March 4, 1924. 1,485,838

W. H. DIETZ

FIXTURE FOR HOLDING AND OPERATING MAPS

Filed Sept. 15, 1921

Fig. 1.

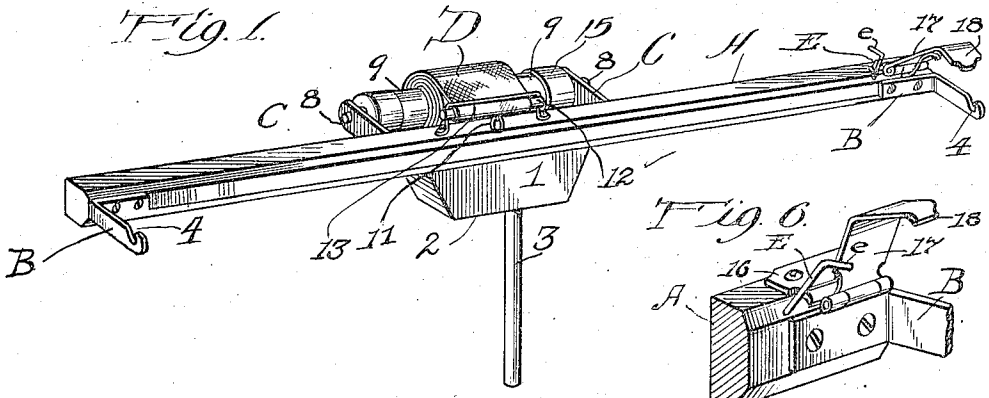


Fig. 6.

Fig. 2

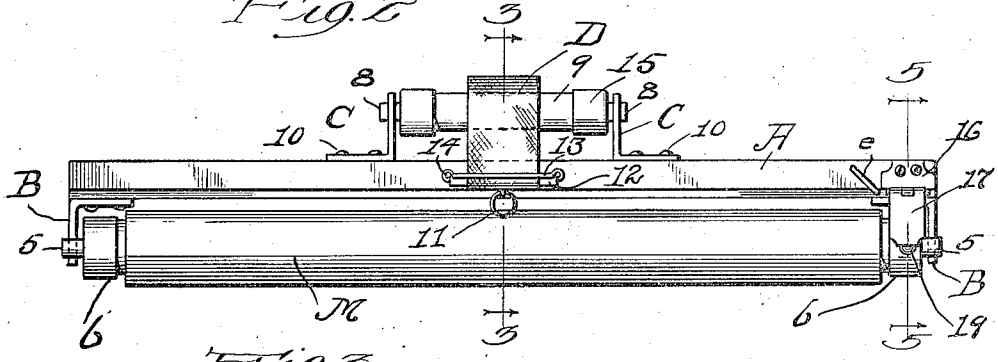


Fig. 3.

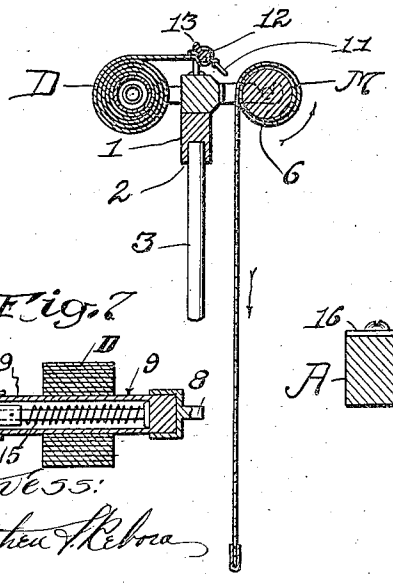


Fig. 4.

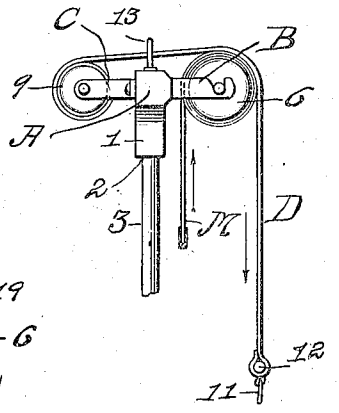


Fig. 5.

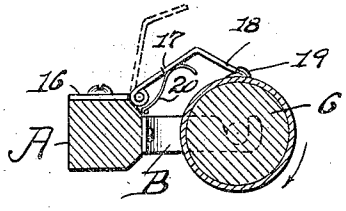


Fig. 7

Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM H. DIETZ, OF CHICAGO, ILLINOIS.

FIXTURE FOR HOLDING AND OPERATING MAPS.

Application filed September 15, 1921. Serial No. 500,992.

To all whom it may concern:

Be it known that I, WILLIAM H. DIETZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fixtures for Holding and Operating Maps, of which the following is a specification, reference being had to the accompanying drawings, and to the reference characters marked thereon, which form a part of this specification.

This invention relates to fixtures for holding and operating maps.

It frequently occurs, as for example, in school rooms, that a certain map is required to be moved from one room to another, or from one class to another, and inconvenience has been experienced in providing a plurality of supports for the map in its different locations. For instance, in a Sunday school, it is inconvenient to have fixed supports for the maps and very desirable to have the map upon a movable support or tripod, in the immediate vicinity of the class, and yet at the same time provide means for rolling and unrolling the map.

Another difficulty experienced has been due to the fact that maps are frequently mounted upon rollers provided with the familiar spring winding construction used on window shades, whereby when it is desired to roll up the map, the operator takes hold of the lower margin and gives it a somewhat sharp downward or unwinding pull to release the detent in the winding device, and then the spring in said winding device causes the roller to revolve and wind up the map. This action is the familiar action of the window shade. In accomplishing this the maps are frequently torn and worn, and it is therefore desirable to provide means for overcoming this wear and tear.

The object of my invention, therefore, is to provide a rolling fixture device for a map which will be portable and adapted to be supported in position upon a fixed support or a movable support such as a tripod.

Another object is to provide roller means for holding the map in an unwound position in whole or in part, and means for rewinding it.

Another object of my invention is to provide an apparatus wherein the map may be rolled upon an ordinary roller unprovided with its own winding apparatus, but which may be wound up by means of a tape wound upon a supplemental roller provided with automatic winding mechanism, and which tape will bear frictionally upon the map in the operation of winding the latter.

These and other objects of the invention and the various advantages flowing therefrom will more fully appear as I proceed with the specification.

In the drawings:

Fig. 1 represents in a perspective view, an apparatus embodving my invention, with the roller removed.

Fig. 2 is an edge plan view of the same, with the roller in position.

Fig. 3 is a vertical sectional view, taken on the plane of the line 3—3 of Fig. 2, looking in the direction indicated by the arrows.

Fig. 4 is an end view of the apparatus.

Fig. 5 is a transverse vertical sectional view, enlarged, taken on the plane of the line 5—5 of Fig. 2, looking in the direction indicated by the arrows.

Fig. 6 is a perspective view, enlarged, showing certain details.

Fig. 7 is a sectional view of a detail hereinafter described.

In the drawings, A represents a supporting bar of a length somewhat greater than the width of the map to be supported. This bar is provided centrally of its length upon its under side, with a supporting block 1 having a bearing surface or shoulder 2. From this block depends a centrally located supporting rod 3. This rod 3 is adapted to be inserted in a suitable bearing aperture upon any suitable support, such for example as a photographer's tripod. The rod 3 may be rectangular so as to hold the fixture in a fixed position or it may be round so as to permit the fixture to be swung about the longitudinal axis of the rod and thus present the map to the view of the audience from different angles.

At each end of the bar A, I provide a bracket support B, having bearing notches 4 adapted to receive trunnions 5 of an ordinary roller bar 6, upon which a map M may be wound. By taking hold of the end 7 of the map M and pulling downwardly as shown in Fig. 3, the map M may be unwound, because the roller 6 and its trunnions

5 will freely revolve in the bearing supports 4. There are no automatic devices for rewinding the map M.

At the back of the bar A, I provide a pair of bearing brackets C, C, suitably apertured to support trunnions 8 of a roller 9. The longitudinal axis of the roller 9 will be parallel to the longitudinal axis of the roller 6. The bracket supports C may be secured to the back of the bar A by screws 10 or other suitable means. Wound upon the roller 9 is a friction winding strip D preferably of canvas and provided on its free end with a hand hold 11. The extreme lower end of the friction strip D is turned upon itself and secured about a bar or rod 12, the ends of which project beyond the side margins of the strip D. Upon the top of the bar A is a bent wire 13 which may be secured at its ends 14 to the top of the rod A, the wire 13 extending slightly above the top edge of the bar 12. The friction winding strip D is laced between the wire 13 and the bar A and when the strip D is wound up upon the roller 9, as shown in Figs. 2 and 3, the projecting ends of the rod 12 contact with this wire 13, which acts as a stop and holds the end of the strip D in position, so that the operator may readily grasp the hand hold 11 thereof.

The roller 9 is hollow and is provided interiorly with a suitable automatic winding mechanism, such, for example, as the familiar Hartshorn window shade roller mechanism including a spring 15, whereby the roller 9 will rotate in a direction to wind up the friction strip D into the position shown in Fig. 3, the moment the operator releases the hand hold 11; but which will permit of the unwinding of the strip D as indicated in Fig. 4, when the operator pulls downwardly upon the hand hold 11. As the details of this unwinding mechanism are immaterial to the invention, and any standard form thereof may be used, I do not deem it necessary to further describe the particular mechanism illustrated for this purpose in Fig. 7.

On one end of the bar A, I provide a plate 16, to which is hinged a locking arm 17. The forward edge 18 of this locking arm is adapted for engagement with the shoulder of a lug 19 on the corresponding end of the roller 6. The arm 17 is in its operative position, as shown in Fig. 5, with its edge 18 engaging the shoulder 19, and will, by reason of the hinged relation to the plate 16, ride up over the back or sloping end of the detent 19 when the roller 6 is revolved in the direction of the arrow, as shown in Fig. 5. The moment the rotation of the roller 6 is stopped, engagement of the detent 19 with the end 18 will prevent unwinding of the map M.

In order that the hinged arm 17 may not swing forwardly and downwardly into an improper position, I provide a stop arm 20 for it to rest upon in its proper position, said arm 20 being secured to the bar A. This arm 20 may take the form of a spring, if desired. When it is desired to turn the locking arm 17 on its hinge backwardly, that is away from the stop 20, and to hold it so that its end 18 will not engage the detent 19, when the map is being unwound, I provide a rotatable arm E, having its end *e* bent at an angle to the arm E. The disengaged position of the arm E is shown in Fig. 1, while in Fig. 6, the arm E is shown rotated, so that its end *e* is in the path of the locking arm 17, thus preventing the arm 17 from moving past the end *e*, and toward the map. In Fig. 6, for convenience, I have omitted illustrating the stop arm 20.

To manually rotate the roller 6 so that the map M may be unwound, the arm 17 will be lifted and swung about its hinge into the position shown in dotted lines in Fig. 5, where it may rest upon the plate 16 or it may be held in an upright and disengaged position by turning the lock bar or finger E, rotatably secured to the bar A.

From the foregoing description, it will be understood that the operation of the device is as follows: The map M being rolled upon the roller 6 and the latter being supported in the trunnion bearings 4, and the friction strip D being wound up as shown in Figs. 1, 2 and 3, the device is carried to any suitable fixed support or movable support, and the bar 3 set in its proper position with the face or shoulder 2 upon the support. The arm 17 is raised and the map M lowered in whole or in part, according as it is desired to exhibit all or a portion of the same. The arm 17 will then be swung forwardly into the position shown in Fig. 5, where its under surface rests upon the stop arm 20 and its edge 18 engages the detent 19. When it is desired to re-roll or wind up the map M upon the roller 6, instead of the operator taking hold of the map, he will take hold of the hand hold 11 and pull the friction strip D outwardly and over the surface of the map, as clearly shown in Fig. 4. The movement of the strip D will be contrary to the winding spring action of the roller 9, and in a direction opposite that of the winding up direction of the roller 6. The friction of the strip D moving over the back of the map M will readily cause the roller 6 to rotate in its trunnions and presently the map M will be rewound upon its roller 6. It will not unwind because the swinging arm 17 will engage the detent 19 on the roller 6.

The operator will then release his grasp upon the hand hold 11, whereupon the action of the spring or winding mechanism in the cap 15 of the roller 9, will cause the lat-

ter to immediately rotate in a direction opposite to the direction of the arrows indicated in Fig. 4, thus winding up the strip D upon the roller 9 until the end of the rod 12 engages the wire stop 13.

The parts will then be in the position shown in Fig. 2, and the operation may be repeated.

It will be found that this apparatus is very simple in operation, and that the act of unrolling the map M will not cause the latter to become worn or torn, in any degree. It will also be noted that the frictional bearing of the strip D is upon the back of the map and not upon its printed or lithographed face, and therefore the matter printed upon the map is not affected by the winding action.

It will also be understood that if it is desired to partially unwind the map M and to hold or retain it in such partially unwound position, this may be readily accomplished by the fact that the arm 17 will engage the detent 19 at the desired point, preventing further unwinding of the map.

I claim as my invention:

1. A supporting bar, trunnion bearings thereon, a roller having trunnions adapted to be removably supported therein, a map wound upon said roller, a smaller roller rotatively mounted on the bar between its ends, a friction strip wound upon the smaller roller with one of its ends secured thereto, and means on the smaller roller for normally holding said smaller roller with said strip wound thereon, the relation of said rollers permitting said strip when unwound from the smaller roller to have frictional bearing upon the map.

2. The combination with a supporting bar having roller bearings at each end thereof, of a map wound roller removably mounted in said bearings, a detent on one end of the roller, a hinged arm on the bar adapted to engage the detent when the roller is rotated in one direction only, a small roller mounted on the bar, a flexible strip secured at one end to and adapted to be wound upon said second roller, and means on the second roller for rotating same and normally holding it in the strip-wound position while permitting it to rotate in the opposite direction to unwind the strip, said strip when being unwound being adapted for frictional contact with the map.

3. A supporting bar, trunnion bearings thereon, a roller having trunnions adapted to be removably supported therein, a map wound upon said roller, a smaller roller rotatively mounted on the bar between its ends, a friction strip secured at one end thereto, and adapted, when being unwound, for frictional bearing upon the map, means on the smaller roller normally holding said smaller roller with said strip wound thereon, and means secured to the bar permitting its removable attachment to a support.

4. A supporting bar, trunnion bearings thereon, a roller having trunnions adapted to be removably supported therein, a map wound upon said roller, a smaller roller rotatively mounted on the bar between its ends, a friction strip secured at one end thereto, and adapted, when being unwound, for frictional engagement with the map, means on the smaller roller normally holding said roller with said strip wound thereon, and means secured to the bar permitting its removable attachment to a support, said means including a depending bar.

5. The combination with a supporting bar having roller bearings at each end thereof, of a map wound roller removably mounted in said bearings, a detent on one end of the roller, a hinged arm on the bar adapted to engage the detent when the roller is rotated in one direction only, a small roller mounted on the bar, a flexible strip secured at one end to and adapted to be wound upon said second roller, and when being unwound to have frictional bearing upon the map, means on the second roller for rotating same and normally holding it in the strip-wound position while permitting it to rotate in the opposite direction to unwind the strip, a stop bar for limiting the movement of the hinged arm towards the detent and a swinging lock arm for holding the hinged arm out of engagement with the detent.

6. The combination with the bar A provided at each end with a forwardly projecting bearing bracket B, with rearwardly projecting bearing brackets C, C, and with a downwardly projecting rod 3, of the roller 6, having the map M thereon, and the shouldered detent 18, a detent engaging arm 17 hingedly secured to the bar A, the swingable locking arm on the said bar, a spring actuated roller 9 rotatively mounted in the brackets C, C, the flexible strip D adapted, when being unwound, for frictional bearing upon the map M, and means on the roller 9 for automatically rotating the roller 9 in a direction to wind said strip D thereon.

In testimony that I claim the foregoing as my invention I affix my signature, in the presence of two witnesses, this 8th day of September, 1921.

WILLIAM H. DIETZ.

Witnesses:
B. L. MacGregor,
Taylor E. Brown.