Jan. 13, 1948. C. A. PERSONS ET AL 2,434,516

MECHANICAL SIREN

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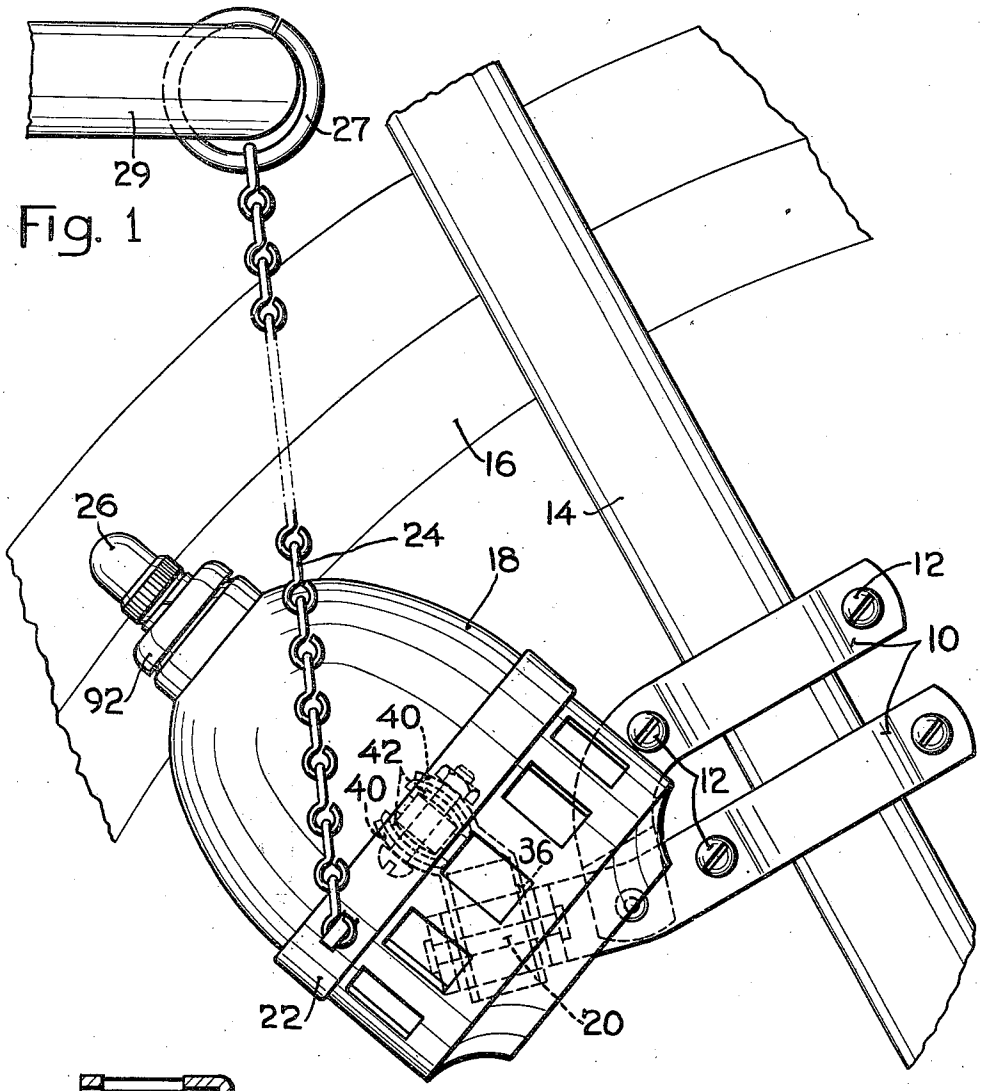


Fig. 1

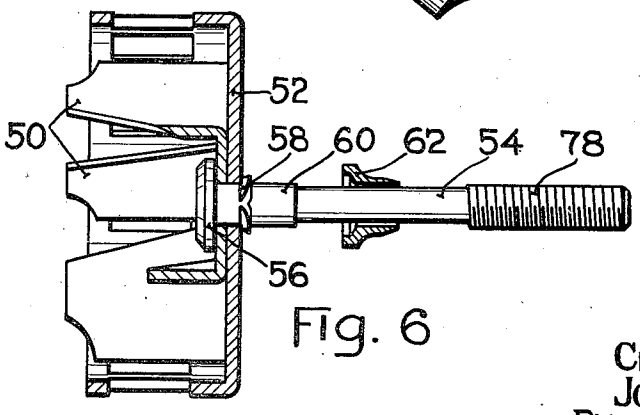


Fig. 6

INVENTORS
CHARLES A. PERSONS
JOSEPH G. S. ROBINSON
BY Charles R. Fay, atty.

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Fig. 2

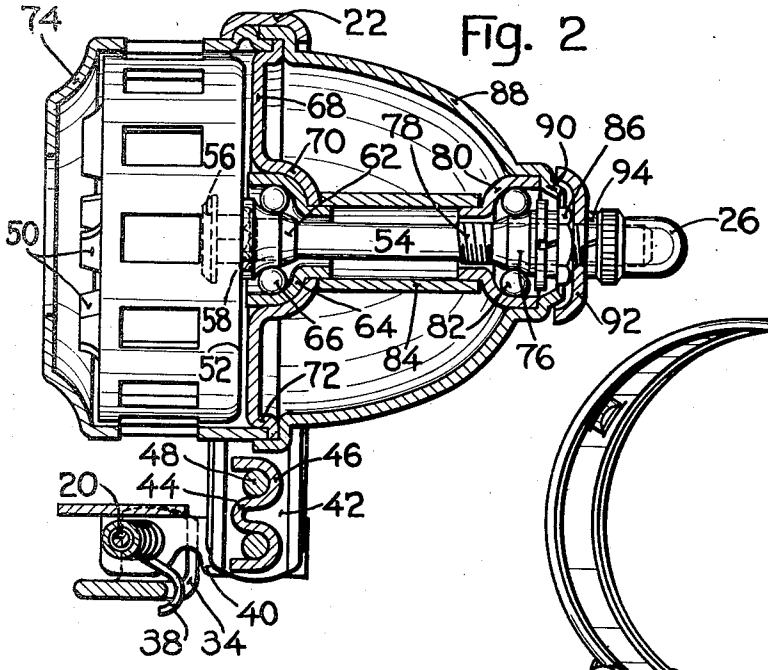


Fig. 3

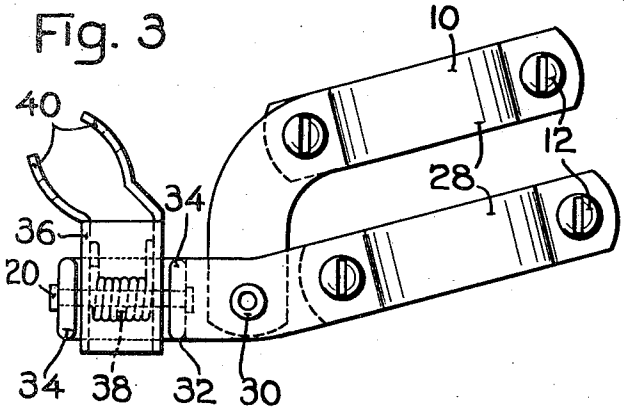
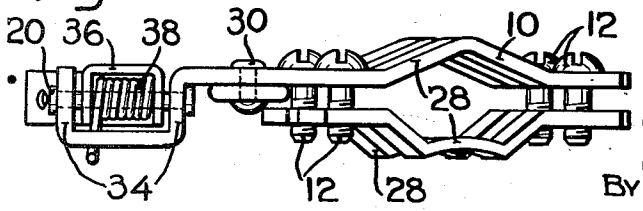


Fig. 4



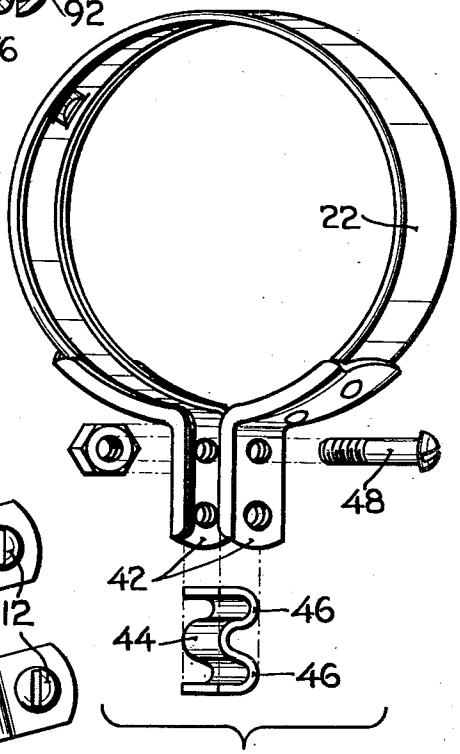


Fig. 5

INVENTORS
CHARLES A. PERSONS
JOSEPH G.S. ROBINSON
BY Charles R. Fay, atty.

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MECHANICAL SIREN

Charles A. Persons and Joseph G. S. Robinson, Worcester, Mass., assignors to Persons-Majestic Manufacturing Company, Worcester, Mass., a corporation of Massachusetts

Application March 10, 1945, Serial No. 582,084

9 Claims. (Cl. 116—56)

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This invention relates to audible warning devices of the type having means to drive the same from wheels of cycles or other like members.

Objects of the invention include the provision of the above devices which are especially long lived and less subject to damage or failure, by reason of a particular rigid rotor assembly and shaft therefor; the provision of a new and novel bracket support for the device; and the provision of a special streamlined housing which further rigidifies and stabilizes the rotor.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a view in elevation showing the siren in position on the front fork of a cycle;

Fig. 2 is a vertical section through the siren;

Fig. 3 is a view in elevation of the supporting bracket;

Fig. 4 is a bottom plan view of the bracket;

Fig. 5 is an exploded view of the balloon ring clamp for the siren; and

Fig. 6 is a detail of the shaft.

As shown in Fig. 1, the mechanical siren comprises a bracket 10 secured by fasteners 12 to the front fork 14 of a cycle having a front wheel tire 16, the siren 18 itself being pivoted to the bracket on a pintle 20 arranged to carry the siren on a ring clamp 22. A chain 24 or the like is secured to the siren at the outside aspect thereof so that a pull upwards tilts the siren on pintle 20 to bring a plug cap or the like 26 into contact with the tire to be rotated thereby. A ring 27 on the chain may be used to slip over the handlebar 29 of the cycle.

The bracket 10 comprises a pair of double arms 28 to embrace the fork, one arm 28 being angled and secured at 30 to the other arm, the latter being bent to extend upwards at an angle, see 32. The angled portion 32 also includes a pair of parallel ears 34 mounting the pintle 20 on an axis parallel to portion 32, i. e., at an angle to arms 28. A pivot bracket hinge 36 is mounted on the pintle and a spring 38 engages the bracket hinge and arm portion 32 to constantly urge the bracket hinge in one direction, i. e., away from the tire. Pivot bracket hinge 36 is provided with a pair of angled upstanding ears 40 shaped as shown in Fig. 3 to clamp and hold out-turned legs 42 forming the terminal portions of the ring clamp 22, see Figs. 1 and 2.

A spacer 44 is positioned between legs 42 and is provided with two reversely curved portions 46 to accommodate a fastener 48 to prevent angularity of the legs and to ensure that the same will be drawn together to a parallel position by the fastener.

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In the embodiment of the invention shown a fan 50 is provided on a disk 52, the latter being fixed to a shaft 54 for rotation thereby. However, other types of noise makers may be employed. The shaft is provided with a head 56 to which the disk 52 is crimped by a shoulder 58. The shaft has an enlarged portion 60 adjacent the shoulder for fitted reception of an internally smooth ball race cone 62. A ball cup 64 forms the outer race for balls 66 and the cup is held by a circular supporting disk 68 having a central cup 70 fitting the cup 64 and a peripheral flange 72 receiving and supporting the skirt of a fan cover 74.

A threaded cone 76 is adjustably mounted on thread 78 of shaft 54 and cooperates with a ball cup 80 to contain balls 82, there being a sleeve 84 connecting the ball cups and the base disk 68 to hold the latter and sleeve in a unitary assembly. The cone 76 is held by a nut and lock washer indicated at 86 and the ball cup and sleeve assembly is held by a streamlined cup shaped shell 88 as by a flange 90 at its smaller end. The larger end of the shell 88 receives the fan cover 74 and retains the same, the ring clamp 22 holding the parts together.

A dust and water cap 92 is held to the nut at 86 by a washer 94 and the acorn nut or similar plug or cap 26 is turned upon threads 78 to complete the assembly.

When the chain 24 is given an upward pull, the siren 18 as a whole will pivot as on pintle 20 in a plane at right angles to the plane of the wheel of the cycle, and as the siren, by the bracket and hinge construction, lies with the spindle radially of the wheel, the acorn nut 26 impinges the tire at right angles so that the nut acts as a driver for the fan.

The present siren is extremely long lasting because of the double ball bearing spindle construction which lies between the driver 26 and fan 50 and the streamlined cup 88 supports the spindle adjacent the driver. Hence the fan may be made to closely approach the cover 74 to give a louder warning and the parts are rigidly secured together in a manner overcome vibratory damage, etc. The shaft is securely held against endwise or lateral play and the same is true of the base disk 68 and sleeve assembly.

Having thus described our invention and the advantages thereof, we do not wish to be limited

to the details herein disclosed, otherwise than as set forth in the claims, but what we claim is:

1. An audible signalling device comprising a spindle, a sound generating mechanism at one end thereof, a driver at the other end of the spindle, a tube about said spindle, a bearing at each end of said tube, a bearing supporting disc adjacent said mechanism, a casing for said mechanism, a cup shaped shell, said shell receiving in its large end said bearing supporting disc and the adjacent edge of said casing, a shoulder near the large end of said shell, a socket at the small end of said shell, said socket being adapted to receive one of said bearings, a clamping band about said shell adapted to receive the shoulder and said casing, and a bracket attached to said clamping band.

2. An audible signal device comprising a spindle, a sound mechanism to be driven thereby, a bearing on said spindle near said mechanism, a bearing supporting disc about said bearing, a tube about said spindle, said bearing being located in one end thereof, a second bearing located at the other end thereof, a cup shaped shell having a larger end receiving and supporting the bearing supporting disc and the mechanism, and a smaller end supporting the second bearing, a clamping band about the edges of said shell and said mechanism, and a bracket attached to said clamping band.

3. A siren comprising a spindle, an audible signal head end and a driver at the other end thereof, a tube surrounding said spindle, a bearing at each end of said tube, a bearing supporting disc behind said head, a casing for said head, a cup shaped shell comprising at its large end a cylindrical wall which receives said bearing supporting disc and the adjacent edge of said head casing, a stepped shoulder at the inner end of said cylindrical wall, a socket at the small end of said shell, said socket being adapted to receive one of the bearings, a clamping band about said shell adapted to receive the cylindrical wall and stepped shoulder on said shell.

4. An audible signalling device comprising a spindle with a sound generating mechanism at the forward end thereof, and a roller at the rearward end thereof, a tube about said spindle, a bearing at each end of said tube, a bearing supporting disc adjacent said mechanism, a casing for said mechanism, a cup shaped shell receiving in its large end said bearing supporting disc and the adjacent edge of said casing, a stepped shoulder near the large end of said shell, a socket at the rearward end of said shell, said socket being adapted to receive a bearing, a wall extending rearwardly from said socket, a dish shaped cap about said spindle mounted outside of the shell, the perimeter of said cap overlapping said rearwardly extending wall, a clamping band about said shell adapted to receive the stepped shoulder on said shell and the said edge of said signal head casing, and a bracket attached to said clamping band.

5. A siren comprising a spindle, a signal mechanism therefor, a head on the spindle, a shoulder adjacent the head, the shoulder crimping the mechanism to the head, a loose ball cone on the spindle, a ball cup about the cone, a supporting disk, a second ball cone and cup spaced from the loose cone, a sleeve interposed between the cups and bearing on the disk to hold the same, means to secure the second ball cone and cup, a streamlined shell having a large end encompassing the disk and a small end supporting the second ball cup, a driver on the spindle, a bracket, and an angled hinge on the bracket and supporting the siren for pivotal movement thereon.

6. The siren of claim 5 including a casing for signal mechanism, said casing having a peripheral edge held under the larger end of the streamlined shell.

7. A siren comprising a spindle, a driver on one end and an audible signal head on the other end, a first bearing adjacent the head and a second bearing remote therefrom on the spindle, a bearing supporting disk for the first bearing, a shell having an end supporting the disk and another end supporting the second bearing, one of said bearings comprising a cone loose on the spindle and the other bearing including a cone adjustably secured to the spindle, a ring encompassing the shell, a bracket secured to the ring, and a hinge interposed between the bracket and shell, said hinge being angularly arranged to provide pivoting the siren as a whole angularly relative to the bracket.

8. The siren of claim 7 including an enlarged portion on the spindle receiving the loose cone for a relatively close fit thereof.

9. A siren comprising a bracket, a hinge having a pair of ears thereon at an angle to the bracket, a tire-driven audible signal, a casing therefor, a ring having spaced ends about the casing, said ends being secured to the ears, a fastener extending through the ears and ends, and a spacer between said ends said spacer having a pair of curved portions for receiving the fastener selectively in either portion, and a reversely curved portion between said pair of curved portions.

CHARLES A. PERSONS.
JOSEPH G. S. ROBINSON.

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