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[56]

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3,144,926	8/1964	Edelmax	198/38

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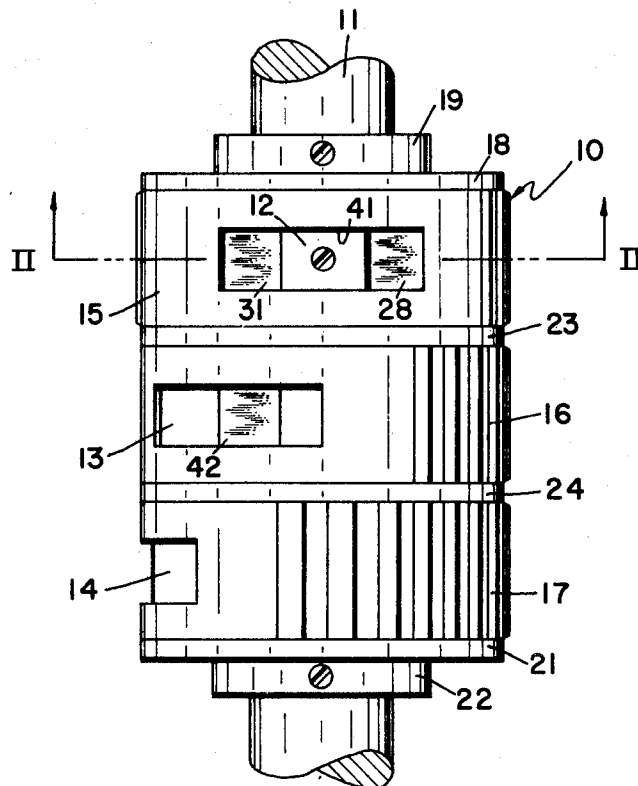
[54] **SIGNAL DEVICE**
5 Claims, 2 Drawing Figs.

[52] U.S. Cl. **116/133,**
104/88, 116/114, 198/40, 235/87

[51] Int. Cl. **G09f 9/00**

[50] Field of Search. 116/121,
114, 133, 135; 235/66, 73, 79.5, 87, 110, 117,
118; 104/88; 246/2; 198/38, 40; 250/227, 229,
231 (P), 266

ABSTRACT: The present invention relates to a signal device and, more particularly, to apparatus for use in retroreflective pattern coding for use in a conveyor system or the like.



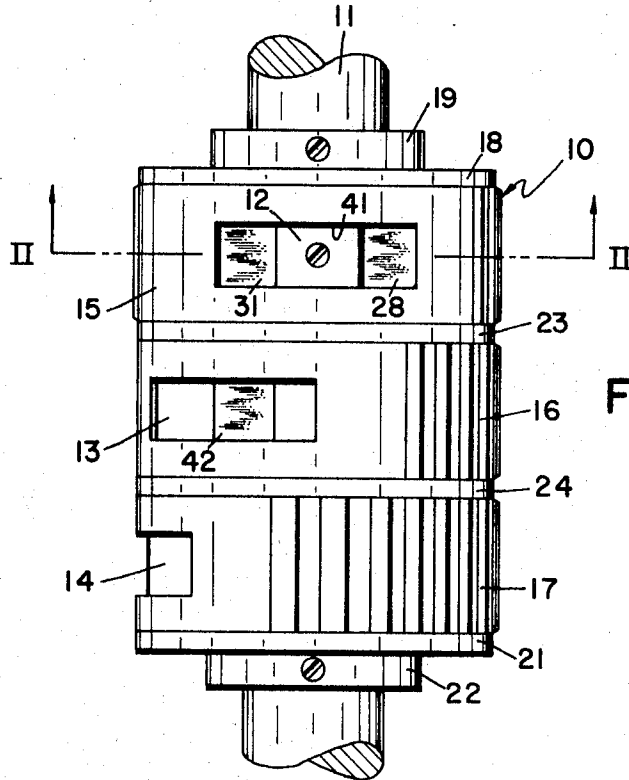


FIG. 1

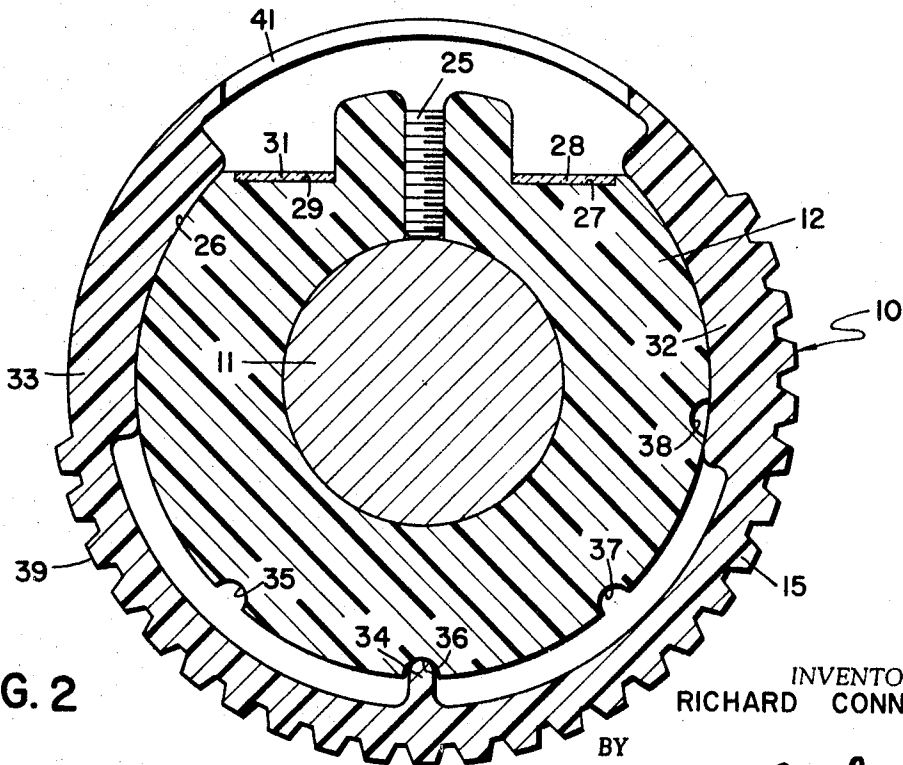


FIG. 2

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SIGNAL DEVICE

BACKGROUND OF THE INVENTION

In a retroreflective pattern coding system of the type described in the Edelman U.S. Pat. No. 3,144,926, the diverting of articles in a conveyor network depends on the recognition at a station of a pattern of retroreflective code elements on the article passing the station. The design of a signal device which moves through the conveyor network with the article presents a number of problems. In the past, such signal devices have been relatively expensive and complicated. They have also been liable to breakage and of getting out of adjustment, so that the article goes to the wrong location in the network. They have also been difficult to adjust. These and other difficulties experienced with the prior art devices have been obviated in a novel manner by the present invention.

It is, therefore, an object of the invention to provide a signal device which is simple in construction and rugged enough to withstand considerable abuse in a conveyor network.

Another object of this invention is the provision of a signal device which can be constructed almost entirely from injection-molded plastic parts.

A further object of the present invention is the provision of a signal device whose code pattern can be easily and simply changed.

With these and other objects in view, as will be apparent to those skilled in the art, the invention resides in the combination of parts set forth in the specification and covered by the claims appended hereto.

SUMMARY OF THE INVENTION

In general, the present invention consists of a signal device having a core member with a cylindrical surface and with at least two code elements angularly located relative to one another. A sleeve is mounted on the core member and is rotatable on the cylindrical surface, the sleeve having an opening large enough to expose both code elements in a first position and rotatable to second and third positions where one or the other of the code elements is exposed. More specifically, code elements consist of strips of retroreflective tape mounted on flat surfaces lying in a common plane. The plurality of core members is mounted on a common shaft and each core member has its own sleeve member.

BRIEF DESCRIPTION OF THE DRAWINGS

The character of the invention, however, may be best understood by reference to one of its structural forms, as illustrated by the accompanying drawings, in which:

FIG. 1 is a vertical elevational view of a signal device embodying the principles of the present invention, and

FIG. 2 is a sectional view through the device taken on the line II-II of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to FIG. 1, wherein are best shown the general features of the invention, the signal device, indicated generally by the reference numeral 10, is shown as having a shaft 11 on which are mounted three core members 12, 13, and 14 on which are mounted, respectively, sleeves 15, 16, and 17. Pressed against the upper end of the sleeve 15 is a washer 18 held in place by a collar 19. At the bottom end of the sleeve 17 is located a washer 21 held in place by a collar 22. A washer 23 lies between the sleeve 15 and the sleeve 16, while a similar washer 24 lies between the sleeve 16 and the sleeve 17.

FIG. 2 shows the details of construction of the core member 12 and the sleeve 15 which is associated with it. The core member is locked on the shaft 19 by means of a setscrew 25 and is provided with a cylindrical surface 26. On one side of the setscrew 25 the core member is provided with a recess defining a flat surface 27 on which is mounted a code element such as a strip 28 of retroreflective tape. Similarly, on the

other side of the setscrew 28 the core member is provided with a recess defining a flat surface 29 carrying a strip 31 of retroreflective tape. The surfaces 27 and 29 lie in a common plane parallel to the axis of the shaft 11 and spaced from it, so that the strips 28 and 31 of retroreflective tape face in the same direction.

The interior of the sleeve 15 is provided with two guide portions 32 and 33 which have cylindrical surfaces exactly matching the cylindrical surface 26 of the core member, so that these portions 32 and 33 slide over the cylindrical portion and guide the sleeve on the core member. Also located on the inside of the sleeve 15 is a resilient protuberance 34 which is engageable with any one of four notches 35, 36, 37, and 38 formed on the surface of the core member. A substantial portion of the exterior of the sleeve 15 is provided with a knurling 39 to provide a nonslip feature for manual adjustment.

Extending through the sleeve 15 exactly opposite the protuberance 34 is an opening 41 which, as is evident in the drawing, extends angularly around the sleeve a sufficient distance to bracket both of the code elements, including the strips 28 and 31.

The operation of the invention will now be readily understood, in view of the above description. The signal device is adapted to be mounted on a movable element in a conveyor network or the like, the attachment taking place by means of the shaft 11 which is adapted to be attached to the movable article. It is only necessary, then, to adjust the sleeves 15, 16, and 17 to expose certain of the code elements, so that, when the article bearing the signal device passes by a reading station, the reading station may determine whether the exposed pattern of code elements corresponds with that station's requirements for diversion of the article. When the sleeve 15, for instance, has been rotated so that the protuberance 34 snaps into the notch 35 in the core member, both of the strips 28 and 31 are exposed, as is shown in FIG. 1. If the sleeve is rotated from that position in a clockwise manner until the protuberance 34 snaps into the notch 35, the opening 41 will shift to the right and leave exposed only the code element represented by the strip 28. If, on the other hand, the sleeve is rotated in a counterclockwise direction to bring the protuberance 34 into the notch 37, then only the strip 31 is exposed. Finally, if the sleeve is rotated still further until the protuberance 34 snaps into the notch 38, the sleeve covers both of the strips 28 and 31 and no signal or code element is visually available. In FIG. 1, the condition of sleeve 16 on its core member 13 is such to show only the left-hand code element 42 exposed. Also, in FIG. 1, the condition of the sleeve 17 relative to its core member 14 is such that no code elements are exposed. It should be noted that the sleeves 15, 16, and 17 carry numerical indicia to make it easier to set up a particular code.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material spirit thereof. It is not, however, desired to confine the invention to the exact form herein shown and described, but it is desired to include all such as properly come within the scope claimed.

The invention having been thus described, what I claim as new and desired to secure by Letters Patent is:

1. A signal device, comprising

a. a core member having a cylindrical surface and at least two retroreflective code elements angularly located relative to one another, and

b. a sleeve mounted on the core member and rotatable on the cylindrical surface, the sleeve having an opening large enough to expose both code elements in a first position and movable to second and third positions where one or the other of the code elements is exposed.

2. A signal device as recited in claim 1, wherein the sleeve is movable to a fourth position where neither of the code elements is exposed.

3. A signal device as recited in claim 1, wherein a plurality of core members is mounted on a common shaft, each core member having its own sleeve member.

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4. A signal device as recited in claim 1, wherein the code elements are mounted on flat surfaces lying in a common plane.

5. A signal device as recited in claim 1, wherein the code elements comprise strips of retroreflective tape.

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