Sept. 4, 1928. 1,683,033

R. O. HELGEBY

SPEEDOMETER DRIVE ADAPTER

Filed March 21, 1927

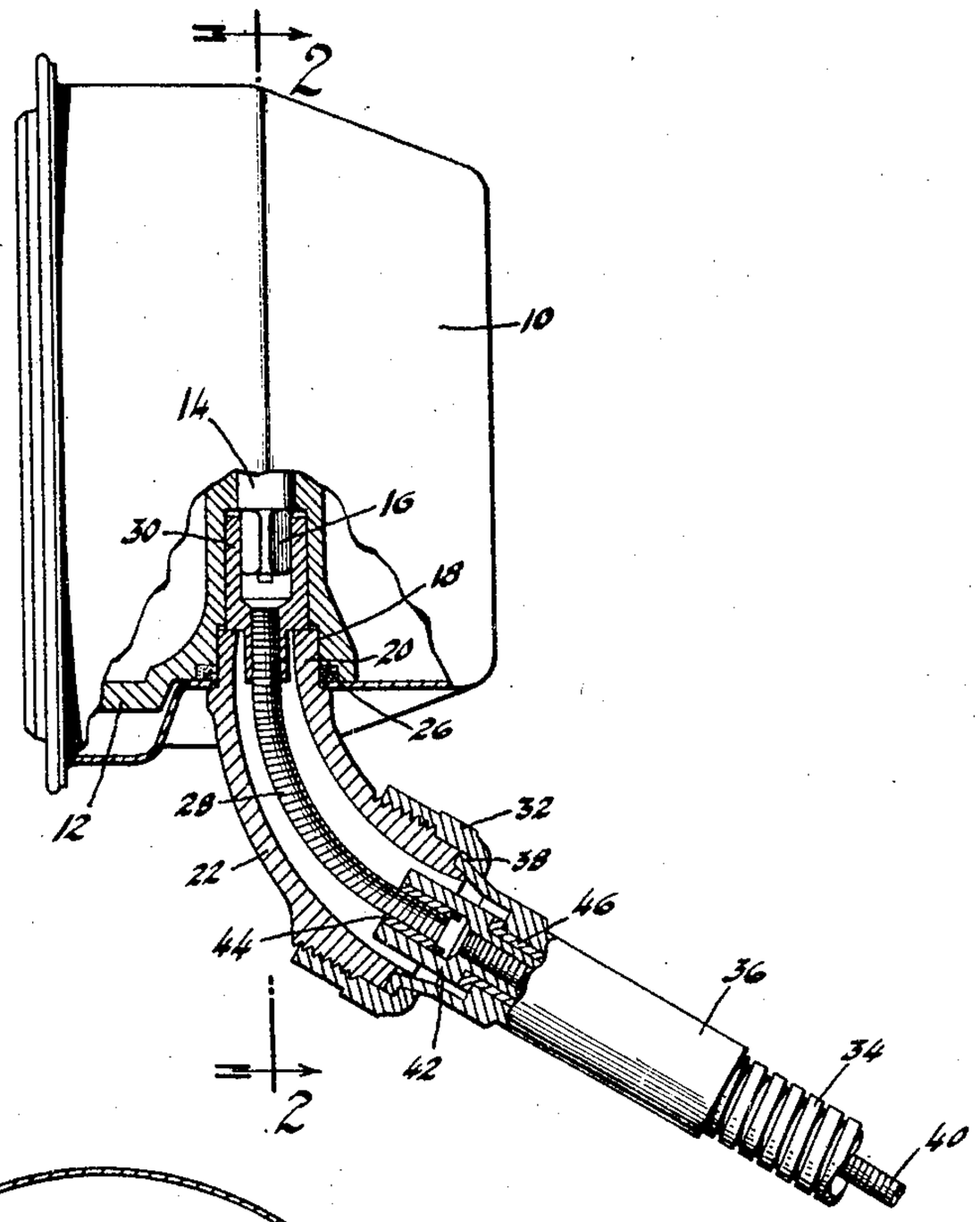

Fig. 1

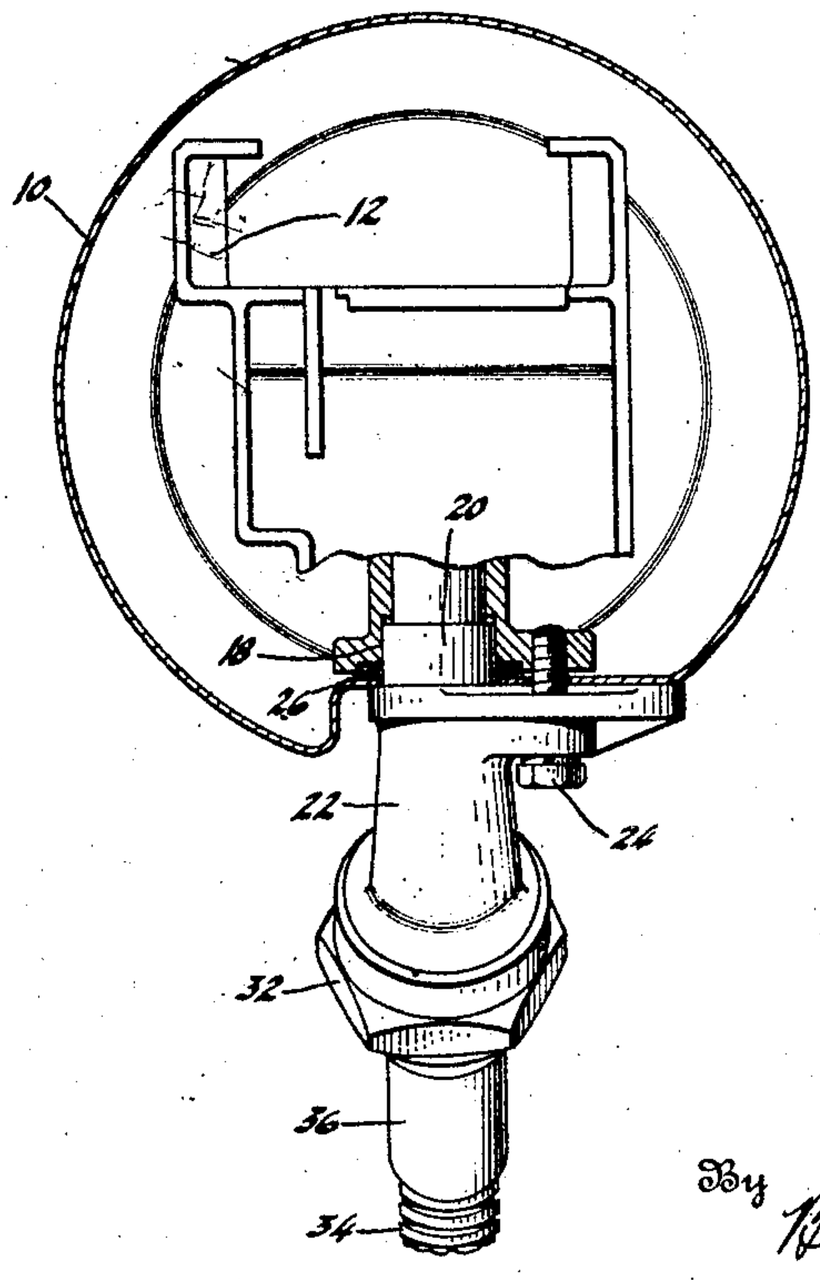

Fig. 2

Inventor
Ralph Olaf Helgeby

By Blackmore Spencer & Hicks
Attorneys

Patented Sept. 4, 1928. 1,683,033

UNITED STATES PATENT OFFICE.

RALPH OLAF HELGEBY, OF FLINT, MICHIGAN, ASSIGNOR TO A C SPARK PLUG COMPANY, OF FLINT, MICHIGAN, A CORPORATION OF MICHIGAN.

SPEEDOMETER-DRIVE ADAPTER.

Application filed March 21, 1927. Serial No. 177,164.

My invention relates to a device which is used to connect the flexible driving member leading from the transmission or other moving part of a motor vehicle to the speedometer which is usually installed on the instrument panel.

It is usually considered undesirable to have the driving member lead straight down from the speedometer as it not only looks unsightly but also is in the way of the passengers' feet. Therefore it is ordinarily curved back away from the face of the speedometer so as to be out of the way. Unless some provision is made to limit the minimum radius about which the flexible shaft may be curved, it is apt to be bent too sharp, thus causing it to break after a short time.

The principal object of my invention is to provide an adapter which may be secured to the speedometer and to which the flexible driving member may be fastened and which will definitely determine the minimum radius about which the flexible shaft may be curved.

Another object is to provide an adapter in which the portion of the flexible shaft which has to be free to flex around the curve, will be made short and separate from the balance of the flexible shaft so that it will be less apt to break and may be more easily replaced if it should break.

With the above and other objects in view, my invention will be more clearly understood by referring to the specification and accompanying drawing in which;

Figure 1 is a side view of a speedometer, partly in section, showing my improved adapter attached thereto.

Figure 2 is a section taken on the line 2—2 of Figure 1.

The numeral 10 designates a speedometer casing within which is held the speedometer frame 12. Journalled in this frame is a rotor shaft 14 provided with a squared end 16. The frame is counterbored as at 18 to receive a pilot portion 20 of a curved member 22 which is held in place against the casing by a capscrew 24 threaded into frame 12. A gasket 26 of resilient material is provided to cushion the connection somewhat and to prevent the entry of dirt into the speedometer casing.

Held in place by the member 22 is a short piece of flexible shaft 28 having staked or otherwise secured to its upper end a tubular member 30 which is squared on the inside to receive and drive the end 16 of the rotor shaft. The member 30 is journalled in the frame and serves as a bearing for the upper end of the flexible shaft 28. Secured to the lower end of curved member 22 by a nut 32 is the usual flexible tubing 34 having a collar 36 fastened to it. This collar is provided with a flange 38 which is drawn against the member 22 by the nut. The usual flexible shaft 40 leading from the transmission or front wheel, has secured to its upper end a tubular member 42 squared on its inside to receive a square tip portion 44 staked or otherwise secured to the lower end of flexible shaft 28. The member 42 is journalled in a bushing 46 pressed into the collar 36.

In the type of speedometer shown, the axis of the rotor shaft being vertical, it is necessary that the connection of the flexible driving member shall approach the speedometer in a vertical position. This is undesirable because as the speedometer is always mounted on the instrument board, the flexible driving member would not only look unsightly but would also be in the way of the passengers' feet should it project straight down from the speedometer. To avoid this the flexible driving member is usually curved back away from the face of the instrument. This is not satisfactory because as the driving member is continuously caused to flex around a comparatively small radius, its life is shortened considerably. In the ordinary construction, when the flexible shaft breaks, the whole drive must be taken apart, and an entire new flexible shaft put in.

In my construction, there is less likelihood of the curved portion of the flexible shaft becoming broken, due to the fact that it is much shorter and is less apt to "whip" and also because the minimum radius about which it can be bent is definitely determined. However, should it break, it is much less expensive to replace than the long shaft would be, and it is only necessary to remove the curved member in order to replace it. The floor boards or any other part of the vehicle need not be disturbed.

It is thought from the foregoing, taken in connection with the accompanying drawing, that the construction and operation of the device will be apparent to those skilled in the art, and that various changes in size, shape, and proportion and details of construction may be made without departing

from the spirit and scope of the appended claims.

I claim:

1. An instrument drive comprising, in combination, a measuring instrument, a short flexible shaft connected with said instrument for the purpose of driving the latter, a curved housing for said shaft secured to said measuring instrument, a driving shaft held in driving engagement with said flexible shaft, and a second housing encasing the driving shaft and secured to said first named housing.

2. In combination with a speedometer, a main frame, a rotor shaft journalled in said frame, a short flexible shaft held in driving engagement with said rotor shaft, a curved housing for said flexible shaft secured to said main frame, a relatively longer flexible shaft held in driving engagement with the first named flexible shaft, and a flexible housing for the long flexible shaft secured to said curved housing.

3. A connecting device for use between an indicating instrument and the casing of a driving member therefor, said device consisting of a curved housing adapted to be secured to said instrument at its upper end and to receive said casing at its lower end, and a short flexible shaft adapted to rotate within said curved housing for the purpose of effecting a driving connection between said driving member and said instrument.

In testimony whereof I affix my signature.

RALPH OLAF HELGEBY.