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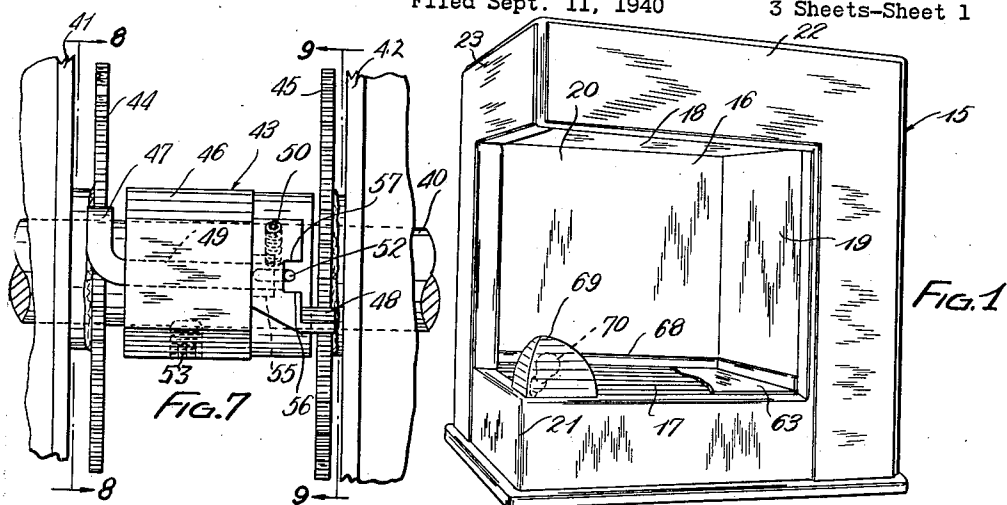
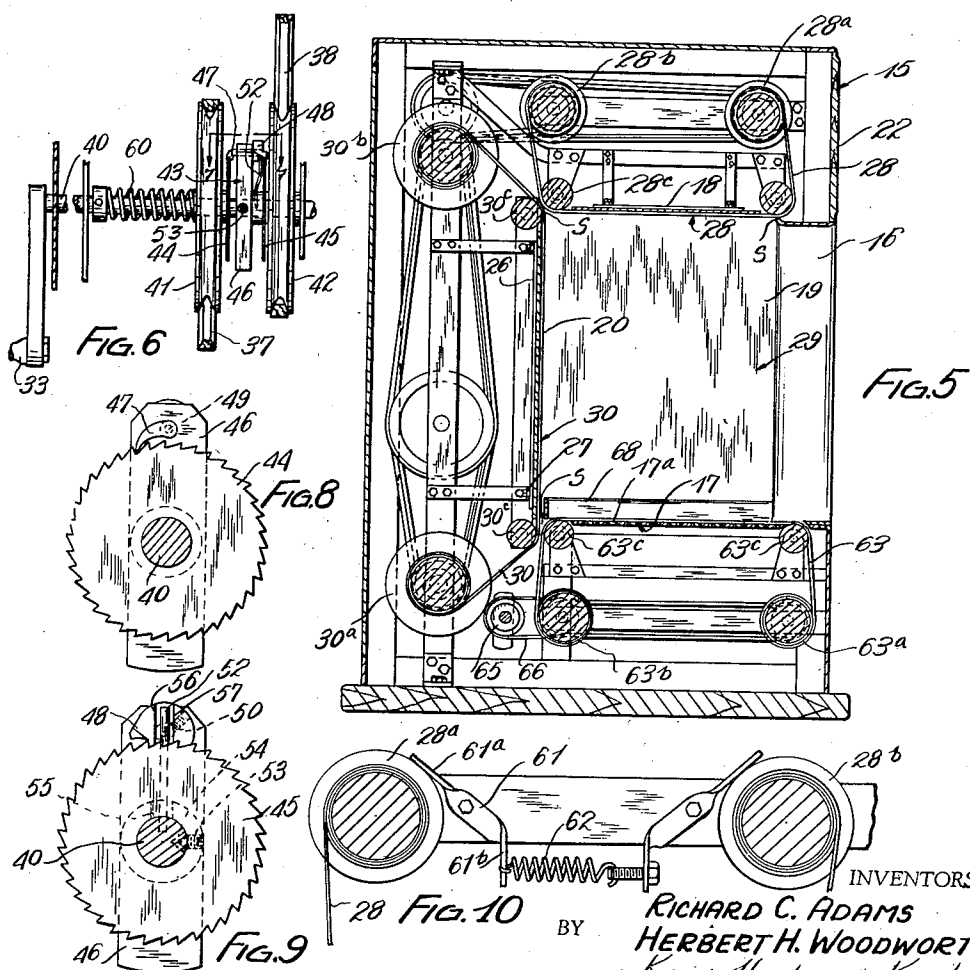
R. C. ADAMS ET AL

2,317,336

DISPLAY APPARATUS

Filed Sept. 11, 1940

3 Sheets-Sheet 1



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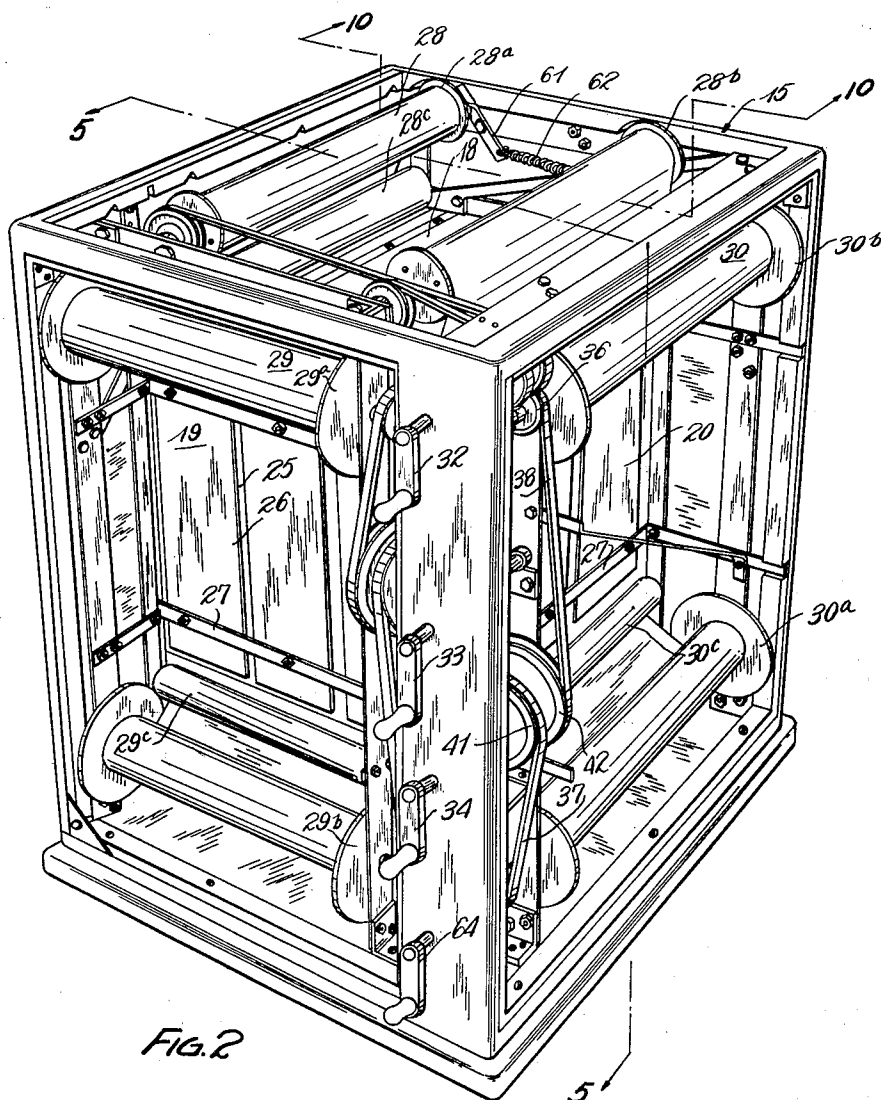
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

FIG. 3

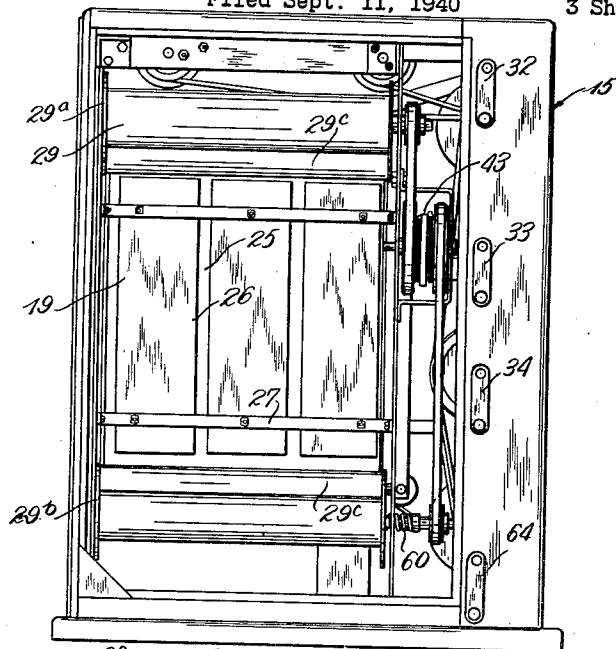
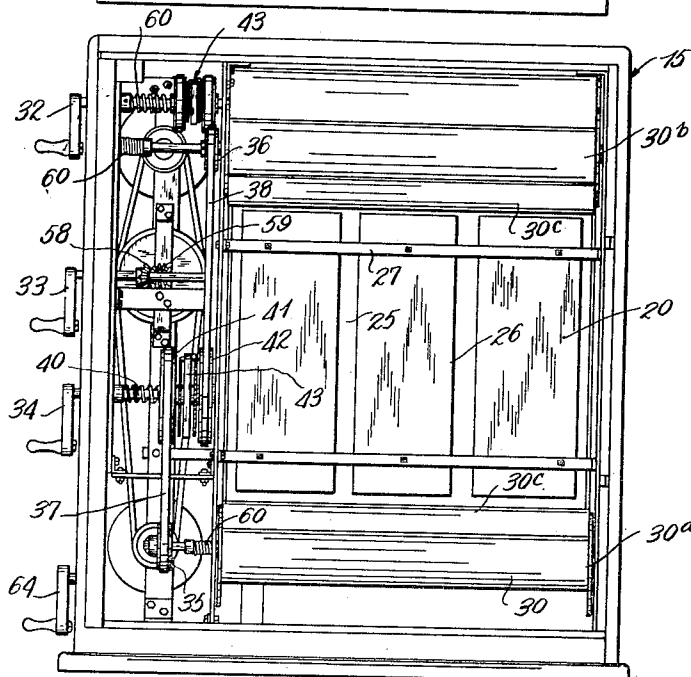


FIG. 4

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UNITED STATES PATENT OFFICE

2,317,336

DISPLAY APPARATUS

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10 Claims. (Cl. 35—53)

This invention relates to display apparatus and more particularly to apparatus of this character by which paints or other wall coatings or coverings can be readily displayed in a way such that an observer can see how these materials, or different combinations thereof, would look when applied to the walls or other surfaces upon which they are intended to be used.

An object of our invention is to provide a novel display apparatus in which sheet material having different paints, coatings or wall coverings thereon can be selectively or changeably displayed in an arrangement representing the structure to which such materials are intended to be applied, whereby the effects or decorative values of the different materials and colors can be more satisfactorily observed and compared.

Another object of our invention is to provide improved display apparatus of this character in which strips of sheet material having different wall finishes or coverings on different portions thereof, are arranged to represent a portion of a room or other structure on which such finishes might be used and are movably supported whereby the different finishes can be exhibited to an observer substantially as they would appear if applied to such room or structure.

Still another object of our invention is to provide an improved display apparatus having a recess therein representing a room or a portion of a room and having sheet material changeably supported to form portions of the intersecting walls and ceiling of such room so that samples of different wall finishes or coverings contained on the sheet material can be exhibited to an observer looking into such recess.

A further object of our invention is to provide display apparatus of the character mentioned having a novel arrangement of winding rollers and driving means for shifting the sheet material as desired to display the different wall finishes or coverings.

Our invention may be further briefly summarized as consisting in certain novel combinations and arrangements of parts hereinafter described and particularly set out in the appended claims.

In the accompanying sheets of drawings,

Fig. 1 is a perspective front view of display apparatus embodying our invention;

Fig. 2 is another perspective view of the apparatus as seen from the rear thereof;

Figs. 3 and 4 are side elevations of the apparatus;

Fig. 5 is a sectional view taken through the apparatus as indicated by line 5—5 of Fig. 2;

Fig. 6 is a typical sectional view showing a pair of pulleys for driving the winding rollers upon which the movable sheet material is carried and a clutch interposed between the pulleys for selectively connecting them with a drive shaft;

Fig. 7 is a sectional plan view showing such pulleys and clutch on a larger scale and taken as indicated by line 7—7 of Fig. 6;

Fig. 8 is a partial sectional view showing the ratchet wheel and pawl associated with one of the driving pulleys and taken as indicated by line 8—8 of Fig. 7;

Fig. 9 is a similar sectional view taken on line 9—9 of Fig. 7 and showing the ratchet wheel and pawl for the other driving pulley; and

Fig. 10 is a partial sectional view taken substantially as indicated by line 10—10 of Fig. 2 and showing braking means applied to the winding rollers.

The drawings show a display apparatus representing one embodiment of our invention and this embodiment will now be described in detail. It will be understood, of course, that the invention may be embodied in various other forms of similar apparatus coming within the scope of the appended claims.

As shown in Fig. 1, our display apparatus may be in the form of a box or cabinet 15 having a recess 16 extending thereinto from the front and representing a room or a portion of a building. In this instance, the recess represents or has the appearance of a corner portion of a room as it would appear in perspective if viewed by an observer located in front of the apparatus. An arrangement of structure to be described hereinafter forms the floor and ceiling 17 and 18 of the recess or room 16 and the intersecting upright walls 19 and 20. As will be seen from Fig. 1, the recess 16 extends across the corner 21 of the cabinet 15 and opens through the two adjacent sides 22 and 23 which intersect at the corner 21. In the use of our display apparatus, as will be explained more in detail hereinafter, sheet material having different wall finishes or coverings thereon is changeably supported in the relative positions of the walls 18, 19 and 20, so that an observer looking into the room or recess 16 from the front of the apparatus can see how the wall finishes or coverings would appear if applied to the walls of a room or other structure.

The walls 18, 19 and 20 may be built or mounted in the cabinet 15 in the relative arrangement above explained, so as to form corresponding dis-

play areas or spaces in front of which the sheet material having the different wall finishes or coverings thereon can be placed or moved to be viewed by an observer looking into the room or recess 16 from the front of the apparatus. The walls 18, 19 and 20 may be of any appropriate construction and as here shown may each comprise a panel 25 formed of sheet metal or the like and reinforced by boards or plates 26 mounted at the back thereof. These walls may be supported in the cabinet 15 by any suitable means such as the metal bars or brackets 27 shown in this instance. In mounting the walls 19 and 20 in the cabinet, spaces or slots S are left at the top and bottom to permit sheet material to be moved in front of these walls as will be presently explained. Similar slots or openings are provided at the ends of the upper wall or ceiling 18 as shown in Fig. 5.

The sheet material having the desired wall finishes or coverings thereon may be in the form of strips 28, 29 and 30 mounted on pairs of rollers and arranged to be moved in front of the walls 18, 19 and 20 which define or form the recess or room 16. The strips 28, 29 and 30 may be made so that each strip comprises a series of contiguous sections corresponding in size and shape with one of the walls of the recess 16 and each such section having thereon a different wall finish or covering. As will be readily seen from Figs. 1, 2 and 5 of the drawings, the strip 28 forms the inner face of the upper wall or ceiling 18 and has its ends mounted on or connected with a pair of spaced winding rollers 28a and 28b. A pair of guide rollers 28c are arranged adjacent the main rollers 28a and 28b for guiding or directing the strip through the slots or openings S at opposite ends of the wall 18. The strip 29 is similarly mounted on a pair of spaced winding rollers 29a and 29b and is guided or directed in front of the wall 19 by a similar pair of guide rollers 29c. Likewise, the strip 30 is mounted on a pair of spaced winding rollers 30a and 30b and is guided so as to pass inwardly of the wall 20 by means of a pair of guide rollers 30c. With the arrangement of panels and guide rollers shown in the drawings and above explained it will be seen that edge or marginal portions of the strips extend in contiguous relation and that the strips have a relative angular arrangement such that they represent a corner or trihedral angle corresponding with that formed by the intersecting walls and ceiling of a room.

When different wall finishes or coverings are to be displayed in the recess or room 16, the strips 28, 29 and 30 are wound from one roller to the other causing them to move in front of the walls or display areas 18, 19 and 20, until the desired sections arrive at positions substantially in register with these walls or display areas. For actuating the sets of rollers for this purpose, we provide the cranks or handles 32, 33 and 34 and an arrangement of belts and clutches connecting the handles with the rollers. These clutches are needed in the driving means for the rollers to compensate for the different speeds of rotation of the rollers which vary as the effective diameters become unequal due to more material being wound on one roller than on the other. The belts and clutches are so arranged that rotation of a desired handle will move the corresponding strip in one direction and reverse rotation of such handle will move the strip in the opposite direction. Since the arrangement of pulleys and clutches is the same for each pair of winding rollers,

we will describe only the pulleys and clutch for actuating the rollers 30a and 30b of the strip 30.

As best shown in Figs. 2 and 4, the rollers 30a and 30b have pulleys 35 and 36 connected therewith, over which belts 37 and 38 pass respectively. The handle 34 serves the strip 30 and actuates a rotary drive shaft 40. A pair of drive pulleys 41 and 42 are loose on the shaft 40 but are adapted to be connected therewith by a clutch device 43 which will be presently described. The belt 37 of the roller 30a passes over the drive pulley 41 and the belt 38 of the roller 30b passes over the drive pulley 42.

The clutch device 43 is best illustrated in Figs. 6 and 7 and comprises ratchet wheels 44 and 45 connected respectively with the pulleys 41 and 42 by welding or other appropriate connecting means, and a crank or lever 46 connected with the shaft 40 and carrying a pair of pawls 47 and 48 which cooperate respectively with the ratchet wheels 44 and 45. The pawls 47 and 48 are mounted at the outer end of the arm or crank 46 by means of a rockshaft 49 extending there-through. The pawl 47 is mounted or formed on one end of the rockshaft so as to lie above the ratchet wheel 44 and extends circumferentially thereof in a direction for cooperation with the teeth of this ratchet wheel. The pawl 48 is formed or mounted on the opposite end of the rockshaft 49 and extends in the opposite direction in a position for cooperation with the teeth of the ratchet wheel 45. In this instance the pawl 48 is formed as a separate part and is connected with the rockshaft 49 by means of the set screw 50. The arrangement of the pawls 47 and 48 on the rockshaft 49 is such that when the pawl 47 is in a position for locking engagement with the teeth of the ratchet wheel 44, the pawl 48 will be lifted with respect to the ratchet wheel 45 so that the teeth of the latter can pass freely thereunder and, vice versa, when the pawl 48 engages the teeth of the wheel 45 the pawl 47 will be lifted to clear the teeth of the ratchet wheel 44.

The inner or intermediate section of the arm 46 may be pinned or otherwise connected with the drive shaft 40 so that when this shaft is rotated one or the other of the pawls 47 and 48 will engage and drive one of the ratchet wheels, depending upon the direction in which the shaft 40 is rotated. When this shaft is rotated in a counterclockwise direction by the handle 34 the pawl 47 will drive the ratchet wheel 44 and the pulley 41 connected therewith and motion will be transmitted by the belt 37 to the roller 30a to cause the strip 30 to be wound on this roller and withdrawn or unwound from the roller 30b. Rotation of the shaft 40 in the opposite direction will cause the pawl 48 to drive the ratchet wheel 45 and the pulley 42, causing motion to be transmitted to the roller 30b by the belt 38 to cause the strip 30 to be wound on the roller 30b and withdrawn or unwound from the roller 30a. While the strip is being wound on the roller 30a it will rotate the roller 30b at varying speeds as it is withdrawn therefrom and this rotation of the roller 30b will drive the pulley 42 and the ratchet wheel 45 through the belt 38. However, at this time the pawl 48 is elevated above the ratchet wheel 45 and the pulley 42 merely turns idly on the drive shaft 40. Likewise when the roller 30a is driven by the strip the pulley 41 and the ratchet wheel 44 turn idly on the shaft 40.

It is desirable to have the shifting of the pawls 47 and 48 take place automatically so that the

strip 30 can be moved in either direction by simply rotating the handle 34 in the corresponding direction. To this end, we connect the arm 46 with the drive shaft 40 by means of a lost-motion connection and provide a spring finger 52 which acts on the pawl 48 to shift or set the pawls during the initial rotary movement of the drive shaft 40. The lost-motion connection between the arm 46 and the shaft 40 is obtained by connecting the arm with the shaft by means of a pin or set screw 53 and a recess 54 in the shaft which is somewhat larger than the pin or set screw. The spring finger 52 has its inner end connected with the shaft 40 and extends outwardly therefrom through a recess 55 in the hub of the arm 46 and its outer end lies between a pair of shoulders 56 and 57 formed on the pawl 42. During the initial rotary movement of the shaft 40 in one direction, the spring finger 52 will be swung to engage one or the other of the shoulders 56 and 57 to rock the shaft 49 and thereby tilt or shift the pawls 47 and 48 to the desired setting. This initial rotary movement of the shaft 40 causes the lost motion to be taken up in the connection between the arm 46 and the shaft, and the succeeding rotation of the shaft causes the arm 46 to be rotated to drive one of the ratchet wheels and the pulley connected therewith as above explained.

The driving means for the winding rollers 28a and 28b and for the winding rollers 29a and 29b is the same as that above described for the rollers 30a and 30b, with the exception that a pair of beveled gears 58 and 59 are used in the drive for the rollers 28a and 29b so that the handle 33 may conveniently extend in the same direction as the handles 32 and 34.

It is desirable to maintain the strips 28, 29 and 30 in a taut condition so that the wall surfaces represented thereby in the room or recess 16 will have a smooth and flat appearance and for this purpose appropriate braking means is arranged to act on the winding rollers. Braking means for this purpose is shown in Figs. 2 and 10 as applied to the rollers 28a and 28b and it will be understood that similar braking means may be applied to the other winding rollers. Such braking means comprises a pivoted metal member 61 having a shoe portion 61a engageable with the roller and an arm portion 61b with which a tension spring 62 is connected so as to press the shoe portion against the roller. We also provide compression springs 60 at appropriate points on the various shafts as shown in the drawings. These compression springs likewise serve as a braking means for the winding rollers for maintaining the strips taut and preventing backlash. These springs also act to prevent undesirable lateral shifting of the rollers and pulleys such as would result in misalignment thereof.

The bottom wall or floor 17 of the room or recess 16 may be of any suitable construction and as here shown is made of wood strips 17a arranged to represent floor boards or planking. If desired, pieces of carpeting or other floor covering of different colors or patterns may be laid on the floor 17 in succession as the strips 28, 29 and 30 are shifted to display the different wall finishes or coverings. We prefer, however, to provide the bottom wall or floor 17 with a covering in the form of a shiftable strip 63, as shown in Figs. 1 and 5, which may be made of paper or other sheet material and may have contiguous sections representing carpeting or the like of different colors or patterns. The strip 63 has its ends connected with winding rollers 63a and

63b and extends over a pair of guide rollers 63c. The actuating means for shifting the strip 63 in opposite directions is similar to that above described for the other winding rollers and includes a handle 64 and a clutch device 65 connected with the winding rollers by belting 66.

An L-shaped member or frame 68 formed of appropriate molding is placed in the room or recess 16 adjacent the floor 17 to represent a mop board. Likewise, we may place one or more articles of furniture on the floor 17 during the use of the apparatus so that harmony can be obtained between the furniture and the wall finishes or coverings being selected. Such articles of furniture may be of miniature size or of a scale proportionate with the size or dimensions of the recess or room 16.

We also provide artificial illumination in the room or recess 16 by mounting a reflector 69 adjacent the outer corner of the floor 17 with an incandescent lamp 70 therein.

From the foregoing description and accompanying drawings it will now be readily understood that we have provided an improved display apparatus with which wall finishes or coverings can be readily displayed in a manner such that the appearance of such finishes or coverings can be observed or judged just as if they were being viewed on the walls or surfaces to which they are to be ultimately applied. It will also be seen that with our display apparatus such wall finishes or coverings can be rapidly changed so that desired finishes or combinations of finishes can be exhibited. It will likewise be understood that our apparatus can be used in displaying finishes or surfaces produced by a variety of different substances; in other words, our apparatus can be used to display paints and various other coating compositions, as well as wall papers, fabrics, or other coverings.

While we have illustrated and described our display apparatus in a more or less detailed manner, it will be understood, of course, that we do not wish to be limited to the particular construction and arrangement of parts herein disclosed but regard our invention as including such changes and modifications as do not involve a departure from the spirit of the invention and the scope of the appended claims.

Having thus described our invention, we claim:

1. In a display device of the character described, a plurality of strips of sheet material each having sections representing different wall finishes, means supporting said strips with marginal portions thereof extending in contiguous relation and with the strips in a relative angular arrangement such that they represent a corner corresponding with that formed by the intersecting walls and ceiling of a room, and means for moving said strips to exhibit the wall finishes to be displayed thereby.

2. In a display device of the character described, a plurality of strips of sheet material each having sections representing different wall finishes, means supporting said strips with marginal portions thereof extending in contiguous relation and with the strips in a relative angular arrangement such that they represent a corner corresponding with that formed by the intersecting walls and ceiling of a room, including pairs of rollers to which the ends of the respective strips are connected, and means for actuating said rollers for moving the strips to exhibit the wall finishes to be displayed thereby.

3. A display device of the character described,

comprising a structure having portions defining a recess resembling the corner of a room, strips of sheet material extending across said portions and having sections representing different wall finishes, said strips having a relative angular arrangement corresponding with said corner and having marginal portions thereof extending in contiguous relation, and means for moving said strips to cause the different wall finishes to be displayed.

4. In display apparatus of the character described, a structure representing a portion of a building and including a strip of sheet material having different wall finishes on different sections thereof, a pair of rollers to which the ends of said strip are connected, a rotary drive shaft, and clutch means adapted to connect one of said rollers with the drive shaft upon rotation of the latter in one direction and to connect the other roller with the drive shaft upon rotation in the other direction, said clutch means comprising a pair of ratchet wheels journaled on said drive shaft and connected respectively with said rollers, an arm located on said drive shaft between said ratchet wheels and connected with the drive shaft by a lost motion connection, a rock shaft mounted on said arm and carrying pawls arranged to cooperate respectively with said ratchet wheels, a spring finger mounted on the drive shaft and projecting outwardly therefrom so as to engage and rock said rock shaft to set said pawls in accordance with the direction of rotation imparted to the drive shaft.

5. In display apparatus of the character described, a structure representing a portion of a building and including a strip of sheet material having different wall finishes on different sections thereof, a pair of rollers to which the ends of said strip are connected, a rotary drive shaft, a pair of pulleys loose on said shaft and connected respectively with said rollers, and ratchet means adapted to connect one of said pulleys with said shaft upon rotation of the latter in one direction and to connect the shaft with the other pulley upon rotation in the opposite direction.

6. In display apparatus of the character described, a structure having a display area thereon, winding rollers supported at opposite sides of said area, a strip of sheet material extending across said area from one roller to the other and having a plurality of sections representing different wall finishes or coverings to be displayed, a rotary drive shaft having an arm thereon, pulleys rotatable on said shaft and having ratchet wheels connected therewith, belts connecting said pulleys with said rollers, and pawls carried by said arm and shiftable into and out of driving engagement with said ratchet wheels.

7. In display apparatus of the character described, a structure having a display area thereon, winding rollers supported at opposite sides of said area, a strip of sheet material extending across said area from one roller to the other and having a plurality of sections representing different wall finishes or coverings to be displayed, a rotary drive shaft having an arm thereon, pulleys rotatable on said shaft and having ratchet wheels connected therewith, belts connecting said

pulleys with said rollers, pawls carried by said arm and shiftable into and out of driving engagement with said ratchet wheels, and means for automatically shifting said pawls in accordance with the direction of rotation of said drive shaft.

8. A display device of the character described, comprising a cabinet having a recess extending laterally thereinto and opening through two adjacent sides thereof, a plurality of rollers in the cabinet, strips of sheet material extending over the rollers and having sections representing different wall finishes or coverings, said rollers being arranged to direct the strips across said recess at the inner edges thereof so that the strips have marginal portions in contiguous relation and extend in relative angular relation representing a corner formed by intersecting walls, and means for actuating certain of said rollers for shifting said strips to display different sections thereof in said recess.

9. A display device of the character described, comprising a cabinet having a reentrant recess extending laterally thereinto and opening through two adjacent sides thereof, said recess being defined by two intersecting upright walls extending into the cabinet and a pair of vertically spaced substantially horizontal walls extending into the cabinet, a pair of winding rollers for each of said upright walls and a pair of winding rollers for at least one of said horizontal walls, strips of sheet material extending between the rollers of the respective pairs and having sections representing different wall finishes or coverings, said strips extending in front of said upright walls and said one horizontal wall and being of substantially the same width as said walls and having marginal portions in contiguous relation, and means for driving at least one roller of each pair for shifting said strips to display different sections thereof in said recess.

10. A display device of the character described, comprising a cabinet having a reentrant recess extending laterally thereinto and opening through two adjacent sides thereof, said recess being defined by two intersecting upright walls extending into the cabinet and a pair of vertically spaced substantially horizontal walls extending into the cabinet, a pair of winding rollers for each of said upright walls and a pair of winding rollers for at least one of said horizontal walls, strips of sheet material extending between the rollers of the respective pairs and having sections representing different wall finishes or coverings, guide rollers adjacent two opposite edges of the upright walls and adjacent two opposite edges of said one horizontal wall, said strips extending over said guide rollers and in front of said upright walls and said one horizontal wall and being of substantially the same width as said walls and having marginal portions in contiguous relation, and means for driving at least one roller of each pair of winding rollers for shifting said strips to display different sections thereof in said recess.

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