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2,270,653

INDICATING DEVICE

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FIG. 1

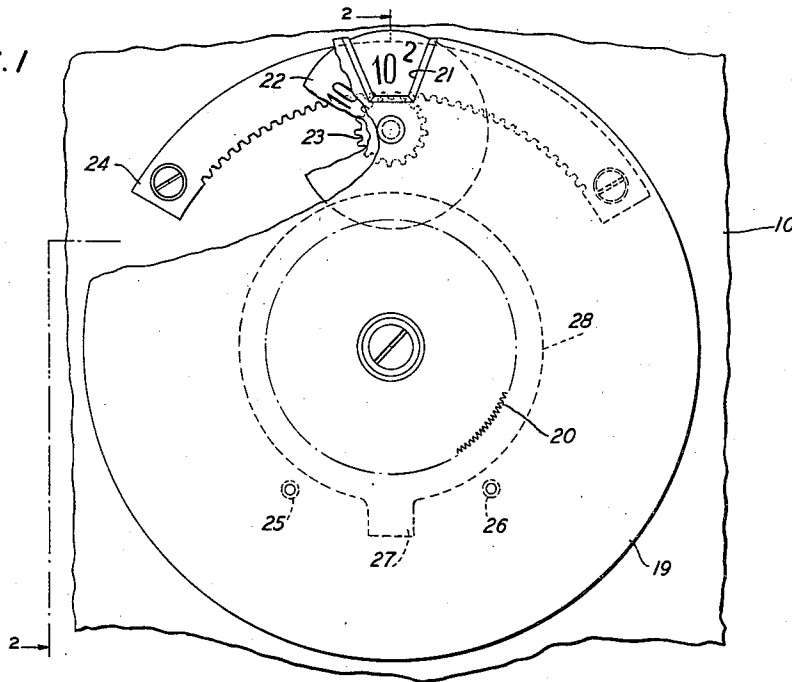
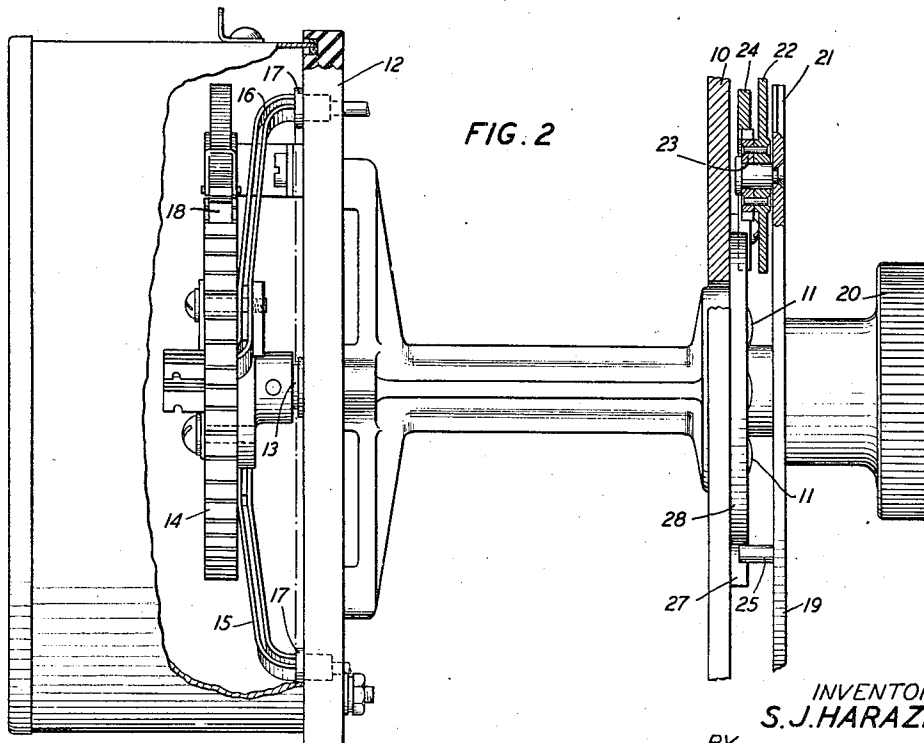


FIG. 2



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INDICATING DEVICE

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3 Claims. (Cl. 116—124)

This invention relates to indicating devices for adjustable mechanisms and more particularly to devices in which a number of predetermined settings of an apparatus are to be duplicated and identified readily.

The object of the present invention is the provision of a novel type of indicating device, for indicating the extent of movement of one member with respect to the other, in which the legibility of the markings or characters is increased due to the fact that only one marking or character is visible at a time and that the characters are larger than those ordinarily employed due to the increased space available for said markings.

Heretofore it has been the practice when using many types of driving and indicating devices to employ either a knob and pointer or a dial. In these instances the markings or characters were either imprinted on the panel adjacent the pointer or on the dial itself. Because of the fact that, such markings must often be in close juxtaposition and that in case of rotatably adjustable mechanisms, the space available on the panel or dial limits respectively the radius of the pointer's arc of travel or of the radius of the arcuate line of markings, the characters or markings must be quite small with resulting poor legibility and considerable difficulty in obtaining a correct reading or setting.

The novel type of indicating and driving device of this invention comprises a movable dial plate to which is affixed an actuating knob. A slot or window is provided in the plate through which the markings or characters on an indicating disc, which is rotatably mounted on the rear of the dial plate, may be viewed. A pinion secured to the rear of the indicating disc is in engagement with a rack, plain spur gear or annular gear of finite radius secured to the face of the panel. Thus any movement of the dial plate by means of the actuating knob will cause the pinion to travel along the rack or gear, thereby causing the indicating disc to rotate and indicate the position of the respective parts. Due to the novel construction of this device, large legible characters may be used inasmuch as ample space is provided for them and there need be no cramping or squeezing of the characters as is common with the present dials and knob and pointer arrangements when successive markings are in close juxtaposition. Furthermore, in the device of this invention there will be no doubt regarding the setting of the mecha-

nism inasmuch as only one character or marking will be visible at a time.

Other advantages will be apparent from the following detailed description when read in connection with the following drawing, in which:

Fig. 1 is a front elevation with parts broken away to illustrate the operating mechanism; and

Fig. 2 is a side elevation of Fig. 1 in section and with parts of the housing for the tap switch broken away.

Referring to Figs. 1 and 2, the numeral 10 designates a fixed panel or plate which may be the cover of a box or housing containing various electrical apparatus. Fig. 2 illustrates the device of this invention as applied to a rotatable tap switch and as shown in this figure, there is secured to the panel 10, by means of the screws 11, a tap switch 12. This tap switch extends to the rear of the panel and is provided with a shaft 13 which extends through an aperture in the panel 10. Secured to the rear end of the shaft 13 is an insulating disc 14 which has mounted thereon the brushes of wiper arms 15 and 16 which engage the tap points 17 when the shaft 13 is rotated. In order to assure that the brushes or wiper arms 15 and 16 will always be centered on the taps 17, a detent comprising a star wheel 18 which engages notches in the disc 14 is provided.

Located on the front end of the shaft 13 is a circular dial plate 19 and an actuating knob 20. The knob 20 is secured to the plate 19 and to the shaft 13 so that any movement of the knob will cause the rotation of the plate 19 and the shaft 13. The dial plate 19 is provided at its periphery with a window or slot 21 which is located at the top thereof. Rotatably mounted on the rear of the dial plate 19 and in back of the window 21 is an indicating disc or dial 22 which has secured to its rear face a pinion gear 23 which engages and is in constant mesh with the annular gear segment 24 which is secured to the face of the panel 10 in back of the dial plate 19; thus knob 20 will impart to the disc 22 a rotary movement which is amplified angularly with respect to the dial plate 19 and the brushes 15 and 16 to an extent dependent upon the ratio of the diameter of the pinion gear 23 to the gear or rack 24.

The indicating dial 22 has printed thereon characters or markings which correspond to the position of the brushes or wiper arms 15 and 16. Due to the fact that only one character is visible in the window or slot 21 for any setting of the

dial, there is little likelihood of making a false setting or reading.

In order to limit the total angular range of movement of the brushes or wiper arms 15 and 16, stop pins 25 and 26 are provided on the rear of the dial plate 19. These pins are adapted to engage the protuberance 27 on the plate 28 to prevent further movement thereof.

Applicant, for illustrative purposes, has shown his novel indicating device associated with a rotatable tap switch. However, it is not limited to this type of device and may be employed wherever mechanisms require that predetermined settings be duplicated and identified readily, and various changes and modifications may be made therein without departing from the spirit of the invention and is only limited by the scope of the appended claims.

What is claimed is:

1. An indicating device for rotatably adjustable mechanisms comprising a panel, a shaft extending through said panel, a dial plate and knob secured to the front end of said shaft, said dial plate being parallel with said panel and in spaced relation thereto, having a notch at its periphery, an indicating disc having characters thereon rotatably mounted on the rear side of said dial plate and adjacent the notch, stationary means mounted on said panel between said panel and said dial plate in engagement with said indicating

disc for causing the rotation thereof when said dial plate is rotated by said knob.

2. An indicating device for rotatably adjustable mechanisms comprising a panel, a shaft extending through said panel, a dial plate and a knob secured to the front end of said shaft, said dial plate being parallel with said panel and in spaced relation thereto, and having a notch at its periphery, an indicating disc having characters on the face thereof rotatably mounted on the rear side of said dial plate below said notch, a pinion gear secured to the rear side of said indicating disc, an arcuate-shaped rack mounted on said panel with which said pinion is in mesh for causing the rotation of said disc when said dial plate is rotated by said knob.

3. An indicating means for rotatably adjustable mechanisms comprising a panel, a frame supported thereby, a shaft journaled therein, a dial plate and a knob secured to the front end of the shaft, said dial plate having a notch at its periphery, a spindle secured to the rear face of the dial plate below said notch, a numbered disc journaled on said spindle, a spur gear also journaled on said spindle and rigidly secured to said numbered disc, and an arcuate annularly gear segment secured to said panel with which said spur gear meshes for causing the rotation of said numbered disc when the dial plate is rotated by the knob.

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