April 14, 1964 A. CODA 3,128,688

PHOTOGRAPHIC BACKGROUND ROLLER ASSEMBLY

Filed June 12, 1962 2 Sheets-Sheet 1

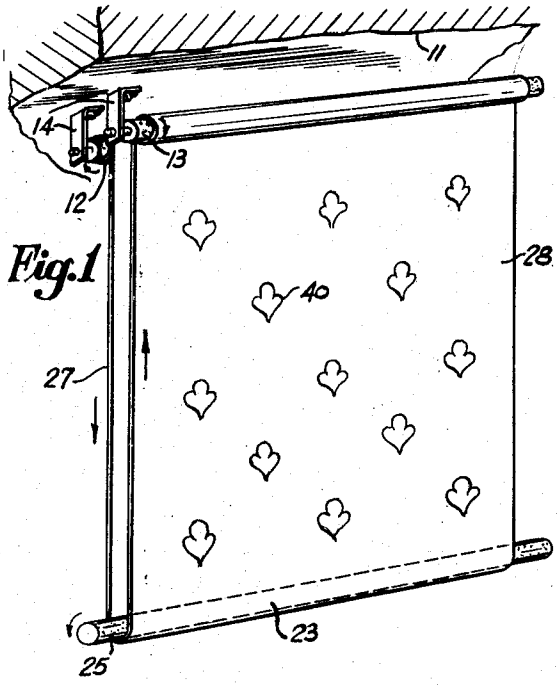


Fig. 1

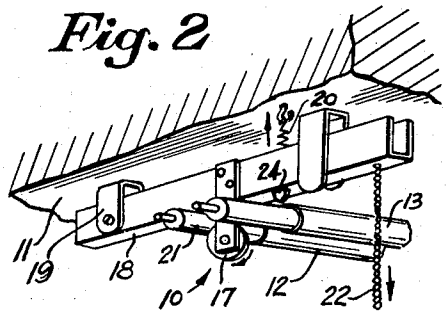


Fig. 2

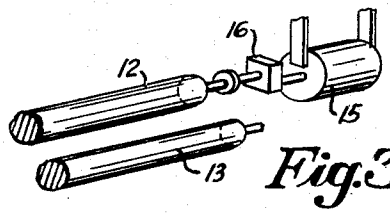


Fig. 3

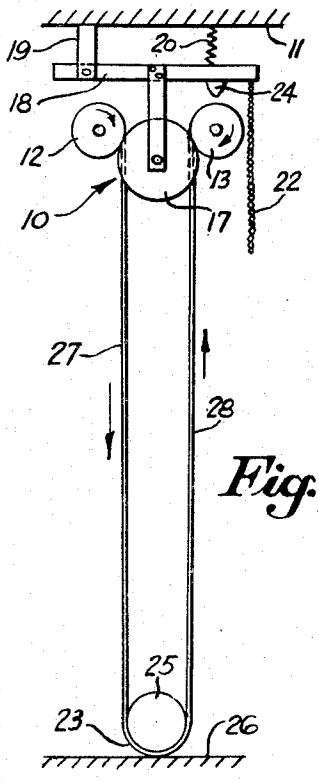


Fig. 4

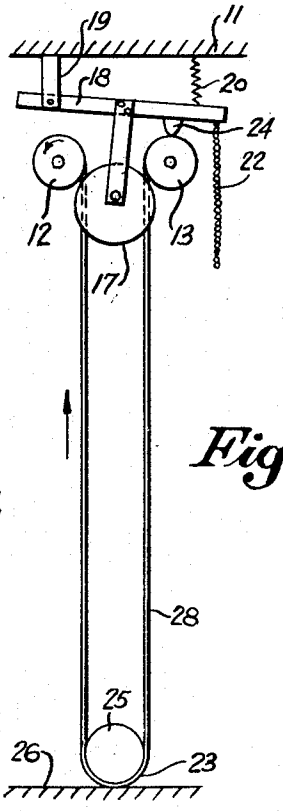


Fig. 5

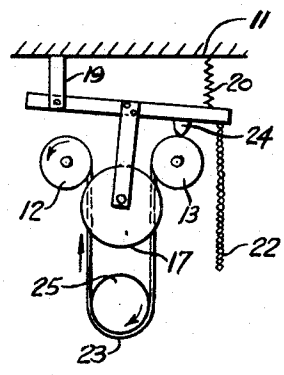


Fig. 6

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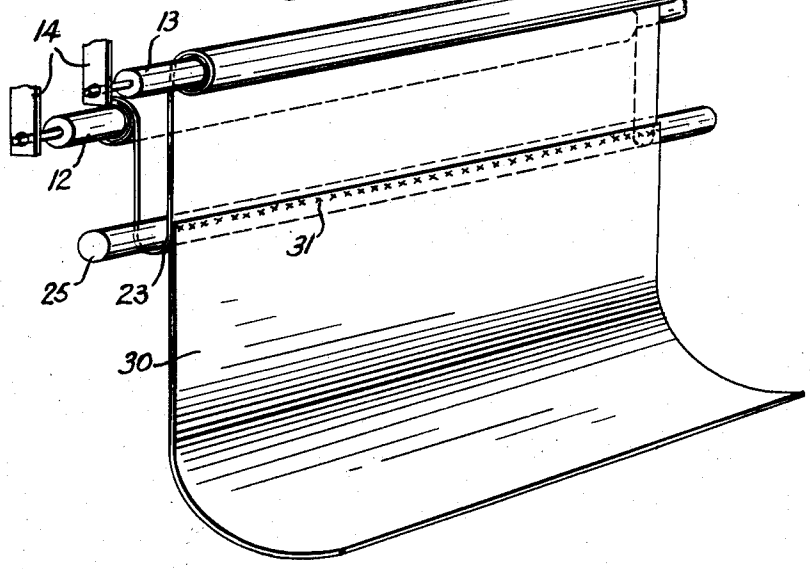
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PHOTOGRAPHIC BACKGROUND ROLLER ASSEMBLY

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Fig. 7



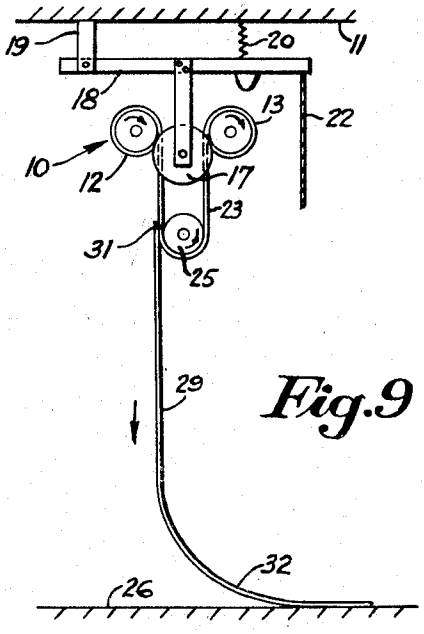


Fig. 9

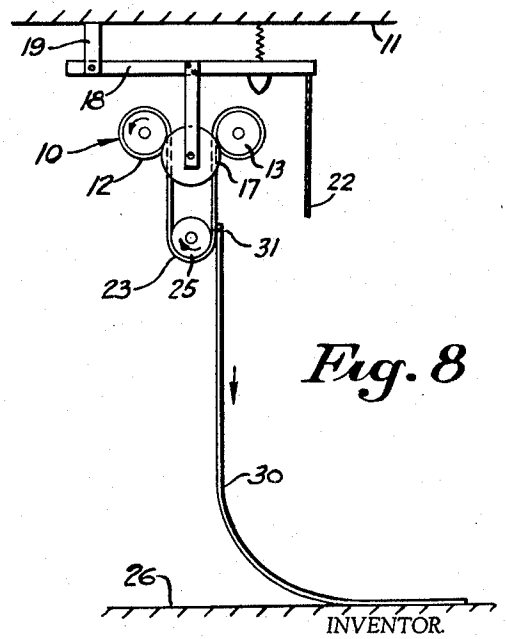


Fig. 8

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United States Patent Office 3,128,688 Patented Apr. 14, 1964

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PHOTOGRAPHIC BACKGROUND ROLLER ASSEMBLY

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Filed June 12, 1962, Ser. No. 202,001
5 Claims. (Cl. 95—83)

This invention relates to a photographic background roller for displaying a large number of different scenes and backgrounds with a single roller assembly.

Canvas and paper backgrounds are widely used in photography and in theatrical productions. Generally, the backgrounds, which depict a particular scene or give a particular color background, are wound on a roller which is suspended from a ceiling or other elevated structure. When a particular background is to be used, the canvas is unrolled from the roller and hangs therefrom to give the desired effect. The prior art roller assemblies used for the aforesaid purposes are usually limited to accommodating the canvas or paper necessary for depicting only a single scene or background. If different scenes or backgrounds are to be used, as many roller assemblies as there are scenes must be provided. This is undesirable from both the viewpoint of installation cost and overhead space required to support the large number of roller assemblies.

It is, therefore, the primary object of the present invention to provide a photographic background roller assembly which can be used for providing a plurality of scenes or backgrounds.

It is another object to overcome the drawbacks in prior art roller assemblies wherein a different roller must be used for each different scene or background.

Still another object is to provide a photographic background assembly which when not used may be rolled up in a compact, unobtrusive manner.

A further object is to provide a background assembly that is easily operated.

A still further object is to provide a photographic background assembly which in addition to providing for the use of a plural number of scenes or backgrounds, may be used for providing so-called "horizonless backgrounds."

Other objects of the present invention will become apparent in the course of the following specification.

In achieving the aforementioned objectives of the present invention, it was found advantageous to provide a photographic background roller assembly which may be conveniently supported from a ceiling or overhead frame structure and which comprises a pair of parallel arranged take-up rollers, whereon may be wound the canvas or paper customarily used for providing a background scene. The canvas or paper may be of any length so as to provide a plurality of backgrounds, the only requirements being that the respective two ends of the canvas be firmly secured to different take-up rollers, and that the rollers be positioned to provide for sufficient clearance to allow substantially all of the canvas to be rolled up on one or the other of the take-up rollers when required. One of the take-up rollers is positively driven by suitable power means as, for example, a reversbile electric motor. The other take-up roller is driven by moving a friction disc into peripheral contact with the two take-up rollers. An idler roller is supported in the bight of the canvas or paper extending between the two take-up rollers and acts as a weight member to carry the unwinding canvas or paper downwardly from the ceiling to the floor when the take-up rollers are rotated. Friction brake means are provided to hold the unpowered take-up roller against rotation when the friction disc is disengaged from the take-up rollers and only the powered take-up roller is rotated. In use, the canvas or paper may be unwound from the take-up rollers in the

form of a long loop stretching to the floor, being carried down thereto by the idler roller. A background change may be accomplished by merely rotating the take-up rollers until a new scene front is presented. When it is desired to roll up all the canvas or paper, it is accomplished by disengaging the drive disc and allowing the powered take-up roller to rotate until it takes up substantially all the canvas that was hanging down from the assembly, the idler roller being raised up simultaneously by the elevation or raising of the loop.

In accordance with the present invention, the background roller assembly may be utilized to provide several backgrounds of the so-called "horizonless background" type, wherein the canvas or paper hangs suspended to the floor level and sweeps forwardly thereon, there, of course, being no loop in this type of background. For this purpose, a "horizonless background" sheet is firmly connected to each end of the plural scene canvas or paper close to the point where the canvas is connected to the respective take-up rollers. To present a "horizonless background," the take-up rollers are rotated until the canvas is wound up substantially on one take-up roller. This allows the "horizonless background" sheet to unwind from the other take-up roller and drop to floor level at which point it may be arranged as desired by hand to achieve a "horizonless" effect. To roll up the "horizonless background," its take-up roller is oppositely rotated, taking up the sheet along with which some of the plural scene canvas is unwound from the other take-up roller and rewound in layer-like fashion with the sheet on the first take-up roller.

The invention will appear more clearly from the following detailed description when taken in conjunction with the accompanying drawings showing, by way of example, preferred embodiments of the inventive concept.

In the drawings:

FIGURE 1 is a perspective view of the take-up rollers and idler roller portion of a photographic background roller assembly constructed in accordance with the principles of the present invention, the take-up rollers being shown supported from a ceiling.

FIGURE 2 is a partial perspective view of one end of the take-up rollers and the drive disc which is used to transmit power from the powered take-up roller to the other take-up roller.

FIGURE 3 shows in perspective, the drive motor for driving the powered take-up roller, the drive motor being connected at the other end of the take-up rollers.

FIGURE 4 is a side elevational view of the photographic background roller assembly shown in FIGURES 1 to 3, the drive disc being shown in an engage position for driving both take-up rollers.

FIGURE 5 is the same as FIGURE 4 except the drive disc is shown in a disengaged position for rolling up the plural scene canvas from the floor level.

FIGURE 6 is the same as FIGURE 5 except that the canvas is shown as it appears after roll-up.

FIGURE 7 is a perspective view of another form of background roller assembly in which a "horizonless background" sheet is carried by the plural scene canvas for effecting a "horizonless" background.

FIGURE 8 is a side elevational view of the background roller assembly shown in FIGURE 7, the "horizonless background" sheet being carried on the front side of the plural scene canvas; and

FIGURE 9 is the same as FIGURE 8 except that the "horizonless background" sheet is carried on the rear side of the plural scene canvas.

Throughout the specification, like reference numerals are used to designate like parts.

The photographic background roller assembly 10 shown in FIGURES 1 through 6 is intended to be used in a

photographic studio or theatrical setting. It is contemplated that the assembly be supported from a ceiling **11** or other available overhead structure. The assembly comprises a pair of parallel spaced take-up rollers **12** and **13**. As shown in FIGURE 1, the take-up rollers may be rotatably supported in ceiling brackets **14**. One roller **12** of the pair of take-up rollers is positively driven at one end by means of a reversible electric motor **15** and speed reducer **16** (FIG. 3). The other or unpowered roller **13** is driven off the powered roller **12** by means of a driving disc **17** which may be moved into and out of engagement with the take-up rollers. Driving disc **17** is carried by an engagement lever **18** which is pivoted at one end in a support bracket **19** connected to the ceiling **11**. A compression spring **20** is connected to the opposite end of the lever **18**, the spring **20** being anchored in the ceiling and acting to pull lever **18** upwardly so that normally the driving disc **17** is engaged with the take-up rollers **12** and **13**. To reduce slippage between the driving disc **17** and the take up rollers, the driving disc may be made of rubber and the ends of the rollers covered as at **21** with a rubber composition to increase the frictional contact therebetween. To disengage the driving disc **17** from the take-up rollers **12** and **13**, the engagement lever **18** is pivoted downwardly from the ceiling **11** by means of pull rope **22** which action overcomes the force of spring **20**. When the driving disc **17** is in a disengaged position only powered take-up roller **12** will rotate since it is directly coupled to driving motor **16**. The disengage position of the lever **18** and driving disc **17** is shown in FIGURES 5 and 6, while the engaged position is shown in FIGURES 2 and 4. To insure that take-up roller **13** will not rotate when the driving disc is disengaged and powered roller **12** is rotated for the purpose of rolling up the after described background screen **23**, a friction brake element **24** is carried by engagement lever **18**. When engagement lever **18** is pulled downwardly to disengage driving disc **17**, the brake element **24** will engage the rubber covered portion **21** of take-up roller **13** and will prevent it from rotating under the force of the pull exerted on the after described screen **23** which is being taken up on take-up roller **12**. This feature is best seen in FIGURES 5 and 6.

To provide the photographic or scenic background there is connected to the two take-up rollers **12** and **13**, a background screen **23**. The screen **23** may be of canvas or paper according to the particular requirements of the user. Furthermore, the screen may have thereon a plurality of specific scenes **40** or colored panels for use in effecting a number of different backgrounds for either photographic or theatrical purposes, or both. The length of the screen may be varied, depending on the individual need and the number of different backgrounds desired. In any event, the screen is firmly connected at its ends to the two take-up rollers **12** and **13**. Thus, it is possible to roll up substantially the entire length of the screen on one of the rollers as, for example, the take-up roller **12**, except, of course, for the short span of screen extending onto take-up roller **13**. Obviously, the reverse is also true with regard to rolling up the screen on take-up roller **13**.

The screen supports in its bight or loop an idler roller **25** which acts as a weight to carry the screen **23** downwardly to floor level when the screen is unwound from the take-up rollers for providing a photographic background. The idler roller **25** is loosely supported in the bight of the screen **23** and is, therefore, free to rotate about its own axis as the screen is unrolled or rolled up. As seen in FIGURES 4 and 5, the screen **23** when unrolled, drops to the level of the floor **26** and presents a back portion **27** and a frontal portion **28**, the latter being the photographic background or scene which it is desired to use.

In use:

The manner in which the photographic background roller assembly **10** of the present invention is used will be described, by way of example, as it may be used when providing a color background for taking pictures in a photographic studio. As was previously stated, the roller assembly **10** is designed to be compact and unobtrusive when not in use. Thus, as shown in FIGURE 6, the assembly hangs suspended just beneath the ceiling **11** when not in use. Assuming that it is desired to effect a particular background, and further assuming that substantially all of the screen **23** as wound in take-up roller **12**, one first pulls down on pull rope **22** and maintains the pull thereon to insure that brake element **24** engages take-up roller **13** to prevent its being rotated. This also disconnects driving disc **17** from both take-up rollers. Motor **15** is then turned on to rotate in the desired direction, in this case to cause take-up roller **12** to rotate in a clockwise direction. As the take-up roller **12** rotates, the screen **23** will unwind therefrom. As the screen unwinds, a loop therein will be carried downwardly to the floor **26** by the weight of idler roller **25** which is supported in the loop. After a suitable number of unwinding revolutions of take-up roller **12**, the screen will reach the floor as shown in FIGURES 4 and 5. The screen will then present the rear and frontal portions **27** and **28**, respectively. It might be that the desired background is that on the frontal portion **28** of the screen at that moment. If such is the case, drive motor **15** is stopped and pull rope **22** released. If, on the other hand, the particular background desired still needs to be unwound from the take-up roller **12**, it is only necessary to release pull rope **22** as soon as the loop of screen **23** has reached the floor. This will result in driving disc **17** engaging both take-up rollers and drive from take-up roller **12** will be transmitted to take-up roller **13**. Both take-up rollers will continue to rotate clockwise with the screen unwinding from roller **12**, traversing the path shown by the arrows in FIGURE 4, and being wound up on roller **13**. As soon as the desired background is presented on the frontal portion **28**, as illustrated in FIGURES 4 and 5, the drive motor **15** is stopped. If other backgrounds are thereafter desired, it is only necessary to run motor **15** in the appropriate direction until the required frontal portion **28** of the screen is presented to view. If then it is desired to roll up the screen entirely as shown in FIGURE 6, one pulls down on pull rope **22** and turns motor **16** on to cause take-up roller **12** to rotate counterclockwise. This, in turn, will cause the frontal and rear portions of the screen to wind on take-up roller **12**, idler **25** being carried upwardly therewith as shown.

The roller assembly **10** of the present invention may also be utilized to provide so called "horizonless backgrounds." To carry this out, use is made of the construction shown in FIGURES 7 through 9. The roller assembly **10** is in all respects identical with that previously described. In addition, two "horizonless background" sheets **29** and **30** are connected to the screen **23** near its ends. The "horizonless" sheet **29** is connected to screen **23** at a point close to the end which is connected to take-up roller **12**, while horizonless sheet **30** is connected to screen **23** close to the end which is connected to take-up roller **13**. The manner of affixing the sheets **29** and **30** to screen **23** may, obviously, vary depending on the material used, etc. One mode as, for example, that shown in FIGURE 7 may involve stitching the sheets to the screen along a longitudinal seam **31**.

In use, the "horizonless background" sheets **29** and **30** provide for two different backgrounds. If it is desired to utilize the background sheet **29**, for example, it is required that the take-up rollers **12** and **13** be rotated in the manner previously described until substantially all of the screen **23** winds off from roller **12** and onto take-up roller **13**. At about the time that the remaining portion of screen **23** which is left on the unwinding roller **12** has a length slightly in excess of sheet **29**, the sheet **29** which is also wound on roller **12** in alternate layers, will start

to unwind, dropping towards floor level 26. After sheet 29 is fully unwound, it will hang suspended from the assembly as shown in FIGURE 9. The free end 32 of the sheet may then be pulled forwardly a distance so as to eliminate the wrinkles in the sheet at floor level, thus giving a "horizonless background" for the photographer, etc. When it is desired to wind up the sheet 29, the take-up rollers 12 and 13 are rotated in a counterclockwise direction until the sheet 29 is wound on take-up roller 12. The operations involved in unwinding and winding sheet 30 (FIG. 8) should be obvious from the foregoing.

The foregoing thus described a photographic background roller assembly which provides that a number of different backgrounds may be achieved merely by rotating the take-up rollers in the assembly according to need. Furthermore, the same assembly may be used for providing "horizonless backgrounds."

While there is above disclosed but some embodiments of the photographic background roller assembly, it is possible to produce still other embodiments without departing from the inventive concept herein disclosed.

What is claimed is:

1. A photographic background roller assembly for displaying photographic backgrounds, said roller assembly comprising a pair of parallel spaced rollers, means connected with one of said rollers for driving said one roller, a driving disc adapted to engage said rollers for transmitting rotation of said one roller to the other roller, means connected to said driving disc for moving it into and out of engagement with said rollers, an elongated screen connected at one end to the circumferential surface of one of said rollers and connected at its other end to the circumferential surface of the other of said rollers whereby said screen may be wound from one to the other of said rollers and vice versa when said rollers are rotated, and roller means loosely supported on said screen between said rollers and adapted to establish a loop in said screen in a direction away from said rollers when said driving disc is disengaged from said rollers and said one roller is rotated.

2. A photographic background roller assembly in accordance with claim 1 wherein the surface of said screen bears indicia constituting a background scene.

3. A photographic background roller assembly in accordance with claim 2 further comprising at least one additional screen sheet connected at one side to said screen adjacent one end thereof, said screen sheet being adapted to be wound on the one of said pair of rollers to which said end of said screen is connected, said screen sheet being adapted to hang suspended from said screen when said screen and said screen sheet are unwound from said one of said pair of rollers.

4. A photographic background roller assembly for displaying photographic backgrounds, said roller assembly comprising a pair of parallel spaced rollers, means connected with one of said rollers for driving said one roller, a lever pivoted at one end and located adjacent said rollers, resilient means connected to the other end of said lever for urging said lever in a direction away from said rollers, a driving disc rotatably carried by said lever and engaging said rollers for transmitting rotation of said one roller to the other roller, means connected to said lever for moving it in a direction towards said rollers for disengaging said drive disc from said rollers, an elongated screen connected at one end to the circumferential surface of one of said rollers and connected at its other end to the circumferential surface of the other of said rollers whereby said screen may be wound from one to the other of said rollers and vice versa when said rollers are rotated, and roller means loosely supported on said screen between said rollers and adapted to establish a loop in said screen in a direction away from said rollers when said driving disc is disengaged from said rollers and said one roller is rotated.

5. A photographic background roller assembly in accordnace with claim 4 comprising a friction brake element carried by said lever and adapted to engage said other one of said pair of rollers when said lever is moved towards said pair of rollers for preventing the rotation of said other one of said pair of rollers.

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