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TENSIONING DEVICE FOR A BOARD FOR EDUCATIONAL PURPOSES

Filed Oct. 23, 1961

2 Sheets-Sheet 1

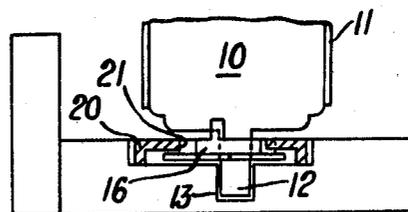
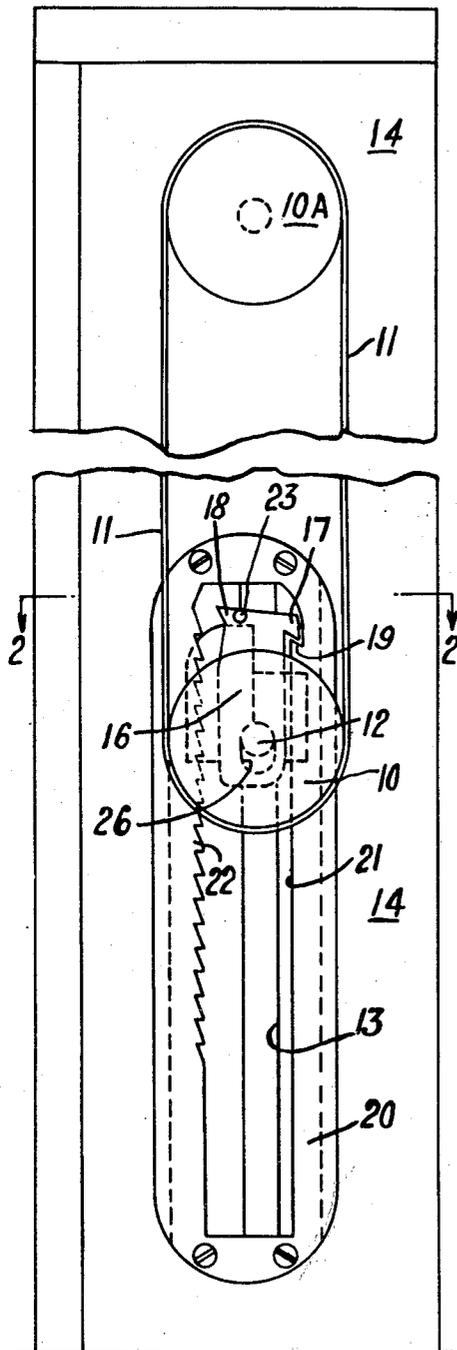


FIG. 2.

FIG. 1.

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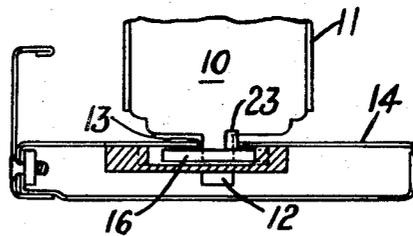
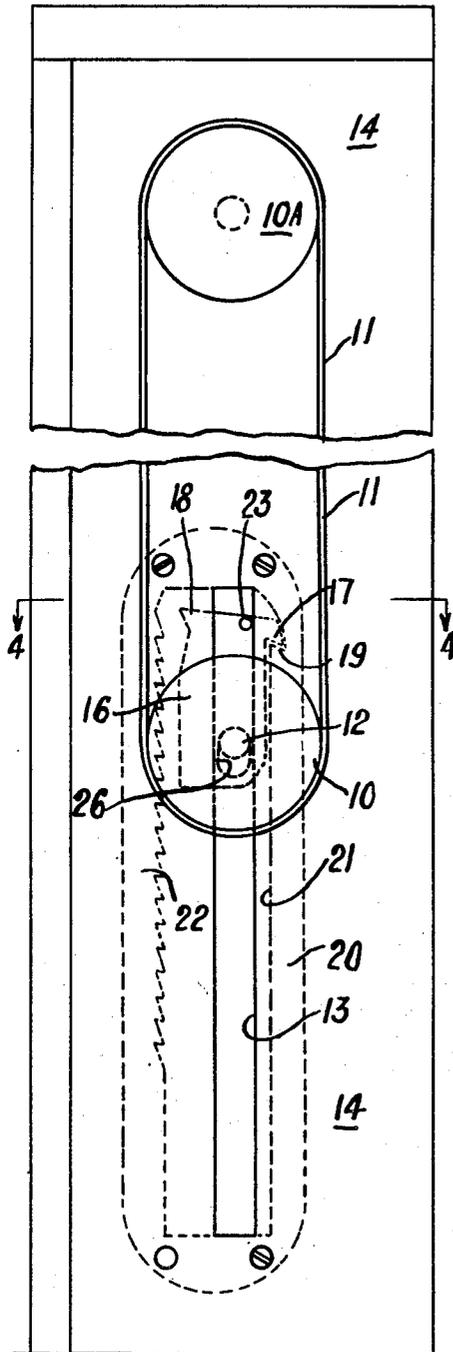


FIG. 4.

FIG. 3.

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1

2

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**TENSIONING DEVICE FOR A BOARD FOR
 EDUCATIONAL PURPOSES**

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This invention relates to improvements in or relating
 to tensioning devices for boards for educational pur-
 poses, and more particularly to boards of the type
 comprising an endless band of flexible material capable
 of bearing indicia and entrained around two rotatable
 rollers carried by a frame which comprises two sub-
 stantially parallel uprights.

In such a board there is a tendency for the flexible
 band to stretch after prolonged use and to become slack.

It is an object of the present invention to provide
 means for maintaining the band taut between the rollers.

In a tensioning device for a board of the type referred
 to according to the invention the bottom roller has
 latch plates rotatably mounted on the ends thereof, each
 latch plate being so formed as to be locatable in sub-
 stantially any position relative to the associated upright,
 the bottom roller and the latch plates being movable
 toward and away from the top roller.

Two embodiments of the invention are illustrated in
 the accompanying drawings in which:

FIG. 1 is a fragmentary side elevation of an upright
 of the first embodiment.

FIG. 2 is a section on the line 2—2 of FIG. 1.

FIG. 3 is a fragmentary side elevation of an upright
 of the second embodiment.

FIG. 4 is a section on the line 4—4 of FIG. 3.

Referring to the drawings in which like numerals
 denote like parts, 10 denotes a bottom roller and 10A
 denotes a top roller. An endless band 11 of flexible
 material capable of bearing indicia is entrained around
 the rollers 10 and 10A. The roller 10 carries at each
 end a spindle 12 adapted to be slidably mounted in a
 slot 13 formed in the adjacent face of the associated
 upright 14 of the frame so that the distance between
 the top 10 and bottom rollers 10 and 10A may be
 varied.

16 denotes a latch plate pivotally mounted on each
 spindle 12. The upper ends of opposed marginal edge
 portions of each plate 16 are formed with pawls 17, 18
 projecting in opposite directions from the plate 16.
 Each plate 16 is rotatably mounted on the associated
 spindle 12 in such manner that the center of gravity
 of the plate 16 biases the plate 16 in the direction to
 cause the pawl 18 to engage with a ratchet 22 which is
 secured to the associated upright 14. The uprights 14,
 one of which is illustrated in FIGS. 1 and 2, are of wood.
 Referring to the construction illustrated in FIGS. 3
 and 4, the uprights 14 are of hollow metallic form.

Considering one of the latch plates 16 the pawl 17 is
 engageable with a detent 19 formed in the face of the
 associated upright 14 opposite to the ratchet 22.

Means 23, which may conveniently be constituted by
 a pin attached to the plate 16, serves to enable the plate
 16 to be manually pivoted about its point of mounting
 to the spindle 12 in opposition to the biasing effect act-
 ing on the latch plate 16. The means 23 also serve to
 disengage the pawls 17 from the associated detents 19.

The top roller 10A is mounted between the uprights
 14, the bottom roller 10 also being positioned between
 the uprights 14 below the top roller 10A with the pawl
 17 on each plate 16 in engagement with the associated

detent 19. In this way the bottom roller 10 is sup-
 ported while the band 11 is entrained around the two
 rollers 10 and 10A, the two ends thereof being inter-
 connected to form the endless band 11.

By manually pivoting each plate 16 by means of the
 peg 23 each pawl 17 is disengaged from the associated
 detent 19, the bias acting on each plate 16 causing the
 pawl 18 to engage with the ratchet 22 thereby preventing
 movement of the bottom roller 10 during, for example,
 movement of the band 11 during use thereof.

The weight of the bottom roller 10 tends automatical-
 ly to maintain the band 11 taut since downward, but
 not upward, movement of the bottom roller 10 is per-
 mitted by the pawl and ratchet assembly 18, 22. Al-
 ternatively if the weight of the bottom roller 10 is in-
 sufficient to maintain the band 11 under the desired
 tension, the bottom roller 10 may be periodically forced
 downwardly thereby tensioning the band 11, the pawl
 18 being automatically re-engaged with the ratchet 22
 in the new position.

What is claimed is:

1. In a board for educational purposes having an
 endless band of flexible material capable of bearing
 indicia, two vertically spaced rotatable rollers around
 which said band is entrained, the lower of said rollers
 being vertically supported by said band, and a frame
 including two substantially parallel uprights relative to
 which said rollers are rotatably mounted; a tensioning
 device comprising at least one latch plate rotatably
 mounted on the lower one of said rollers, considered
 with said board in the operative position, said lower
 rollers being operatively urged away from the upper one
 of said rollers by the weight of said lower roller, a
 ratchet fixedly mounted on at least one of said upright
 members adjacent to said latch plate, and a pawl carried
 by said latch plate, the center of gravity of said latch
 plate being on the same side of an imaginary vertical
 through the position of rotatable mounting of said latch
 plate as said pawl, considered with said board in the
 operative position, whereby said pawl is urged by gravity
 into engagement with said ratchet, said ratchet being so
 mounted as to prevent movement of said lower roller
 towards said upper roller when said pawl is in engage-
 ment with said ratchet.

2. In a board for educational purposes having an
 endless band of flexible material capable of bearing
 indicia, two vertically spaced rotatable rollers around
 which said band is entrained, the lower of said rollers
 being vertically supported by said band, and a frame
 including two substantially parallel uprights relative to
 which said rollers are rotatably mounted; a tensioning
 device comprising at least one latch plate rotatably
 mounted on the lower one of said rollers, considered
 with said board in the operative position, said lower
 roller being operatively urged away from the upper one
 of said rollers by the weight of said lower roller, a
 ratchet fixedly mounted on at least one of said upright
 members adjacent to said latch plate, and a pawl carried
 by said latch plate, said pawl and the center of gravity
 of said latch plate being on the same side of an imaginary
 vertical through the position of rotatable mounting of
 said latch plate on said lower roller, considered with
 said board in the operative position, whereby said pawl
 is urged by gravity into engagement with said ratchet,
 said ratchet being so mounted as normally to prevent
 movement of said lower roller towards said upper roller,
 a second pawl carried by said latch plate, and a detent
 carried by said one of said uprights for engaging with
 said second pawl thereby to prevent movement of said
 lower roller away from said upper roller when said
 second pawl is engaged with said detent.

3

3. In a board for educational purposes having an endless band of flexible material capable of bearing indicia, two vertically spaced rotatable rollers around which said band is entrained, the lower of said rollers being vertically supported by said band, and a frame including two substantially parallel uprights relative to which said rollers are rotatably mounted; a tensioning device comprising at least one latch plate rotatably mounted on the lower one of said rollers, considered with said board in the operative position, said lower roller being operatively urged away from the upper one of said rollers by the weight of said lower roller, a ratchet fixedly mounted on at least one of said upright members adjacent to said latch plate, and a pawl carried by said latch plate, said pawl and the center of gravity of said latch plate being on the same side of an imaginary vertical through the position of rotatable mounting of said latch plate on said lower roller, considered with said board in the operative position, whereby said pawl is urged by gravity into engagement with said ratchet, said ratchet being so mounted as normally to prevent movement of said lower roller towards said upper roller, a

4

second pawl carried by said plate, a detent carried by said one of said uprights for engaging with said second pawl thereby to prevent movement of said lower roller away from said upper roller when said second pawl is engaged with said detent, and a manual gripping means being presented by said latch plate for facilitating manual pivoting of said latch plate against gravity to cause said second pawl to enter into or to be withdrawn from operative engagement with said detent to prevent downward movement of said lower roller.

References Cited in the file of this patent

UNITED STATES PATENTS

| | | |
|-----------|-----------|---------------|
| 184,552 | Smith | Nov. 21, 1876 |
| 1,075,072 | Todd | Oct. 7, 1913 |
| 2,368,362 | Johnstone | Jan. 30, 1945 |
| 2,481,012 | Haseltine | Sept. 6, 1949 |
| 2,938,416 | Maness | May 31, 1960 |
| 3,007,344 | Schaefer | Nov. 7, 1961 |
| 3,062,066 | Mohr | Nov. 6, 1962 |
| 3,077,791 | Gray | Feb. 19, 1963 |