extension constituting a shaft housing, the fan blade structure including a stub shaft extending vertically within said housing and freely rotatable within the housing, the shaft having a closed lower end, the stub shaft having a lower end terminating in spaced relation to the closed end of the housing, said shaft housing having a quantity of lubricant interposed between said lower end thereof and the lower end of the stub shaft, to support the stub shaft above the lower end of the shaft housing and to lubricate the stub shaft during rotation thereof.

3. A combination table, lamp, and fan comprising a standard, a table top supported thereby, a housing on the standard, a fan blade structure rotatable on the standard at one end of the housing in position to direct air against the table top, lighting means carried by the housing in position to illuminate said table top, a motor in the housing for driving said fan blade structure, and means electrically connecting the lighting means and motor for joint operation, the standard including at its upper end a detachable, axial, tubular extension constituting a shaft housing, the fan blade structure including a stub shaft extending vertically within said housing and freely rotatable within the housing, said first-named housing including a horizontally disposed plate circumposed about the standard adjacent the lower end of the first-named housing to close said first-named housing at its lower end, the motor being supported upon said plate.

4. A combination table, lamp, and fan comprising a standard, a table top supported thereby, a housing on the standard, a fan blade structure rotatable on the standard at one end of the housing in position to direct air against the table top, lighting means carried by the housing in position to illuminate said table top, a motor in the housing for driving said fan blade structure, and means electrically connecting the lighting means and motor for joint operation, the standard including at its upper end a detachable, axial, tubular extension constituting a shaft housing, the fan blade structure including a stub shaft extending vertically within said housing and freely rotatable within the housing, said first-named housing including a horizontally disposed plate circumposed about the standard adjacent the lower end of the first-named housing to close said first-named housing at its lower end, the motor being supported upon said plate, the fan blade structure including concentric, horizontally disposed, vertically spaced plates adjacent the upper end of the first-

named housing, said last-named plates closing the first-named housing substantially at its upper end.

5. A combination table, lamp, and fan comprising a standard, a table top supported thereby, a housing on the standard, a fan blade structure rotatable on the standard at one end of the housing in position to direct air against the table top, lighting means carried by the housing in position to illuminate said table top, a motor in the housing for driving said fan blade structure, and means electrically connecting the lighting means and motor for joint operation, the standard including at its upper end a detachable, axial, tubular extension constituting a shaft housing, the fan blade structure including a stub shaft extending vertically within said housing and freely rotatable within the housing, said first-named housing including a horizontally disposed plate circumposed about the standard adjacent the lower end of the first-named housing to close said first-named housing at its lower end, the motor being supported upon said plate, the fan blade structure including concentric, horizontally disposed, vertically spaced plates adjacent the upper end of the first-named housing, said last-named plates closing the first-named housing substantially at its upper end, said blade structure further including a plurality of radially extending fan blades, said blades projecting outwardly beyond the circumference of the first-named housing, and being spaced apart uniformly circumferentially of the fan blade structure.

6. A combination table, lamp, and fan comprising a standard, a table top supported thereby, a housing on the standard, a fan blade structure rotatable on the standard at one end of the housing in position to direct air against the table top, lighting means carried by the housing in position to illuminate said table top, a motor in the housing for driving said fan blade structure, and means electrically connecting the lighting means and motor for joint operation, the standard including at its upper end a detachable, axial, tubular extension constituting a shaft housing, the fan blade structure including a stub shaft extending vertically within said housing and freely rotatable within the housing, said first-named housing including a horizontally disposed plate circumposed about the standard adjacent the lower end of the first-named housing to close said first-named housing at its lower end, the motor being supported upon said plate, the fan blade structure including concentric, horizontally disposed, vertically spaced plates adjacent the upper end of the first-named housing, said last-named plates closing the first-named housing substantially at its upper end, said blade structure further including a plurality of radially extending fan blades, said blades projecting outwardly beyond the circumference of the first-named housing, and being spaced apart uniformly circumferentially of the fan blade structure, each of said blades having a downwardly facing notch, the upper end of the first-named housing extending into said notch.

7. A combination table, lamp, and fan comprising a standard, a table top supported thereby, a housing on the standard, a fan blade structure rotatable on the standard at one end of the housing in position to direct air against the table top, lighting means carried by the housing in position to illuminate said table top, a motor in the housing for driving said fan blade structure, and means electrically connecting the lighting means and motor for joint operation, the standard including at its upper end a detachable, axial, tubular extension constituting a shaft housing, the fan blade structure including a stub shaft extending vertically within said housing and freely rotatable within the housing, said first-named housing including a horizontally disposed plate circumposed about the standard adjacent the lower end of the first-named housing to close said first-named housing at its lower end, the motor being supported upon said plate, the fan blade structure including concentric, horizontally disposed, vertically spaced plates adjacent the upper end of the first-named housing, said last-named plates closing the first-named housing substantially at its upper end, said blade structure further including a plurality of radially extending fan blades, said blades projecting outwardly beyond the circumference of the first-named housing, and being spaced apart uniformly circumferentially of the fan blade structure, each of said blades having a downwardly facing notch, the upper end of the first-named housing extending into said notch, said notch of each blade being formed intermediate the opposite ends of the blade, that portion of the blade between the inner end thereof and the notch being disposed within the first-named housing so as to direct air downwardly against the motor to cool the same.

8. A combination table, lamp, and fan comprising a standard, a table top supported thereby, a housing on the standard, a fan blade structure rotatable on the standard at one end of the housing in position to direct air against the table top, lighting means carried by the housing in position to illuminate said table top, a motor in the housing for driving said fan blade structure, and means electrically connecting the lighting means and motor for joint operation, the standard including at its upper end a detachable, axial, tubular extension constituting a shaft housing, the fan blade structure including a stub shaft extending vertically within said housing and freely rotatable within the housing, said first-named housing including a horizontally disposed plate circumposed about the standard adjacent the lower end of the first-named housing to close said first-named housing at its lower end, the motor being supported upon said plate, the fan blade structure including concentric, horizontally disposed, vertically spaced plates adjacent the upper end of the first-named housing, said last-named plates closing the first-named housing substantially at its upper end, said blade structure further including a plurality of radially extending fan blades, said blades projecting outwardly beyond the circumference of the first-named housing, and being spaced apart uniformly circumferentially of the fan blade structure, each of said blades having a downwardly facing notch, the upper end of the first-named housing extending into said notch, said notch of each blade being formed intermediate the opposite ends of the blade, that portion of the blade between the inner end thereof and the notch being disposed within the first-named housing so as to direct air downwardly against the motor to cool the same, the upper one of the fan blade structure plates having at its periphery a depending skirt receiving the upper end of the first-named housing, said skirt having circumferentially spaced recesses through which the respective blades extend.

9. A combination table, lamp, and fan comprising a standard, a table top supported thereby, a housing on the standard, a fan blade structure rotatable on the standard at one end of the housing in position to direct air against the table top, lighting means carried by the housing in position to illuminate said table top, a motor in the housing for driving said fan blade structure, and means electrically connecting the lighting means and motor for joint operation, the standard including at its upper end a detachable, axial, tubular extension constituting a shaft housing, the fan blade structure including a stub shaft extending vertically within said housing and freely rotatable within the housing, said first-named housing including a horizontally disposed plate circumposed about the standard adjacent the lower end of the first-named housing to close said first-named housing at its lower end, the motor being supported upon said plate, the fan blade structure including concentric, horizontally disposed, vertically spaced plates adjacent the upper end of the first-named housing, said last-named plates closing the first-named housing substantially at its upper end, said blade structure further including a plurality of radially extending fan blades, said blades projecting outwardly beyond the circumference of the first-named housing, and being spaced apart uniformly circumferentially of the fan

blade structure, each of said blades having a downwardly facing notch, the upper end of the first-named housing extending into said notch, said notch of each blade being formed intermediate the opposite ends of the blade, that portion of the blade between the inner end thereof and the notch being disposed within the first-named housing so as to direct air downwardly against the motor to cool the same, the upper one of the fan blade structure plates having at its periphery a depending skirt receiving the upper end of the first-named housing, said skirt having circumferentially spaced recesses through which the respective blades extend, each blade including an arm at its inner end secured to and between the fan blade structure plates.

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