J. KIEREN.

ALARM FOR CARS.

APPLICATION FILED JULY 17, 1916.

1,225,036.

Patented May 8, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

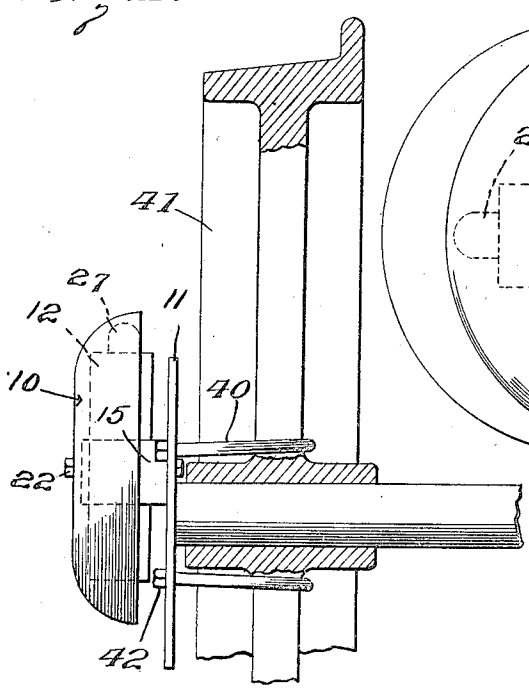
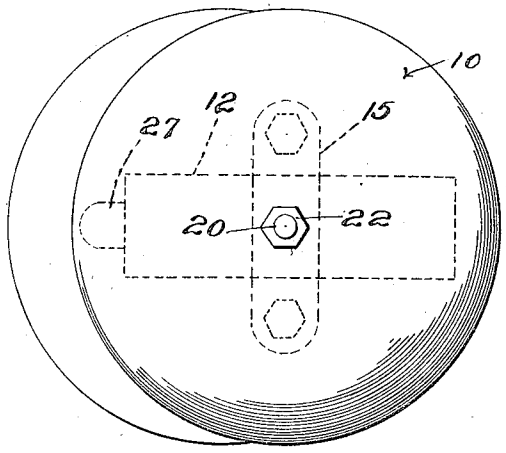


Fig. 2.



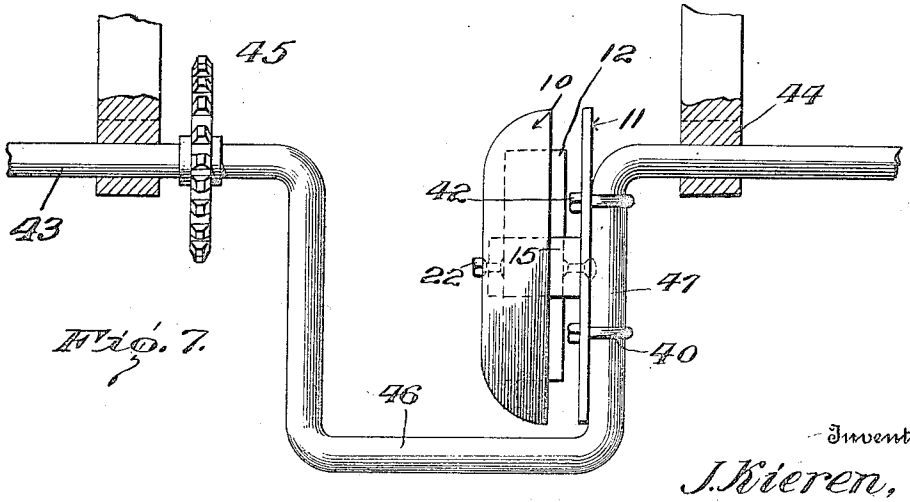


Fig. 7.

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2 SHEETS—SHEET 2.

Fig. 3.

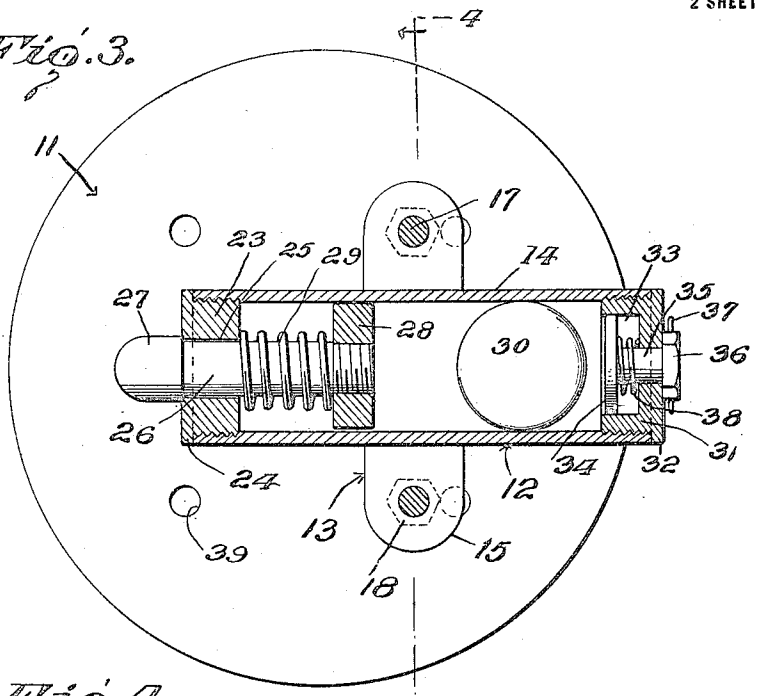


Fig. 4.

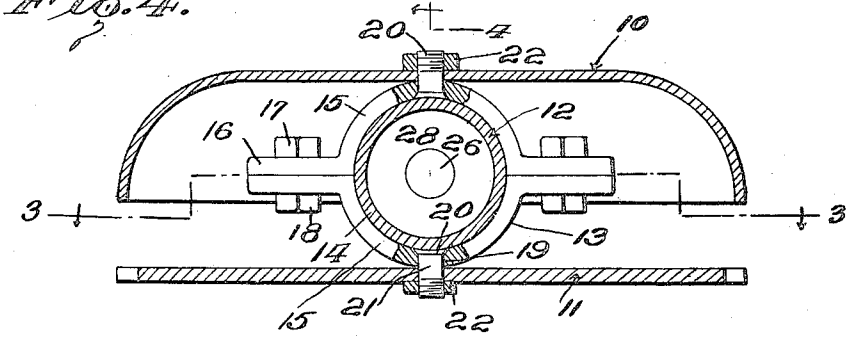


Fig. 5.

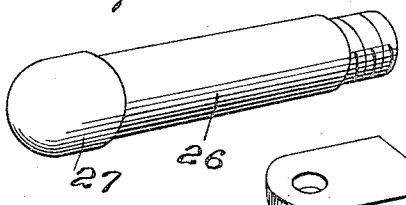
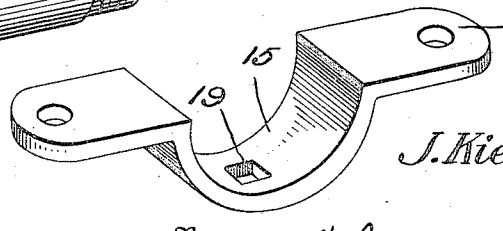


Fig. 6.



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ALARM FOR CARS.

1,225,036. Specification of Letters Patent. Patented May 8, 1917.

Application filed July 17, 1916. Serial No. 109,770.

To all whom it may concern:

Be it known that I, JOSEPH KIEREN, a citizen of the United States, residing at Gilbert, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Alarms for Cars, of which the following is a specification.

My invention relates to new and useful improvements in alarm signals for cars, the primary object of my invention being the provision of a signal device for mine cars arranged to give a continuous audible signal or alarm whenever the car is in movement.

In this connection, another object of my invention consists in providing a signal in the form of a bell or gong adapted to be attached to a wheel hub, axle or other revolving portion of a locomotive or car and arranged to be sounded when turned.

More specifically, my invention comprehends a gong carried by any suitable form of supporting base and with the base forming a housing for a ringing mechanism for the gong, and another object of this invention consists in providing a novel type of ringing mechanism including a gong engaging hammer mounted for reciprocation and normally held in retracted position by a spring and an impact imparting member reciprocally mounted and controlled in its movement so that it will be intermittently thrown against the hammer to actuate the latter and sound the gong.

Another object of this invention consists in accentuating the sound produced by providing a spring for quickening the movement of the impact imparting member and by mounting the gong and its actuating mechanism eccentrically with respect to its support and, consequently, with respect to the revolving member upon which the alarm is mounted.

With these and other objects in view, my invention will be more fully described, illustrated in the accompanying drawings, and then specifically pointed out in the claims which are attached to and form a part of this application.

In the drawings:

Figure 1 is a fragmentary sectional view of a car wheel, showing my alarm applied;

Fig. 2 is a front elevation of the alarm itself;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 4, illustrating the gong sounding mechanism;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is a perspective view of the hammer;

Fig. 6 is a perspective view of one of the clamps employed in connecting the parts together;

Fig. 7 is an elevation, illustrating another method of mounting the alarm device.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Broadly speaking, my invention includes a bell or gong 10, a supporting member 11, a gong sounding mechanism, indicated as a whole by the numeral 12, and connecting means 13 for securing the gong supporting member and sounding mechanism in proper relative relation.

More specifically, the gong sounding mechanism includes a cylindrical casing or housing 14 open at its ends and engaged between a pair of U-shaped clamping members 15 having mating ears 16 to receive bolts 17 provided with clamping nuts 18. These clamping members 15 constitute the chief elements of the supporting mechanism 13 and their intermediate portions are formed with opposed squared openings 19, the inner ends of which are countersunk to seat the heads of bolts 20. The bolts have squared shank portions 21 which project through the squared openings 19 and through squared openings formed in the supporting member or plate 11 and in the gong 10, the terminals of the bolt shanks being screw threaded to receive clamping nuts 22. By this means, the housing 12 for the gong actuating mechanism, the gong 10 and its supporting base 11 are all clamped together and the gong and supporting member are held against turning movement with respect to each other.

As best shown in Fig. 3 of the drawings, the supporting member 11 is in the form of a circular disk or plate of metal or other suitable material and, as most clearly shown in Fig. 2, the gong and its actuating mechanism are mounted eccentrically with respect to the disk while the gong itself is mounted concentrically with respect to the housing 14, the axis of which is in the plane of coincident diameters of the disk and gong.

That end of the housing 14 more adjacent

the center of the supporting member 11 is closed by a cap 23 threaded in the end of the housing and provided with a peripheral stop flange engaging the end of the housing. This cap is formed centrally with an opening 25 for the passage of the body portion of a gong sounding hammer 26 which is formed with an enlarged head 27 located exteriorly of the housing and adapted, in extended position of the hammer, to engage the inner peripheral portion of the gong. The enlargement of the head 27 of the hammer serves to limit the inward movement of the hammer with respect to the casing so that in retracted position of the hammer, the outer end of its head will be spaced a slight distance from the inner face of the gong. The inner end of the body of the hammer is reduced somewhat and screw threaded to receive a guide ring 28 which fits loosely within the housing 14, while a helical spring 29, surrounding the hammer body and engaging between the cap 23 and guide ring 28, serves to normally maintain the hammer in retracted position. Mounted for reciprocatory or rolling movement within the housing 14 is an impact imparting member 30 in the form of a ball of steel or other suitable material which is held against dislodgment from the casing by a second cap 31 threaded in the opposite end of the housing and having a peripheral stop flange 32. This second cap 31 is provided interiorly with a cylindrical recess 33 in which is mounted a plunger 34 having a shank 35 projecting through the cap and threaded to receive a nut 36 which is preferably locked against displacement by a cotter pin 37. The shank of this plunger is so proportioned that in normal position, the plunger is located at the outer end of the recess or chamber 33, a helical spring 38 being located between the plunger and cap to maintain it in this position.

The supporting member or disk 11 may be provided with a plurality of openings 39 to receive the shanks of U-shaped clamping bolts 40 which may engage about the spokes of a wheel 41 and which may receive clamping nuts 42 in order that the alarm device may be mounted upon a wheel hub in the manner shown in Fig. 1.

From the foregoing description, taken in connection with the drawings, the operation of my improved signal alarm will be readily understood. During turning of the wheel or axle upon which the alarm is mounted, as will be the case during travel of the locomotive or car, a reciprocation of the impact member or ball 30 is caused. As a result, this ball will alternately be thrown into engagement with the spring pressed plunger 34 and the spring held hammer 26. When this ball engages the inner end of the hammer, its momentum will be sufficient to project the hammer against the action of the spring 29 and cause it to strike the gong, although as soon as the hammer has engaged the gong, the momentum of the ball having been largely exhausted, the spring 29 will serve to retract the hammer and move it out of engagement with the gong in order that the latter may send forth a clear note or sound. As the device continues to turn, the ball will roll to the opposite end of the casing and engage the plunger 34, compressing the spring 38, with the result that this spring will subsequently act to give additional impetus to the ball 30 when it again starts in the direction of the hammer. The impetus given to this ball is considerably increased, due to the eccentric mounting of the gong and its actuating mechanism with respect to its supporting member 11 and, consequently, with respect to the wheel or axle upon which the alarm device is mounted.

If, because of the particular construction of the car wheels, it is inadvisable or impossible to mount the alarm device upon a wheel or axle, the device may be provided with a separate driving support of the type shown in Fig. 7. As here shown, I provide a shaft 43 which is journaled in suitable bearings 44 and driven by a chain trained over a sprocket on some revolving shaft or axle of the locomotive or car and a sprocket 45 mounted upon the shaft 43. This shaft is formed with a crank arm 46 including the spaced sides 47, and the U-bolts 40 of the alarm device are engaged about one of these side portions of the crank arm. This arrangement insures an eccentric rotation of the alarm device.

It will of course be understood that I do not wish to limit myself to the specific details of construction illustrated and described, but reserve the right to make any changes within the scope of the appended claims.

Having thus described the invention, what is claimed as new is:

1. An alarm device including a gong adapted to be attached to a rotating element to turn therewith, a hammer supported within the gong and movable into and out of engagement with the gong, and an impact imparting member supported to move into and out of engagement with the hammer through turning of the gong.

2. An alarm device including a gong adapted to be attached to a rotating element to turn therewith, a reciprocally mounted hammer supported within the gong and movable into engagement therewith, a spring normally holding the hammer out of such engagement, an impact imparting member mounted within the gong, and guiding means directing the member into and out of engagement with the hammer through turning of the gong.

3. An alarm device including a gong

adapted for attachment to a revolving member to turn therewith, a housing supported within the gong, a hammer reciprocally mounted in the housing and extensible beyond one end to engage the gong, a spring normally holding the hammer out of engagement with the gong, and a spherical impact member mounted for rolling movement in the housing whereby turning of the gong and housing will cause movement of the impact member into and out of engagement with the hammer.

4. An alarm device including a gong adapted for attachment to a revolving member to turn therewith, a housing supported within the gong, a hammer reciprocally mounted in the housing and extensible beyond one end to engage the gong, a spring normally holding the hammer out of engagement with the gong, a spherical impact member mounted for rolling movement in the housing whereby turning of the gong and housing will cause movement of the impact member into and out of engagement with the hammer, and means in the housing for accelerating movement of the impact member toward the hammer.

5. An alarm device including a gong adapted for attachment to a rotating element to turn therewith, a cylindrical housing supported within the gong, caps closing the ends of the housing, a hammer reciprocally mounted through one cap with an enlarged outer end limiting its inward movement and adapted when the hammer is projected to engage the gong, a guide element secured to the hammer within the housing, a spring engaging between the guide element and the cap through which the hammer projects to normally hold the hammer in retracted position, a plunger reciprocally mounted through the other cap of the housing, means limiting the inward movement of the plunger, a spring normally holding the plunger in innermost position, and a spherical impact member mounted within the housing for movement between the hammer and plunger.

6. An alarm device including a support adapted for attachment to a revolving element to turn therewith, a gong, a substantially cylindrical housing, U-shaped brackets clamped about the housing, bolts passed outwardly through opposite portions of the brackets and through the support and gong, nuts threaded upon the outer ends of the bolts, and means supported within the housing and actuated by turning of the support and gong for sounding the gong.

7. An alarm device including a support adapted for attachment to a revolving element to turn therewith, a gong, a substantially cylindrical housing, U-shaped brackets clamped about the housing, bolts passed outwardly through opposite portions of the brackets and through the support and gong, nuts threaded upon the outer ends of the bolts, and means supported within the housing and actuated by turning of the support and gong for sounding the gong, said means including a hammer normally held in retracted position by a spring, and an impact imparting member movable within the housing to engage and project the hammer.

In testimony whereof I affix my signature.

JOSEPH KIEREN. [L. S.]

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."