Nov. 29, 1927. 1,651,090

F. A. HART

LAMP

Filed Feb. 1, 1926

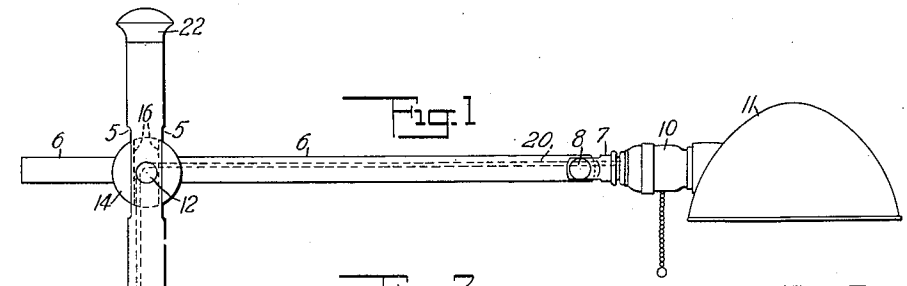


Fig. 1

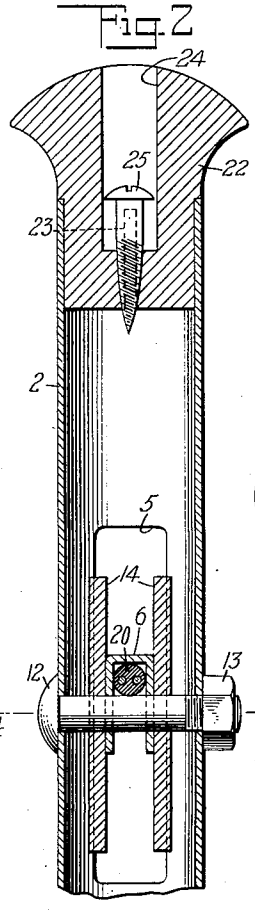


Fig. 2

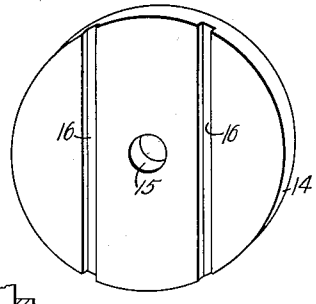


Fig. 3

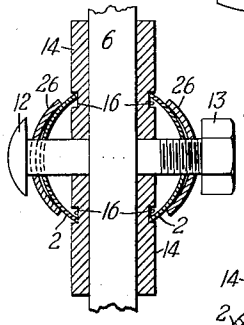


Fig. 6

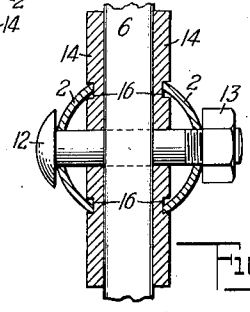


Fig. 4

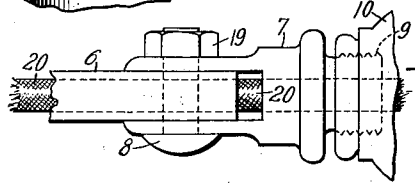


Fig. 5

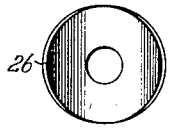


Fig. 7

WITNESSES

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UNITED STATES PATENT OFFICE.

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LAMP.

Application filed February 1, 1926. Serial No. 85,219.

My invention relates to lamps of the sort that stand on the floor and have an adjustable extension arm which carries the light.

My invention has for its principal object to provide certain improvements in lamps of the character mentioned.

To the above and other ends my invention consists in certain features of construction and combinations and arrangements of parts, all of which will be fully set forth herein and particularly pointed out in the claims.

In the accompanying drawings,

Fig. 1 is an elevation on a reduced scale of a lamp embodying my invention.

Fig. 2 is a vertical central section through the upper part of the lamp stand.

Fig. 3 is a perspective view of one of the friction disks.

Fig. 4 is a plan view in section on the line 4—4 of Fig. 2.

Fig. 5 is a top view of one of the joints.

Fig. 6 is a view similar to Fig. 4 but showing a preferred construction.

Fig. 7 is a view of a washer used in the construction shown in Fig. 6.

The lamp shown in the drawing is designed to stand on the floor and to hold an incandescent electric light in a suitable position for the use of a person working at a desk. This particular lamp was more especially designed for the use of persons operating typewriting and adding machines.

The lamp comprises a cast base 1 of sufficient breadth and weight to keep the lamp from being easily turned over, an upright or standard 2, consisting of a piece of rather light tubing, preferably steel, inserted in a suitable hole in the base 1 and suitably secured in position there, as for example, by a set screw 3. Near its upward end the tube 2 has two diametrically opposite holes 5 made therein, these holes being made with straight up and down sides as shown in Fig. 2. An extension arm 6 passes through these two holes 5 and has a piece 7 pivoted thereto on a bolt 8. This nipple is threaded as shown at 9 and has a lamp socket 10 screwed on to it in the usual way, and attached to said socket there is shown in the drawing a shade and reflector 11. Said socket 10 and reflector 11 may be of any ordinary and suitable sort.

The arm 6 may consist of a piece of tubing of rectangular cross section, but I find it cheaper and just as good to employ instead a channel bar of the form shown in Fig. 2, made by making two longitudinal right-angular bends in a strip of sheet metal, the open side being down.

The joint between the arms 6 and standard 2 is of novel and advantageous construction. It comprises a bolt 12, inserted through holes pierced in the standard 2 and through the side walls of the arm 6, a nut 13 screwed on to the end of said bolt and two friction disks 14, each having a hole 15 through which the bolt passes. These disks which lie flat against the sides of the arm 6, communicate the pressure of the nut through the standard 2 to said arm so as to furnish the friction desirable for holding the arm in any position to which it may be moved while permitting it to be readily adjusted by hand up and down. It is desirable to make the standard 2 of rather light tubing and it was found that if plane disks 14 were employed the metal of the tube 2 would be spread by the pressure of the head of the bolt and the nut 13 and it was not practicable to get the desired degree of friction without distorting the tube. For that and other reasons I have made the disks 14 with shoulders, arranged to take the lateral pressure of the edges of the standard bounding the perforations 5 to prevent the spreading of the tube under the pressure of the bolt. These shoulders can be produced by providing up and down ribs on the disks 14 but I find it more convenient to cut in the outer surface of each disk two grooves 16 as shown in Figs. 3 and 4, these grooves being so spaced that the edges of the holes 5 in the tube 2 just fit into them. The outer walls of the grooves furnish the necessary shoulders to prevent the spreading of the tube as will be readily understood from an inspection of Fig. 4. By this means a rather light steel tube is stiffened to such an extent as to furnish an entirely satisfactory degree of friction to maintain the arm 6 in whatever position the user moves it to.

In addition to stiffening the tube 2, the grooves 16 prevent the disks 14 from turning when the arm 6 is swung up or down. The rubbing is therefore confined to the inner surfaces of the said disks and to that part of the outer surface of the arm 6 which is enclosed or embraced by the said disks. The exterior surface of the lamp may therefore be finished in any desired ornamental way and no visible part of the finish will be

rubbed or marred by the swinging of the arm. For this reason it is preferable that the disks 14 be of circular outline and that the hole 15 be in the center of each disk.

It will be noted that the construction is neat, inexpensive and efficient. The holes 5 are preferably punched inward and therefore leave no burrs. The disks 14 may be punched out of sheet stock and the grooves 16 are easily made.

The pivoted piece 7 may be a brass casting having on its outer end screw threads to fit the ordinary lamp socket 10 and at its other end, bifurcated as shown so as to form two cheeks which may be drawn by the nut 19 on said bolt into frictional engagement with the flat sides of the arm 6. This piece 7 is of course provided with a hole through it for the cord 20, said cord passing out of the socket 10 through the piece 7 and into the upper part of the arm 6 above the bolt 8. The cord also passes above and back of the bolt 12, down through the upright standard 2, and out near the base of said standard through a suitable insulating washer 21. The tension on the cord will be sufficient to prevent it from sagging down in the arm 6 to a point where it will be visible.

The upper end of standard 2 may be finished in any suitable way. In the present instance a turned wooden plug or stopper 22 is inserted with a fairly good fit in the upper end of the tube. This plug or end piece has a saw-cut 23, indicated by dotted lines in Fig. 2, extending diametrically across it from the bottom of the plug up to about the level of the top of the tube. An axial counter-bore 24 from the top of the plug extends down deep enough to intersect the upper part of the slot 23, and a tapered wood screw 25 is screwed through the plug as shown. This screw has the effect of a wedge to tighten the plug in the tube 2, this action being permitted by the saw-cut 23 without splitting the plug.

While my lamp is described primarily as a floor lamp, it will of course be understood that the standard tube may, if desired, be shortened and the lamp adapted to stand on some higher support than the floor.

In Figs. 6 and 7 I have shown the same construction as in the other figures and as above described, but have added two washers 26 on the bolt 12, one of said washers being placed between the head of said bolt and the tube 2, and the other between the nut 13 and said tube. These may be round sheet metal washers bent into cylindrical or arched form, but with a radius of curvature a little less than that of the tube 2. This appears in Fig. 6 where the parts are shown before the nut 13 is tightened, and it will be seen that two opposite edges of each washer contact with the tube, but the middle part of the washer stands a little away from the tube. When the nut is tightened, the washer is sprung by the pressure into about the same radius of curvature as the tube, which it embraces closely. These washers greatly stiffen the arched portions of the standard against the pressure of the bolt and enable me to employ a lighter tubing for the standard 2 than is practicable without them, the washers enabling the thin tubing to withstand the necessary pressure without undue distortion. By using these washers I have been able to make a satisfactory standard 2 of welded steel tubing of a thickness of only about twenty-five thousandths of an inch, and which tubing would be crushed in by the bolt 12 and nut 13 if used without the washers.

Various changes may be made in the details of construction and arrangements without departing from my invention.

What I claim as new and desire to secure by Letters Patent, is:

1. In a lamp, the combination of a thin tubular standard perforated on opposite sides, the metal surrounding the edges of said perforations being yieldable, a light-supporting arm passing through said perforations, friction disks in said perforations, each of said disks being provided with shoulders registering with the side edges of said perforations to take the lateral or spreading pressure of said edges and prevent crushing or distortion of said tubular standard, and means for applying transverse pressure to said standard and through it to said friction disks and by the latter to the light-supporting arm.

2. In a lamp, the combination of a thin tubular standard having opposite perforations, the metal surrounding the edges of said perforations being yieldable, an arm extending through said perforations, friction disks in said perforations and between which said arm is mounted, said disks having shoulders registering with the side edges of said perforations to take the lateral or spreading pressure of said edges and prevent crushing or distortion of said tubular standard, and a bolt extending through said standard, said disks and said arm and serving both as a pivot for said arm and as means for applying pressure to produce friction between said arm and said disks.

3. In a lamp, the combination of a thin tubular standard having longitudinal perforations on opposite sides thereof, the metal surrounding the edges of said perforations being yieldable, an arm passing through said perforations, friction disks in said perforations and pressing against said arm, each of said disks being grooved, and the edges bounding said perforations lying in the grooved parts of each disk so that the walls of said grooves may take the lateral or spreading pressure of the edges bounding

said perforations and prevent crushing or distortion of said tubular standard, and a pivot extending through said standard, said disks and said arm and serving to apply pressure to produce friction between said disks and said arm.

4. In a lamp, the combination of a thin tubular standard having two oppositely disposed perforations in its walls, said perforations having straight sides extending longitudinally of said standard and the metal of the standard through which said perforations are made being yieldable, two friction disks in said perforations and each made with two grooves to receive the straight edges of said perforations and to prevent crushing or distortion of said tubular standard, an arm between said disks and a pivot bolt for said arm arranged also to put pressure on said standard and disks to frictionally restrain said arm.

5. In a lamp, the combination of a thin tubular standard, an arm to support an electric light, said standard having oppositely disposed perforations through which said arm passes, the metal surrounding the edges of said perforations being yieldable, friction disks in said perforations and on opposite sides of said arm, said disks being provided with shoulders registering with the side edges of said perforations to take the lateral or spreading pressure of said edges and prevent crushing or distortion of said tubular standard, a pivot bolt passing through said standard, disks and arm and supplying the pressure to produce the necessary friction, and a cord of insulated wire passing through said standard over said pivot bolt and along said arm to supply current to said lamp.

6. In a lamp, the combination of a thin tubular standard having opposite perforations, the metal surrounding the edges of said perforations being yieldable, an arm extending through said perforations, friction disks in said perforations and between which said arm is mounted, said disks having shoulders registering with the side edges of said perforations to take the lateral or spreading pressure of said edges and prevent crushing or distortion of said tubular standard, a bolt extending through said standard, said disks and said arm and serving both as a pivot for said arm and as means for applying pressure to produce friction between said arm and said disks, and washers for said bolt arched to embrace said standard.

7. In a lamp, the combination of a thin tubular standard having opposite perforations, the metal surrounding the edges of said perforations being yieldable, an arm extending through said perforations, friction disks in said perforations and between which said arm is mounted, said disks having shoulders registering with the side edges of said perforations to take the lateral or spreading pressure of said edges and to prevent crushing or distortion of said tubular standard, a bolt extending through said standard, said disks and said arm and serving both as a pivot for said arm and as means for applying pressure to produce friction between said arm and said disks, and sheet metal washers for said bolt each of said washers made in the shape of an arch having a radius of curvature less than that of said standard and sprung by the pressure of said bolt into substantial conformity to the curvature of said standard.

8. In a lamp, the combination of a thin tubular standard having oppositely disposed perforations, the metal surrounding the edges of said perforations being yieldable, friction disks in said perforations, a light-supporting arm extending through said perforations between said disks, said arm consisting of a channel shaped flat bar made by forming a strip of sheet metal with an upper wall and two vertical walls to form flat surfaces to be embraced between said disks, a pivot bolt for said arm acting also to put the necessary frictional pressure on said disks, means on said disks to prevent spreading of said standard under such pressure, and a cord running through said standard and through said flat light-supporting arm to the electric light socket which is supported by said arm.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York, this 28th day of January, A. D. 1926.

FREDERICK A. HART.