E. K. BROWN.

AUTOMATIC ROAD MAP.

APPLICATION FILED MAR. 24, 1921.

1,398,623. **Patented Nov. 29, 1921.**

2 SHEETS—SHEET 1.

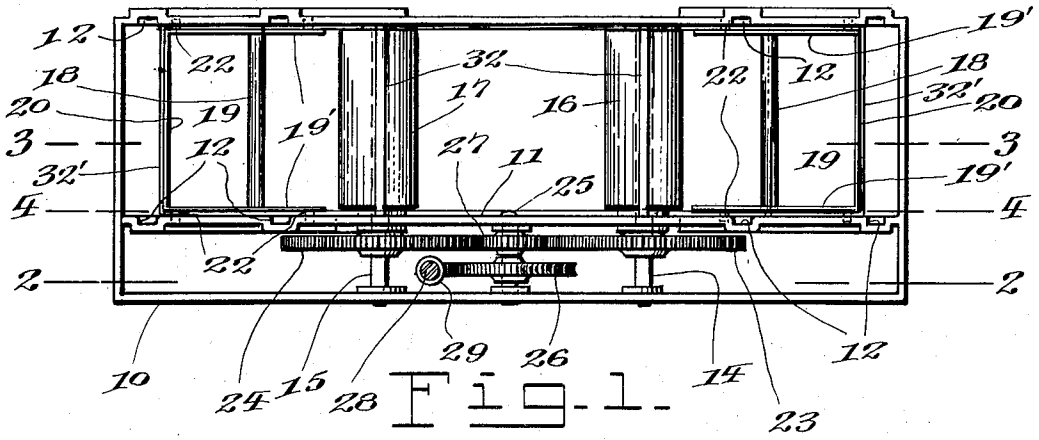

Fig. 1.

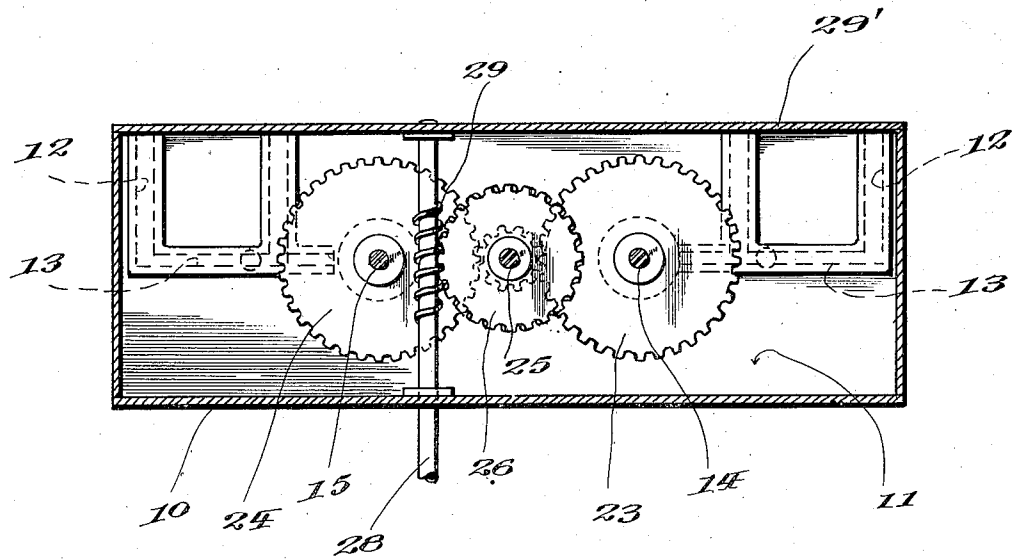

Fig. 2.

Burt E. Bossert

WITNESS:

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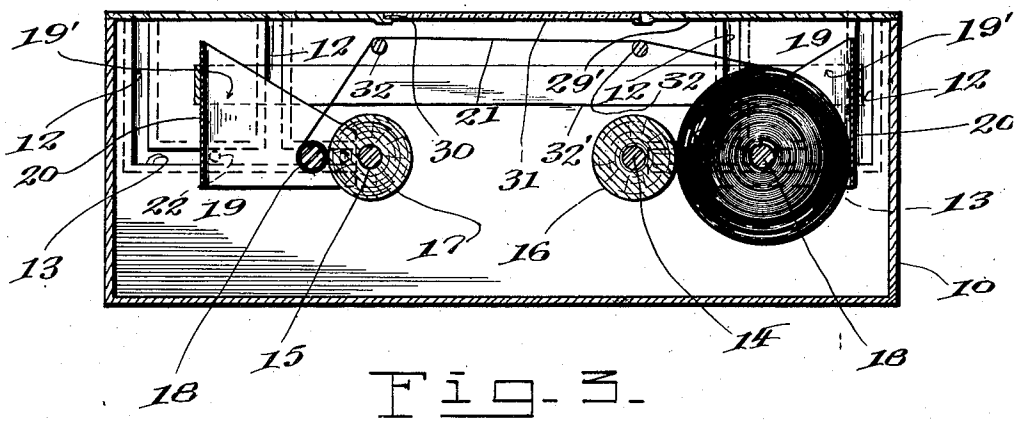
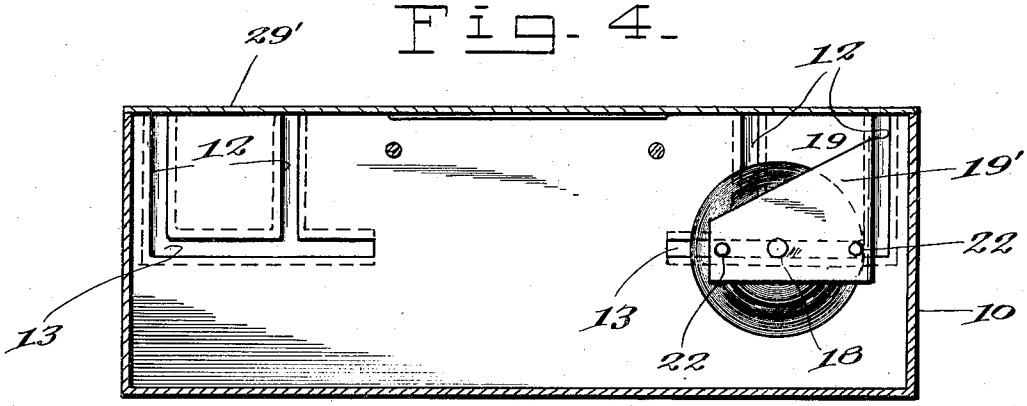


Fig. 3.

Fig. 4.



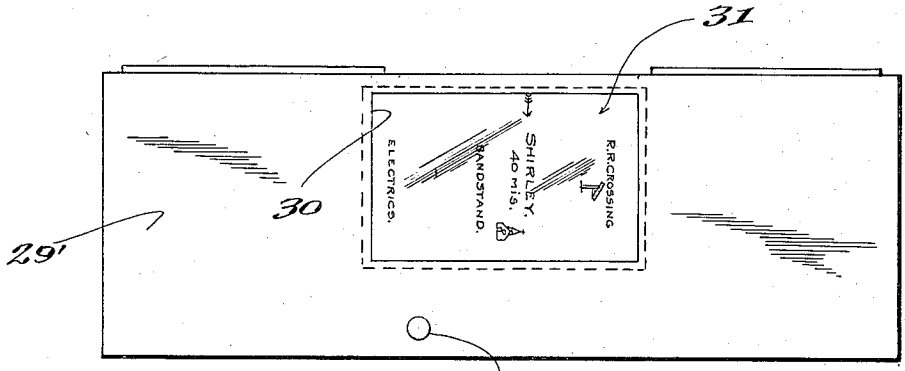


Fig. 5.

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UNITED STATES PATENT OFFICE.

ELMER K. BROWN, OF SEATTLE, WASHINGTON.

AUTOMATIC ROAD-MAP.

1,398,623. Specification of Letters Patent. Patented Nov. 29, 1921.

Application filed March 24, 1921. Serial No. 455,201.

To all whom it may concern:

Be it known that I, ELMER K. BROWN, a citizen of the United States, residing at Seattle, in the county of King, State of Washington, have invented certain new and useful Improvements in Automatic Road-Maps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in exhibitors.

One object of the invention is to provide an exhibitor, in the form of a map, which is adapted for use in connection with an automobile, and which is automatically moved, as the automobile moves, to display the portions of territory through which the automobile is passing, in the proper succession and speed.

Another object is to provide a novel and improved means for supporting the map in a casing, and means for automatically driving the map, as the automobile travels.

Other objects and advantages will be apparent from the following description when taken in connection with the accompanying drawings.

In the drawings:

Figure 1 is a top plan view of the device, the cover being removed to expose the interior mechanism.

Fig. 2 is a vertical longitudinal sectional view on the line 2—2 of Fig. 1, showing the gearing in side elevation.

Fig. 3 is a vertical longitudinal central sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a vertical longitudinal sectional view on the line 4—4 of Fig. 1, one of the map roller carriages being removed, to show the grooves into which the pins of the carriage pass.

Fig. 5 is a top plan view of the device with the cover applied.

Referring particularly to the accompanying drawings 10 represents an elongated rectangular box of suitable size and material, and formed in the box, and extending longitudinally in comparatively close spaced relation to one of the longer sides thereof, is a vertical partition wall 11. In the inner face of the wall 11, and the corresponding face of the remote side wall of the box, are formed the vertical pairs of parallel grooves 12, the same being arranged adjacent the ends of the box. Connecting the lower ends of each pair of vertical grooves is a horizontal longitudinally extending groove 13, the inner end of which projects beyond the innermost of the grooves of the pair.

Extending transversely through one of the longer sides of the box, and through the partition wall, are the two shafts 14 and 15, said shafts being arranged adjacent the inner ends of the horizontal grooves 13, and having secured thereon the rollers 16 and 17, respectively.

Each of the web carrying shafts 18 is supported in the side walls of a carriage 19. Each of these carriages is formed from a single strip of metal bent to form the vertical parallel side walls 19′ and the rear vertical connecting wall 20. The ends of the shaft 18 are rotatably supported in the intermediate portions of the side walls, and secured to the shaft is one end of the map web 21. Projecting from the outer faces of the side walls of each carriage are the horizontally alined pairs of pins 22. These pins are spaced apart a distance equal to the distance between a pair of vertical grooves 12, so that the carriage may be slipped down into the box, when the pins are properly engaged in said grooves. When lowered to the proper distance within the box, the pins of the carriage will enter the horizontal grooves so that the carriage may slide horizontally toward and away from the corresponding roller 16 or 17.

Secured on the shafts 14 and 15, between the wall 11, and the adjacent side of the box, are the gears 23 and 24 respectively. Supported rotatably in the partition 11 and the said adjacent wall of the box, and intermediate the shafts 14 and 15, is a short shaft 25, on which is secured a worm wheel 26 and a small pinion or gear 27. The gear 27 meshes with the gears 23 and 24 simultaneously to drive them in the same direction. Disposed vertically in the compartment between the wall 11 and the adjacent side of the box, is a shaft 28 having formed thereon the worm 29 which meshes with the worm wheel 26. The other end of the vertical shaft 28 is formed for operation by the axle of an automobile so that the web will be driven at the same speed as the automobile, that is the parts of the country through which the automobile is passing, will be shown in the order approached and passed by the automobile.

It will be noted that the portion of the web which is wound on each spindle or shaft 18 contacts with a roller 16 or 17, and as these rollers are rotated they frictionally drive the shafts 18, with the result that the web will be unwound from one shaft and wound onto the other. As the diameter of the web wound on a shaft 18 increases, the contact of the same with the adjacent roller 16 or 17 will cause the web and shaft, together with the carriage which carries them, to move toward the corresponding end of the box, the pins of the carriage sliding in the horizontal grooves. At the same time, the other web shaft from which the web is being unwound will move inwardly to keep in contact with its adjacent roller. The gears 23 and 24 being of the same diameter and speed of the two shafts 18 will be constant, whereby excessive pull on the web will be eliminated.

On the upper side of the box is secured a cover plate 29′ in which is formed a sight opening 30 provided with a sheet of transparent material, such as the glass pane 31, through which a portion of the traveling web may be seen by the driver of the automobile.

When it is desired to remove the web for any purpose, as for repairs, or for placing a new web, having a different map thereon, the carriages are slipped backwardly toward the ends of the box until the pins 22 are at the lower ends of the vertical slots or grooves, when the carriages may be quickly and easily drawn upwardly and out of the box.

In the upper portion of the box, and extending transversely between the outer longer side and the partition wall, are the web guiding rollers 32, over which the intermediate portion of the web slides, and which hold such portion in flat condition directly beneath the sight opening in the cover plate 29′.

Embracing the carriages 19 and extending therebetween is an elastic band 32′, which exerts force to normally draw the carriages toward each other and thus firmly press the web on the rollers or shafts 18 and 18 against the rollers 16 and 17 respectively.

What is claimed is:

An automatic map comprising a box, web driving means in the box, web supporting shafts in the box, the sides of the box being formed with vertical parallel pairs of grooves, carriages supporting the said shafts and having laterally directed pins engageable in the vertical grooves for insertion of the carriages in the box, the sides of the box being formed with horizontal grooves communicating with the vertical grooves to receive the said pins and permit the longitudinal movement of the carriages and shafts toward and away from the driving means to contact the wound portions of the web with the driving means and cause winding and unwinding of the web.

In testimony whereof I affix my signature in the presence of two witnesses.

ELMER K. BROWN.

Witnesses:
W. E. WREAD,
A. L. ROSBY.