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(54) **SIGN SUSPENSION SYSTEM**

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(52) **U.S. Cl.** **248/329**; 40/601; 248/332; 254/46

(58) **Field of Search** 248/329, 317, 248/320, 327, 328, 332, 338; 40/617, 601; 254/46

(56) **References Cited**

U.S. PATENT DOCUMENTS

423,873	A	3/1890	Kinney et al.	284/544
580,770	A	4/1897	Cashion	
662,089	A	11/1900	Pettey	
943,651	A	12/1909	Chandler et al.	
1,471,454	A	10/1923	Dolan et al.	
2,074,660	A	3/1937	Masoner	248/323
2,144,397	A	1/1939	Taddonio	40/130
3,154,870	A	11/1964	Hopp et al.	40/128
3,181,274	A	5/1965	Izenour	50/24
3,609,898	A	10/1971	Brown	40/125
3,938,269	A	2/1976	Catteau	40/30
3,944,186	A	3/1976	Einhorn et al.	254/191
3,984,931	A	10/1976	Belokin, Jr.	40/130
4,057,211	A	11/1977	Moore	248/332
4,187,996	A	2/1980	Ehrlich	242/107.4
4,434,570	A	3/1984	Roos	40/617
4,767,101	A	8/1988	Schweinberger	254/391
4,872,632	A	10/1989	Johnson	248/332
5,188,332	A	2/1993	Callas	248/544
5,381,991	A	1/1995	Stocker	248/206
5,409,191	A	4/1995	Wenmaekers	248/317
5,438,780	A	8/1995	Winner	40/514

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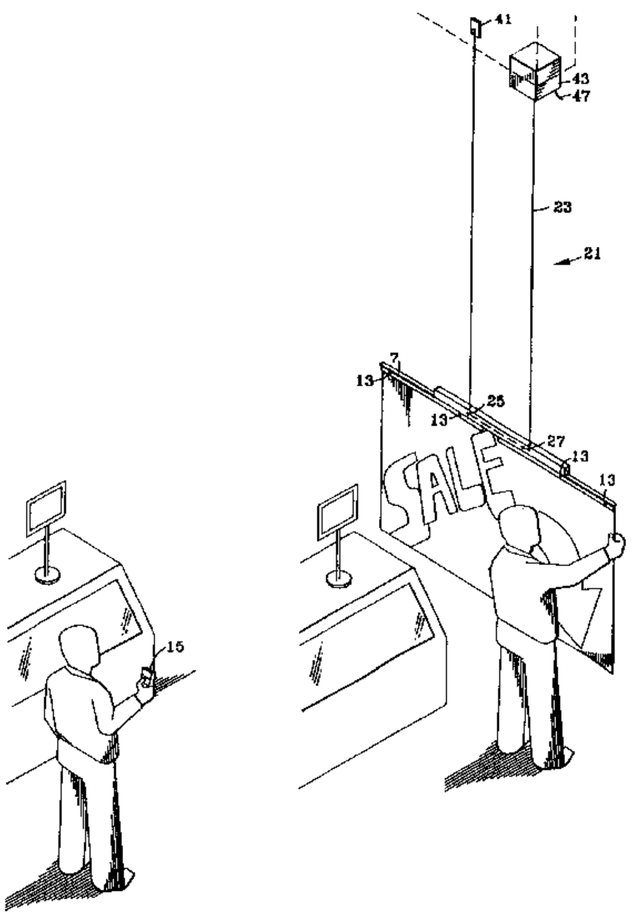
(57) **ABSTRACT**

A remote-controlled motor-driven drum is provided to wind and unwind a cord which holds a self-balancing sign carrier. The sign carrier, which has telescoping rails, is adjustable in width. Its center rail includes two sheaves to receive the cord and lead it from the drum back to an end secured to the ceiling. Thus, rotation of the drum serves to raise and lower the sign carrier and a sign carried by it. The sheaves on the carrier not only allow it to be raised and lowered, but also serve to make the unit self-balancing

The user attaches a sign to the carrier when it is in its lowered position and then raises the sign and carrier to the ceiling. The motor, which is reversible, is remotely controlled either by wires leading between the motor and a switch or by radio control (with a control similar to that used on a garage door).

9 Claims, 3 Drawing Sheets



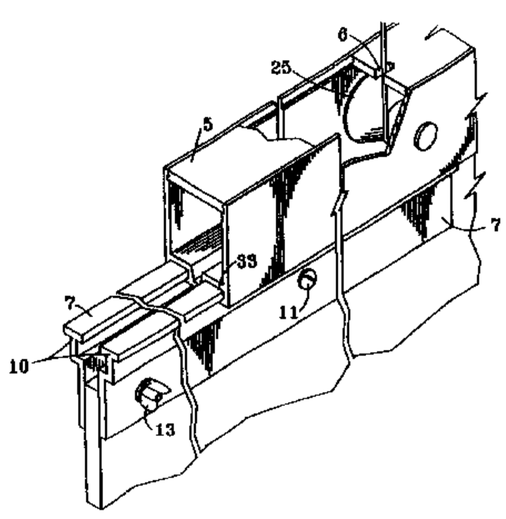


FIG. 1

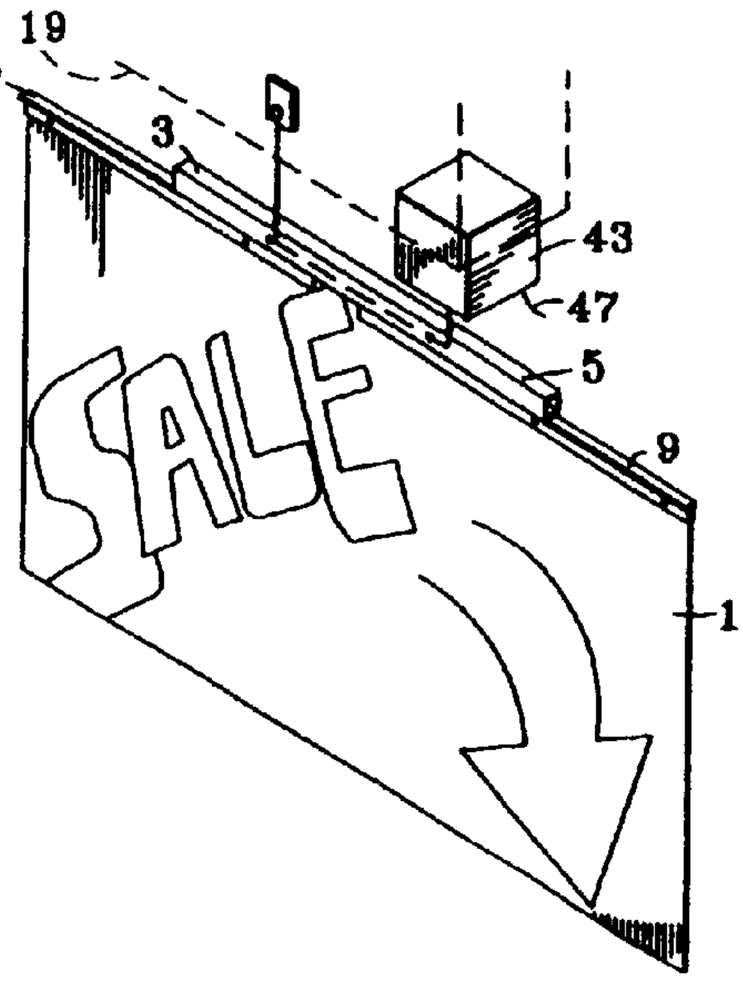
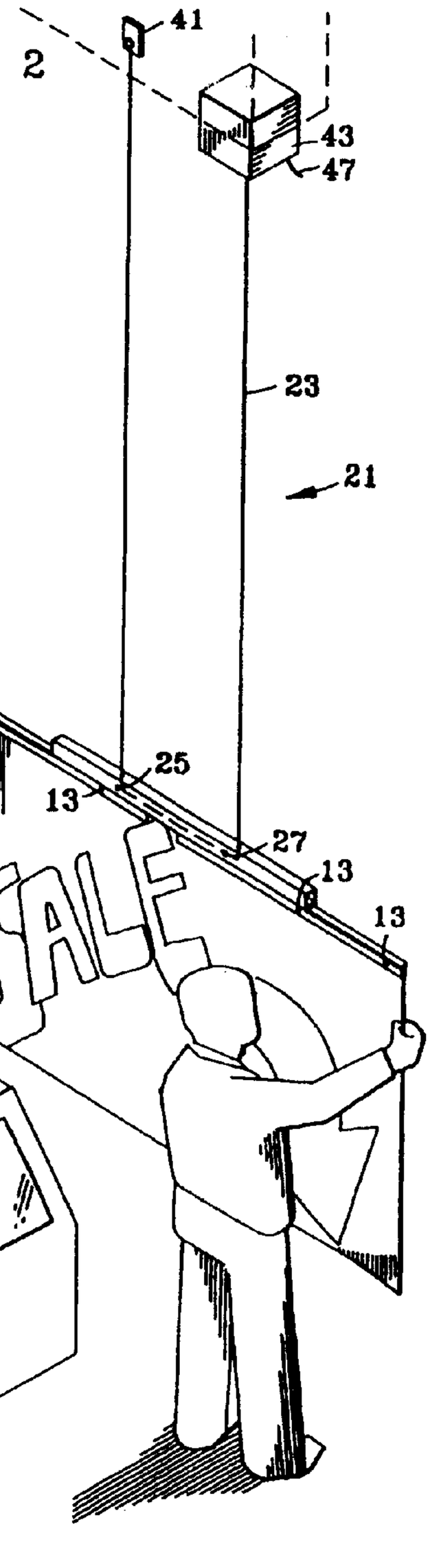
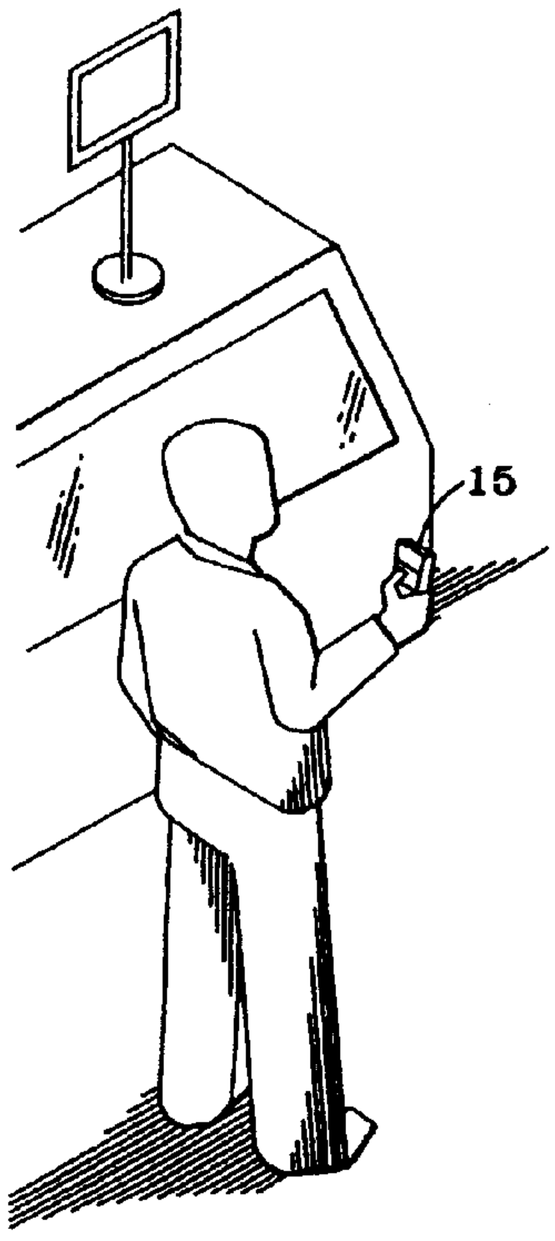


FIG. 2





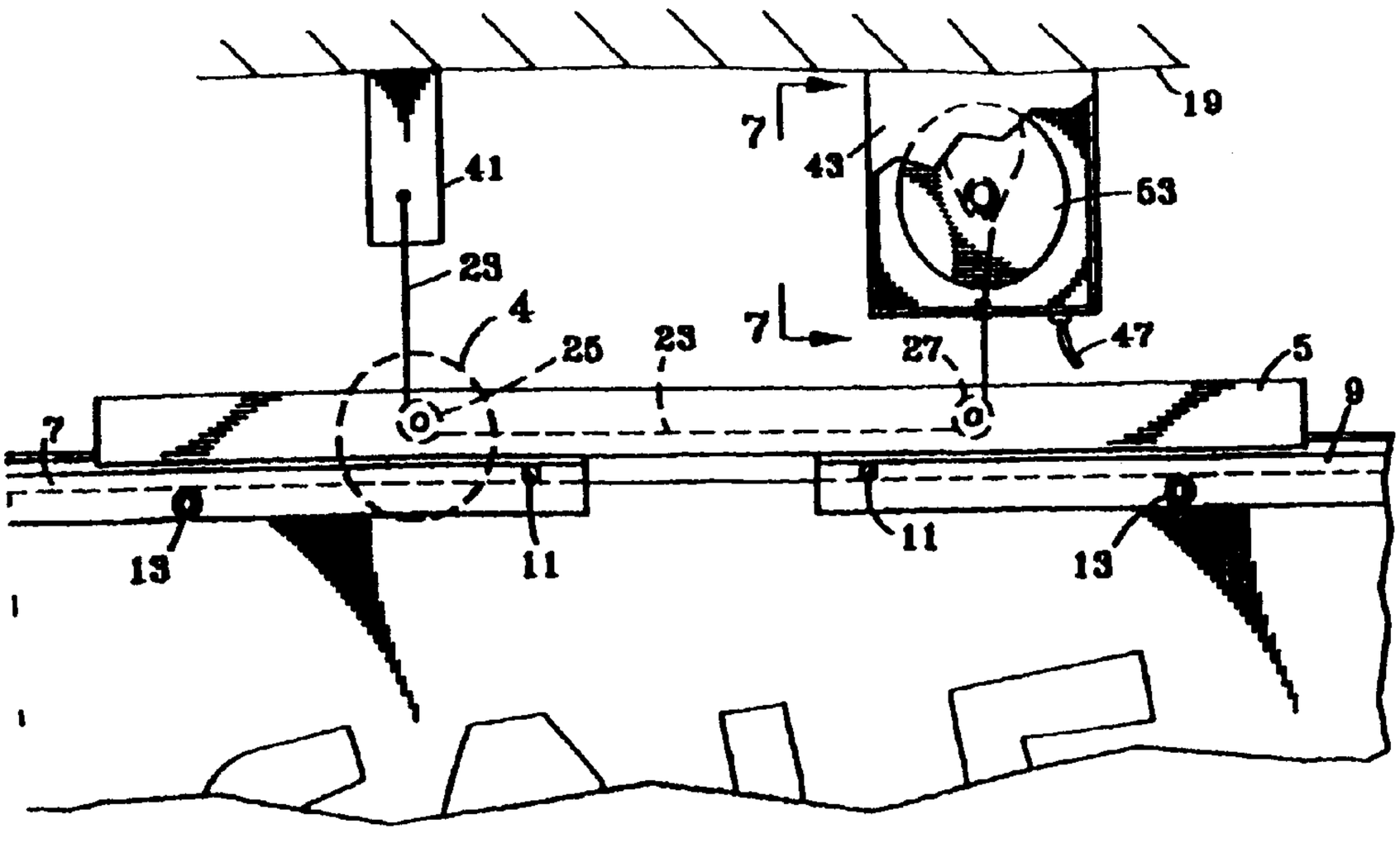


FIG. 3

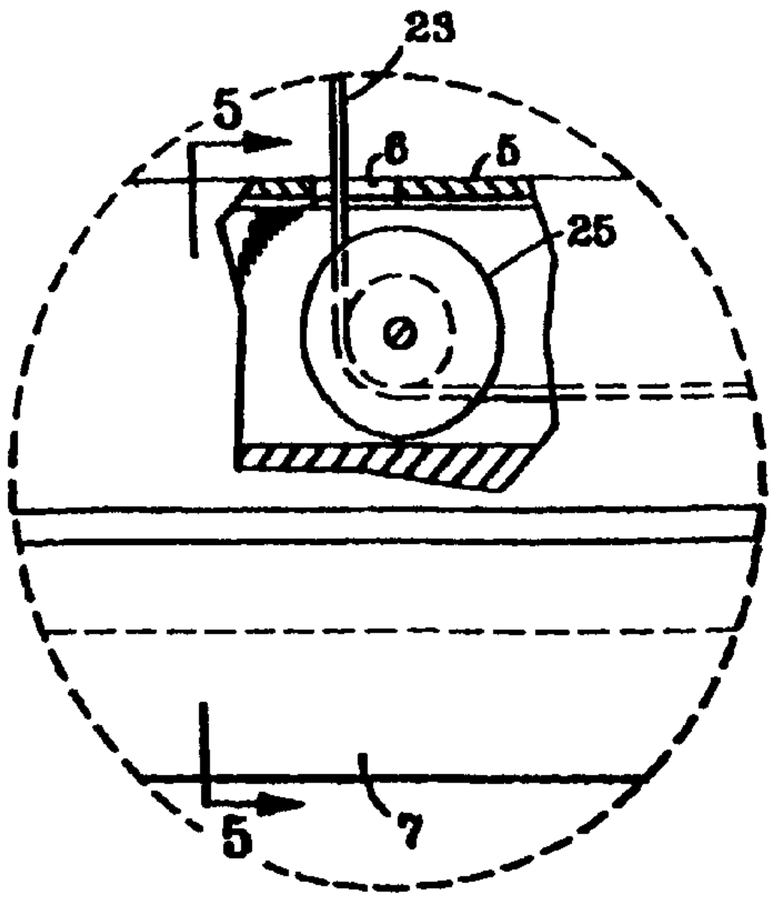


FIG. 4

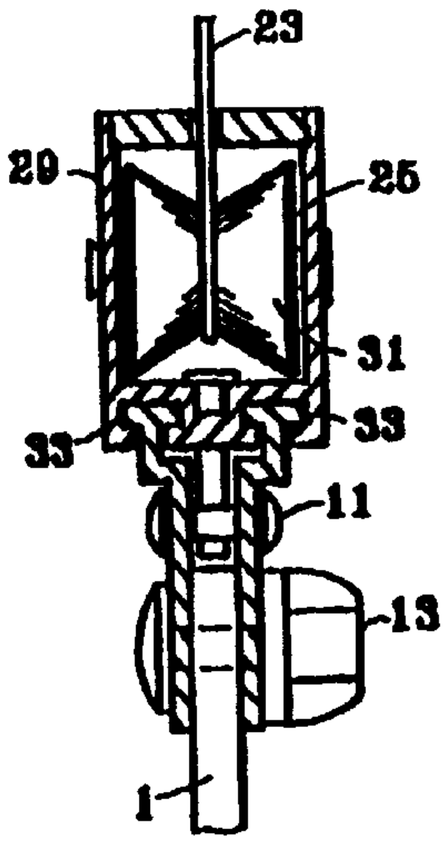


FIG. 5

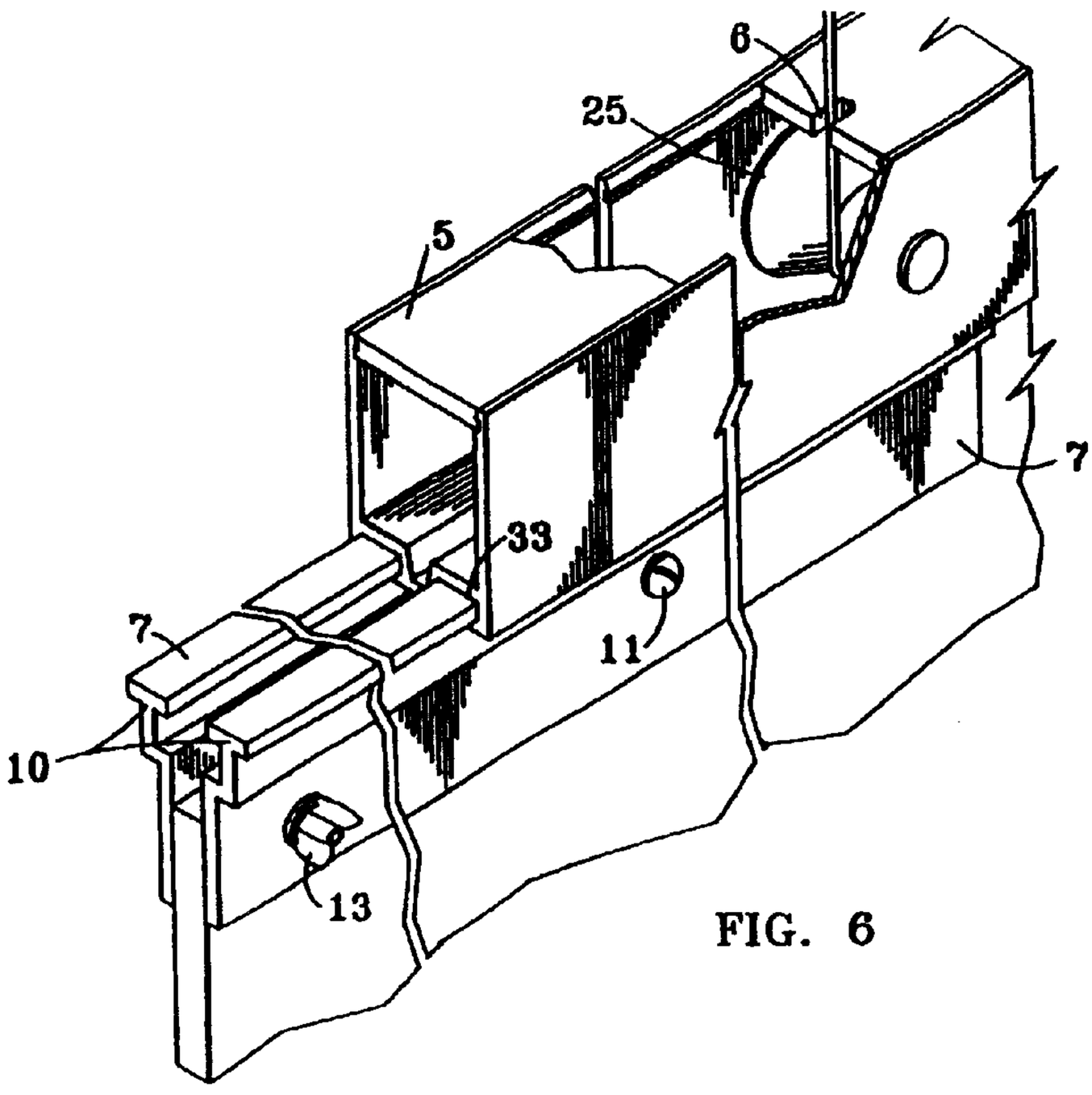


FIG. 6

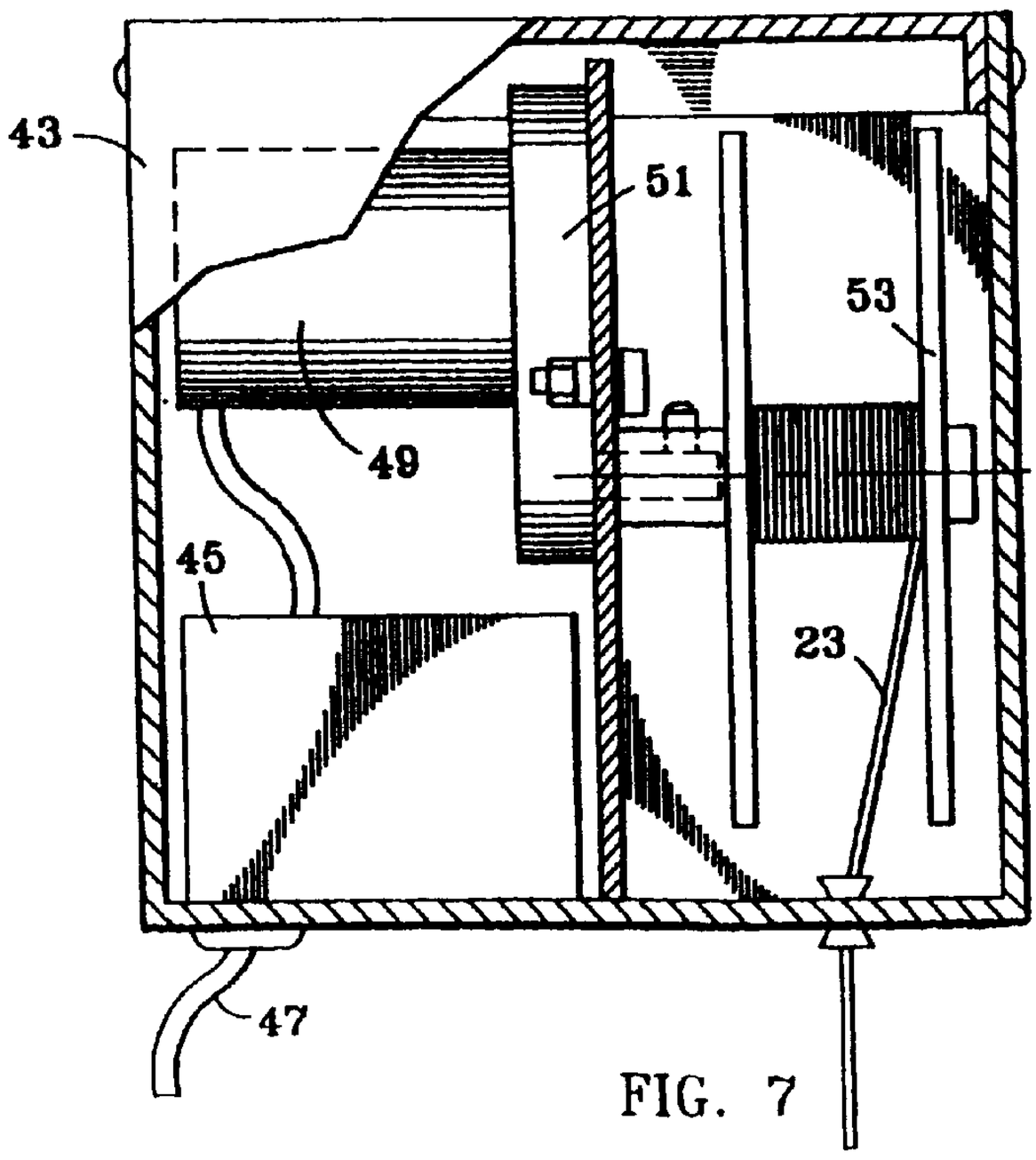


FIG. 7

SIGN SUSPENSION SYSTEM

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

FIELD OF THE INVENTION

This invention relates to a system for suspending signs from the ceiling and for readily raising them to, and lowering them from, the ceiling. The system is particularly useful in retail stores.

BACKGROUND OF THE INVENTION

There are many instances in which a retailer desires to hang a sign from the ceiling, or near to the ceiling, of his store. This has, in the past, been a problem in that it has often involved obtaining and using a ladder, or otherwise getting access to the ceiling area.

The present invention obviates that problem.

BRIEF SUMMARY OF THE INVENTION

This invention utilizes a remote-controlled motor-driven drum as a winder, to wind and unwind a cord which is secured between a ceiling fixture and the drum and is holding a sign carrier. The sign carrier, which has telescoping rails, is adjustable in width, so as to hold different size signs. Its center rail includes two equally-spaced sheaves to receive the cord and lead it from the motor-driven drum to an end secured to the ceiling. Thus, motion of the drum serves to raise and lower the sign carrier and a sign carried by it. The equal spacing between the sheaves on the carrier and between the ceiling fixture and the drum serve to make the unit self-balancing.

The user attaches a sign to the carrier when it is in its lowered position and then uses the motor to raise the sign and carrier to the ceiling. The motor, which is reversible, is remotely controlled either by wires leading between the motor and a switch or by radio control (with a control similar to that used on a garage door). Reversing the motor, of course, serves to lower the sign so that it can be replaced.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the sign suspension system with the sign carrier and its sign raised to the ceiling. The user, holding the remote control, is seen below the sign.

FIG. **2** is a similar perspective view, with the sign and carrier lowered so that the user can attach his desired sign to the carrier.

FIG. **3** is a front elevation showing details of the suspension system.

FIG. **4** is an enlarged view, partially broken away, of the portion of the sign carrier which carriers one of the sheaves. It is shown in a dotted circle in FIG. **3**. The other sheave is similar.

FIG. **5** is a section, taken on line **5**—**5** of FIG. **4**, showing details of the sheave, suspending cord, and its interconnection to the central sign-carrying rail.

FIG. **6** is a perspective view of a portion of the sign-carrying rails and of one of the associated sheaves:

FIG. **7** is a front elevation, partially broken away, of the motor-drum section of the system.

DETAILED DESCRIPTION OF THE INVENTION

Our self-balancing sign **1** is carried by supporting rails **3**. Rails **3** include a center main rail **5** and side rails **7** and **9**;

and the side rails have T-shaped members **10** which telescope into slots **33** in center rail **5** (FIG. **6**). The T-shaped members **10** are locked in position in rail **5** by holding bolts **11**. The sign itself is held in the rails by thumb screws **13**.

Center rail **5** carries sheaves **25** and **27**, spaced equidistantly from the ends of rail **5**. A supporting cord **23** passes through the sheaves, entering and leaving rail **5** through openings **6**. Sheaves **25** and **27** are mounted in frames **29** and have drums **31** to carry the cord.

One end of the cord **23** is secured to the ceiling at ceiling attachment member **41**, and the other end is wrapped around drum **53**. Preferably the spacing between sheaves **25** and **27** is the same as the spacing between of the member **41** and the drum **53**. This results in the sign balancing more readily.

Sign support system **21** includes rails **3**, cord **23**, sheaves **25** and **27**, ceiling attachment **41**, and motor-operated drum unit **43**. Drum unit **43** includes a control circuit **45**, with antenna **47**, a reversible motor **49**, and reduction gear **51** leading from motor **49** to drum **53**. Control circuit **45** is operated by remote control unit **15** (FIG. **1**) and antenna **47** in a manner similar to radio-controlled garage doors. Alternatively, control unit **15** can be wired directly to control circuit **45** or be operated by infra-red. The control unit has off, forward, and reverse positions.

To use our sign suspension system, motor **49** is actuated in a direction so as to lengthen the cord **23**, lowering the rails **3** from the ceiling. Main rail **5** and side rails **7** and **9** are then adjusted to provide a total length equal to the width of the sign **1** to be displayed **9** (with side rails **7** and **9** being extended equal amounts); and the holding bolts **11** are then tightened. The sign **1** is inserted between the rail sections, and thumb screw **13** is passed through the sign and the rail sections and tightened. Motor **49** is then operated in the opposite direction, to shorten cord **23**, thus raising the sign to the ceiling. The sign will self-balance and hang horizontally at any height desired.

We claim:

1. A sign suspension system for suspending display signs from the ceiling, said system including

a sign carrier, said carrier including at least one horizontal rail and two sheaves,

a motor control unit including a reversible motor and a drum operated by said motor, said motor control unit being mounted at the ceiling,

a cord-attaching member secured to the ceiling,

a cord running from said cord-attaching member through said sheaves and to said drum, said cord supporting said sign carrier, and

a remote control unit for operating said motor, said remote control unit having forward, reverse, and off positions,

whereby said sign carrier, carrying a sign, can be raised and lowered to and from said ceiling.

2. A sign suspension system as set forth in claim **1** in which said sign carrier includes two side extension rails telescopically interfitting with said horizontal rail.

3. A sign extension system as set forth in claim **2** in which said horizontal rail includes slots and said side extension rails include T-shaped members fitting telescopically into said slots.

4. A sign suspension system as set forth in claim **1** in which said sheaves are spaced equidistantly from their respective ends of said horizontal rail.

5. A sign suspension system as set forth in claim **1** in which the distance between said sheaves and the distance between said cord-attaching unit and said drum are substan-

tially the same, whereby said sign carrier is held in balanced suspension.

6. A sign suspension system as set forth in claim **1** including reduction gears between said motor and said drum.

7. A sign suspension system as set forth in claim **1** in which said remote control unit is radio-operated.

8. A sign suspension system for supporting signs from the ceiling of a building, said sign suspension system including

a power-actuated drum system secured to said ceiling, suspension cord being carried by said drum, one end of said suspension cord being secured to said ceiling at a point remote from said drum,

a control circuit for said drum system, a remote controller for operating said control circuit,

a horizontal sign carrier, said sign carrier having spaced sheaves thereon, and said cord passing between said sheaves, whereby said cord serves to suspend said sign carrier, and

attachment means for securing a sign to said carrier.

9. A sign suspension system as set forth in claim **8** in which said horizontal sign carrier includes a horizontal rail and two side extension rails telescopically interfitting with said horizontal rail.

* * * * *

Adverse Decision in Interference

Reissue Patent No. RE 38,463, Christopher S. Anderson, Louis J. Falcone, Arthur L. Torrence, Cary a. Cieciuch, Anthony C. Squitieri, Donna M. Stearns, SIGN SUSPENSION SYSTEM, Interference No. 105,286, final judgment adverse to the patentees rendered March 16, 2006, as to claims 1-9.

(*Official Gazette February 13, 2007*)