ABSTRACT OF THE DISCLOSURE

A device for chalking a string and pressing the chalked string against a surface such as a blackboard to draw dotted lines. A U-shaped frame has a string stretched across the protruding ends thereof. The string is entrained over rollers in a carriage movable along the frame. A wheel is carried by the carriage and supports a piece of chalk which is adapted to engage the string at spaced intervals. The chalked string is adapted to be pressed against a surface to be marked such as a blackboard. Means is provided for moving the carriage.

This invention concerns a device for drawing chalk lines and is particularly directed at means for chalking a string and pressing the chalked string against a surface such as a blackboard to draw dotted lines.

According to the invention there is provided a holder in the form of a U-shaped frame or bow. A string is extended across the ends of the frame. A carriage is movable within the frame. The string is entrained around rollers in the carriage. A piece of chalk is carried by a wheel rotatable in the carriage and contacting the string at intervals to apply chalk to it. The wheel is rotated by engagement with a gear meshed with a rack gear in the frame. As the carriage is moved along the frame, the string is drawn over the rollers and the chalk is periodically applied. The string is pressed against a surface to be marked as the carriage is moved along the frame which is held against the surface.

It is therefore one object of the invention to provide a device adapted to mark dotted chalk lines upon a surface.

Another object is to provide a device including a marking string and means for periodically applying chalk to the string for making straight dotted lines on a blackboard or the like.

Another object is to provide a device of the character described including a carriage movable along the frame while a string is drawn around rollers in the carriage and a piece of chalk is periodically applied to the string, the chalked string being then pressed against a surface to mark the same with a dotted line as the carriage is moved along the frame.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIGURE 1 is a side elevational view of the device.

FIG. 2 is a sectional view on an enlarged scale taken on line 2—2 of FIG. 1.

FIG. 3 is a sectional view taken on an enlarged scale on line 3—3 of FIG. 1.

FIG. 4 is a fragmentary longitudinal sectional view on an enlarged scale, of the device.

FIG. 5 is an elevational view of a portion of a blackboard illustrating the mode of operation of the device.

FIG. 6 is a side view similar to FIG. 1 illustrating a modification of the invention.

Referring to FIGS. 1-4, there is shown a flat U-shaped frame 10 with a straight bight section 12 of extended length and with depending legs 14 at opposite ends. The frame is provided with a central groove having spaced walls 16, 18. The bottom of the groove is formed with teeth 20 providing a rack gear within the central section 12. The ends of the legs 14 are tapered at 22, and provided with notches 24 through which are passed a string 26. The ends of the string are engaged at the outer sides of the legs 14 and are secured on tensioning pins 28 whose tapered ends are inserted in holes 30 at opposite ends of section 12; see FIGS. 1 and 4. The side 16 or 18 of section 12 may be marked with a measuring scale 25.

A carriage 32 is movably mounted within the frame. This carriage includes a generally rectangular plate 34 disposed in a plane parallel to the plane of the frame. The plate carries shafts 36, 38 near opposite ends on which are freely rotatable rollers 38, 40. The rollers may be provided with circumferential grooves 42, shown in FIGS. 2 and 3. The string is entrained under tension in the grooves of the rollers. Two smaller intermediate rollers 44, 46, are rotatably mounted on shafts 48, 50 between rollers 44, 46. The string 26 is entrained under rollers 38, 40 and over rollers 44, 46 in grooves 42, 43 to provide a straight immediate tensioned section 26a of the string between roller 38, 40. A large spur gear 52 is rotatably mounted on shaft 54 on the plate 32. This gear meshes with the teeth 20 of the rack gear as the carriage is drawn along the string and frame. The tension of the string holds the gear 52 in mesh with the gear teeth 20.

Another smaller spur gear 55 is rotatably mounted on a shaft 56 below gear 52 and in mesh therewith. Radially spaced from shaft 56 is a cup 58 secured to the side of gear 55. A cylindrical piece of chalk 60 can be placed in the cup and will rotate around shaft 56 as a center when the gears 52 and 55 rotate. The cup 58 is located so that the short section 26a of the string is contacted by the chalk periodically as the chalk is rotated. Slots 62, 64 can be formed in the plate to facilitate drawing the carriage along the frame and string.

In operation of the device, the frame will be placed upon a surface of a blackboard or the like in a plane perpendicular thereto. The carriage will be located at one end of the frame, at the zero (0) mark, for example. The carriage can then be drawn along the frame a desired distance indicated by scale 25. As the carriage is drawn along the frame, gear 52 rotates by meshing with rack gear 20 and rotates the gear 55. Gear 55 turns the chalk to contact the string section 26a and apply chalk thereto. Meanwhile the string is being drawn around the rollers and through the carriage. The chalk is applied to the section 26a only at spaced intervals. When these chalked portions of the string pass under roller 38 or 40 whose outer edges extend up to or just outside of the frame, the string is pressed on the surface to which the ends 22 of the device are applied to form a dotted line L as indicated on the blackboard B in FIG. 5.

The frame 10 is preferably made of plastic material. Such material is light in weight, will not scratch the blackboard, and is sufficiently flexible to hold the string under tension in the frame.

If both rollers 38 and 40 are the same size, then the line will be doubly marked by both rollers. If roller 38 or 40 has its groove 42 offset from the plane of the groove 42 in the other roller a double dotted line will be made by the device. In FIG. 6, roller 38a in the device 10a is smaller than roller 40 and its outer edge lies within the frame spaced from line A—A defined by the ends of legs 14. Thus, only roller 40 can touch the surface being marked to form the dotted line.
While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may be made within the scope of the invention.

What is claimed is:

1. A chalk-marking device, comprising a frame, a string supported in tension across the frame, a carriage movable along the frame, means rotatably mounted on the carriage for applying chalk to the string at spaced points, rollers on the carriage receiving and guiding the string as the carriage is moved along the frame, at least one of said rollers pressing the chalked string outwardly for marking a dotted line upon a flat surface, and driving means responsive to movement of the carriage along the frame for rotating the means for applying chalk to the string.

2. A chalk-marking device, as defined in claim 1, wherein the frame is U-shaped, said frame having a grooved, straight bight section with a rack gear formed in the bottom of the groove, a carriage movable along the frame, said carriage having a spur gear meshed with the rack gear, another gear on the carriage meshed with the spur gear, said other gear providing a support for a piece of chalk at a point radially spaced from the axis of rotation of the other gear, a first pair of rollers rotatably mounted near opposite ends of the carriage, a second pair of rollers mounted on the carriage between the first pair of rollers, said string being entrained under the first pair of rollers, and over the second pair of rollers, a portion of the string being tensioned between the second pair of rollers, said portion of the string being disposed to be periodically contacted by chalk as the carriage is moved along the frame and the string passes through the carriage on the rollers, whereby one roller of the first pair of rollers may press the string against a flat surface for marking a dotted, straight chalk line thereon while at least one end of the frame rests on said surface.

3. A chalk-marking device as defined in claim 2, wherein each of said rollers has a circumferential groove for guiding the string in its passage through the carriage.

4. A chalk-marking device as defined in claim 2, wherein the ends of the frame are formed with points for resting the frame on said surface, said points having notches receiving the string passed in tension there-through.

5. A chalk-marking device as defined in claim 2, wherein the bight section has a linear scale thereon for measuring the length of line marked during movement of the carriage in the frame.

6. A chalk-marking device as defined in claim 3, wherein each roller of the first pair of rollers is of equal size and has outer edges extending outside the frame for pressing the string against a flat surface to mark and remark a dotted, straight chalk line thereon.

7. A chalk-marking device as defined in claim 2, wherein the other roller of the first pair of rollers extends inside of the frame and spaced from said surface a distance greater than the width of the string, so that one roller alone is effective in marking the chalk line.

8. A chalk-marking device as defined in claim 2, wherein each roller of the first pair of rollers is of equal size and has outer edges extending outside the frame, the grooves in the first pair of rollers being disposed in spaced parallel planes so that the string marks double, dotted, parallel chalk lines on a flat surface when the ends of the frame are pressed against said surface.

9. A chalk-marking device as defined in claim 2, said carriage including a generally rectangular flat plate, with a plurality of shafts mounted on the plate, said rollers and gears being freely rotatable respectively on said shafts, and means on the frame for holding the string stretched in tension across the frame.

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