United States Patent

Johnson

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[54] **TROLLEY MOUNTED ELECTRICAL OUTLET**

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[52] **U.S. Cl.** **191/50,** 191/35, 104/89

[51] **Int. Cl.**.....**B60m 1/34,** B60l 5/00

[58] **Field of Search**.....104/89, 91, 93, 95, 106, 107, 104/109; 105/148, 149, 150, 152, 153; 191/45, 46, 50, 59, 63; 174/69.1, 99 B; 240/76, 78 R, 78 B, 78 CF

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[57] **ABSTRACT**

An elongated support rail including a pair of opposite side longitudinal track portions facing upwardly and a third downwardly facing longitudinal track portion. A suspended trolley is supported from the rail and provided with opposite side wheels rollingly engaged with the side track portions and central wheels rollingly engaged with the third track portion. The central wheels are spaced longitudinally of the rail and are supported from the trolley for vertical adjustment relative to the side wheels and the side wheels comprise electrical contact rollers which are insulatively supported from the trolley and are operative to conduct electrical current from the opposite side track portions, the latter being constructed of conductive material and insulatively supported relative to each other for connection with a suitable source of electrical potential.

5 Claims, 4 Drawing Figures

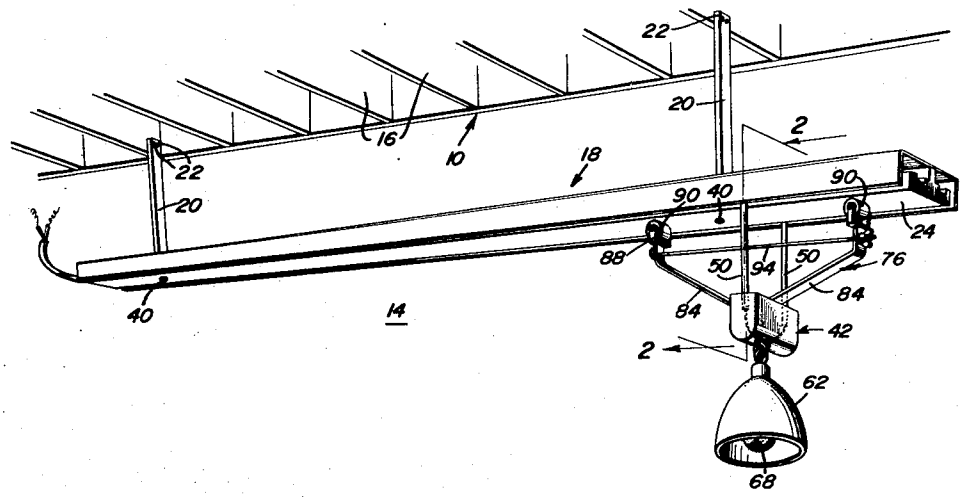


Fig. 1

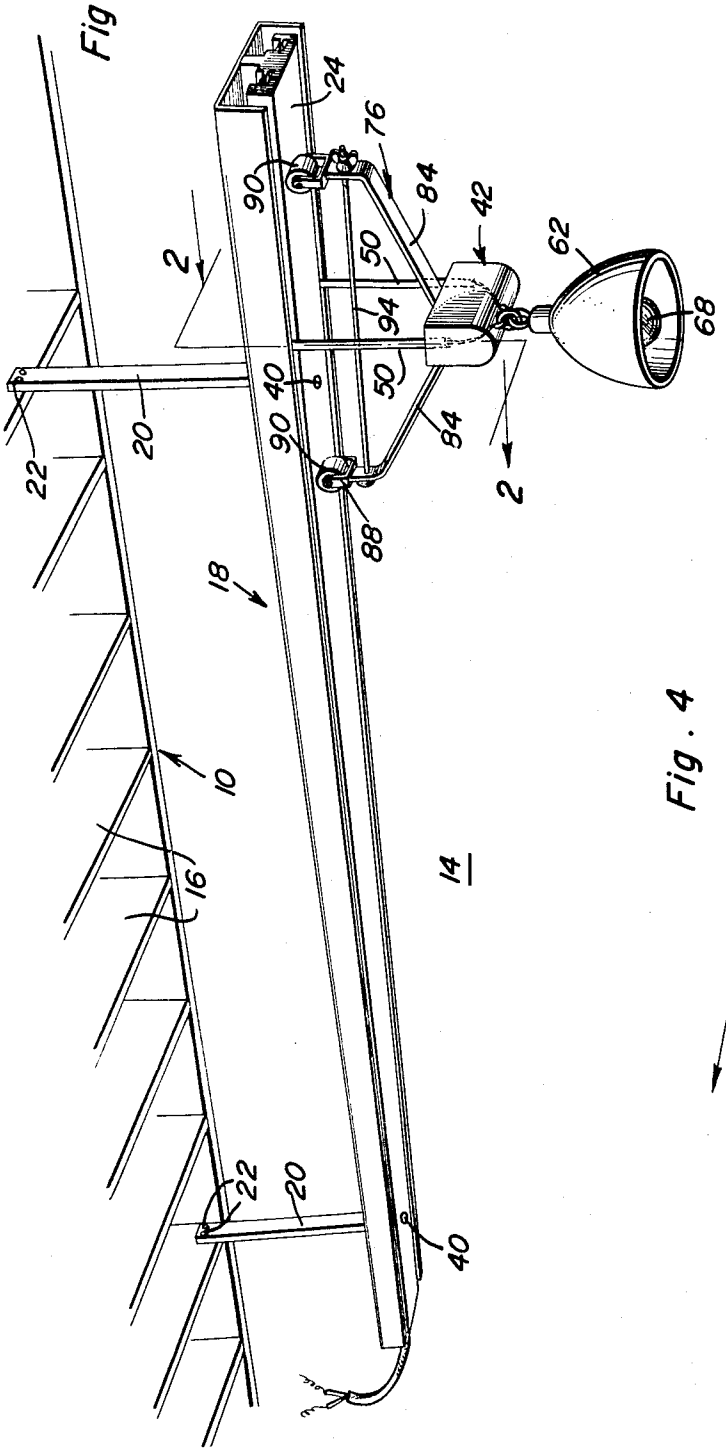
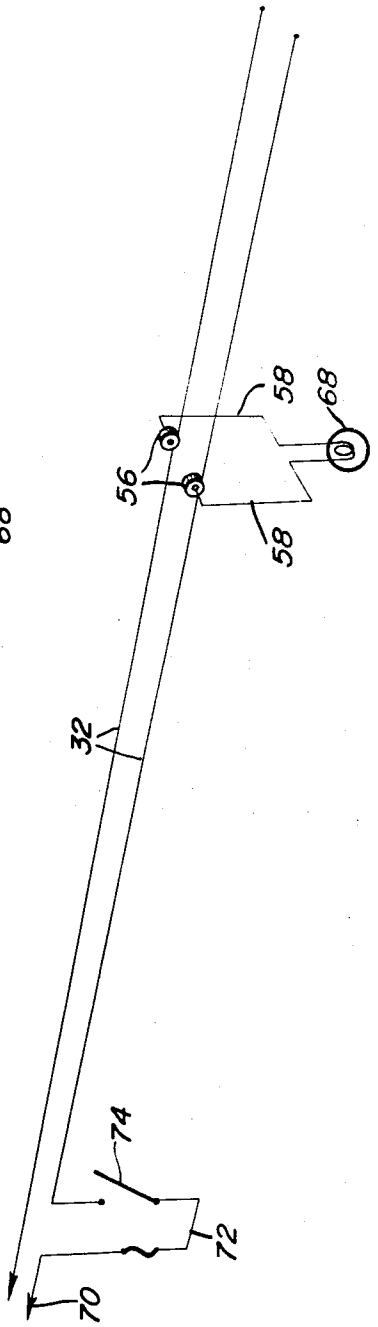


Fig. 4



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Fig. 3

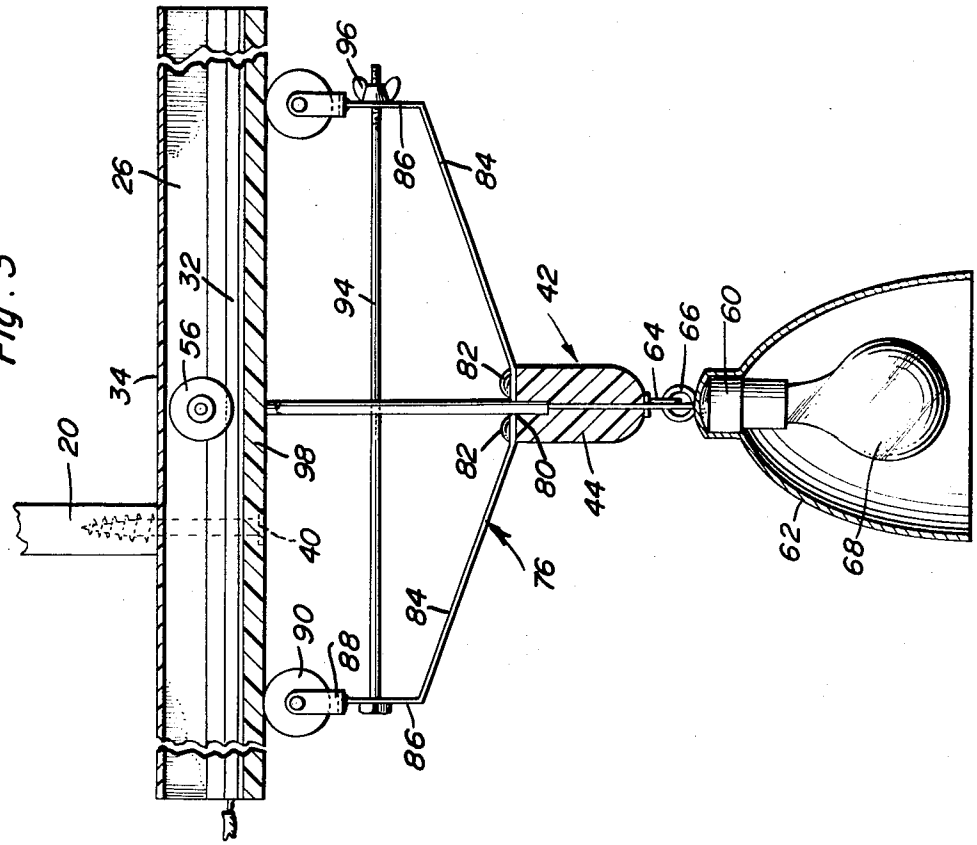
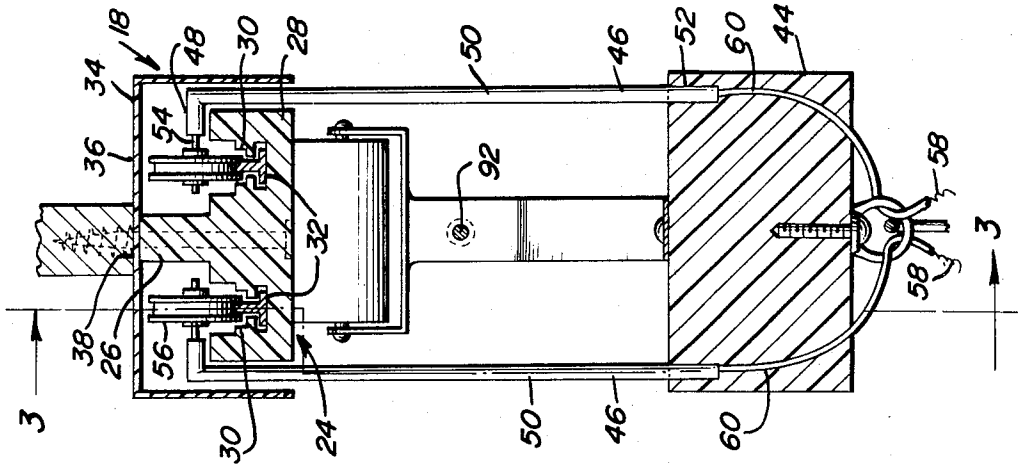


Fig. 2



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TROLLEY MOUNTED ELECTRICAL OUTLET

The trolley mounted electrical outlet of the instant invention has been specifically designed for use in providing a mobile source of electrical potential for electrically actuated illumination means or other electrical appliances.

The assembly comprising the instant invention may be readily mounted in non-illuminated storage areas, in garages or workshops wherein a movable light source or electrical outlet for electrical applicances would be beneficial, or with the support beam portion of the assembly recessed in the ceiling of any room. Further, the assembly may be utilized in conjunction with any electrically actuatable form of illumination means such as an incandescent lamp, a fluorescent lamp, or a neon lamp, etc.

The support rail or beam portion of the invention may be conveniently constructed of various lengths and in a manner whereby a plurality of beam or rail sections may be joined together with appropriate means provided for electrically connecting the conductor rail portions of the beam. In this manner, the support rail or beam portion of the invention may be of any length desired.

The main object of this invention is to provide a trolley mounted electrical outlet which may be conveniently utilized to provide a mobile electrically actuated illumination assembly or a mobile source of electrical potential for powering various electrical appliances.

Another object of this invention is to provide a trolley mounted electrical outlet constructed in a manner whereby the electric rail portions and contact wheels or rollers thereof are maintained in fully enclosed positions thereby greatly reducing any possibility of accidental contact with an electrified portion of the apparatus.

Still another object of this invention is to provide an assembly in accordance with the preceding objects and constructed in a manner whereby it may be readily mounted in various environments.

A final object of this invention to be specifically enumerated herein is to provide a trolley mounted electrical outlet which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble-free in operation.

These together with other objects and advantages which will become subsequently apparent reside in details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is a perspective view of the trolley mounted electrical outlet assembly of the instant invention illustrated as supported in suspended relation beneath floor beams of a building structure;

FIG. 2 is an enlarged fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 2—2 of FIG. 1;

FIG. 3 is a fragmentary longitudinal vertical sectional view taken substantially upon the plane indicated by the section line 3—3 of FIG. 2 and on somewhat of a reduced scale; and

FIG. 4 is a schematic view of the electrical circuitry of the assembly comprising the instant invention.

Referring now more specifically to the drawings, the numeral **10** generally designates a building structure including an area **14** disposed beneath a plurality of side-by-side flooring beams **16**. The space **14** may comprise a basement, an attic, or a crawl space beneath any portion of the building structure **10**, etc.

The trolley mounted electrical outlet assembly of the instant invention is generally referred to by the reference numeral **18** and includes a pair of generally vertical suspension members **20** whose upper ends are secured to selected beams **16** by any suitable fasteners **22**.

The assembly **18** also includes an elongated support rail referred to in general by the reference number **24** and which is generally inverted T-shaped in cross-section including a vertical leg **26** and a lower horizontal crossleg or flange **28**.

The support rail **24** is constructed of any suitable dielectric material such as plastic and a pair of opposite side upwardly opening longitudinal grooves **30** are formed in the upper surface of the flange **28**. Each of the grooves **30** has an elongated conductive inverted T-shaped rail **32** interlocked therein and the assembly **18** includes an elongated inverted channel-shaped cover **34** which is also constructed of dielectric material. The cover **34** loosely embraces the support rail **24** with the undersurface of the top wall **36** of the cover **34** resting upon the upper surface **38** of the leg or flange **26**. A plurality of lag screws **40** are secured upwardly through the support rail **24** and the top wall **36** and threadedly engaged in the lower ends of the standard or support members **20** whereby the support rail **24** is securely suspended from the rafters **16**.

The assembly **18** includes a trolley structure referred to in general by the reference numeral **42** and it may be seen from FIGS. **1** through **3** of the drawings that the trolley structure includes a dielectric body **44** which extends transverse to the longitudinal extent of the support rail **24** and has a pair of opposite side inverted L-shaped tubular support members **46** supported therefrom. The support members **46** include short upper horizontal leg portions **48** and long depending vertical leg portions **50**. The leg portions **48** and **50** are tubular and the support members **46** may each also be constructed of dielectric material. The lower ends of the legs **50** are secured in upwardly opening counterbores **52** formed in the opposite ends of the body **44** and a pair of inwardly directed conductive stub axle members **54** are secured in the legs **48** and a pair of conductive contact wheels **56** are journaled on the adjacent ends of the stub axles **54** and rollingly engaged with the rails **32**. The contact wheels **56** are grooved for mating with and guided rolling engagement on the upper extremities of the rails **32** and the upper ends of a pair of insulated conductors **58** are electrically connected to the remote ends of the stub axles **64**. The conductors **58** extend down through the tubular legs **50** of the support members **46** and also downwardly through bores **60** formed through the body **44**.

A bulb socket-defining electrical receptacle **60** including a shield **62** is suspended beneath the undersurface of the body **44** by means of a pair of interconnected rings **64** and **66** carried by the body **44** and the receptacle **60** and the conductors **58** are electrically

connected with suitable contact portions (not shown) within the receptacle 60 and with which the corresponding electrical contacts (not shown) of the incandescent lamp bulb 68 are engaged when the lamp bulb 68 is screwed into the receptacle 60. Thus, with attention now invited more specifically to FIG. 4 of the drawings, when the rails 32 are electrically connected with a suitable source 70 of electrical potential through a fused switch controlled connecting conductor 72, electrical actuation of the light bulb 68 may be controlled by the switch 74 serially connected in the conductor 72.

The trolley structure 42, as above described, is fully operative. However, if the support rail 24 was slightly angularly displaced about its longitudinal axis, one of the contact wheels 56 might not be rollingly engaged with its corresponding rail 32. Further, if either end of the rail 24 was lower than the other end, the trolley structure 42 would have a tendency to roll toward the lower end of the rail 24. Accordingly, a shallow V-shaped arm assembly referred to in general by the reference number 76 is supplied. The apex portion 80 of the assembly 76 is secured to the upper surface of the body 44 between the legs 50 of the support members 46 by means of suitable fasteners 82. The free upwardly divergent ends of the arm members 84 of the arm assembly 76 terminate upwardly in generally parallel upstanding terminal ends 86 and the upper extremity of each terminal end 86 includes an upwardly opening bifurcated mount 88 between whose furcations an elongated roller 90 is journaled. In addition, the lower end portions of the terminal ends 86 are provided with horizontally aligned apertures 92 and an elongated adjustable length tension rod 94 is secured through the apertures 92 whereby foreshortening the tension rod 94 will cause the upper ends of the arm members 84 to swing upwardly and toward each other thereby elevating the rollers 90 relative to the contact wheels 56. Thus, the wing nut 96 threadedly engaged on one end of the tension rod 94 may be turned to increase not only the upward pressure of the rollers 90 on the central area of the undersurface 98 of the support rail 24 but also the downward pressure of the contact wheels 76 on the rails 32. In this manner, the tension of the tension rod 94 may be adjusted to allow free rolling movement of the trolley structure 42 along the support rail 24 or to create sufficient frictional resistance to rolling movement of the trolley structure 42 along the rail 24 to frictionally retain the trolley structure 42 in position, even though the support rail 24 may have one end thereof at a lower elevation than the other end thereof. Further, the clamping action afforded by the wheels 56 and the rollers 90 is such that the support rail 24 may even be rotated 90 degrees about its longitudinal axis with contact between the rails 32 and the contact wheels 56 being assured.

It will of course be noted that the mounting of the support rail 24 from the support or standard members 20 is such that the protective cover 34 cannot be removed from the support rail 24 unless the support rail 24 is removed from the support or standard members 20. Further, both ends of the undersurface 98 of the support rail 24 may be provided with abutment members to limit longitudinal shifting of the trolley structure 42 along the support rail 24 and the opposite ends of the cover 34 may be provided with dielectric end walls spaced at least slightly from the opposite ends of the support rail 24 and the rails 32 supported therefrom. However, the cover illustrated in FIG. 1 of the drawings has been shown without such an end wall to illustrate the ease in which aligned support rails 24 and covers 34 may have their adjacent ends abutted and secured together for extending the length of the assembly 18. Also, any number of trolley structures 42 may be supported from the elongated support rail 24 and the support rail 24 may be made as long as desired merely by adding additional sections thereof.

Also, the inverted channel-shaped cover 34 may include opposite side depending ribs or rails projecting downwardly from the lower surface of the top wall 36 thereof and each of these ribs or rails may be received in corresponding grooved contact wheels 56. Also, the furcations of the bifurcated mounts 88 may be spaced further apart and longer roller 90 may be used with the further spaced apart furcations of the bifurcated mounts 88 projecting considerably upwardly beyond the corresponding rollers 90 and guidingly received between the opposite side surfaces of the support rail 24 and the opposing inner surfaces of the side walls of the cover 34. This of course will provide additional guiding action between the support rail 24 and the trolley structure 42.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An elongated support rail structure including a pair of opposite side longitudinal track surfaces facing upwardly and a central downwardly facing longitudinal track surface, a suspension trolley suspended beneath said rail structure and including opposite side wheels rollingly engaged with said side longitudinal track surfaces, said trolley further including longitudinally spaced central wheels rollingly engaged with longitudinally spaced portions of said downwardly facing track surface, said central wheels being supported from said trolley for vertical adjustment relative to said opposite side wheels, said trolley including a lower body portion, said central wheels being journaled from the upper ends of the legs of a V-shaped support structure whose apex is anchored to said body portion, said V-shaped support structure being constructed of resilient material, and an adjustable length tension member connected between the upper end portions of said legs.

2. The combination of claim 1 including an electrical outlet fixture supported from said body portion, said opposite side track surfaces and said opposite wheels being constructed of conductive material, insulated means electrically connecting said opposite side wheels to said outlet fixture, said opposite side track surfaces being adapted for connection with a source of electrical potential.

3. The combination of claim 1 wherein said trolley includes an electrical outlet fixture, said side track surfaces and said side wheels being constructed of conduc-

tive material, and means electrically connecting said side wheels to said electrical outlet fixture.

4. An elongated support rail surface including a pair of opposite side longitudinal first track surfaces facing upwardly and central downwardly facing second track surfaces, a trolley including a first set of opposite side followers guidingly engaged with said first track surfaces and a second set of central followers engaged with longitudinally spaced portions of said second surfaces for movement therealong, one set of said followers being supported from said trolley for vertical adjustment relative to the other set of followers, the weight of said trolley being supported from said track surfaces through said first set of followers, said first set of followers and said first track surfaces being constructed of conductive material, said trolley including an electrical outlet fixture electrically connected to said first set of followers, a lower body portion, said central followers being journaled from the upper ends of the legs of a V-shaped support structure whose apex is anchored to said body portion, said V-shaped support structure being constructed of resilient material, and an adjustable length tension member connected between the upper end portions of said legs.

5. In combination, an elongated support rail structure including upwardly and downwardly facing track surfaces, a trolley suspended beneath said structure, including first follower means guidingly engaged with said upwardly facing surfaces and a second pair of follower means guidingly engaged with said downwardly facing surfaces at points spaced along said structure on both sides of a vertical transverse plane containing said first follower means, said pair of follower means being supported from said trolley for shifting relative to said first follower means along upwardly convergent paths disposed in an upstanding plane containing said rail structure, and means for adjustably positioning said pair of follower means upwardly along said paths.

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