

[54] **DEVICE FOR DISPLAYING RUGS OR LIKE MERCHANDISE STORED IN FORM OF ROLLS**

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[56]

References Cited

UNITED STATES PATENTS

1,144,673	6/1915	Wheeler	242/67.4
2,277,476	3/1942	Bostwick	242/58.6
3,502,320	3/1970	Scordato.....	242/58.6 X

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[57]

ABSTRACT

A device for displaying merchandise consisting of sheet material convolutely wound to form a roll. The device includes means for raising such a roll to a desired level. It further includes motor driven means for rotating the roll after it has been positioned at the desired level to unwind a desired length of material from the roll, or to rewind previously unwound material upon the roll.

9 Claims, 3 Drawing Figures

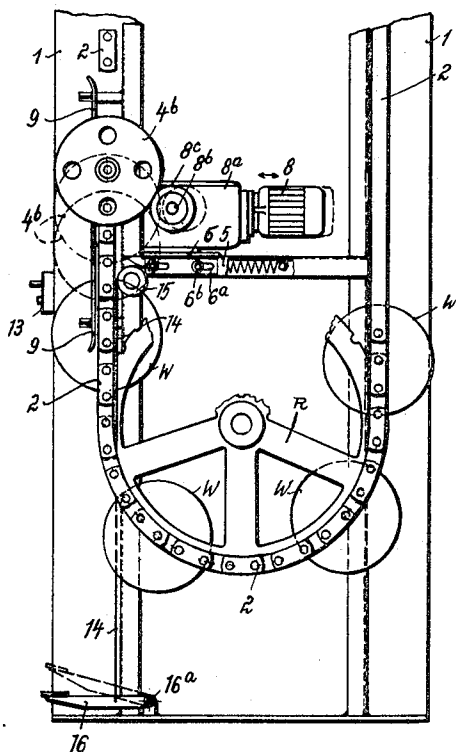
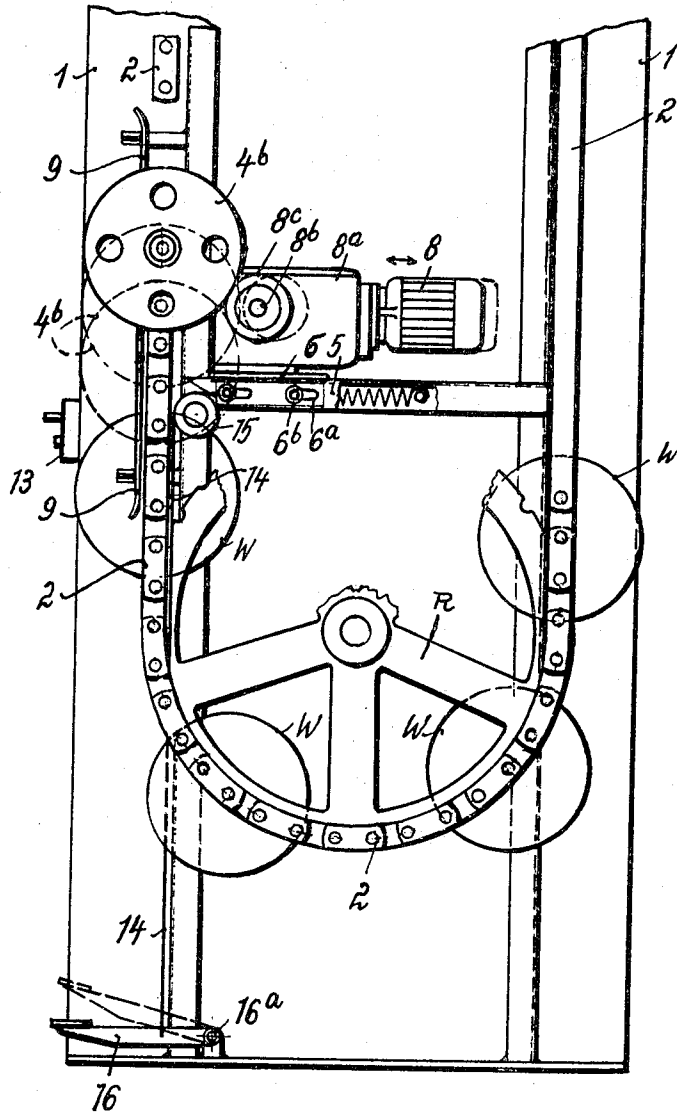


Fig. 1



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Fig. 2

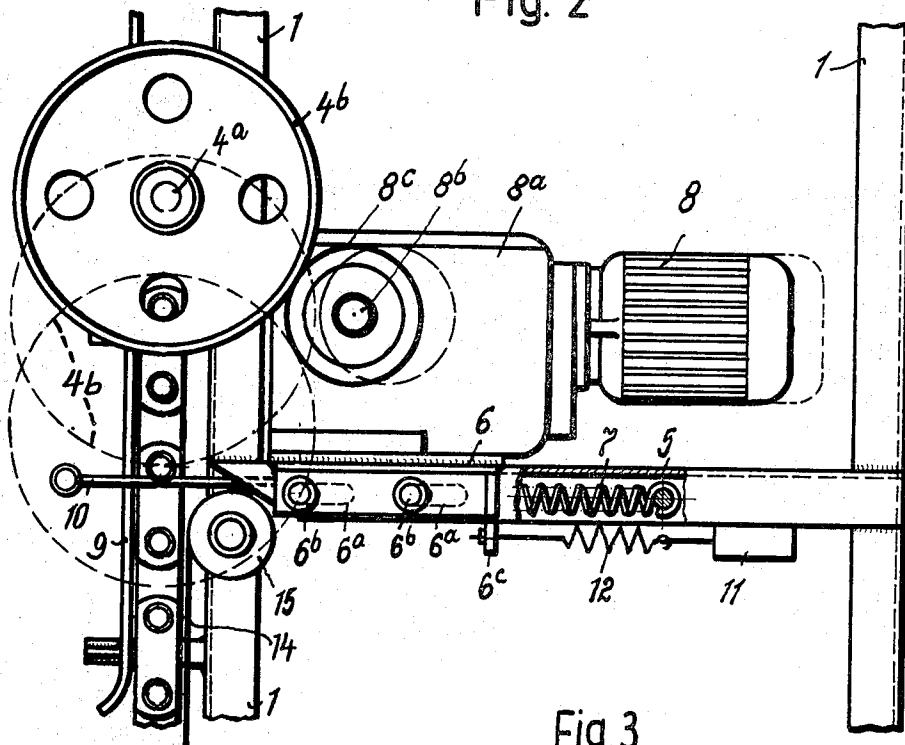
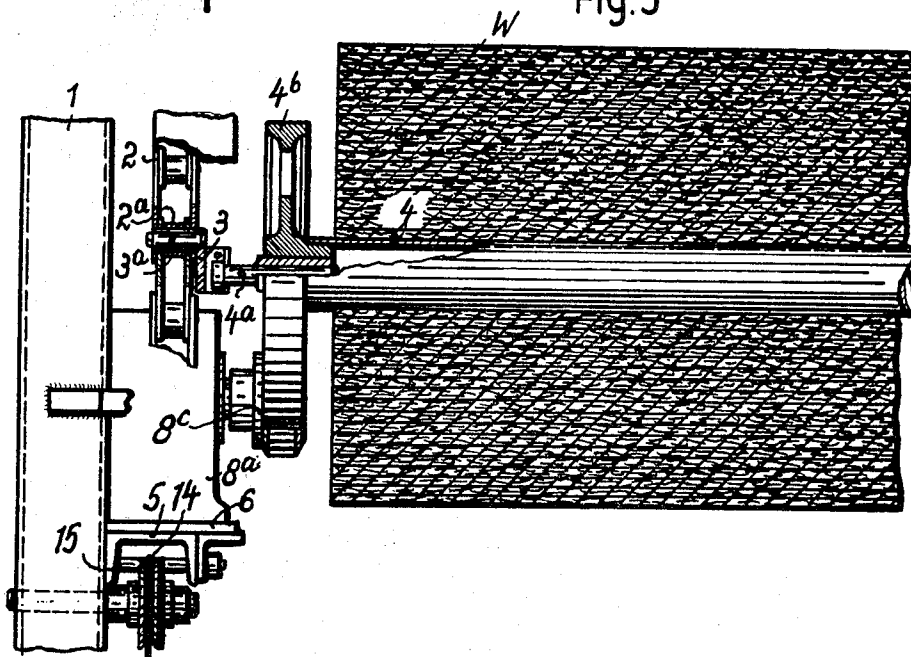


Fig. 3



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DEVICE FOR DISPLAYING RUGS OR LIKE MERCHANDISE STORED IN FORM OF ROLLS

BACKGROUND OF INVENTION

This invention relates to devices for displaying merchandise consisting of sheet material convolutely wound to form a roll, e.g., to display floor coverings. One prior art type of such devices includes an upright structure. The latter supports a pair of jointly revolving shaft-supporting drives in the form of endless loops, generally consisting of link chains. Such link chain drives raise a shaft supporting a roll of merchandise such as, e.g., floor covering, to a desired level. This is done by motor means, i.e., by a motor-gear system for revolving the link chains. A display device of this description is more fully disclosed in U.S. Pat. No. 3,318,459 to W. Schneider, May 9, 1967 for DEVICE INCLUDING A CHAIN DRIVE FOR STORING AND DISPLAYING ROLLED-UP MERCHANDISE. The present invention may be considered as being an improvement of the structure disclosed in the above patent.

Unwinding of a desired length of merchandise from the roll and rewinding of any unwound length of merchandise upon the roll had, heretofore, to be done manually. This is an onerous task considering that the width of a roll of floor covering may be in the order of 5 yards and its weight may be in the order of 800 lbs. Up to this time the aforementioned task had to be performed by two attendants whenever the width and the weight of the roll of merchandise was considerable.

The principal problem underlying the present invention is to provide means for facilitating the task of unwinding and rewinding merchandise from a roll and to make it possible for a single attendant to perform this task irrespective of the width of the roll and/or its weight.

SUMMARY OF INVENTION

A device embodying this invention includes an upright structure which supports a pair of jointly revolving shaft-supporting devices in the form of a pair of endless loops. A horizontal shaft is supported by said pair of shaft supporting devices by the intermediary of a pair of shaft-support bearings of which each is affixed to one of said endless loop shaft-supporting devices. A first transmission gear is mounted on one of the ends of said shaft for joint rotation with said end of said shaft. The structure further includes a reversing motor driving a reduction gear driving a second transmission gear. This reversing motor, reduction gear and second transmission gear are supported by a slide member supported by said upright structure and movable substantially horizontally relative to said upright structure. The structure further includes means for causing selective engagement and disengagement of said first transmission gear by said second transmission gear to selectively rotate and arrest said first transmission gear and said shaft, said means including operating means for said slide member to move said slide member relative to said upright structure.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a diagrammatic side elevation of the lower portion of a device embodying the present invention;

FIG. 2 shows on a larger scale than FIG. 1 a portion of the structure of FIG. 1 seen in the same fashion as FIG. 1; and

FIG. 3 is mainly a front elevation of the structure of FIG. 2 showing some of the parts thereof in vertical section.

BRIEF DESCRIPTION OF PREFERRED EMBODIMENT

Referring now to the drawings, numeral 1 has been applied to indicate a pair of uprights. Uprights 1 may be tied together by a horizontal beam, or girder, which has not been shown in the drawings. Numeral 2 has been applied to indicate one of a pair of endless shaft-supporting chain drives which may be caused to revolve by motor means not shown. The chain drives and their motor means are more fully shown in U.S. Pat. No. 3,318,459 referred-to above. In the upper right portion of

FIG. 1 the links forming chain loops 2 have been indicated diagrammatically. FIG. 1 shows but one of the pair of endless chain loops 2, the other of said pair of chain loops being arranged in registry behind the pair of endless chain loops shown in FIG. 1. Each endless chain loop is wound around and guided by an upper wheel and by a lower wheel R. The upper wheel has been deleted in FIG. 1 since the provision of such wheels is conventional, and fully shown in U.S. Pat. No. 3,318,459. Reference numeral 2a has been applied to indicate tubular or hollow bolts by which the constituent links of the pair of endless chain loops are tied together (FIG. 3). The solid bolts 3a project into hollow bolts 2a, and the former support bearing members 3 for the ends 4a of shaft 4. Bearing members 3 define slots which make it possible to radially insert the ends 4a of shaft 4 into them from above, rather than requiring an axial insertion of the ends 4a of shaft 4. Reference character W has been applied to indicate each of several rolls of merchandise, e.g., floor covering, of which each is supported by one of shafts 4. FIG. 1 shows the various positions or levels which rolls of merchandise may assume as a result of a revolving motion of endless link chains 2. As best shown in FIG. 3, one of the ends of shaft 4 supports a first transmission gear 4b. This may be a spur gear, but is preferably a toothless friction wheel. The radially outer surface of friction wheel 4b is covered with an appropriate friction-increasing material. Reference numeral 5 has been applied to indicate a substantially horizontal beam, or girder, by which the two uprights 1 are tied together. The slide member 6 is supported by beam or girder 5, and movable relative to the latter, i.e., in a direction transversely to the uprights 1. Beam, or girder 5 is provided with oblong apertures 6b, and studs 6a integral with slide member 6 project into oblong apertures 6b. Thus studs 6a and apertures 6b form cooperating abutments, limiting the travel of slide member 6 along beam, or girder 5, and establishing a pair of limit positions for the former. Reference numeral 7 has been applied to indicate a helical resetting spring of which one end is affixed to beam, or girder 5, and the other end is affixed to slide member 6, thus biasing the latter from left to right as seen in FIG. 2. Slide member 6 supports the electric reversing motor 8 by the intermediary of a reduction gear 8a whose driving shaft 8b is arranged at right angles to the shaft of reversing motor 8. A second transmission gear, or toothless friction gear 8c is mounted on, or keyed to, shaft 8b, and thus driven by shaft 8b. The first transmission gear 4b, and the second transmission gear 8c are arranged in the same vertical plane.

In FIG. 2 reference numeral 10 has been applied to indicate an operating rod of which one end is affixed to slide member 6, and the other end forms a handle. If operating rod 10 is manually pulled from right to left, as seen in FIG. 2, slide member 6 is moved against the bias of spring 7 from its right limit position to its left limit position shown in FIG. 2. In the left limit position of slide member 6 friction gear 8c is in engagement with friction gear 4b and motor 8 may rotate shaft 4 and the roll W of merchandise which is mounted on it, and supported by it, in either direction. When handle 10 is released spring 7 moves slide member 6 from left to right, thus moving friction wheel 8c out of engagement with friction wheel 4b. The yardage which is rolled off any roll W depends upon the time friction wheels 4b and 8c are kept in operative, torque-transmitting engagement. The portion of floor covering, or other equivalent merchandise, unwound from a roll W may be readily rewound upon the roll W by reversing the sense of rotation of motor 8.

Reference numeral 11 has been applied to indicate an electric switch having two limit positions, and wired to selectively energize motor 8, and deenergize motor 8, depending upon which of its two limit positions it is in. Reference character 12 has been applied to indicate a switch-operating spring, or other switch operating coupling between switch 11 and slide member 6. As shown in FIG. 2 the left end of spring 12 is affixed to a projection 6c integral with slide member 6, and the right end of spring 12 is affixed to the operating member or

handle of switch 11. Thus when slide member 6 is moved from right to left, or to its limit position shown in FIG. 2, wherein both transmission gears 8c,4b are in operative engagement, switch 11 is moved to its limit position wherein it energizes motor 8. On the other hand, when slide member 6 is moved from its left limit position shown in FIG. 2 to its right limit position wherein transmission gears 8c,4b are out of operative engagement, switch 11 is moved to its limit position wherein it deenergizes motor 8.

In FIG. 1 reference numeral 13 has been applied to indicate a reversing switch having two limit positions. In one of these positions motor 8 is caused to rotate in one direction when energized by switch 11, and in the other of these positions motor 8 is caused to rotate in a direction opposite to said one direction when energized by switch 11.

FIG. 2 shows alternative means for operating slide member 6 against the bias of spring 7. These means include a cable 14 of which one end is affixed to slide member 6, and the other end of which may be operated by an individual, or person, attending the dispensing device. Pulley 15 supports cable 14, and is arranged between the ends thereof. The end of cable 14 remote from slide member 6 is preferably attached to a lever for operating the cable 14 and the slide member 6.

FIG. 1 shows such a lever 16 pivotally supported at 16a. Lever 16 is arranged at, or adjacent to, the lower end of the upright structure 1,1, i.e., substantially at floor level, and positioned to be operated by foot action, i.e., by the foot of an attendant. The end of cable 14 remote from slide member 6 is affixed to foot-operating lever 16.

In FIGS. 1 and 2 numeral 9 has been applied to indicate a chain guiding plate precluding lateral bulging of the endless chain drive it covers. Plate 1 covers at least a portion of one of the pair of link chains 2 which support the shaft, or shafts 4, and it is apparent from FIGS. 1 and 2 that chain guiding plate 9 is arranged on the side of chain drives 2 remote from reversing electromotor 8.

The beam 5 for supporting slide member 6 is preferably not exactly horizontal, but slightly inclined. The end thereof adjacent transmission gear 4b is arranged at a slightly lower level than the end thereof remote from transmission gear 4b. This slight inclination or slant favors achieving frictional engagement between friction wheels 4b,8c.

As a matter of principle it is immaterial whether transmission gears 4b and 8c are formed by spur gears, i.e., gears having teeth, or toothless friction wheels. In practice it is highly desirable to use toothless friction wheels rather than gears having teeth because of the difficulties involved in achieving by shifting the slide member 6 proper meshing engagement of gears having teeth.

In operation the endless chain drives 2 are caused to revolve until the material intended to be displayed has reached the desired level, i.e., the roll supporting shaft 4 has reached the desired level. Thereafter the motor (not shown) causing chain drive 2 to revolve is stopped, and slide member 6 moved against the action of spring 7, thus energizing motor 8, and causing the same to unwind the particular roll by the intermediary of engaging friction wheels 4b,8c. This exposes to view a substantial length of floor covering or the like. Gears 4b and 8c are brought out of engagement and motor 8 is deenergized by releasing slide member 6, i.e., allowing its return to its initial position under the action of spring 7. If a customer wishes to see another relatively large portion of floor covering, or the like, before deciding upon any given merchandise, reversing switch 13 is moved to its motor reversing position, and thereupon slide member 6 is again moved against the action of spring 7 to a position wherein gears 4b,8c are in engagement and motor 8 energized by the action of switch 11. Slide member 6 is maintained in this position until all of the portion of roll W which has been previously unwound is rewound.

FIG. 2 shows an arrangement wherein the motor energizing and deenergizing switch 11 is operated by the intermediary of

slide member 6. As an alternative, switch 11 may be operated directly either by handle 10, or by cable 14.

It is apparent from FIG. 2 that engagement of friction wheels 4b,8c may be achieved in several positions of friction wheel 4b.

I claim as my invention:

1. A device for displaying merchandise consisting of sheet material convolutely wound to form a roll, said device including

a. an upright structure;

b. a pair of jointly revolving shaft-support drives in the form of a pair of endless loops supported by said upright structure;

c. a pair of shaft-support bearings each affixed to one of said pair of shaft-support drives;

d. a horizontal shaft supported by said pair of shaft-support bearings;

e. a first transmission gear mounted on one of the ends of said shaft for joint rotation with said one of the ends of said shaft;

f. a reversing motor driving a reduction gear driving a second transmission gear;

g. a slide member supported by said upright structure and movable substantially horizontally relative to said upright structure, said slide member supporting said reversing motor, said reduction gear and said second transmission gear; and

h. means for causing selective engagement and disengagement of said first transmission gear by said second transmission gear to selectively rotate and arrest said first transmission gear and said shaft, said means including operating means for said slide member to move said slide member relative to said upright structure.

2. A device as specified in claim 1 wherein said first transmission gear and said second transmission gear are toothless friction wheels.

3. A device as specified in claim 1 including spring means biasing said slide member and thereby tending to cause disengagement of said second transmission gear from said first transmission gear, and said operating means for said slide member being affixed to said slide member whereby the bias of said spring means can be overcome by human force.

4. A device as specified in claim 3 wherein said operating means includes a cable having one end affixed to said slide member, and having another end affixed to an operating lever and being supported by a pulley at a point intermediate the ends thereof.

5. A device as specified in claim 4 wherein said operating lever is arranged adjacent the lower end of said upright structure, and arranged to be operated by foot action.

6. A device as specified in claim 1 wherein said upright structure and said slide member are provided with cooperating abutment means establishing a pair of limit positions for said slide member.

7. A device as specified in claim 1 including

a. an electric switch having two limit positions for selectively energizing and deenergizing said reversing motor, and

b. coupling means for selectively moving said electric switch to one of said two limit positions thereof depending upon the position of said slide member.

8. A device as specified in claim 1 wherein said upright structure includes a beam for supporting said slide member, and wherein said beam is slightly inclined, the end thereof adjacent said first transmission gear being arranged at slightly lower level than the end thereof remote from said first transmission gear.

9. A device as specified in claim 1 wherein said pair of shaft-supporting drives includes a pair of link chains, and wherein at least one of said pair of link chains is covered at a portion of the length thereby by a positioning plate arranged at the side thereof remote from said reversing motor.

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