E. B. GRACE AND W. J. LAFFEY.

TROLLEY HEAD.

APPLICATION FILED JULY 16, 1921.

1,411,998. Patented Apr. 4, 1922.

Fig. 1.

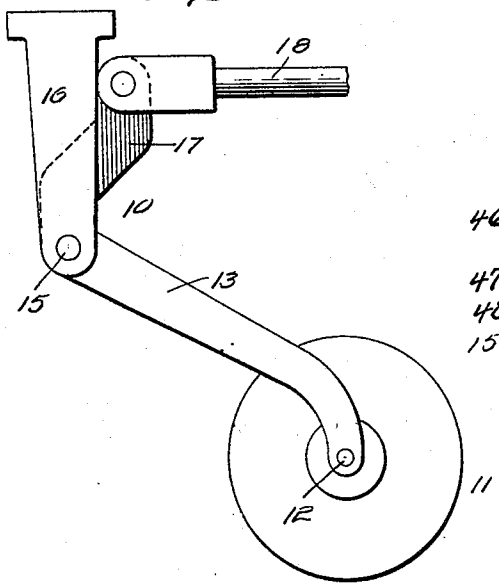


Fig. 2.

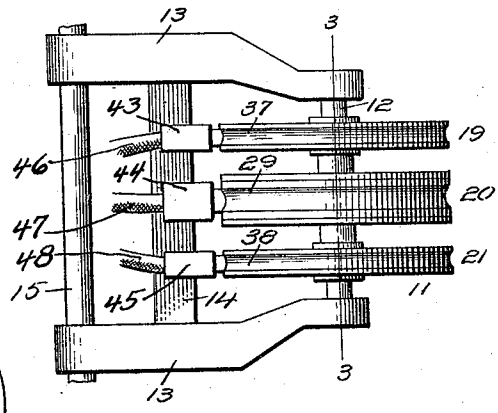
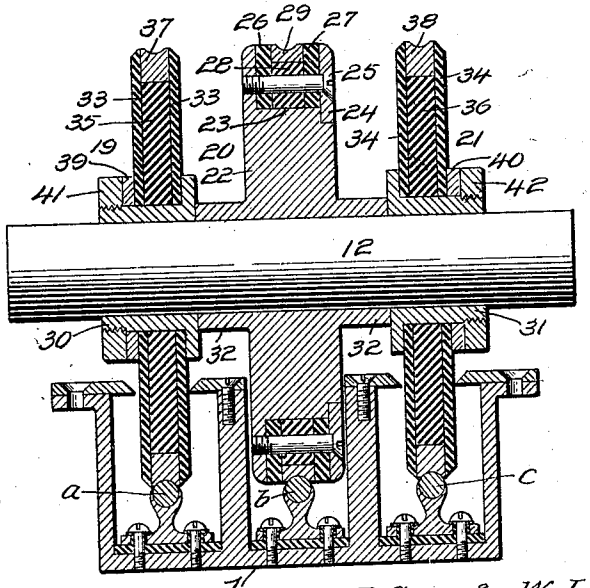


Fig. 3.



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TROLLEY HEAD.

1,411,998. Specification of Letters Patent. Patented Apr. 4, 1922.

Application filed July 16, 1921. Serial No. 485,243.

To all whom it may concern:

Be it known that we, EDWIN B. GRACE and WILLIAM J. LAFFEY, citizens of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Trolley Heads, of which the following is a specification.

This invention relates to improvements in trolley heads, and more particularly to a type of the same adapted for use in connection with three wire systems of electric current distribution, and preferably in conjunction with the three phase conductor rail construction as shown and described in our copending application filed March 18, 1921, and serially numbered 453,454.

The principal object of the invention is to provide for a trolley head of the type mentioned, and one embodying a construction capable of functioning in a manner, when used in conjunction with a rail construction as aforesaid, to effect the steering of the vehicle on which the same is mounted.

Another object of the invention is to provide for a trolley head as characterized, and one adapted for use on electrically propelled freight handling trucks of the type as set forth in our copending application filed July 16, 1921, and Serial Number 485,242; and for the carrying out of the objects and purposes of the freight and baggage handling system as disclosed in our copending application filed July 16, 1921, and Serial Number 485,244.

With the foregoing and other objects in view, the invention resides in the certain novel and useful construction and arrangement of parts as will be hereinafter more fully described, set forth in the appended claims, and illustrated in the accompanying drawing, in which:—

Figure 1 is a side elevation of the trolley head and the mountings therefor,

Fig. 2 is a top plan view of the same, and,

Fig. 3 is a longitudinal section taken on the line 3—3 of Fig. 2.

Referring to the drawing, the numeral 10 designates the trolley head as a whole, and the trolley head per se, designated generally as at 11, has its stub shaft 12 journaled in and extending between a pair of spaced arms 13, which are secured in such spaced relation by means of a bar 14, and have their inner ends mounted for swinging or pivotal movement on a shaft 15, carried in brackets 16, the inner end of one of said arms 13 being provided with an offset arm portion 17, to the free end of which is pivotally connected an operating or reach rod 18, which leads to a manually operated device or mechanism (not shown) whereby the trolley head may be raised and lowered from and to operative engagement with the conductors *a*, *b* and *c*, of a multi-channel rail *d*.

The trolley head per se comprises three contact wheels 19, 20 and 21, suitably keyed or splined on the stub shaft 12, the center of the wheels 20 consisting of a metal hub 22 secured medially of the opposite ends of the shaft 12, and is formed to have its peripheral edge provided with an annular channel 23, having a removable side wall 24, which is normally secured in position by means of screws or the like 25. Clamped within the channel 23 between the integral and removable side walls thereof, are a pair of oppositely disposed annular rings 26 and 27, of an insulating material such as fiber or the like, and an annular ring 28, of the same material, interposed between the rings 26 and 27, the ring 28 being of a less diameter than the latter to provide an annular channel for the reception of an annular contact or collector ring 29, of metal, preferably copper, the facial surface of the latter being disposed flush in the plane of the facial surfaces of said insulating rings 26 and 27 and is grooved medially of its opposite side edges to conform to the surfaces of the trolley wire to be contacted thereby.

The trolley wheels 19 and 21 are each of identical construction, and are disposed on the shaft 12 to either side of the center wheel 20, these wheels 19 and 21 each consists of flanged hubs 30, 31, of substantially bushing form, the integrally flanged ends thereof being arranged in abutting relation to sleeve like extensions 32 of the hub 22, of the trolley wheel 20. Fitted on the hubs 30, 31 are pairs of annular rings 33, 34, respectively, the two members of each pair of the same being spaced apart by means of centrally disposed annular rings 35, 36, the latter being of a less diameter than the pairs of rings 33, 34, whereby to provide grooves for the reception of annular contact or collector rings 37, 38, similar to the contact or col-

lector rings 29 of the trolley wheel 20. The sets of rings 33, 35 and 34, 36, are all of an insulating material, such as fiber or the like, and are clamped in position on the hubs 30 and 31, by means of collars or washers 39 and 40, and retaining nuts 41 and 42, respectively.

In the use of the trolley head thus provided, either of a three wire direct current or a three phase alternating current supply will be provided, and the same is preferably of the form of a multi-channel rail as shown at *d* in Fig. 2, wherein the three conductors *a*, *b* and *c* of the supply system are each supported within a channel of the rail, and insulated from the walls thereof, and the trolley head 11 will be raised and lowered from and toward the rails so as to withdraw or insert the trolley wheels 19, 20 and 21 from and into the channels thereof, the center wheel 20 engaging the central channel of the rail, which has its opposite side walls of a heavier or thicker formation than the rest of the rail, whereby the heavy hub construction of the wheel 20 will act as a guide for the trolley head, and aid in the steering of the vehicle to which it may be attached. As shown in Fig. 2, suitable brushes 43, 44 and 45 are arranged to contact the collector rings 37, 29 and 38, of the trolley wheels 19, 20 and 21, respectively, and current will be led from the same by the leads 46, 47 and 48 to the propelling motor of the vehicle.

It is well understood that, while the device as a whole, and the assembly thereof, has been described herein in specific terms of arrangement and construction, various changes in and modifications of the same, may be resorted to without departing from the spirit of the invention, or the scope of the claims appended hereto.

Having thus fully described the invention, what is claimed, is:—

1. A trolley head for three conductor systems of current distribution comprising a stub shaft, and individual conductor contact wheels carried on said shaft one for each conductor of the system.

2. A trolley head for three phase alternating current distribution systems comprising a stub shaft, and contact wheels arranged in spaced relation on said shaft one for each phase conductor of the system.

3. A trolley head of the class described comprising a stub shaft, and contact wheels carried on said stub shaft, one of said contact wheels being of a relatively heavy construction with respect to the other of said contact wheels.

4. A trolley head of the class described comprising a stub shaft, and contact wheels carried on said stub shaft, the intermediate of said contact wheels being of a relatively heavy construction with respect to the other of said contact wheels.

5. A trolley head of the class described comprising a stub shaft, trolley wheels on said shaft, an annular peripheral contact carried by each of the said wheels and insulated therefrom.

6. A trolley head of the class described comprising a stub shaft, trolley wheels carried on said shaft, the intermediate of said wheels being of a relatively heavy construction with respect to the other of said wheels, an annular contact ring carried in the periphery of each of said wheels, and insulated therefrom.

In testimony whereof, we affix our signatures hereto.

EDWIN B GRACE.
WILLIAM J. LAFFEY.