Dec. 16, 1952 M. FLETCHER 2,621,882

ADJUSTABLE SWINGING ARM UNIT FOR READING LAMPS

Filed Sept. 22, 1948

2 SHEETS—SHEET 1

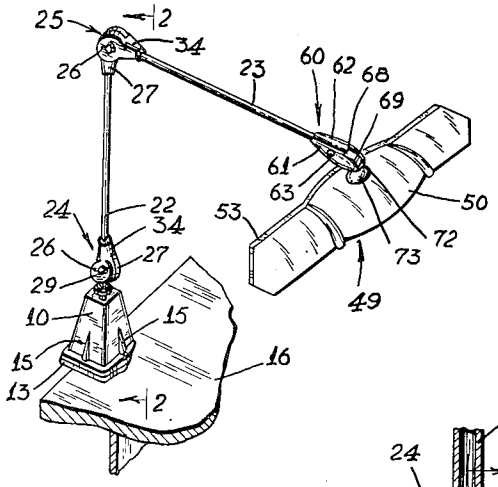


Fig. 1.

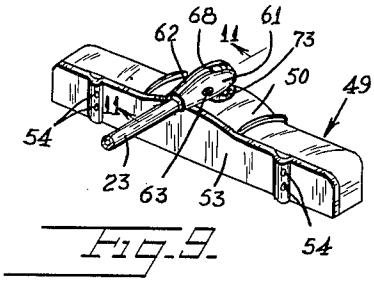


Fig. 9.

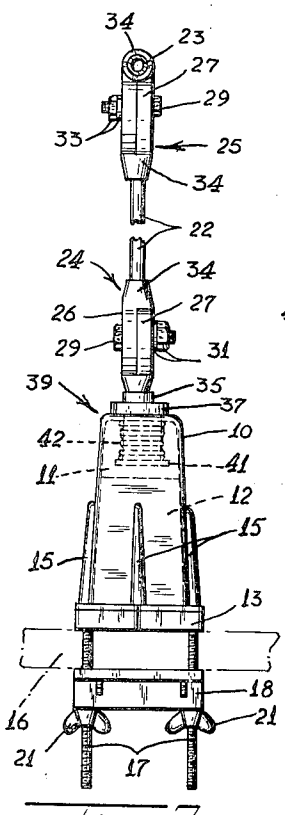


Fig. 2.

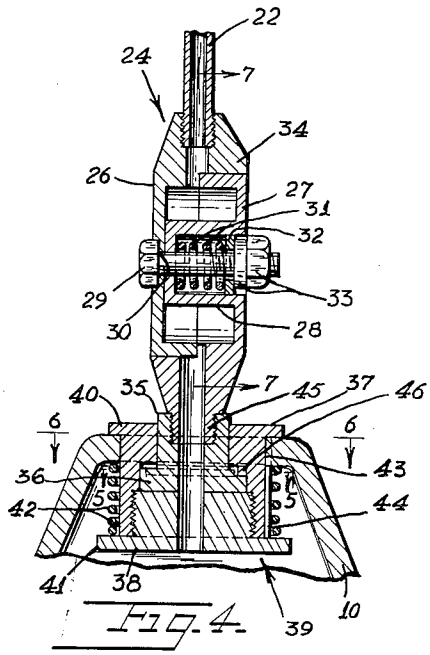


Fig. 4.

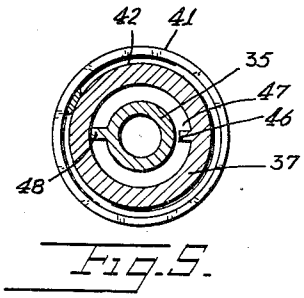


Fig. 5.

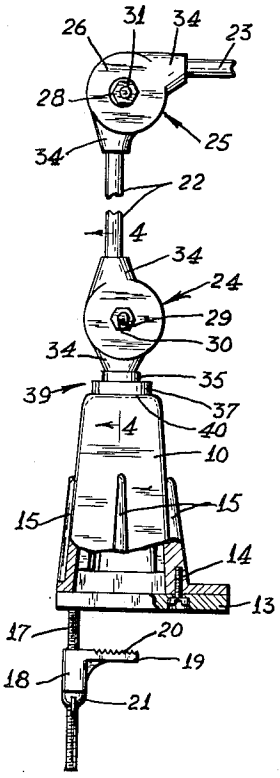


Fig. 3.

INVENTOR.
MILTON FLETCHER

BY

ATTORNEY

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2 SHEETS—SHEET 2

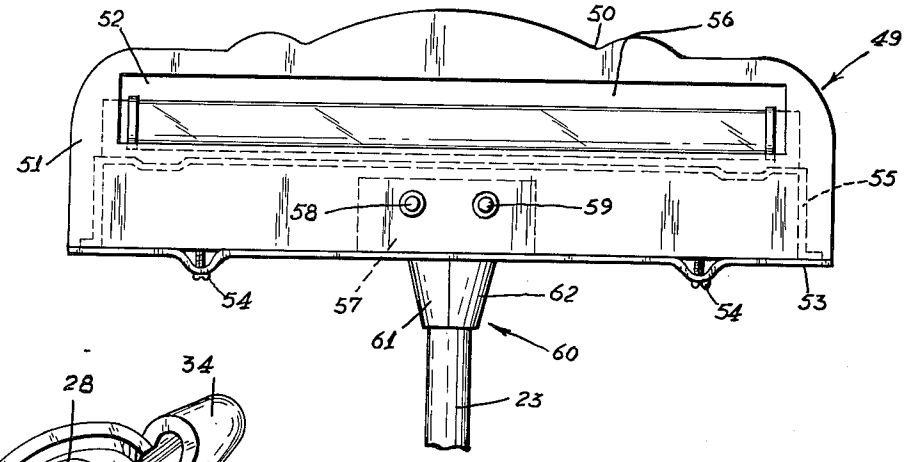


Fig. 10.

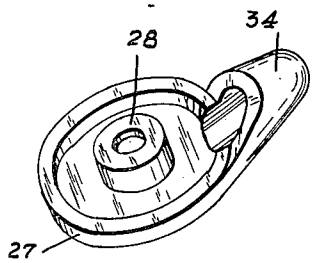


Fig. 8.

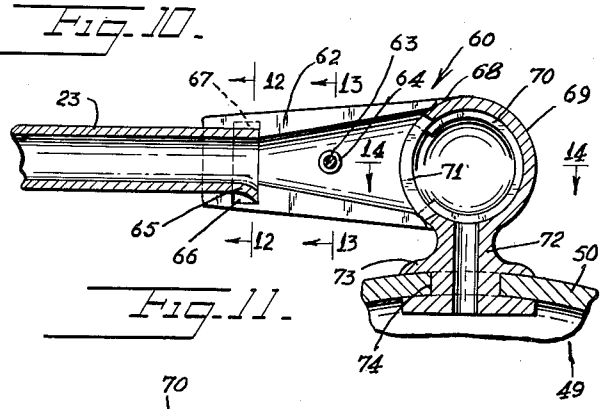


Fig. 11.

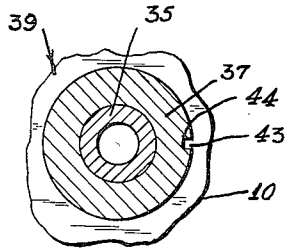


Fig. 6.

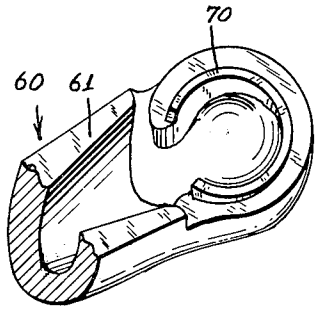


Fig. 15.

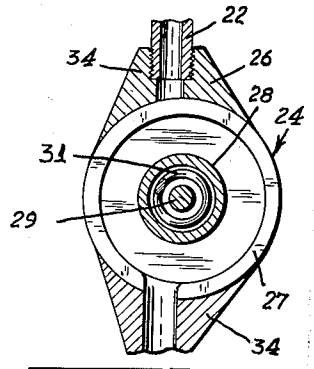


Fig. 7.

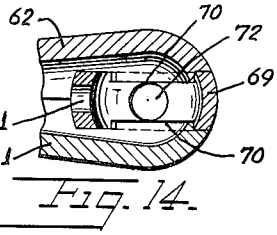


Fig. 14.

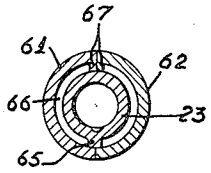


Fig. 12.

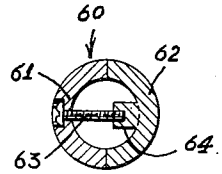


Fig. 13.

INVENTOR.
MILTON FLETCHER

BY

ATTORNEY

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ADJUSTABLE SWINGING ARM UNIT FOR READING LAMPS

Milton Fletcher, New York, N. Y.

Application September 22, 1948, Serial No. 50,622

2 Claims. (Cl. 248—285)

1

This invention relates to new and useful improvements in a reading lamp.

More particularly, the present invention relates to the construction of an novel reading lamp which may be quickly and easily clamped in position on a desk or similar support and which has a lamp head universally supported thereon in a manner to be capable of being shifted as may be desired to illuminate any object on a table or the like or any sheet of paper in a typewriter and the copy work on the desk alongside of the typewriter.

Still further it is proposed to characterize the lamp by a hollow base for housing a transformer and provided with an adjustable clamp jaw for engaging the bottom of the desk top in a manner to cooperate with the bottom of the hollow base for clamping the lamp in position on the desk top.

Another object of the present invention proposes the provision of a vertical arm and means for connecting the lower end of the vertical arm to the hollow base so that it may be turned on a horizontal axis or on a vertical axis in a manner to universally attach the lower end of the vertical arm to the base.

Still another object of the invention proposes the provision of a horizontal arm and means for pivotally connecting the end of the horizontal arm to the upper end of the vertical arm in a manner to be pivoted about a horizontal axis relative to the vertical arm to raise and lower the opposite end of the horizontal arm.

A further object of the present invention proposes the provision of a novel means for universally mounting the lamp head upon the free end of the horizontal arm in a manner so that the lamp may be adjusted relative to the horizontal arm about horizontal axes which extend at right angles to each other.

The present invention also proposes constructing the arms of tubular material and forming all of the connections between the various parts of the lamp with passageways therethrough so that all wires for the lamp within the lamp head may be passed through the arms and hollow connections.

It is a further object of this invention to construct a lamp which is simple and durable and which can be manufactured and sold at a reasonable cost.

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.

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

Fig. 1 is a perspective view of the reading lamp constructed in accordance with the present invention.

Fig. 2 is an enlarged vertical sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a side elevational view of Fig. 2, looking from the left side thereof.

Fig. 4 is an enlarged partial vertical sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is a partial horizontal sectional view taken on the line 5—5 of Fig. 4.

Fig. 6 is a horizontal sectional view taken on the line 6—6 of Fig. 4.

Fig. 7 is a partial vertical sectional view taken on the line 7—7 of Fig. 4.

Fig. 8 is a perspective view of one of the parts per se of one of the joints.

Fig. 9 is a perspective view of the lamp head per se looking from the back thereof.

Fig. 10 is a bottom plan view of the lamp head, per se.

Fig. 11 is a partial vertical section taken on the line 11—11 of Fig. 9.

Fig. 12 is a vertical sectional view taken on the line 12—12 of Fig. 11.

Fig. 13 is a vertical sectional view taken on the line 13—13 of Fig. 11.

Fig. 14 is a partial longitudinal vertical sectional view taken on the line 14—14 of Fig. 11.

Fig. 15 is a partial perspective view of one of the halves of the clamp.

The reading lamp, in accordance with the present invention, includes a hollow box-like base 10 having an open bottom and a compartment 11 therein for housing a transformer 12. The open bottom of the base 10 is closed by means of a plate 13 secured in position by several screws 14, one of which is seen in Fig. 3, passed upwards from the bottom face of the plate 13. At points where the screws 14 threadedly engage the base 10, the side walls of the base are thickened by means of bosses 15 providing a better grip for the screws 14. The transformer 12 is mounted on the top face of the plate 13 to be projected into the compartment 11 of the base 10 when the plate 13 is mounted in position across the open bottom of the base. Thhe bottom face of the plate 13 is adapted to rest on the top face of a desk top or other support 16, as shown in Figs. 1 and 2, adjacent one edge thereof.

The bottom face of the plate 13 has depended therefrom a pair of fixedly mounted vertical screws 17. A movable jaw 18 is vertically slidably

mounted on the screws 17 and has an offset portion 19 which is adapted to engage the bottom face of the desk top or other support 16. The top face of the offset portion 19 is formed with serrations 20, see Fig. 3, for tightly gripping the bottom face of the desk top or other support. A wing nut 21 is threadedly engaged on each of the screws 17 for holding the movable jaw 18 in an adjusted position in which the edge portion of the desk top or other support 16 will be tightly clamped between the adjacent faces of the movable jaw 18 and the plate 13.

A vertical arm 22 extends vertically from the base 10 and a horizontal arm 23 extends laterally from one side of the top end of the vertical arm 22. The arms 22 and 23 are formed of tubular stock. A joint 24 indirectly connects the bottom end of the vertical arm 22 to the base 10 so that the vertical arm 22 may be pivoted about a horizontal axis relative to the base 10. A second joint 25 connects the adjacent ends of the arms 22 and 23 so that the horizontal arm 23 may be pivoted about a horizontal axis relative to the vertical arm 22.

Each of the joints 24 and 25 is alike in construction and each comprises a pair of opposed cup-shaped members 26 and 27 which are circular in transverse cross-section and which are turnably connected together with their open sides contacting each other, see Fig. 4. The cup-shaped member 27 of each joint is formed with an inwardly extending tubular boss 28 which extends into and abuts the inside face of the cup-shaped member 26. A bolt 29 has its head seated within a complementary recess 30 formed in the outside face of the cup-shaped member 26 so as to securely hold the bolt 29 against rotation. The threaded shank of the bolt 29 is passed through the side wall of the cup-shaped member 26 and concentrically through the tubular boss 28.

Within the tubular boss 28 there is concentrically mounted on the threaded shank of the bolt 29, and expansion coil spring 31 and a washer 32. A pair of lock nuts 33 threadedly engage the extended end of the bolt 29 and hold the coil spring 31 under sufficient tension to hold the cup-shaped members 26 and 27 in proper facial engagement with each other and still permit movement of the cup-shaped members relative to each other about the bolt 29 as their horizontal axis.

Each of the cup-shaped members 26 and 27 are formed with radially extending bosses 34 and the bosses adjacent the ends of the arms 22 and 23 are internally threaded so that the adjacent ends of the arms 22 and 23 may be connected with their respective cup-shaped members 26 or 27. The bosses 34 are of a diameter to overlap the adjacent cup-shaped members 26 or 27, as shown in Fig. 4. Thus, the cup-shaped members 26 and 27 may be turned relative to each other until the bosses 34 contact each other limiting further turning in the direction in which the cup-shaped members were being turned.

Means is provided to connect the cup-shaped member 27 of the joint 24 to the base 10 so that it may be turned about a vertical axis which movement will be transmitted to the vertical arm 22 through the joint 24. This means comprises a tubular bushing 35 having a bottom outwardly extending flange 36 clamped between an upper section 37 and a lower section 38 of a nut 39. The upper section 37 is formed with an outwardly extending flange 40 which engages the top face of the base 10 and a tubular portion which rotatively extends into the base 10. The lower section 38 is threadedly engaged into the upper section 37 and is formed with an outwardly extending flange 41. An expansion spring 42 within the base 10 operates between the adjacent faces of the flange 41 and the inside face of the top wall of the base 10 holding the nut 39 in a lowered position in which the bottom face of the flange 40 engages the top face of the top wall of the base 10. The spring 42 permits a slight vertical movement of the nut 39 relative to the base 10.

The material of the top wall of the base 10 surrounding the nut 39 is formed with an inwardly extending projection 43 which engages a vertical groove 44 formed in the side of the upper section 37 of the nut 39 for retaining the nut against rotation while leaving the same free to move vertically against the holding action of the spring 42.

The tubular bushing 35 is rotative within the nut 39 and the boss 34 of the cup-shaped member 27 of the joint 24 is formed with a downwardly extending externally threaded projection 45 which is threadedly engaged into the upper end of the tubular bushing 35 connecting the joint 24 to the rotatively mounted tubular bushing 35 so that when the bushing 35 rotates about its vertical axis, the joint 24 and parts supported thereby will be similarly rotated.

A lug 46 extends from the upper section 37 of the nut 39 and extends into a groove 47 formed in the top face of the flange 36 of the tubular bushing 35. At one point the flange 36 of the tubular bushing 35 is formed with a radial projection 48 which is adapted to be engaged by the lug 46 to restrict rotation of the tubular bushing 35 in any one direction relative to the nut 39; thus, the bushing 35 may be rotated in either direction through a distance slightly less than 360 degrees.

A lamp head 49 is mounted on the free outer end of the horizontal arm 23 and includes an artistically formed top 50 including a bottom wall 51 formed with an aperture 52. The back of the top 50 is open and is closed by a rear wall 53 secured in position by removable screws 54. A U-shaped bracket 55 is mounted on the inside face of the rear wall 53 and supports the usual fluorescent lamp 56 in position over the aperture 52 of the bottom wall 51, see Fig. 10. Mounted on the bottom wall 51 within the top of the lamp head 49 there is a switch 57 having the usual operating buttons 58 and 59 projected from the bottom wall 51 to be depressed for turning the fluorescent lamp 56 on and off. Further details of the lamp head 49 will not be given in this specification and wiring between the transformer 12 and the lamp 56 has been omitted for clearness in illustrating the constructional details of the lamp and as such wiring is generally known in the art. It is pointed out, however, that the wires of the circuit are extended through the tubular arms 22 and 23 and the joints which connect the arms to the base 10, to each other and to the lamp head 49 and the contact parts which limit rotation of the various parts in any one direction are essential to prevent the internal wires from being twisted and broken due to excessive turning in any one direction.

Means is provided for connecting the lamp head 49 to the free end of the horizontal arm 23 so that the lamp head 49 may be turned relative to the horizontal arm 23 on horizontal axes which extend at right angles to each other. This means comprises a clamp 60 formed of separate sections 61 and 62 and releasably connected together by

a screw 63 which freely passes through the section 61 and which threadedly engages a projection 64 formed within the section 62, see Figs. 11 and 13.

The end of the horizontal arm 23 is formed with a stamped out boss 65 which engages aligned complementary grooves 66 formed on the inside faces of the sections 61 and 62. This permits rotation of the clamp 60 and the lamp head 49 about a horizontal axis which extends parallel to the length of the arm 23 and retains the clamp 60 against longitudinal movement relative to the arm 23. At the top of the grooves 66, the sections 61 and 62 of the clamp 60 are formed with adjacent contact stops 67 arranged to be engaged by the boss 65 to restrain rotational movements of the clamp 60 relative to the horizontal arm 23 through an arc slightly less than 360 degrees to prevent twisting of the wires which pass through those parts.

The front ends of the sections 61 and 62 of the clamp 60 are cut away forming an opening 68 within which a ring 69 is disposed. Semi-circular ridges 70 extend from the sections 61 and 62 on opposite sides of the opening 68 and extend into opposite sides of the ring 69 supporting the ring for pivotal movement relative to the clamp 60 about a horizontal axis which extends at right angles to the horizontal arm 23. The side of the ring 69 within the clamp 60 is formed with an elongated slot 71 through which pass the wires for conveying electrical energy to the fluorescent lamp 56.

The ring 69 is further formed with a radially depended tubular neck 72 formed intermediate of its ends with an outwardly extending flange 73 which engages the top face of the top 50 of the lamp head. The free end of the neck passes through an opening 74 formed in the top 50 and has its end milled over for clamping the top 50 in position on the neck 72 against the flange 73.

It is apparent that the present invention provides a novel lamp arrangement in which the lamp head 49 is universally supported relative to the base 10, so that the position of the lamp head 49 may be adjusted as desired to suitably illuminate any object or sheet of paper. While all joints are freely rotative their rotative freedom in any one direction is always limited to an arc of less than 360 degrees so as to protect the wires which pass through the hollow parts against damage caused by excessive turning in any one direction.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions 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. Means rotatively attaching the bottom end of a vertical arm of a lamp to a hollow base including a top wall having a hole comprising a nut having an upper section and a lower section, said upper section being extended through the hole of the top wall and having an outwardly directed flange at its top and engaging the top face of the top wall, said upper section having an internal recess extended in from its bottom end and an aperture extended from the top of said recess through the top of said upper section, a bushing extended rotatively through said aperture and having an outwardly directed flange within said recess, the bottom end of the vertical arm being mounted on the top of said bushing, said lower section having a flange at its bottom end and being threaded into the bottom of said recess retaining the bushing in position in the top thereof, said upper section being vertically slidably but non-rotatively mounted through the top wall, and a spring retaining said nut in a lowered position with the flange of said upper section resting on the top face of the top wall and said spring bearing on the flange of the lower section, said vertically slidable but non-rotative mounting of said upper section comprising an inwardly extended projection formed on the material of the top wall surrounding the hole, said upper section being formed with a vertically extended groove into which said projection extends.

2. Means rotatively attaching the bottom end of a vertical arm of a lamp to a hollow base including a top wall having a hole comprising a nut having an upper section and a lower section, said upper section being extended through the hole of the top wall and having an outwardly directed flange at its top end engaging the top face of the top wall, said upper section having an internal recess extended in from its bottom end and an aperture extended from the top of said recess through the top of said upper section, a bushing extended rotatively through said aperture and having an outwardly directed flange within said recess, the bottom end of the vertical arm being mounted on the top of said bushing, said lower section having a flange at its bottom end and being threaded into the bottom of said recess retaining the bushing in position in the top thereof, said upper section being vertically slidably but non-rotatively mounted through the top wall, and means retaining said nut in a lowered position with the flange of said upper section resting on the top face of the top wall, said retaining means comprising the outwardly extended flange formed on the bottom end of said lower section, and an expansion spring engaged about said upper section and operating between the bottom face of the top wall and the top face of the flange of said lower section.

MILTON FLETCHER.

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