

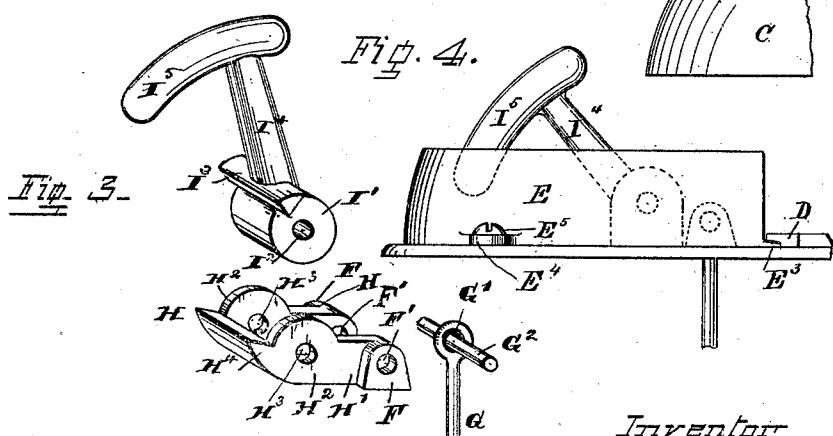
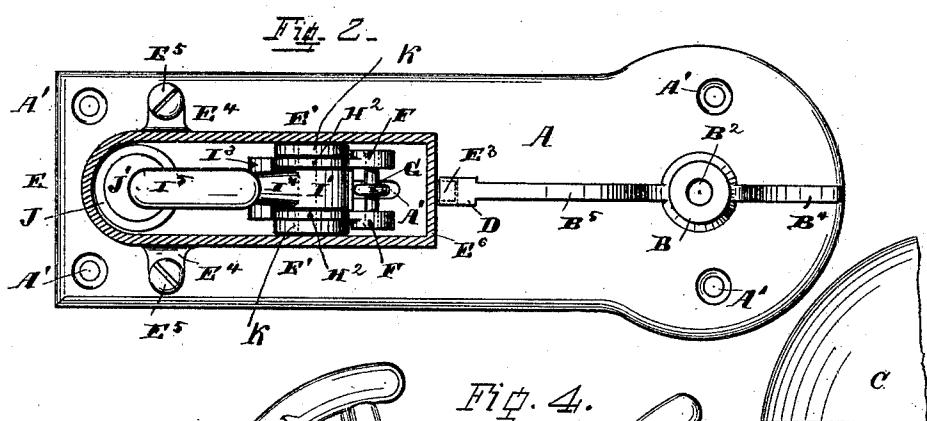
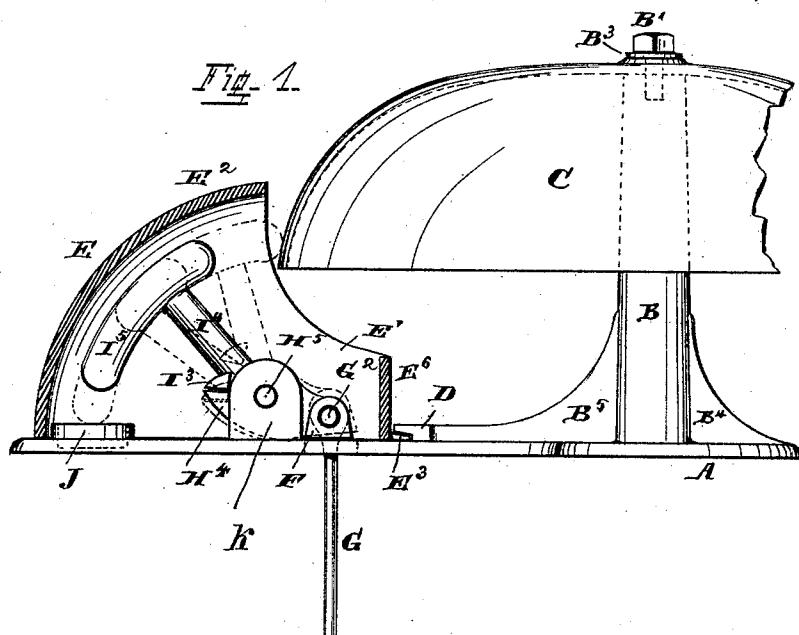
(No Model.)

E. W. VANDUZEN.

PULL GONG FOR STREET OR OTHER CARS.

No. 467,486.

Patented Jan. 19, 1892.



*Fig. 4.*

Attest

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# UNITED STATES PATENT OFFICE.

EZRA W. VANDUZEN, OF NEWPORT, KENTUCKY.

## PULL-GONG FOR STREET OR OTHER CARS.

SPECIFICATION forming part of Letters Patent No. 467,486, dated January 19, 1892.

Application filed June 14, 1890. Serial No. 355,436. (No model.)

To all whom it may concern:

Be it known that I, EZRA W. VANDUZEN, a citizen of the United States of America, and a resident of the city of Newport, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Pull-Gongs for Street or other Cars and for other Purposes, of which the following is a specification.

10 The several features of my invention and the various advantages resulting from their use, conjointly or otherwise, will be apparent from the following description and claims.

In the accompanying drawings, making a part of this specification and to which reference is hereby made, Figure 1 is a side elevation of mechanism embodying my invention, a portion of the hood which covers the bell being in vertical central longitudinal section. Fig. 2 is a plan view of the device shown in Fig. 1, with the exception that the top part of the hood is removed and the remaining portion of it is shown in horizontal section, and the gong is removed in order to disclose the mechanism beneath. Fig. 3 is a view in perspective of one side of the rear of the clapper and of its operating mechanism. Fig. 4 shows in side elevation a modification of the hood, within which the clapper and its operating mechanism above the base-plate are included.

A indicates a broad base or support, preferably of metal. Upon this base or support is erected the standard B. Upon the upper portion or end of this standard rests the gong, the central portion of the gong directly bearing upon the standard. At the top of the standard is a screw-threaded hole B<sup>2</sup>, whose axis is preferably coincident with the axis of the standard. The center of the gong at the point where it rests upon the standard is perforated with an opening of a size to allow the threaded portion of the screw B' to pass through the opening in the gong and fit closely therein. A washer B<sup>3</sup> is preferably present, encircling the screw B' below the head of the latter and above the gong. The screw B' is firmly secured to the gong and the washer to the standard in the desired position. The standard B is preferably of metal and integral with the base A. The blows upon the gong from the clapper I tend to drive the

gong and the standard from the left to the right of Fig. 1.

In order to allow the standard B to be made 55 comparatively small and yet be of sufficient size to resist the repeated impacts of the clapper I upon the gong, the standard B is provided on the right side with a web B<sup>4</sup> and on the left side with a web B<sup>5</sup>. (See Figs. 1 60 and 2.) In this way metal is economized and strength secured.

At the left-hand portion of the base A is located the clapper I. This clapper is provided with a shank I<sup>4</sup>, whose outer free end is 65 provided with a hammer I<sup>5</sup>. This hammer is preferably of an elongated form, for a purpose to be hereinafter mentioned. The lower end of the shank I<sup>4</sup> of the clapper is fixed to and preferably integral with the eye or bearing-piece I'. Through the bearing-piece I' extends the hole I<sup>2</sup>. At the upper side of the periphery of this bearing-piece I' is a lip or shoulder I<sup>3</sup>, whose flat projecting portion faces downward. The hammer I<sup>5</sup>, shank I<sup>4</sup>, bearing-piece I', and shoulder or lip I<sup>3</sup> are preferably formed in one piece, by casting or otherwise.

H indicates the rocker. The lower side of this rocker is of a curved formation, as shown. 80 The rocker consists of the eye-pieces H<sup>2</sup> H<sup>3</sup>, each provided with the opening H<sup>3</sup>. The rocker is further provided at the rear of this eye-piece with a lip or shoulder H<sup>4</sup>, whose flat projecting surface faces upward and rearward. The forward part of the rocker consists of the eye-pieces or arms H' H'. Each of these arms is provided with an opening, as F'. The arm H' and the eye-piece H<sup>2</sup> at one side are united together, and the arm H' and 85 the eye-piece H<sup>2</sup> at the other side are united together. The lip or shoulder H<sup>4</sup> extends from one eye-piece H<sup>2</sup> to the other eye-piece H<sup>2</sup> and is rigidly united thereto. All those parts of the rocker—viz., the arms H' H', eye-pieces H<sup>2</sup> 90 H<sup>3</sup>, and the lip or shoulder H<sup>4</sup>—are preferably cast or forged in one piece. The length of the bearing-piece I' of the clapper is such as to nicely fit between the two eye-pieces H<sup>2</sup> H<sup>2</sup> and be capable of there turning between the 95 said pieces H<sup>2</sup> with the least friction. A pivot-rod H<sup>5</sup> is passed through the opening H<sup>3</sup> of one eye and then into and through the opening I<sup>2</sup> of the bearing-piece H, and then 100

through the aperture  $H^3$  of the other eye-piece  $H^2$ . The pivot now occupies the aperture  $I^2$  and the apertures  $H^3$  of the eyes  $H^2$ . The clapper is now pivoted to the rocker and 5 when at rest will assume substantially the position shown of it in the lowest set of dotted lines at the left in Fig. 1. The lower portion of each of the arms  $H' H'$  is exposed to great wear. To provide against this wear, I broaden 10 each of the bearings  $H' H'$  by adding to each an extension  $F$ , preferably integral therewith. The pivot-rod  $G^2$  is passed through the opening  $F'$  of one of the arms  $H'$  and its extension  $F$ , thence through the eye  $G'$  of the 15 rod  $G$ , and thence through the opening  $F'$  of the other arm  $H'$  and its extension  $F$ .

Through the bottom of the base-plate  $A$  is an opening  $A'$ , and through this opening passes the rod  $G$ . The rod  $G$  extends downward, so as to come within reach of the party 20 ringing the gong. Where the gong is so elevated or so far removed from the operator that a lengthened extension of the rod  $G$  would be desirable, the latter is provided with 25 means whereby a cord or other connection may be attached to it, this cord or other connection being brought within easy reach of the operator.

The mode in which the clapper operates is 30 as follows: The party desiring to ring the gong pulls down the rod  $G$ . The downward movement of the rod  $G$  and its eye  $G'$  carries with it the pivot-rod  $G^2$  and the arms  $H' H'$ . These in turn quickly elevate the rear end  $H^4$  of the 35 rocker. This sudden elevation of the rear end of the rocker moves upward the shoulder  $I^3$  of the clapper, and the upward movement of this shoulder moves the shank  $I^4$  and the hammer  $I^5$  upward and forward toward the 40 gong. Before the clapper has risen to the position shown of it by the upper set of dotted lines delineating it in Fig. 1, the arms  $H' H'$  and their extensions  $F F$  have reached the base-plate  $A$  and all further movement of 45 the rocker  $H$  is thereby prevented. The momentum acquired by the head or hammer  $I^5$  of the clapper in the direction of the gong carries the said hammer forward and causes it to strike against the lower peripheral portion 50 of the gong. After having thus delivered its blow upon the gong the clapper falls backward and its shoulder rests again upon the lip  $H^4$  of the rocker. Thus the clapper having dropped away from the gong immediately after 55 having delivered its blow upon the same, the gong has a full opportunity to vibrate, and hence to give out a full, strong, and sonorous tone. So long as the person ringing the gong continues to hold the rod  $G$  down the 60 forward end of the clapper will remain a short distance away from the gong. While in this position the clapper will touch neither the gong nor the pillow or cushion  $J'$ , hereinafter described. The gong cannot now 65 again be rung until the downward pull of the person ringing the gong upon the rod  $G$  has been relinquished. As soon as the oper-

ator allows the rod  $G$  to rise the clapper will fall backward and downward, and on account of the extended length of the hammer  $I^5$  the rear end of the latter will strike against the base-plate  $A$ .

In order to prevent the noise resulting from the striking of the rear part of the hammer  $I^5$  upon the base-plate  $A$  immediately after 75 the downward pull upon the rod  $G$  has been released, I provide a pillow or cushion  $J'$ . This cushion  $J'$  is preferably constructed as follows: Upon the surface of the plate  $A$  is a vertical flange, preferably annular in form. 80 Within this flange is placed a layer of some soft, elastic, non-resonant substance. The preferred material for this purpose is leather or rubber. Therefore when the hammer  $I^5$  of the clapper strikes the leather or rubber no 85 sound is heard, and such disagreeable clangor or clatter as would result from the clapper striking the base-plate  $A$  of the device is obviated.

As hereinafter mentioned, the hammer  $I^5$  is 90 made of an elongated form, as shown, and the greater length of this hammer is behind shank  $I^4$ . The object of this construction is threefold: First, the hammer carries in a compact shape a sufficient amount of metal to acquire a sufficient momentum to strike the gong with sufficient force; secondly, the weight of the hammer and shank  $I^4$  is thereby sufficient to overbalance the weight of the pivot  $G^2$ , rod  $G$ , and the cord suspended therefrom, and therefore cause it to fall backward away from the gong in readiness for another stroke, and in this way I am enabled to dispense with the use of springs or other devices for carrying the hammer back, as heretofore mentioned; 105 thirdly, its narrow shape allows it to work within a narrow compass, and requires the least amount of soft non-resonant material to be present as a cushion  $J'$ .

Over the clapper and the eye-pieces  $H^2$  and 110 lip  $H^4$  of the rocker I place a hood  $E$ . The upper portion of this hood is preferably of a curved form and conforms in general to the curved form of the hammer  $I^5$  of the clapper. The longitudinal outline of the upper surface 115 of the hammer  $I^5$  is also preferably curved to conform to the general curve described by the said hammer in its movement between the gong  $C$  and the cushion  $J'$ . In this way I am enabled to economize space and economize 120 metal in the construction of the hood. The forward end of the roof  $E^2$  of the hood extends nearly to the edge of the gong. The gong extends over the pivot-rod  $G^2$ , the eye  $G'$ , the pull-rod  $G$ , the arms  $H'$  of the rocker 125 and their extensions  $F F$ , and operates as a roof over those parts. Thus the hood  $E$  and the gong  $C$  conjointly serve as a roof and protect the upper surface of the various exposed portions of the clapper and rocker, rod 130  $G$ , pivot  $G^2$ , cushion  $J'$ , and flange  $J$  from exposure to rain or snow.

As a further protection to the clapper, rocker, and the cushion, and the parts to which

they are connected, the sides E' of the hood extend downward to the base-plate A and also extend forward under the gong C, as shown. In this way all of the operative parts of the device are securely protected from rain or snow. The sides of this hood also perform another valuable function—viz., when the hood is put in place the sides of the hood prevent the pivot-rods G<sup>2</sup> H<sup>5</sup> from slipping out of place. Hence this rod H<sup>5</sup> need not be riveted at the openings H<sup>3</sup> H<sup>3</sup>, nor need the rod G<sup>2</sup> be provided with securing ends of any description, either of the character of rivets or of the character of a screw-nut or the like. By these means the pivot-rods G<sup>2</sup> and H<sup>5</sup> are much more easily manufactured and at less cost, and are easily put into position in the respective openings of the striking apparatus provided for them, as aforementioned, and are securely held in place after being thus located.

In the modification shown in Fig. 4 the roof of the hood is omitted. The remainder of the hood shown in this Fig. 4 in part keeps away the snow and rain and performs the previously-mentioned important function of preventing the pivot-rods G<sup>2</sup> H<sup>5</sup> from slipping out of place.

The ring J operates to hold the rear end of the hood from being moved laterally on the base-plate A, and the front end of the hood is prevented from being moved laterally by means of the flange-bearings K K.

The hood E may be secured to the base-plate A in any desired manner. A novel and preferred means of securing the hood to the base-plate is as follows: A hook D is securely attached to the base-plate A and is preferably integral therewith. The forward ends of the sides E' of the hood are connected together by the front wall E<sup>6</sup>, which shields the forward or front surface of the clapper-operating mechanism from being reached by rain or snow. The front wall E<sup>6</sup> is provided at its lower edge with the projecting lug E<sup>3</sup>, which interlocks with the hook D. The rear end of the hood is secured in place by means of suitable lugs E<sup>4</sup> E<sup>4</sup>. One of such lugs E<sup>4</sup> is connected to one side of the hood at the lower edge of the latter and another of these lugs E<sup>4</sup> is attached to the outer surface of the other side of the hood at the lower edge of the latter. Each lug E<sup>4</sup> is secured to the base-plate A by its respective screw E<sup>5</sup>, screwed through an opening in the lug and into the base-plate, wherein it engages a screw-thread on the interior surface of the opening which it enters.

The base-plate A is suitably secured to the top of the car or other portion of the same or to the surface of the thing or structure to which it is to be attached. One convenient mode of attaching it is by means of bolts or screws passing through openings A' A' in the base-plate A. Two of said openings A' A'—one on each side of the standard B—are present in the forward part of the base-plate, and two similar openings A' A', one near one side edge of the base-plate A and the other near

the other side edge of the base-plate A at the rear of the said base-plate A.

The uses to which this gong, as herein described, may be applied are various. Among such uses may be mentioned the following: It may be used as a door-bell. It may be used upon bakers' wagons and other road-vehicles. The purpose for which it was particularly designed and for which it is especially valuable is as a pull-gong for cable or electric street-cars.

Among the various advantages arising from the use of my invention are the following: The parts of the striking apparatus are extremely simple and not likely to get out of order. No springs are used. There can be no derangement of the striking apparatus. The apparatus is very durable. There is but little wear upon the same. The gong is struck upon the outside, and thereby much greater longevity to the gong is secured than where the bell is struck upon the inside. Increased sonorosity of tone is secured by the force and elasticity of the stroke of the clapper. The device is capable of very quick action. The peculiar conformation of the parts and their peculiar interrelative construction and arrangement allow the gong to be rung a hundred or more strokes a minute, if desired. The clapper is always automatically in position for making the stroke. The force of the stroke is regulated automatically. A very slight pull upon the cord or rod G is sufficient to bring out the full sound of the bell.

Practice has demonstrated that the proper place for a cable-car bell is on the roof of the car, (preferably immediately above the gripman.) The operative parts of the pull-gong, being protected by the hood and gong, cannot become clogged with snow or ice, and hence the pull-gong can be placed upon the roof of the car.

While the various features of my invention are preferably employed together, one or more of said features may be used without the remainder, and, in so far as applicable, one or more of said features may be employed in connection with pull-gongs other than the one herein specifically described.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. The hood E, located outside of the gong, and the clapper oscillating in a curved path and when not in operation lying back under the hood, substantially as and for the purposes specified.

2. The hood E, located outside of the gong, and the clapper oscillating in a curved path and when not in operation lying back under the hood, the mechanism for actuating the clapper being jointly covered by the hood and gong, substantially as and for the purposes specified.

3. In a gong-ringing device, the hood E and the reciprocating clapper, the latter when not in operation lying back under the hood, the said hood having at one end the tooth or lug

$E^3$ , interlocking with the hook D of the base-plate, substantially as and for the purposes specified.

4. In a gong-ringing device, the hood E and the reciprocating clapper, the latter when not in operation lying back under the hood, the said hood E having at one end the tooth or lug  $E^3$ , interlocking with the hook D of the base-plate, and provided at or near the other end with a lug or lugs  $E^4$ , secured by lugs  $E^5$  to the base-plate, substantially as and for the purposes specified.

5. The hood E, located outside of the gong, the clapper oscillating in a curved path and when not in operation lying back under the hood, and the cushion located at the rear end of the stroke of the clapper and adapted to receive the backward blow of the hammer, the cushion being located within the hood, substantially as and for the purposes specified.

6. In a gong, the clapper and a non-resonant elastic cushion to receive the backward blow of the hammer of the clapper, the cushion being contained in the recess formed by flange J, secured to the base-plate, and the hood E, covering the base-plate and the ham-

mer when the latter is at rest, substantially as and for the purposes specified.

7. In a gong, the hood E and the clapper 30 oscillating on pivot  $H^5$ , located within the hood, the walls of the hood serving as guards to prevent the escape of the said pivots from their respective bearings, substantially as and for the purposes specified.

8. In a gong, the hood E and the clapper 35 oscillating on pivot  $H^5$ , located in opening  $H^3$  of the bearings K, located between the sides of the hood, the walls of the latter serving as guards to prevent the escape of the pivot  $H^5$  40 from its respective bearings, substantially as and for the purposes specified.

9. In a gong, the hood E and the clapper oscillating on pivot  $H^5$ , located in opening  $H^3$  of the bearings K, located between the sides 45 of the hood, and the rocker connected to rod G by pivot  $G^2$ , the walls of the hood serving as guards to prevent the escape of the pivots  $H^5$   $G^2$  from their respective bearings, substantially as and for the purposes specified.

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Attest:

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