July 9, 1957 J. N. M. ROCA 2,798,319

ADVERTISING SIGN

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Fig. 1

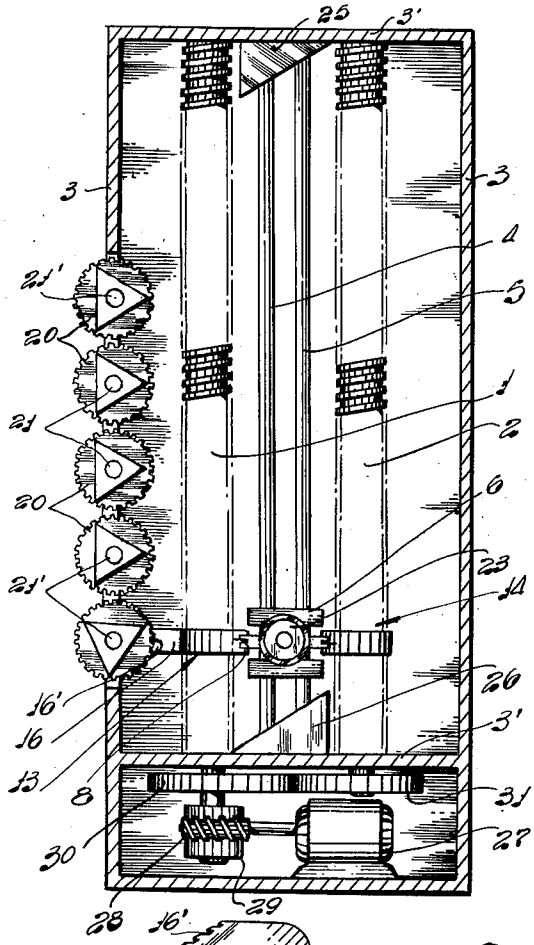


Fig. 3

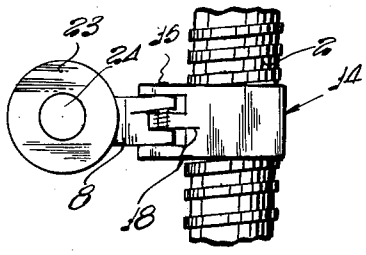
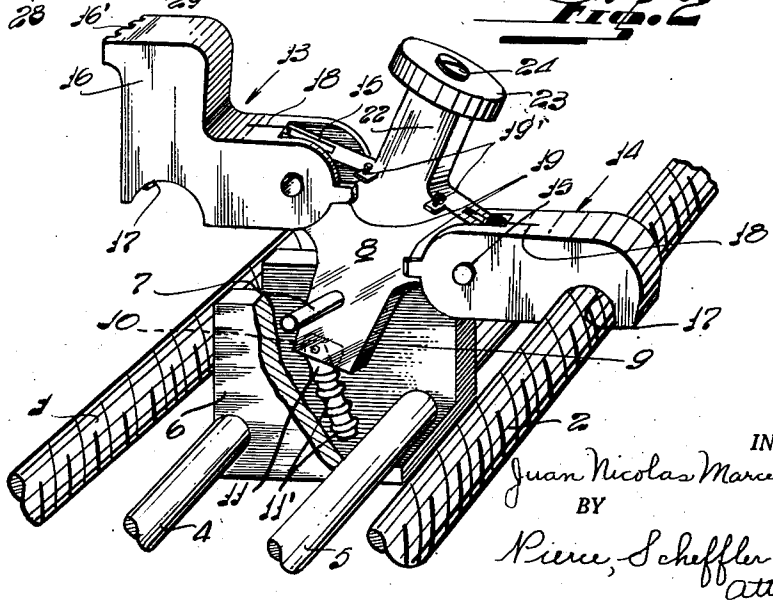


Fig. 2



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ADVERTISING SIGN

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4 Claims. (Cl. 40—33)

This invention relates to an advertising sign of the type comprising a plurality of rotatable prismatic bodies and more particularly it refers to the driving means for operating said bodies.

The rotation of said prismatic bodies conveniently should be of the intermittent or step-by-step type in order that the different propaganda surfaces are periodically shown so as to be able to read the phrases or appreciate the illustrations.

In the advertising signs of the known type said intermittent movement is achieved by means of either electrical or mechanical switches which interrupt, during a suitable time, the driving movement of the motor operating the prismatic bodies. These switches are usually expensive and complicated in structure, so that they easily get damaged or they may operate the advertising sign in an unsatisfactory manner.

The present invention on the other hand, enables to change the propaganda surfaces periodically without stopping the motor and thereby the use of complicated switches is avoided and furthermore the additional advantage of controlling the time of exposure of each propaganda surface is easily and simply achieved.

Thus, this invention relates to an advertising sign comprising a frame, at least two prismatic bodies having at least two propaganda surfaces and a shaft for rotation for each prismatic body, each prismatic body being rotatably mounted in said frame by means of the shafts, controlling means for rotating said prismatic bodies, said controlling means comprising a movable carriage, a guide having two ends, said carriage being slidably mounted on said guide, a pair of screw-threaded members rotatably mounted in said frame and substantially parallelly arranged to said guide, a bridge mounted on said carriage, two arms connected to said bridge and adapted to mesh with said screw-threaded members, driving means for driving said screw-threaded members in opposite directions, a pair of switching cams arranged at each end of said guide said bridge being adapted to alternatively mesh one of said arms with one of said screw-threaded members in reply to said switching cams, and controlling means integral with at least one of said arms for rotating said prismatic bodies.

It is an object of the present invention to provide an advertising sign which drives its prismatic bodies intermittently without having to stop the motor, whereby switches of the above referred to type become unnecessary.

Another object of the present invention is to provide an advertising sign which enables to maintain the different propaganda surfaces visible to the observer during a period of time which may be varied at will.

These and further objects and advantages of the present invention will become more apparent during the course of the following description, in which by way of example a single embodiment has been shown.

In the drawings:

Figure 1 is a side elevation in section of the advertising sign in accordance with the present invention.

Figure 2 is a perspective view, partially in section, of the advertising sign shown in Figure 1.

Figure 3 is a detail of the mounting of one arm with regard to the bridge.

As may be seen in Figure 1, the advertising sign includes two screw-threaded members 1 and 2 parallelly and rotatably mounted in partitions 3' of frame 3. Between said screw-threaded members 1 and 2 cylindrical guides 4 and 5 are arranged, supported at their respective end portions by partitions 3'. A carriage 6 is slidably mounted on said guides 4 and 5.

A bridge 8 is pivotally mounted on shaft 7 supported by said carriage 6. The lower end 9 of said bridge 8 is linked by means of a pin 10 to rod 11 and urged by spring 11', coiled on said rod 11, so that said bridge is forced to adopt one of two end positions, both inclined with regard to the plane passing through the guides 4 and 5 (in a similar way as electric switches).

Said bridge 8 comprises a pair of arms 13 and 14 pivotally mounted thereon by means of pivots 15.

With the exception that arm 13 has a projection 16 including a rack 16', both arms are of similar construction and have threaded recesses 17 of the same pitch as the respective screw-threaded members with which they may mesh.

A spring 18 is coiled on each pivot 15 (see Figure 3) which tends to force the arms 13 and 14, respectively, towards the corresponding screw-threaded member, in order to provide a better mesh. A pair of stops 19 controllable by means of screws 19' are provided, in order to prevent the springs 18 from forcing the arms farther down than desired, and more particularly, as will be better understood later on, to prevent one arm from remaining in mesh with its screw-threaded member, when the other arm becomes operative.

The rack 16' of projection 16 is so arranged that it is capable of meshing with gears 20 mounted on shafts 21' of the prismatic bodies 21, when arm 13 is in mesh with screw-threaded member 1. Shafts 21' are rotatably supported by frame 3 as is well known in the art, and obviously each of these shafts furthermore supports its prismatic body 21.

The upper end 22 of bridge 7 rotatably supports a free wheel 23 by means of shaft 24. Said wheel 23 is so arranged that it is capable of entering in contact with each of a pair of switching cams 25 and 26 of right angle triangular shape rigidly connected to partitions 3'.

An electric motor 27 transmits its movement by means of worm 28 to worm wheel 29 mounted on screw-threaded member 1 which further supports gear 30. Another gear 31 is mounted on screw-threaded member 2 and meshes with gear 30; thus, screw-threaded members 1 and 2 will rotate in opposite directions.

As to the operation of the advertising sign, it will be understood that upon rotating screw-threaded member 1, the carriage 6 will be moved in one or the opposite direction depending on which of arms 13 or 14 is in mesh; in other words if it is presumed that bridge 8 is inclined towards screw-threaded member 1, arm 13 will mesh with the former and the carriage 6 will be moved, whereby rack 16' will successively rotate the gears 20 and thereby the primatic bodies 21 will likewise be rotated.

When the carriage 6 has reached the end of its stroke, that is to say when all the prismatic bodies 21 have been rotated, the free wheel 23 enters progressively in contact with the inclined actuating face of switching cam 25 which will swing the bridge towards screw-threaded member 2 which, due to the fact that it rotates in opposite direction to screw-threaded member 1, starts to move carriage 6 in opposite direction towards its starting point.

During the return stroke arm 13 is raised to the maxi-

mum limit fixed by stop 19, which must be sufficient so that rack 16' will not mesh with gears 20 and thus during the return stroke the prismatic bodies will not be rotated.

As soon as the carriage 6 reaches the starting point, the switching cam 26 will incline the bridge 8 towards the screw-threaded member 1, whereby the above described cycle will be repeated.

When the prismatic bodies 21 are of triangular cross section, the rack 16' should comprise a number of teeth equal to one third of the number of teeth of gears 20 in order that a rotation of 120° is achieved and thereby each of the propaganda surfaces are successively visible to the observer.

Screw-threaded member 2 may have the same pitch or a different pitch than screw-threaded member 1 so that in the latter event, if desired, the return stroke may for instance be carried out faster.

Evidently it is possible to provide arm 14 also with a rack of the type of rack 16 if a bilateral advertising apparatus is desired.

Furthermore if the rotation of the prismatic bodies should be simultaneous, it is possible to provide just one of the prismatic bodies 21 with a gear 20, adapted to mesh with rack 16' whilst the remaining prismatic bodies 21 are driven by a gear and chain arrangement as is well known in the art. (See for instance U. S. Patent No. 1,346,488 or the equivalent British Patent 166,418.)

In this event obviously the driving arrangement hereinbefore described will be of very small size since rack 16' has to operate only one gear 20.

It must be added that the embodiment shown in Figure 1 provides an arrangement in which the total height of the five prismatic bodies is considerably smaller than that of the screw-threaded members 1 and 2 so that if desired, a larger amount of prismatic bodies may be provided, in order to increase the surface of the advertising space.

I claim:

1. An advertising sign comprising a frame, at least two prismatic bodies having at least two propaganda surfaces, a shaft integral with each of said prismatic bodies and rotatably housed in said frame, controlling means for rotating said prismatic bodies, said controlling means comprising a movable carriage, a guide having two ends supported by said frame, said carriage being slidably mounted on said guide, a pair of screw-threaded members rotatably mounted in said frame and parallelly arranged to said guide, a bridge swingably mounted on said carriage and adapted to adopt either of two end positions inclined with regard to the plane passing through said pair of screw-threaded members, two arms mounted on said bridge, said arms being adapted to mesh with said screw-threaded members, driving means for driving said pair of screw-threaded members in opposite directions, a pair of switching cams arranged at each end of said guide and supported by said frame, said bridge being adapted to alternatively mesh one of said arms with one of said screw-threaded members in reply to said switching cams, and connecting means on one of said arms adapted to cooperate with said prismatic body shafts, whereby step-by-step rotation of said prismatic bodies is effected.

2. An advertising sign comprising a frame, at least two prismatic bodies having at least two propaganda surfaces, a shaft integral with each of said prismatic bodies and rotatably housed in said frame, controlling means for rotating said prismatic bodies, said controlling means comprising a movable carriage, a guide having two ends supported by said frame, said carriage being slidably mounted on said guide, a pair of screw-threaded members rotatably mounted in said frame and parallelly arranged to said guide, a bridge swingably mounted on said carriage and adapted to adopt either of two end positions inclined with regard to the plane passing through said pair of screw-threaded members, two arms pivotally mounted on said bridge and being adapted to mesh with said screw-threaded members, resilient means; urging said arms into contact with said screw-threaded members, controllable stops capable of controlling said resilient means, driving means for driving said pair of screw-threaded members in opposite directions, a pair of switching cams arranged at each end of said guide and supported by said frame, said bridge being adapted to alternatively mesh one of said arms with one of said screw-threaded members in reply to said switching cams, and connecting means on one of said arms adapted to cooperate with said prismatic body shafts, whereby step-by-step rotation of said prismatic bodies is effected.

3. An advertising sign comprising a frame, at least two prismatic bodies having at least two propaganda surfaces, a shaft integral with each of said prismatic bodies and rotatably housed in said frame, controlling means for rotating said prismatic bodies, said controlling means comprising a movable carriage, a guide having two ends supported by said frame, said carriage being slidably mounted on said guide, a pair of screw-threaded members rotatably mounted in said frame and parallelly arranged to said guide, a bridge swingably mounted on said carriage and adapted to adopt either of two end positions inclined with regard to the plane passing through said pair of screw-threaded members, two arms pivotally mounted on said bridge and adapted to mesh with said screw-threaded members, resilient means urging said arms into contact with said screw-threaded members, controllable stops capable of controlling said resilient means, driving means for driving said pair of screw-threaded members in opposite directions, a pair of switching cams arranged at each end of said guide and supported by said frame, said bridge being adapted to alternatively mesh one of said arms with one of said screw-threaded members in reply to said switching cams, and connecting means comprising a rack integral with one of said arms, at least one gear rigidly mounted on one prismatic body shaft, said rack of said arm being adapted to mesh with said gear to rotate said prismatic body.

4. An advertising sign comprising a frame, at least two prismatic bodies of triangular cross-section having at least two propaganda surfaces, a shaft integral with each of said prismatic bodies and rotatably housed in said frame, controlling means for rotating said prismatic bodies, said controlling means comprising a movable carriage, a guide having two ends supported by said frame, said carriage being slidably mounted on said guide, a pair of screw-threaded members rotatably mounted in said frame and parallelly arranged to said guide, a bridge swingably mounted on said carriage and adapted to adopt either of two end positions inclined with regard to the plane passing through said pair of screw-threaded members, two arms pivotally mounted on said bridge and being adapted to mesh with said screw-threaded members, resilient means urging said arms into contact with said screw-threaded members, driving means for driving said pair of screw-threaded members in opposite directions, a pair of switching cams arranged at each end of said guide and supported by said frame, said bridge being adapted to alternatively mesh one of said arms with one of said screw-threaded members in reply to said switching cams, and connecting means comprising a rack integral with one of said arms, at least one gear mounted on one shaft of one of said prismatic bodies and being adapted to mesh with said rack, the number of teeth of said rack being one third of the number of teeth of said gear.

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