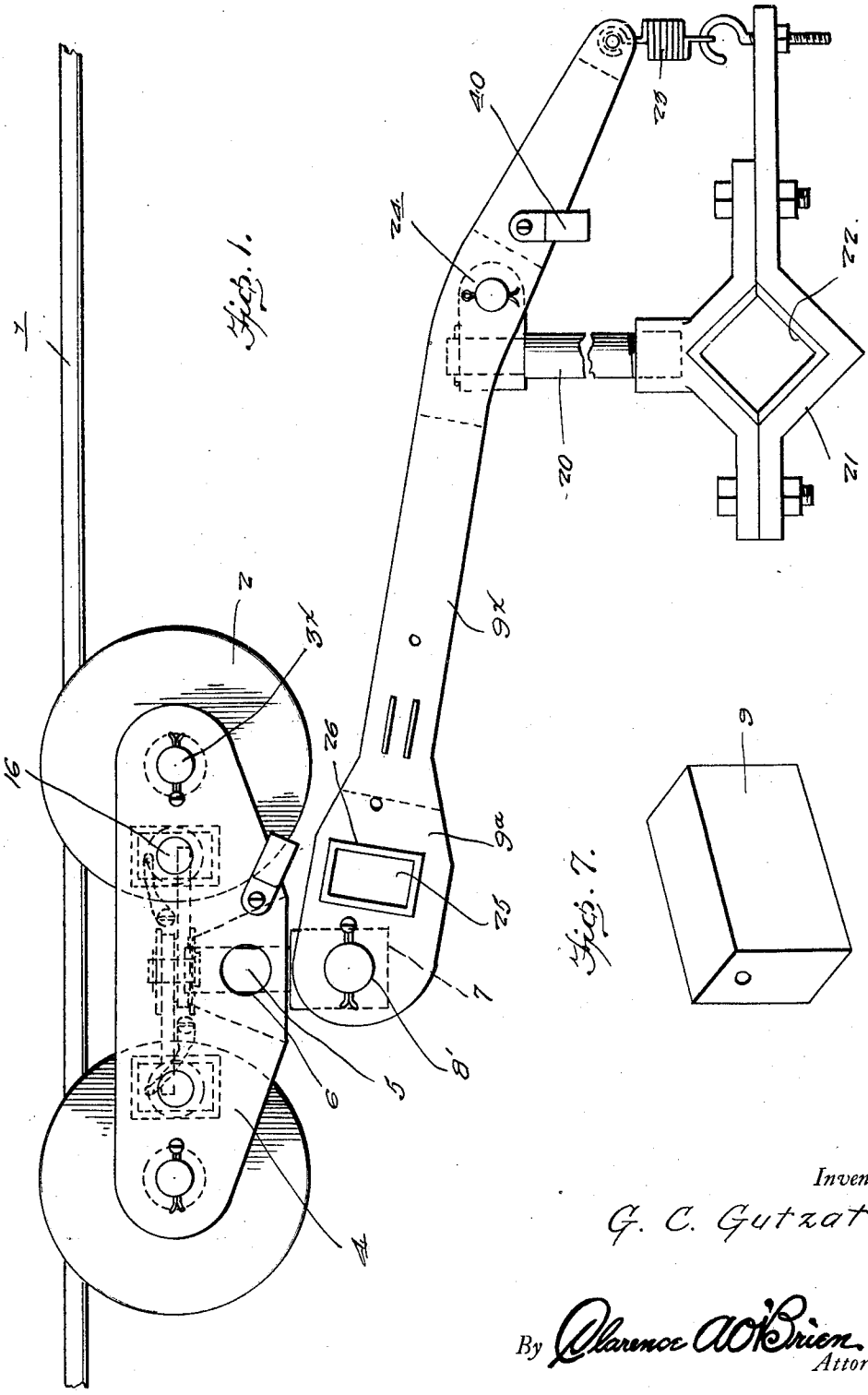
Nov. 27, 1928. 1,692,893

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TROLLEY CONSTRUCTION

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TROLLEY CONSTRUCTION

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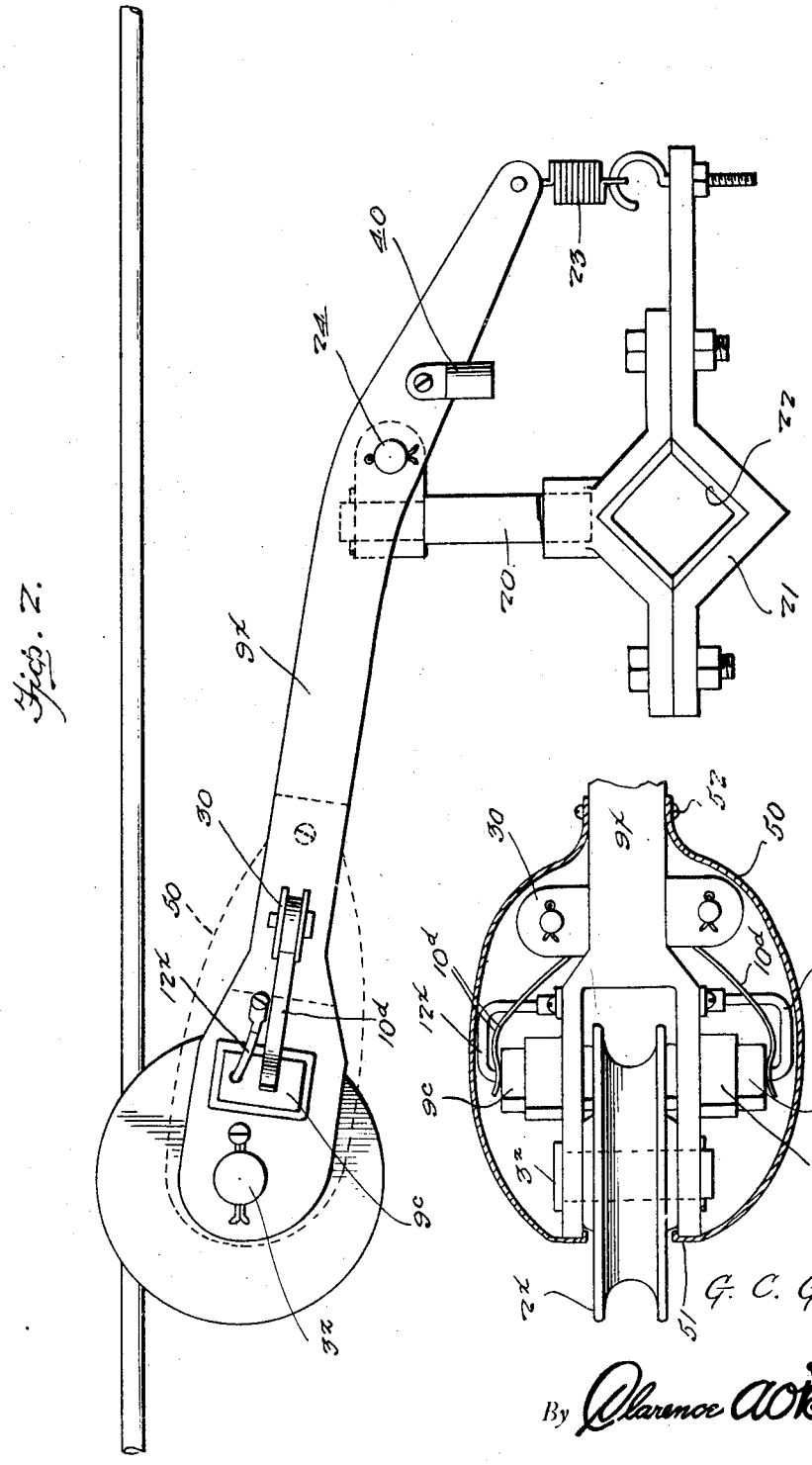


Fig. 2.

Fig. 3.

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Fig. 4.

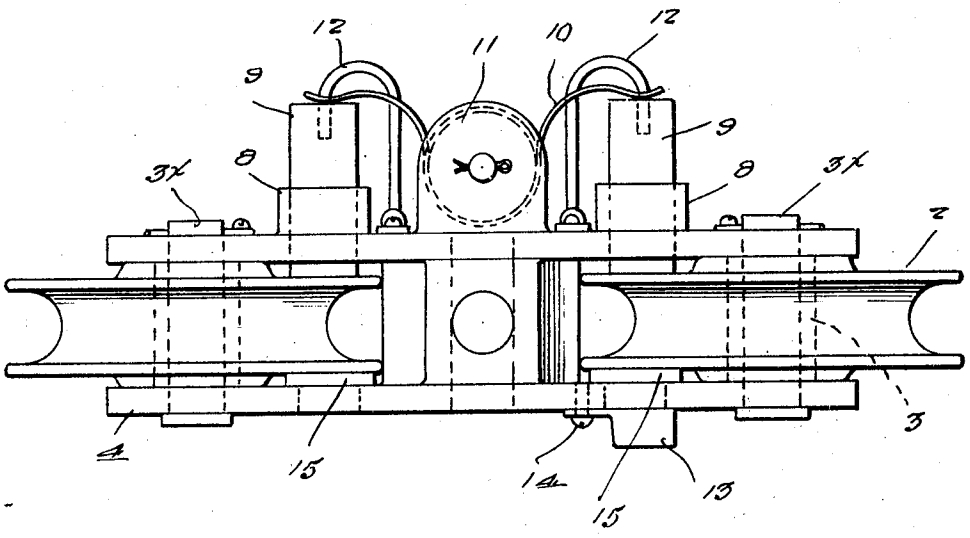


Fig. 5.

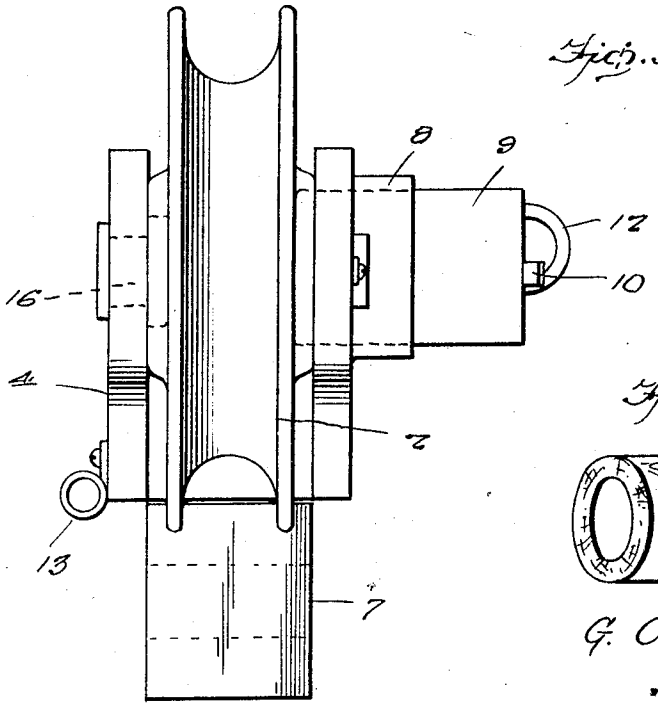
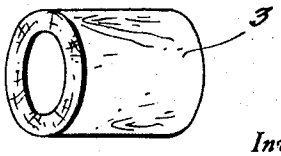


Fig. 6.



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UNITED STATES PATENT OFFICE.

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TROLLEY CONSTRUCTION.

Application filed January 31, 1927. Serial No 164,821.

My present invention pertains to trolleys; and it contemplates the provision of a trolley construction possessed of the practical features of advantage hereinafter ascribed to the same.

The invention consists in the improvement as hereinafter described and definitely claimed.

In the accompanying drawings forming part of this specification:—

Figure 1 is a side elevation illustrating one embodiment of my invention, the said embodiment being designed especially for heavy work having side wires.

Figure 2 is a side elevation illustrating an embodiment of my invention designed for light work such as on trolley cars and the like.

Figure 3 is an enlarged view partly in plan and partly in section showing the wheel carrying portion of the trolley shown in Figure 2.

Figure 4 is an enlarged detail plan view illustrating the head shown in Figure 1, and the parts carried by said head.

Figure 5 is a further enlarged end elevation of the same taken from a view point to the right of Figure 4.

Figure 6 is a detail perspective of one of the wooden oil-less bushings employed in my improvement.

Figure 7 is a detail perspective of one of the endwise movable spring pressed carbon brushes of my improvement.

Similar numerals designate corresponding parts in Figures 1, 4, 5, 6 and 7 to which reference will first be made.

I show in Figure 1 a trolley wire 1, and I also show in Figures 1, 4, and 5 circumferentially grooved trolley wheels 2, the said wheels 2 in accordance with prevailing practice being of bronze, and being finished with wooden oil-less bushings 3, the bushings being provided in order to prevent arcing from the wheels 2 to the pins 3 on which the wheels turn, thereby preventing roughing and pitting of the pins 3 and averting undue wear of the bronze wheels 2. While the employment of the wooden bushings in the relation stated is preferable, I do not desire to be understood as claiming the same per se as my invention.

Wheels 2 and the pins 3^x are carried by a head 4, and the said head 4 is mounted to swing laterally on a pin 5, the head being secured on the said pin 5 in any manner compatible with the purpose of my invention. I would also have it understood at this point that the head 4 is preferably provided with circular apertures 6 shown in Figure 1 as disposed at right angles to the pin 5, the said apertures 6 being designed to receive the pin 5 when it is desired to place the head 4 and the wheels 2 at right angles to the location shown in Figure 1 so as to enable the wheels 2 to cooperate with a trolley wire at the sides of the trolley instead of above the trolley as in Figure 1.

The pin 5 is integral with a body 7, and the said body 7 is pivoted at 8′ in a trolley arm 9^x.

At one side the head 4 is provided with lateral sleeves 8 in which are arranged and rectilinearly movable carbon brushes 9, the inner end of which bears directly against the sides of the wheels 2 for the purpose of collecting electric current from the wheel. The said brushes 9 are held under yielding pressure against the sides of the wheels 2 through the medium of springs 10 which are connected at 11 with the head. It will also be understood from Figure 4 of the drawing that conductors 12 are interposed between and connected to the carbon brushes 9 and the head 4.

At 13 the head 4 is provided with a plug which is connected at 14 to the head and is designed for the connection of the wire to feed current to a motor (not shown).

Located in the side of the head 4 remote from the carbon brushes 9 are plugs 15 preferably of the same material as the before described bushings 3. The said plugs 15 are arranged in coincidence with the line of movement of the brushes 9 and have reduced portions seated in apertures 16 in the head side and also have enlargements disposed at the inner side of the frame side and between said side and the opposed sides of the trolley wheels 2. By virtue of this provision, the pressure of the springs 10 against the brushes 9, and the pressure of the brushes 9 against the sides of the trolley wheels 2 are prevented from pressing said trolley wheels 2 out of line.

In the preferred embodiment of my invention, the trolley arm 9^x is mounted to swing laterally on a post 20 carried by a bracket 21, the said bracket 21 being lined with mica or other substance 22 calculated to insulate the bracket from the support on which the bracket is mounted. I would also have it understood that I prefer to employ a retractile spring 23 in interposed relation between the bracket 21 and

one arm of the trolley arm 9^x which is fulcrumed at 24, in order that the wheels 2 may be maintained under yielding pressure against the wire 1.

The sides of the bifurcated portion 9^a of the arm 9^x are provided with apertures 25 and are also provided with outwardly extending sleeves 26, the said apertures and the sleeves 26 being by preference of rectangular cross section as appears in Figure 1. The said apertures 25 and sleeve 26 are provided in order that when desired, the arm 9^x may be employed to carry a single trolley wheel 2^x on a pin 3^z in the manner as shown in Figures 2 and 3, it being understood that a wooden bushing similar to the bushing 3 of Figure 6 is interposed between the trolley wheel 2^x and the pin 3^z. Movable rectilinearly in the apertures 25 and sleeve 26 are carbon brushes 9^c, the said carbon brushes 9^c being pressed by springs 10^c against opposite sides of the trolley wheel 2^x so as to assure the proper collection of electricity or electric current from the sides of the wheel 2^x and at the same time prevent the trolley wheel 2^x from being thrust out of line. In other words, when two brushes 9^c are employed at opposite sides of the trolley wheel, the pressure of one brush against the wheel will equalize the pressure of the other brush, and consequently the wheel 2^x will be maintained straight and true. It will also be understood that the trolly arm 9^x is provided at opposite sides with lateral lugs 30, and that the springs 10^d are connected to the said lateral lugs 30.

At 40 the arm 9^x is provided with a plug for the connection of a conducting wire when the trolley wheel structure shown in Figures 1 and 3 is employed. Manifestly when the trolley wheel construction illustrated in Figures 1, 4, and 5 is employed, the plug 40 will be idle.

It will also be understood from Figures 2 and 3 that conductors 12^x are interposed between and connected to the brushes 9^c and the arm 9^x so as to enable the current collected by the brushes 9^c from the wheel 2^x to pass freely to the arm 9^x.

As shown by dotted lines in Figure 2 and by full lines in Figure 3, I prefer to embody in the construction shown in Figures 2 and 3 housing sections 50. These housing sections are hooked at 51 into engagement with the arms at opposite sides of the bifurcations in the trolley member 9^x and are detachably connected at 52 to opposite sides of the member 9^x.

It will be apparent from the foregoing that the specific construction of trolley arm or member 9^x as shown herein and described is designed to be equipped with the single trolley wheel 2^x, two carbon brushes 9^c, springs 10^d complementary to said carbon brushes, and housing sections 50, or all of the elements enumerated may be displaced, and the trolley arm 9^x may be equipped with the head 4 as shown in Figures 1, 4 and 5, and vice versa. By the latter is meant that when the head 4 and its appurtenances are removed from the trolley arm 9^x, the said trolley arm 9^x may be equipped as shown in Figures 2 and 3 to provide a much lighter construction than is disclosed in Figures 1, 4 and 5.

I would also have it distinctly understood that when I claim a single trolley wheel in combination with a support, and with brushes carried by the support and opposed to and yieldingly pressed against the trolley wheel, I intend to cover such combination irrespective of its use in the embodiment shown in Figures 2 and 3 or in the embodiment shown in Figures 1, 4 and 5, in which latter the head 4 specifically speaking is the support for carrying the brushes and the means for pressing the brushes inwardly and against opposite sides of the trolley wheel to maintain the latter against lateral deflection.

Notwithstanding the practical advantages ascribed to my improvement, it will be appreciated from the foregoing that the structures constituting the preferred embodiment of my invention are simple and inexpensive in construction and in general are well adapted to withstand the usage to which devices of corresponding character are ordinarily subjected.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in the embodiments disclosed in order to impart an exact understanding of the said embodiments. I do not desire, however, to limit myself to the precise construction and relative arrangement of parts as shown and described, my invention being defined by my appended claims within the scope of which modifications may be made without departure from my invention.

Having thus described the invention, what I claim is:—

1. In combination, a sectional bracket lined with insulating material, a post on said bracket, a trolley arm swingable on the post about the axis thereof, said arm also swingable axially of the post, a retractile spring interposed between one portion of said arm and the bracket, and trolley wire engaging means carried by the opposite portion of the arm.

2. In combination, a support, a trolley wheel mounted in said support, a plug of insulating material as wood carried by and in the support and having an enlarged portion interposed between one side of the support and one side of the trolley wheel, and a spring pressed collecting brush carried by and movable in the opposite side of the support and opposed to one side of the trolley wheel and electrically connected with the support.

3. In combination, a support, having

spaced sides and also having an aperture in one side and a coincident aperture in the opposite side, the latter aperture surrounded by a sleeve extending from the side, a trolley wheel mounted in said support, a plug of insulating material as wood disposed in the first named aperture and having an enlargement interposed between the first named side of the support and one side of the trolley wheel, a current collecting brush movable rectilinearly in the second named aperture and in said sleeve and opposed to the opposite side of the trolley wheel, an electric connection between the outer portion of the said brush and the support, and a spring strip carried by the support and arranged to exert inward pressure against the outer end of said brush.

4. In combination, a trolley arm, a transverse pin carried by said arm, a post associated with said pin and swingable in the direction of the length of the trolley arm, and a head mounted on and swingable about said post and having end portions equipped with trolley wheels; said head having an apertured portion to receive the post when the head is disposed at right angles to the first indicated position.

5. In combination, a trolley arm, a head connected with and movable relative to the trolley arm, trolley wheels carried by the end portions of said head and adapted to be opposed to a trolley wire, current collecting means carried by said head and opposed to the trolley wheels at one side of the latter, spring means for pressing against said current collecting means against said trolley wheel, electric connections between said current collecting means and the head, means carried by the head and interposed between the sides of the trolley wheels remote from the current collecting means and the head for preventing lateral deflection of the trolley wheels, and means on the head for the taking of current therefrom.

In testimony whereof I affix my signature.

GUSTAV C. GUTZAT.