Oct. 24, 1944. B. G. CARLSON 2,360,935

SIGNAL FOR CAGING DEVICES FOR GYROS

Filed March 15, 1943

Fig. 3.

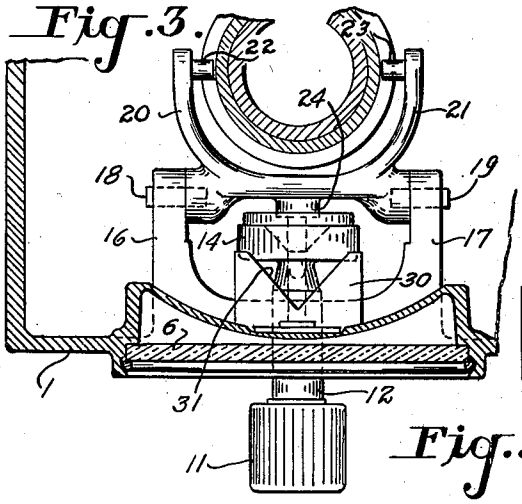


Fig. 4.

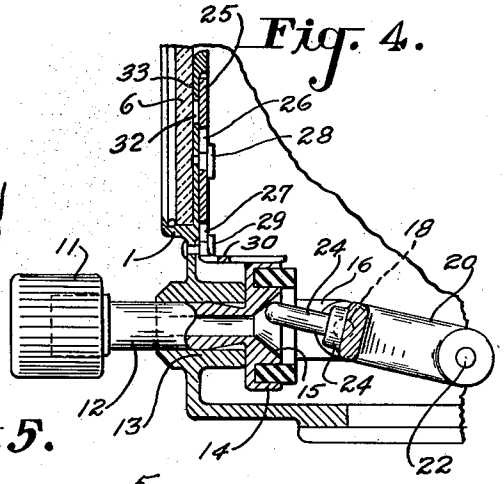


Fig. 5.

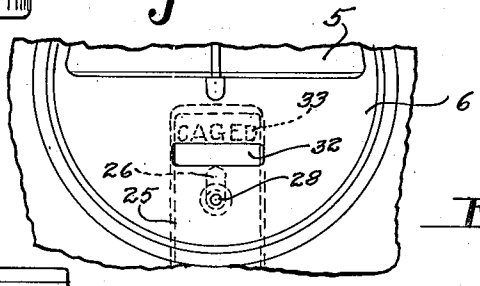


Fig. 1.

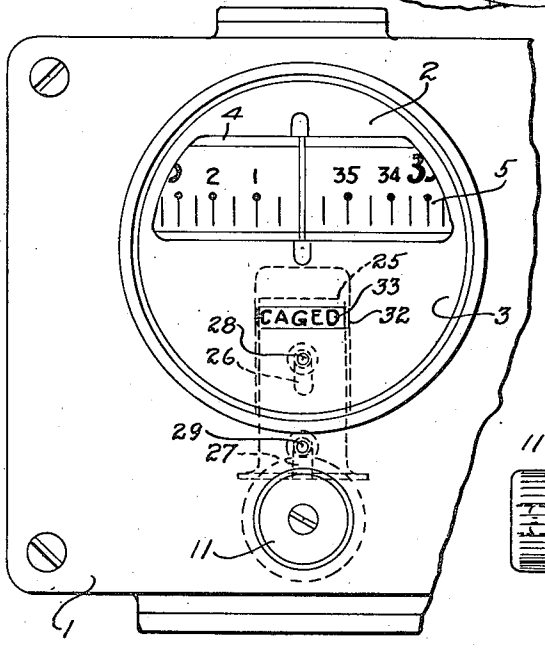
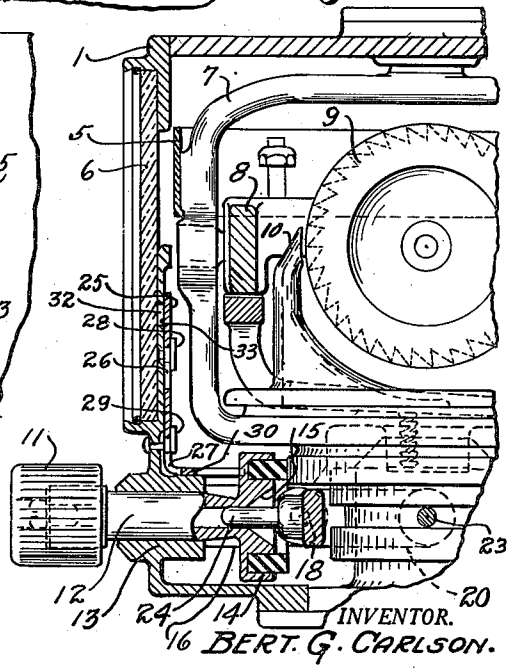


Fig. 2.



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SIGNAL FOR CAGING DEVICES FOR GYROS

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Application March 15, 1943, Serial No. 479,205

1 Claim. (Cl. 116—124)

This invention relates in general to gyro caging devices and has for one of its primary objects to provide a simple and efficient signalling device operable by the caging knob for indicating whether the gyro is caged or uncaged.

With the foregoing and other objects in view, the invention resides in the combination of parts and in the details of construction hereinafter set forth in the following specification and appended claim, certain embodiments thereof being illustrated in the accompanying drawing, in which:

Figure 1 is a view in front elevation, partly broken away, of the face of the dial of a directional gyro box when the gyro is caged.

Figure 2 is a view in vertical section, partly broken away, taken through the directional gyro box and the caging and signalling devices therefor.

Figure 3 is a view in top plan of the caging and signalling devices.

Figure 4 is a view in vertical section taken through the signalling device and a portion of the caging device.

Figure 5 is a view in front elevation of a portion of the dial and showing the signalling device indicating uncaged.

Referring more particularly to the drawing, the device chosen for illustration of the invention is a directional gyro, the front cover of the box of which is shown at 1 having upper and lower masked portions 2 and 3 and an opening 4 through which the gyro card 5 is at all times visible through the glass cover 6 to the operator.

The general construction is shown in Figure 2 in which is shown a vertical gimbal ring 7, a horizontal gimbal ring bearing 8, a rotor 9 and a rotor air directing nozzle 10. The caging mechanism for the gyro includes a push and pull caging knob 11 whose shaft 12 is frictionally slidably mounted in bearing 13 and this shaft terminates inwardly in a cylindrical card synchronizer 14 having a conical recess 15 in its inner face. The front plate 1 has a casting with two arms 16 and 17 which serve as a pivotal support for a yoke by means of two pins 18 and 19. This yoke has two arms 20 and 21 provided with pins 22 and 23. The yoke is also provided with a pin 24 which extends into the conical recess 15 in the card synchronizer 14.

The pushing in of the caging knob effects a caging of the gyro and a pulling out of this knob uncages the gyro. Reference to Figure 4 shows pin 24 to be riding loosely in the conical opening 15 with the caging knob 11 pulled fully outwardly. A pushing in the knob pushes member 14 inwardly thus forcing pin 24 to center itself into the apex of the cone 15 in clamped position. Such movement rocks the yoke about its pivot 18, 19 from the downward position of Figure 4 to the upward position of Figure 2. Through suitable conventional caging mechanism the yoke in the position of Figure 2 cages the gyro and when in the position of Figure 4 uncages the gyro.

As a means for signalling caged and uncaged positions of the gyro there is provided a clip 25 having vertically elongated slots 26 and 27 to receive rivets 28 and 29 in the front cover plate 1 to render the clip vertically slidable. This clip includes a horizontal forked portion 30 with a V-shaped recess 31 that rests on the casting 13 when the caging plunger is pushed in to cage the gyro, as viewed in Figure 2. The mask 3 is provided with a small slit, or opening, 32. Of practically the same dimensions as the slit there is arranged on the front face of the clip a signal 33 in the form of the word "Caged." In addition this signal may be painted red to attract attention in the daylight and the letters be made luminous to attract attention in the darkness. Figure 1 shows the clip in its lower position with its signal 33 registering with the slit 32 when the caging knob 11 is pushed in and pin 24 is engaged by and positioned in cone 15 as shown in Figure 2. When, however, the caging knob 11 is pulled outwardly to uncage the gyro the card synchronizer 14, whose upper surface is higher than the clip portion 30 in the caged position of Figure 2, enters the V recess 31 and pushes upwardly on the two prongs of clip portion 30, forcing the clip 25 upwardly until the signal 33 rises out of the slit 32 and out of sight behind the mask 3. In the absence of a "Caged" signal the operator is advised that the gyro is uncaged. Any convenient spring or other means may be employed to normally urge the clip 25 downwardly in addition to gravity.

The signalling device is positive and efficient in operation and is directly operated by the caging mechanism. It is simple in construction and assembly in that it only entails the provision of the sliding clip 25, 30 and the slit 32 to provide a window in the mask 3 for the signal 33.

I claim:

In a device of the character described having a gyro caging device including a frame and a knob having a shaft and an enlarged caging element mounted to be slidable inwardly for caging and outwardly for uncaging the gyro, a dial having a mask and a window therein, an indicator mounted to be slidable behind said mask and

carrying a signal in registry with said window when said indicator is in its lower position resting on said frame when said shaft and enlarged caging element are in inner and gyro caging position, said enlarged caging element upon movement of the caging knob and shaft into outer and gyro uncaging position being adapted to engage and bodily lift said indicator off of the frame and upwardly to bring said signal out of registry with said window, said enlarged gyro caging element being substantially cylindrical and said indicator having a base plate with a cut out portion the apex of which extends from said enlarged element so that the plate may rest on the frame and enlarged element while the indicator is in lowermost position and be bodily forced upwardly as the cylindrical periphery of the enlarged element engages the base plate on either side of the cut out portion therein as the caging shaft is drawn outwardly into uncaging position.

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