Aug. 16, 1966 I. COHN 3,266,455

NOISE MAKERS

Filed April 15, 1965 2 Sheets-Sheet 1

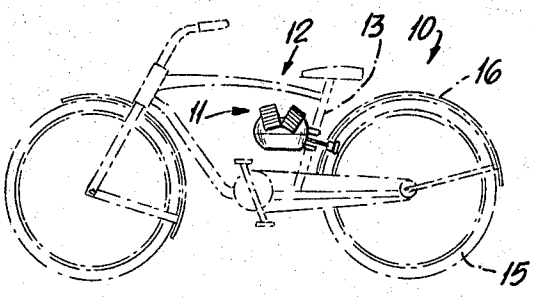


FIG. 1

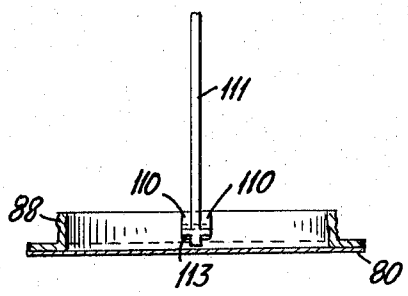


FIG. 5

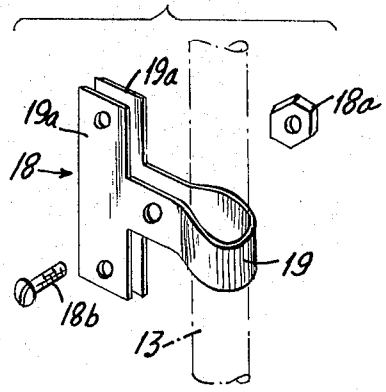


FIG. 9

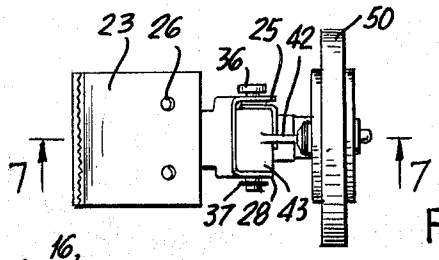


FIG. 6

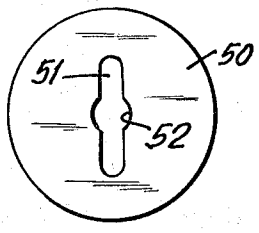


FIG. 8

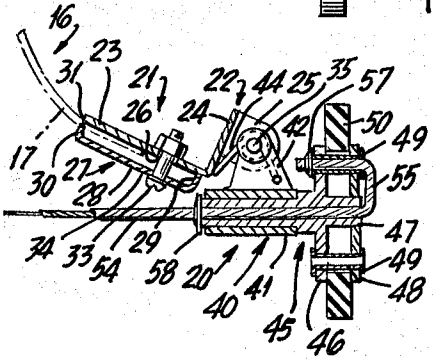


FIG. 7

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NOISE MAKERS

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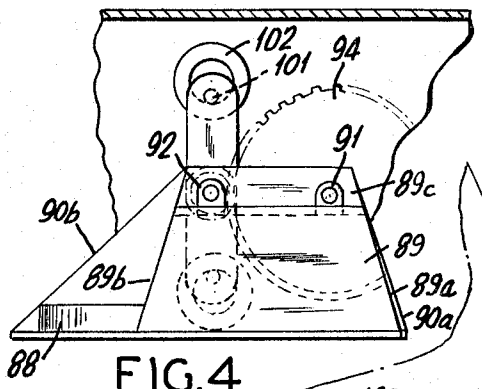


FIG. 4

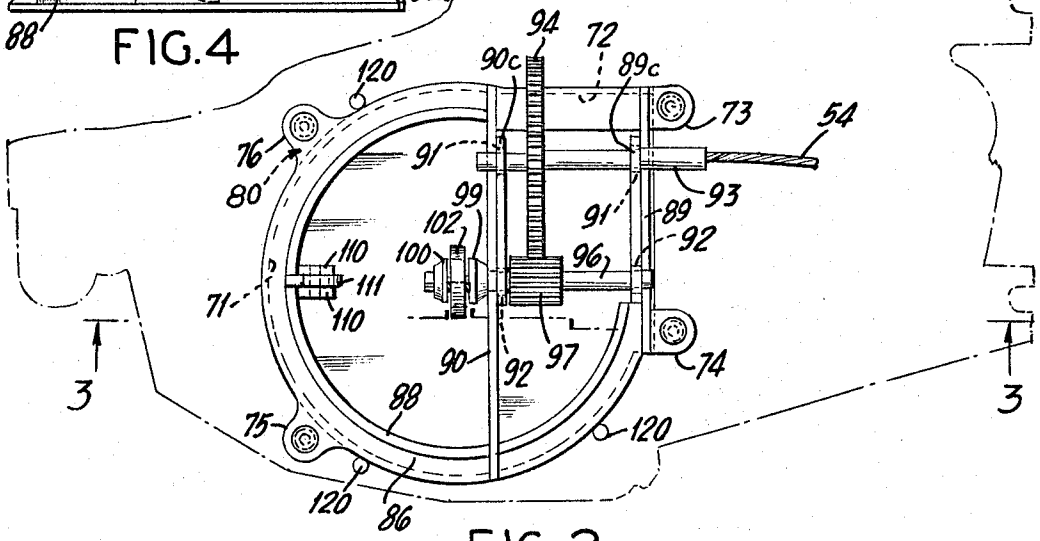


FIG. 2

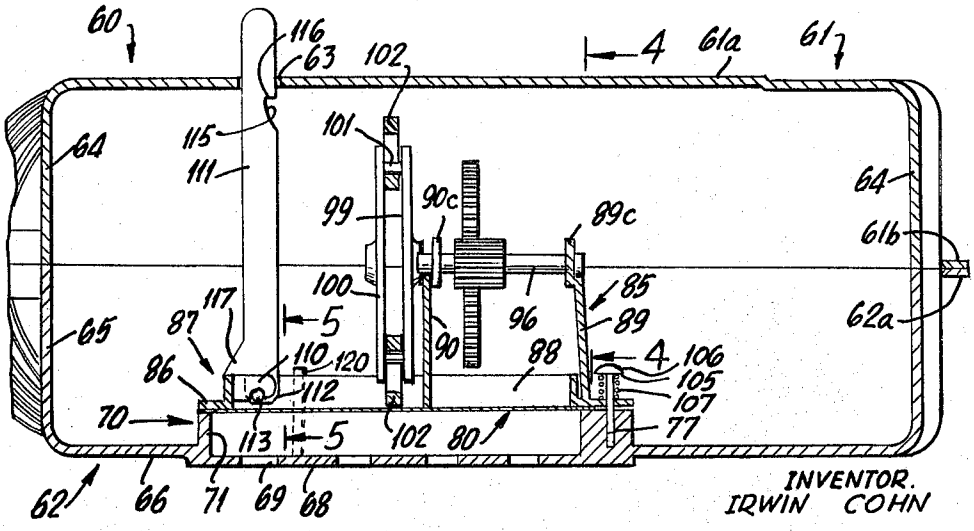


FIG. 3

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NOISE MAKERS

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10 Claims. (Cl. 116—56)

This invention relates to noise makers.

An object of this invention is to provide a noise maker of the character described which may be mounted on a wheeled, manually operated vehicle such as a bicycle, and provided with means dependant upon rotation of a wheel of the vehicle for operating said noise maker.

Another object of this invention is to provide in a noise maker of the character described, means to render the noise maker inoperative to produce sound even while the vehicle is moving and the operating wheel is rotating.

A further object of this invention is to provide a noise maker of the character described comprising a casing which may be clamped to the frame of the vehicle with means to rotate cable means upon rotation of a wheel of a vehicle clamped to a fender of the vehicle and means, within the casing, controlled by rotation of the cable to produce noise.

Still another object of this invention is to provide in a noise maker of the character described, a frame mounted on a wall of the casing and over a diaphragm and carrying a rotary member to be rotated by the cable with means thereon to strike the diaphragm repeatedly as the rotary member is rotated.

Yet a further object of this invention is to provide in a noise maker of the character described, means to lift said frame above the diaphragm so that as said rotary member is rotated it will not strike the diaphragm.

A still further object of this invention is to provide a strong, rugged and durable noise maker of the character described which shall be relatively inexpensive to manufacture, easy to assembly and mount on a bicycle or like vehicle and which shall yet be practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawing, in which is shown an illustrative embodiment of the invention,

FIG. 1 is a side elevational view of a bicycle provided with a noise maker embodying the invention mounted thereon;

FIG. 2 is a vertical view at the inside of a vertical wall of the casing looking towards the opposite wall;

FIG. 3 is a cross-sectional view taken on line 3—3 of FIG. 2;

FIG. 4 is a partial sectional view taken on line 4—4 of FIG. 3;

FIG. 5 is a partial cross-sectional view taken on line 5—5 of FIG. 3;

FIG. 6 is an elevational view of the power pick-up means of the noise maker shown in FIG. 1;

FIG. 7 is a cross-sectional view taken on line 7—7 of FIG. 6;

FIG. 8 is a side elevational view of a detail of the power pick-up means; and

FIG. 9 is a perspective view of one casing mounting bracket shown in FIG. 1.

Referring now in detail to the drawing, **10** designates a vehicle shown in dot dash lines on which is mounted a noise maker **11**. The vehicle shown in the drawing for the purpose of illustration only is in a form of bicycle

comprising a frame **12** having a rear post **13**, a rear ground traction wheel **15** and a fender **16** for the periphery of said rear wheel. The fender **16** may be of usual construction and is of curved cross-section overlying the wheel **15**. One end edge portion **17** of the fender is shown in FIG. 7 in the drawing.

Removably attached to post **13** are a pair of noise maker attaching brackets **18**, FIG. 9. Bracket **18** comprises a post encircling portion **19**, from which extends a pair of attaching fingers **19***a*, for a purpose which will appear hereinafter. A nut and bolt assembly **18***a* and **18***b* tighten portion **19** about post **13**. Fingers **19***a* are provided with suitable openings in which the casing is mounted, as will appear more clearly hereinafter.

The noise maker **11** comprises a power pickup device **20** mounted on the fender **16** adjacent the periphery of wheel **15**. Said pickup device **20** more specifically comprises a clamp **21**, comprising a clamp member **22** having a flat wall **23** from which extends at right angles a wall **24** provided with a pair of parallel apertured ears **25**. Wall **23** is formed with a pair of through openings **26** for the purpose hereinafter appearing.

A second channel shaped clamp member **27** comprises a wall **28** parallel to wall **23** and having flanges **29** and **30** at each end thereof, the edges of which flanges extend toward wall **23**. Flange **30** is provided with teeth or serrations and wall **23** at its outer end also has teeth or serrations **31** extending toward the teeth on the flange **30**. The end edge portion **17** of the fender is received between the clamp members **22** and **27**. Said clamp members may be fixed together by a pair of bolts **33** passing through openings **34** in wall **28** and through the opening **26** in wall **23**, to clamp the fender portion **17** therebetween.

The apertured ears **25** carry a cross pin **35** having a head **36** at one end and provided with a cotter pin or snap ring **37** or any other means to keep the pin **35** from sliding out of place. The pin **35** serves to pivotally connect the clamp **21** to a bearing member **40**. Said bearing member **40** comprising a tubular sleeve **41** from which extends upwardly a web **42** carrying a sleeve **43** disposed at right angles to sleeve **41** and rotatively receiving the pin **35**, sleeve **43** is disposed between the apertured ears **25**. A torsion spring **44** mounted on pin **35** has one end engaged in an opening in web **42** and the opposite end engaging wall **24** of clamp member **22** and tends to rotate bearing member **40** in a counterclockwise direction relative to clamp **21**, looking at FIG. 7.

Extending through bearing sleeve **41** is a spindle **45** provided near its outer end with an annular flange **46**. Spindle **45** has a tubular extension **47** extending beyond the flange **46**. Mounted on the extension **47** is an annular disc **48**. Disc **48** is attached to flange **46** by a pair of hollow cross rivets **49**. Interposed between the flange **46** and the disc **48** is a larger disc **50**, an edge of which is adapted to contact the outer surface at the side of the tire of the wheel **15**. The disc **50** is provided with a diametric slot **51** having a central enlarged portion **52**. The rivets **49** pass through the ends of the slot **51**, whereas the extension **47** passes through the central enlarged portion **52** of the slot. The contact member **50** may be made of any suitable rugged material such as hard rubber so as to make good frictional contact with the tire on the wheel.

A flexible cable **54** of any suitable construction passes through the longitudinal opening in the spindle **45**, is then bent radially outwardly at **55**, and then passes longitudinally through one of the rivets **49**. The flexible cable has fixed thereto a push nut **57** at the inside of the rivet **49** and also a second push nut **58** at the inner end of the spindle **45**. It will now be seen that when the bicycle is being ridden and the rear wheel **15** is rotating,

the disc **50** will be rotating and will rotate the flexible cable **54**. The use of the cable and push nuts will appear hereinafter.

The noise maker **11** further comprises a casing **60**. Said casing **60** comprises a pair of vertically split matching complementary parts **61**, **62**. If desired, the casing may have a shape of an engine of any kind or it may have any other suitable design. The casing **61** has a vertical wall **61***a* formed with an opening **63** for the purpose hereinafter appearing. The parts **61**, **62** also have end flanges **61***b* and **62***a* respectively which join the parts together, and are interposed between the fingers **19***a* of clamp **18** to mount the casing **60** on the post **13** of the frame **12** of the vehicle **10**.

Casing **60** also has side walls **64** extending at right angles to the wall **62**. The casing part **62** comprises a wall **66** opposed to wall **61***a* and from which extends side wall **65**. The inner edges of walls **64** and **65** contact substantially at the vertical midsection of the casing, ending in flanges **61***b* and **62***a* as described above. The casing parts **61**, **62** may be attached together in any desired, suitable manner. Wall **66** may be formed with an annular wall portion **68** provided with a number of openings **69**. Extending inwardly from wall **66** is an integral flange **70**, comprising a thin portion **71** circular for about 270° in extent. Extending from one end of the part circular thin wall **71** is a thin wall **72** terminating in an enlarged boss **73**. At the other end of the part circular portion **71** is a boss **74** parallel to and aligned with the boss **73**. Also extending from the thin wall **71** are a pair of radial bosses **75** and **76**. Bosses **73**, **74**, **75** and **76** are formed with openings **77** for the purpose hereinafter appearing.

Mounted on the walls **71** and **72**, and the bosses **73**, **74**, **75** and **76** is a diaphragm **80** which may be made of vulcanized fiber, or any other suitable material. The diaphragm **80** is parallel to the wall **68** and overlies the openings **69** in spaced relation thereto. Mounted on top of the diaphragm is a bracket member **85**. Said bracket member **85** comprises a flat outwardly extending flange **86** resting on the upper edges of walls **71**, **72** and bosses **73**, **74**, **75** and **76**. Said flange **86** extends inwardly of the walls **71**, **72**. Extending upwardly from flange **86** is a flange **87** spaced inwardly from said walls **71**, **72** and bosses **73**, **74**, **75** and **76**. Flange **87** comprises a portion **88** which substantially follows the wall **71**. Molded together with the ends of the flange **86** is a wall **89** which is slightly inclined and extends towards casing part **61**, and has tapered end edges **89***a* and **89***b*. Also molded together with flange **87** is a transverse wall **90** extending towards casing part **61**. Wall **90** has tapered ends **90***a* and **90***b*, and serves to strengthen bracket **85** by joining flanges **86** and **88** as shown in FIG. 2. The walls **89** and **90** are formed at their upper ends with a pair of inwardly offset parallel portions **89***c*, **90***c*. Said portions **89***c*, **90***c* are formed with pairs of substantially semicircular openings **91**, **92** for the purpose hereinafter appearing.

Extending through the openings **91** is a sleeve **93** carrying a gear **94** disposed between walls **89**, **90**. The flexible cable **54** passes through the sleeve **93** and the sleeve may be crimped or clamped to the cable so as to rotate therewith. It will now be understood that when the cable **54** is rotated in response to the rotation of the wheel **15**, sleeve **93** and hence gear **94** will also be rotated. Any suitable means may be provided to prevent the sleeve **93** from coming out of its bearing openings **91**.

Rotatably mounted in openings **92** is a cross shaft **96** parallel to sleeve **93** and carrying a pinion **97** meshing with the gear **94**. Shaft **96** extends beyond wall **90** and mounted thereon is a diametric bar **99**. Fixed to bar **99** is a second bar **100** parallel and aligned therewith. The bars **99** and **100** are interconnected or fixed together by a pair of parallel cross pins **101**. Rotatably mounted on each cross pin **101** is a ring **102**. The opening in

the rings are considerably larger than the diameters of the cross pins **101**. As the shaft **96** is rotated, the integrated bars or carrier **99**, **100** will rotate, causing the rings **102** to successively strike the diaphragm **80** to make noise simulating the sound of an internal combustion engine.

The bracket **85** is connected to the casing part **62** by means of drive screws of other fastening members **105**. The drive screws **105** are loosely passed through suitable openings in the flanges **86**, and enter the openings **77** in the bosses **73**, **74**, **75** and **76**. These fastening members have heads **106** spaced above the flange **86**. Coiled compressed springs **107** are interposed between the flange **86** and the heads **105**. The springs **107** thus keep the bracket **85** and the diaphragm **80** on flange **71** and the bosses **73**, **74**, **75** and **76**. Means is provided to lift the bracket **85** so that even if the wheel of the bicycle is rotating no noise will be made. To this end, flange **88** is formed with a pair of inwardly extending hooks **110**. A rod **111** has a portion **112** disposed between the hooks **110** and carries a cross pin **113** engaging beneath the hooks **110**. The rod **111** passes through the opening **63** in casing part **61**. Said rod is formed on one side thereon with a notch **115** providing a shoulder **116**. The rod **111** at its lower end has a shoulder **117** overlying the upper edge of flange **88**. If it is desired not to make noise even when the bicycle is driven, the operator can pull the rod **111** outwardly and then tilt the rod slightly to engage the shoulder **116** with the edge of the casing **61***a*, thus lifting the bracket upwardly sufficiently so that the rings **102** will not strike the diaphragm.

Casing wall **62** is also formed with three pins **120** which guide the bracket **85** in this movement toward and away from diaphragm **80** by contacting the outer edges of flange **86**.

The motor fits various size bicycles, due to the method of assembly of the flexible drive cable to the rotating device clamped to the rear fender.

The apparatus described herein is intended to be sold with the cable **54** not assembled to the spindle **45**. The cable **54** is sold with enough length to fit the largest bicycles. The push nut **58**, before the assembly, may be back near the casing **60** and outside thereof. The purchaser, after mounting the casing **60** on the rear post **13**, and mounting the clamp **21** on the fender **16**, slips the front end of the spindle forwardly through sleeve **41** and then threads the free end of the cable through the spindle **45** and draws the cable taut. The push nut **58** is then pushed rearwardly against the front end of the spindle **45** so that the spindle will not come out of the sleeve. The cable is then bent radially outwardly as at **55** and then forwardly through an eyelet rivet **49**. Another push nut **57** is fitted onto the outer free end and pushed against the front end of said eyelet **49**. The excess cable may then be snipped off. These push nuts **57** and **58** may be pushed in one direction, but will grip the cable to prevent them from being pushed back. Such push nuts are known commercially as "Pal Nuts" or "Tinnerman Nuts." The turned back U portion of the cable must turn as contact disc **50** rotates to thereby rotate the cable **54**. Thus a drive for the cable is provided without pre-assembly to the power pickup **20**.

It will thus be seen that there is provided an apparatus and article in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth and shown in the accompanying drawings, is to be interpreted as illustrative and not in a limiting sense.

I claim.

1. In a noise maker for use with a vehicle comprising a frame and a ground traction wheel rotatably mounted

thereon, the combination comprising power pickup means, means to releasably clamp said power pickup means on said vehicle adjacent the periphery of said wheel, said power pickup means having a rotary portion adapted to drivingly engage said periphery of said wheel, means urging said portion into driving engagement with the periphery of said wheel, a casing, means to removably mount said casing on a portion of said frame spaced from said wheel, noise making means, means to mount said noise making means within said casing, flexible power transmission means connected to said rotary portion of said power pickup means, means controlled by said power transmission mean to actuate said noise making means, and means to render said noise making means inoperative to make noise while said power pickup means picks up power.

2. In a noise maker for use with a vehicle comprising a frame and a ground traction wheel rotatably mounted thereon, the combination comprising power pickup means, means to releasably clamp said power pickup means on said vehicle adjacent the periphery of said wheel, said power pickup means having a rotary portion adapted to drivingly engage said periphery of said wheel, means urging said portion into driving engagement with the periphery of said wheel, a casing, means to removably mount said casing on a portion of said frame spaced from said wheel, noise making means, means to mount said noise making means within said casing, flexible power transmission means connected to said rotary portion of said power pickup means, means controlled by said power transmission means to actuate said noise making means, said power transmission means comprising a flexible cable, means on said pickup means drivingly engaging one end of said cable, a gear drivingly connected to the other end of said cable, a pinion driven by said gear, and means connected to said pinion for operating said noise making actuating means.

3. The combination of claim 1, said casing being provided with a plurality of bosses, said noise making means comprising a diaphragm mounted on said bosses, said noise maker mounting means comprising a bracket member mounted on said diaphragm and said bosses, said noise making means further comprising rotary means mounted on said bracket member for striking said diaphragm, and said means to render said noise making means inoperative to make noise comprising means to move said bracket member on said bosses away from said diaphragm.

4. In a noise maker for use with a wheeled vehicle, the combination comprising power pickup means, means to mount said pickup means on said vehicle, a casing, means to mount said casing on said vehicle, a flexible drive cable having one end connected to said power pickup means, said power pickup means comprising a disc, means to urge said disc into driving contact with a wheel of said vehicle, said one end of said cable being fixed to said disc for concurrent rotation therewith, said casing having mounting means formed on an inside surface thereof, a diaphragm, means to mount said diaphragm on said mounting means, a bracket, means to mount said bracket on said mounting means, said bracket mounting means comprising means to permit said bracket to move with respect to said diaphragm, said bracket comprising a pair of substantially parallel walls disposed within said casing substantially perpendicular to said diaphragm; means to mount the other end of said cable for rotation on and between said walls, and in spaced relation to said diaphragm, and having a gear mounted thereon; a shaft mounted on said walls in spaced parallel relation to said means for mounting said other end of said cable, and having a pinion mounted thereon, said pinion meshing with said gear, a member mounted on said shaft and comprising striker elements loosely mounted thereon and adapted to successively strike said diaphragm upon rotation of said member only when said bracket is closely adjacent said diaphragm.

5. In combination, a clamp means, a bearing member pivotally connected to said clamp means, a spindle rotatably mounted within said bearing member, said spindle comprising a radial flange formed thereon in spaced relation to one end thereof, a disc mounted on said one end of said spindle in spaced relation to said flange, a friction drive disc interposed between said flange and said disc, and rivet means interconnecting said flange, disc and friction drive disc.

6. The combination of claim 5, said spindle and said rivets being hollow, a cable, said cable passing axially outwardly through said spindle and out beyond said one end thereof, thence radially outwardly, thence axially inwardly through said disc, friction disc, and flange, and means to secure the end of the cable from pulling out of said hollow rivet.

7. In combination, noise making means, a flexible cable, means at one end of the flexible cable and controlled by rotation of said cable to actuate said noise making means, a bearing, a spindle journalled in the bearing, the other end of the cable passing through said spindle, a rotary friction contact disc fixed on said spindle, and said cable having a portion extending radially of the axis of the spindle and a portion extending from said radially extending portion and attached to said spindle.

8. In combination, a clamp means, a bearing member, means to mount said bearing member on said clamp means, a tubular spindle rotatably mounted within said bearing member, a radial flange on said spindle, a disc, means to attach said disc to said flange in spaced relation thereto and coaxial of said spindle, a friction drive disc interposed between said flange and said first mentioned disc, the means for attaching said first mentioned disc to said flange comprising a plurality of rivets at least one of which is tubular, said friction drive disc being formed with a slot through which a plurality of said rivets pass, a cable, said cable passing axially through said spindle and beyond one end thereof, thence radially outwardly, and thence axially through said tubular rivet, and means to secure the end of the cable from pulling out of said tubular rivet.

9. The combination of claim 8, and means on said cable radially overlapping said bearing to prevent the spindle from sliding out of the bearing in one direction.

10. In combination, a casing, mounting means formed in a wall of said casing, a diaphragm on said mounting means, a bracket on said diaphragm, noise making means mounted on said bracket including means to strike said diaphragm, means including spring means for resiliently holding said bracket and diaphragm on said mounting means and means to retain said bracket in a position, against the force of said spring means, spaced with respect to said mounting means and diaphragm, to space the noise making means from the diaphragm.

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