

No. 781,549.

PATENTED JAN. 31, 1905.

T. B. POWERS.
MOVING DISPLAY SIGN.
APPLICATION FILED JAN. 27, 1903.

2 SHEETS—SHEET 1.

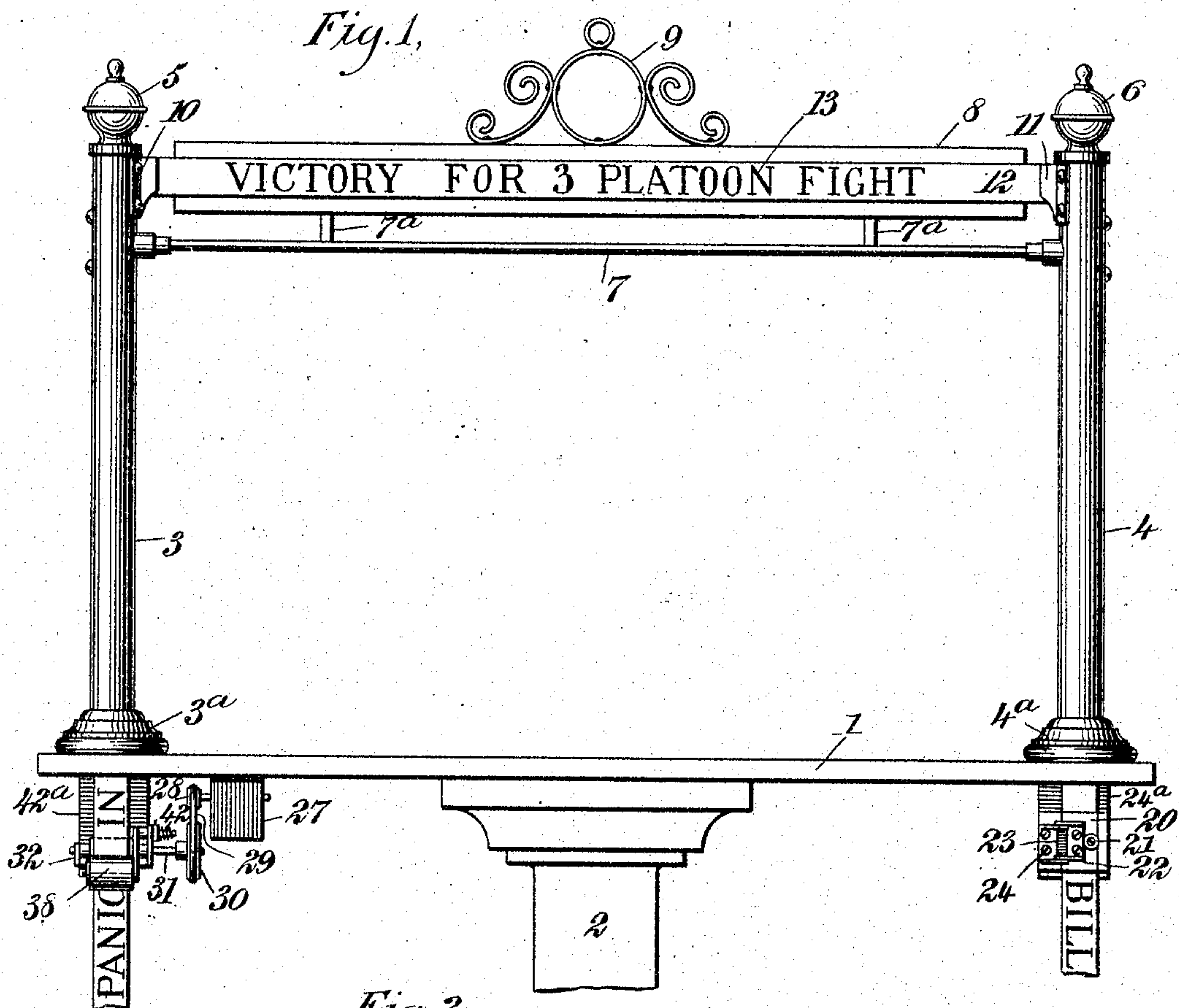
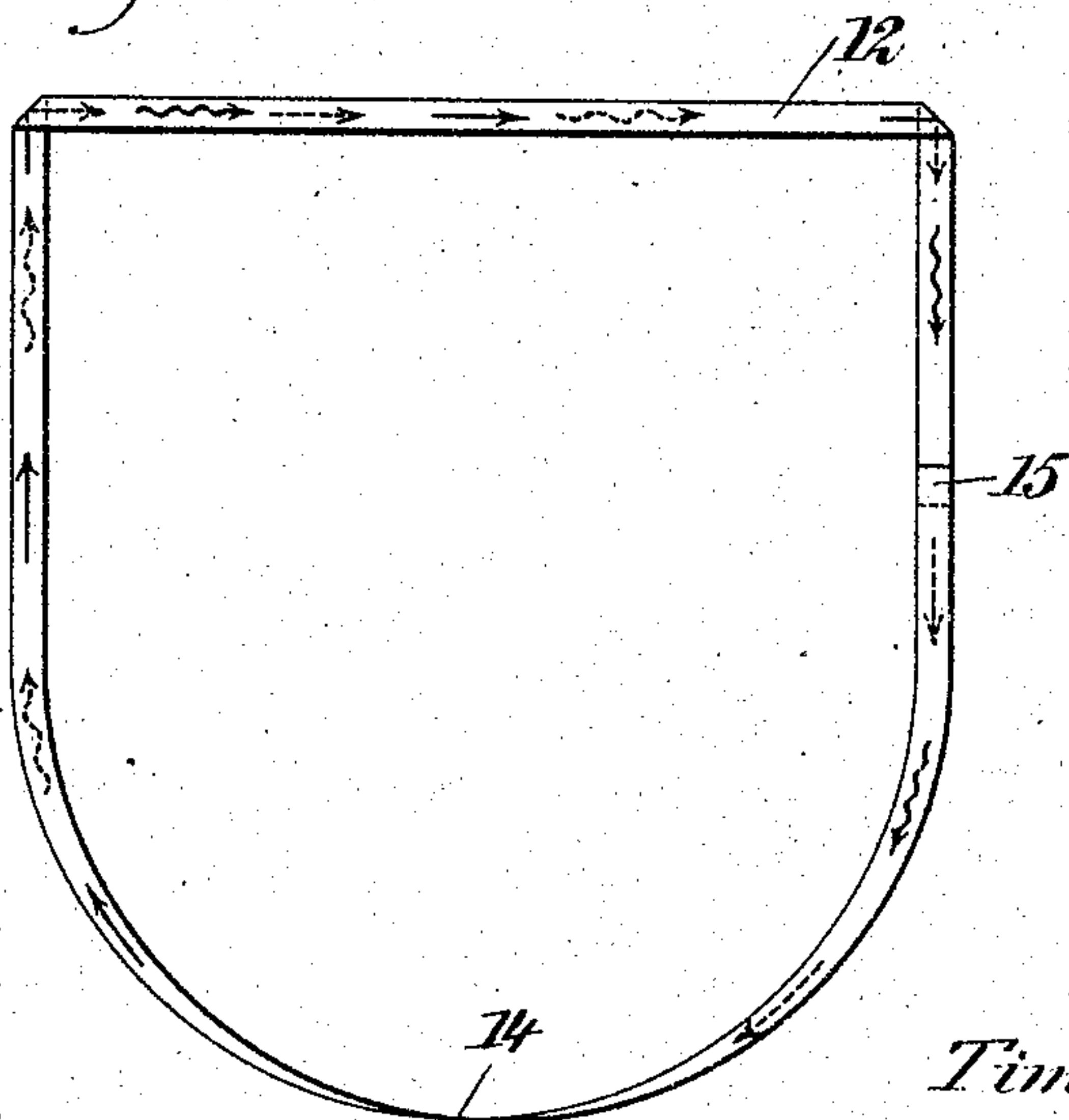


Fig. 2,



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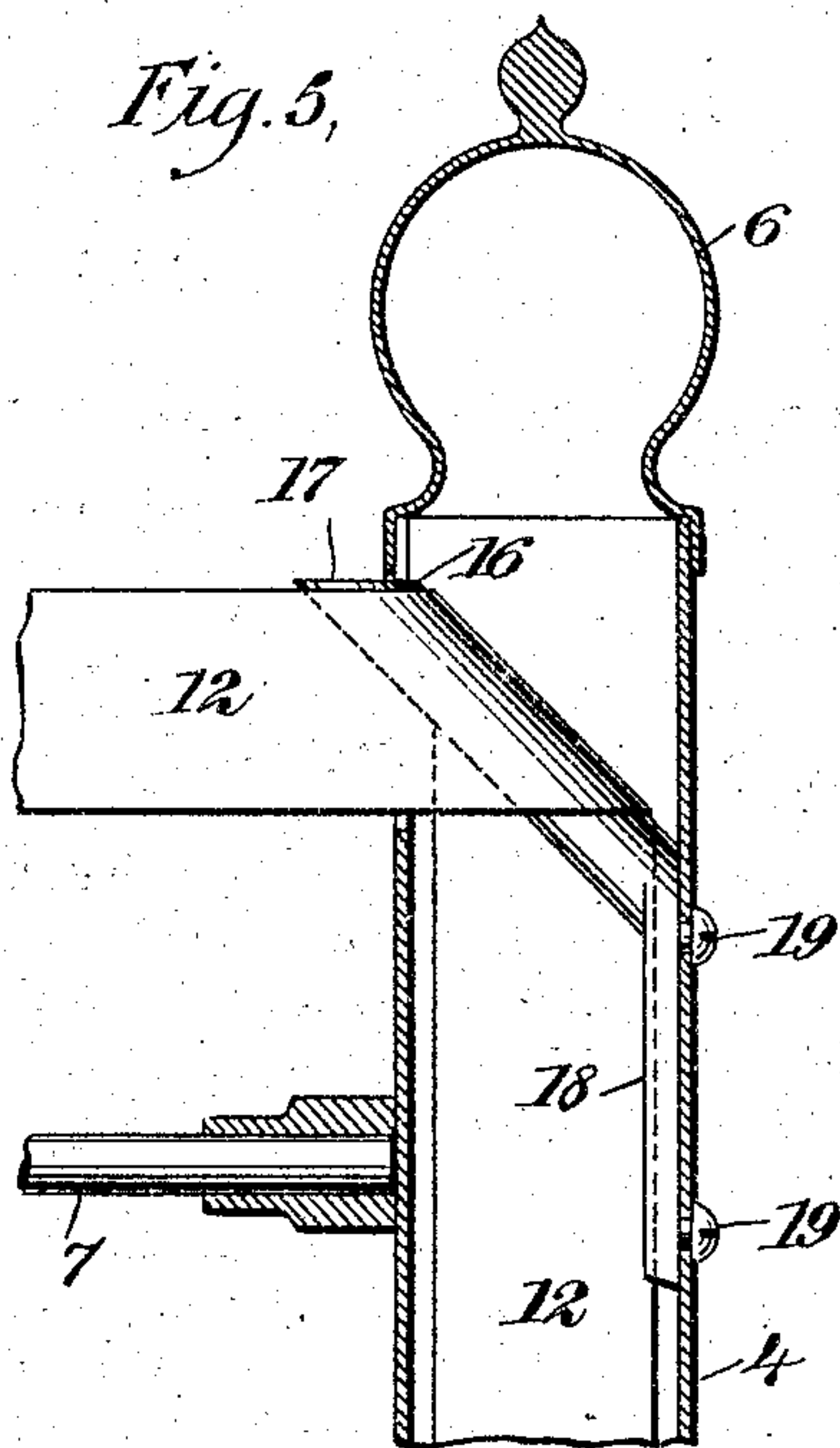
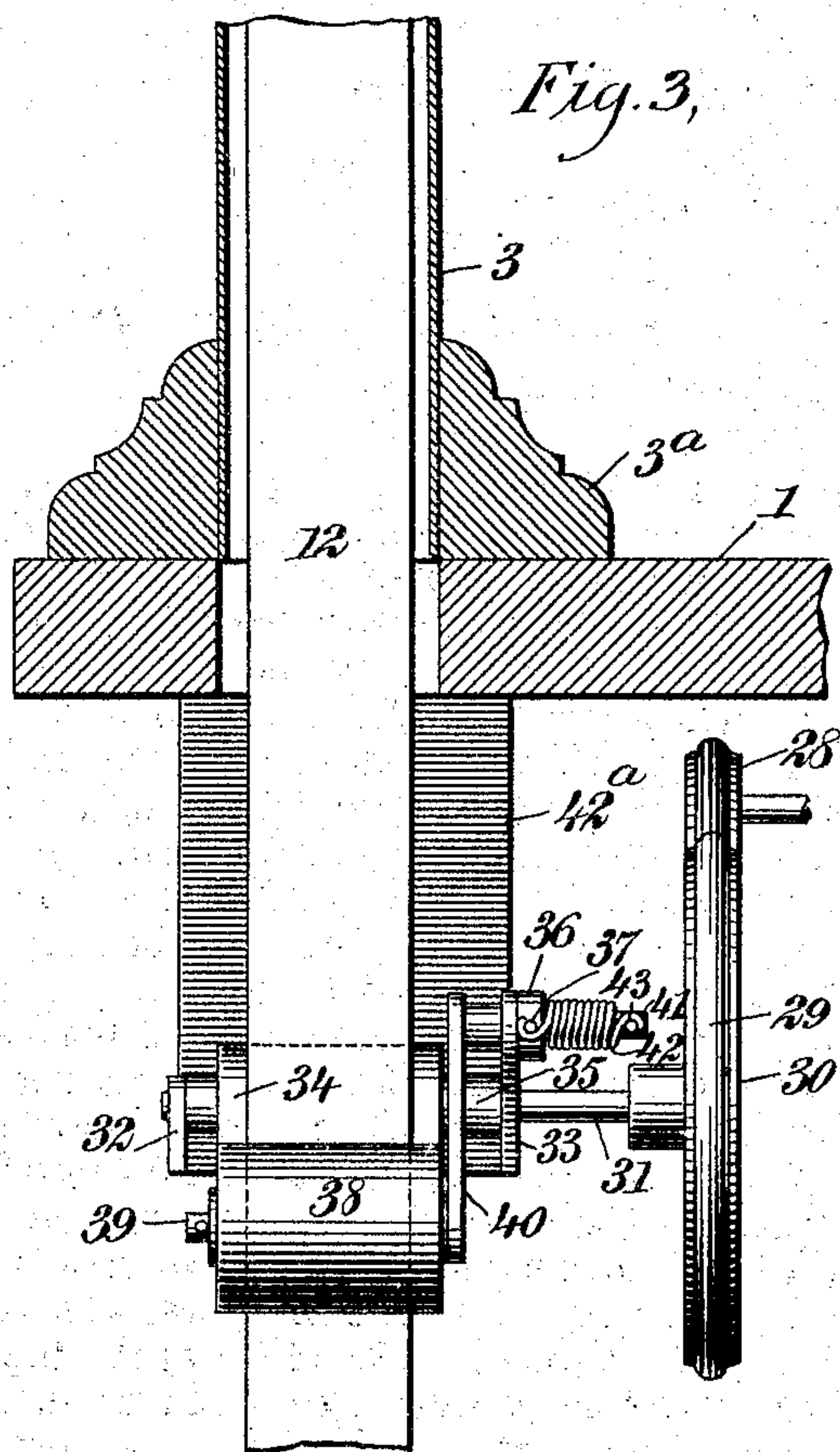


Fig. 6,

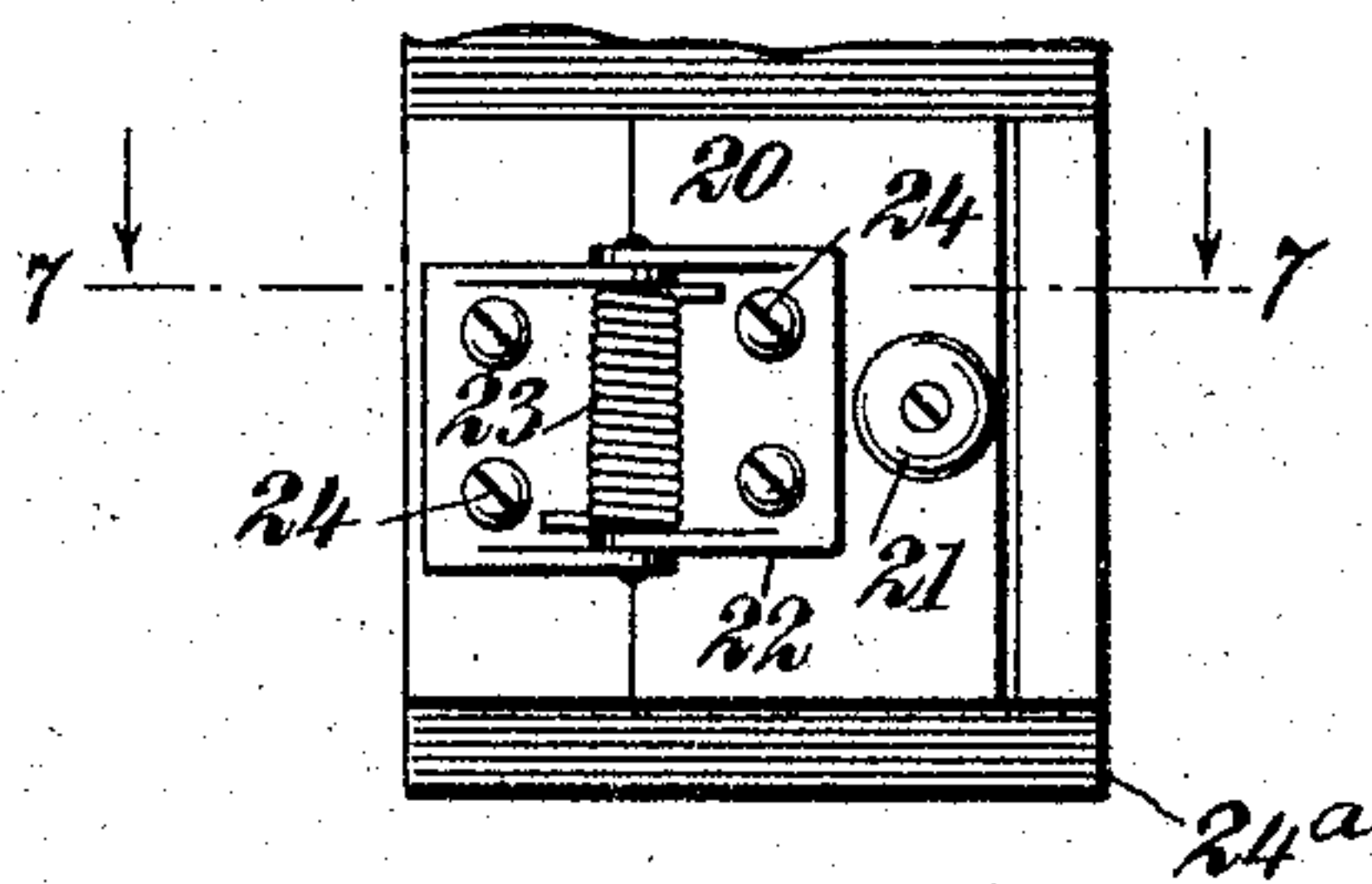


Fig. 7,

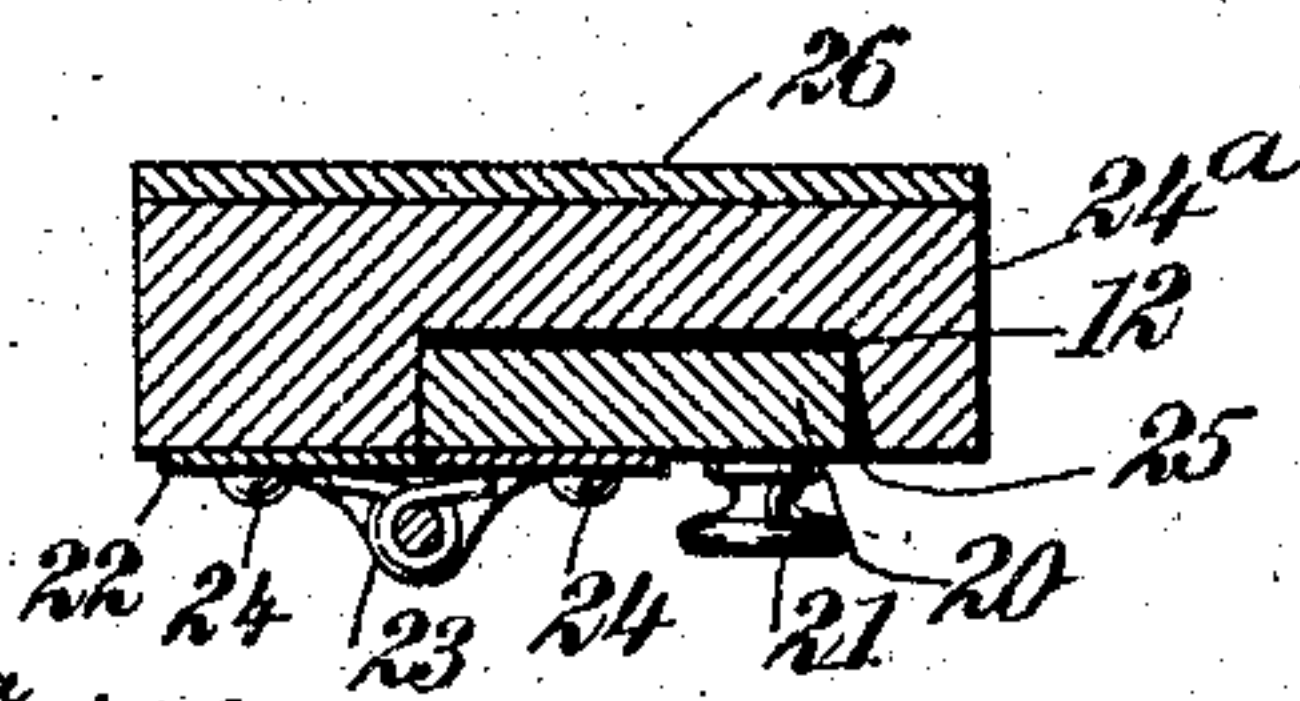
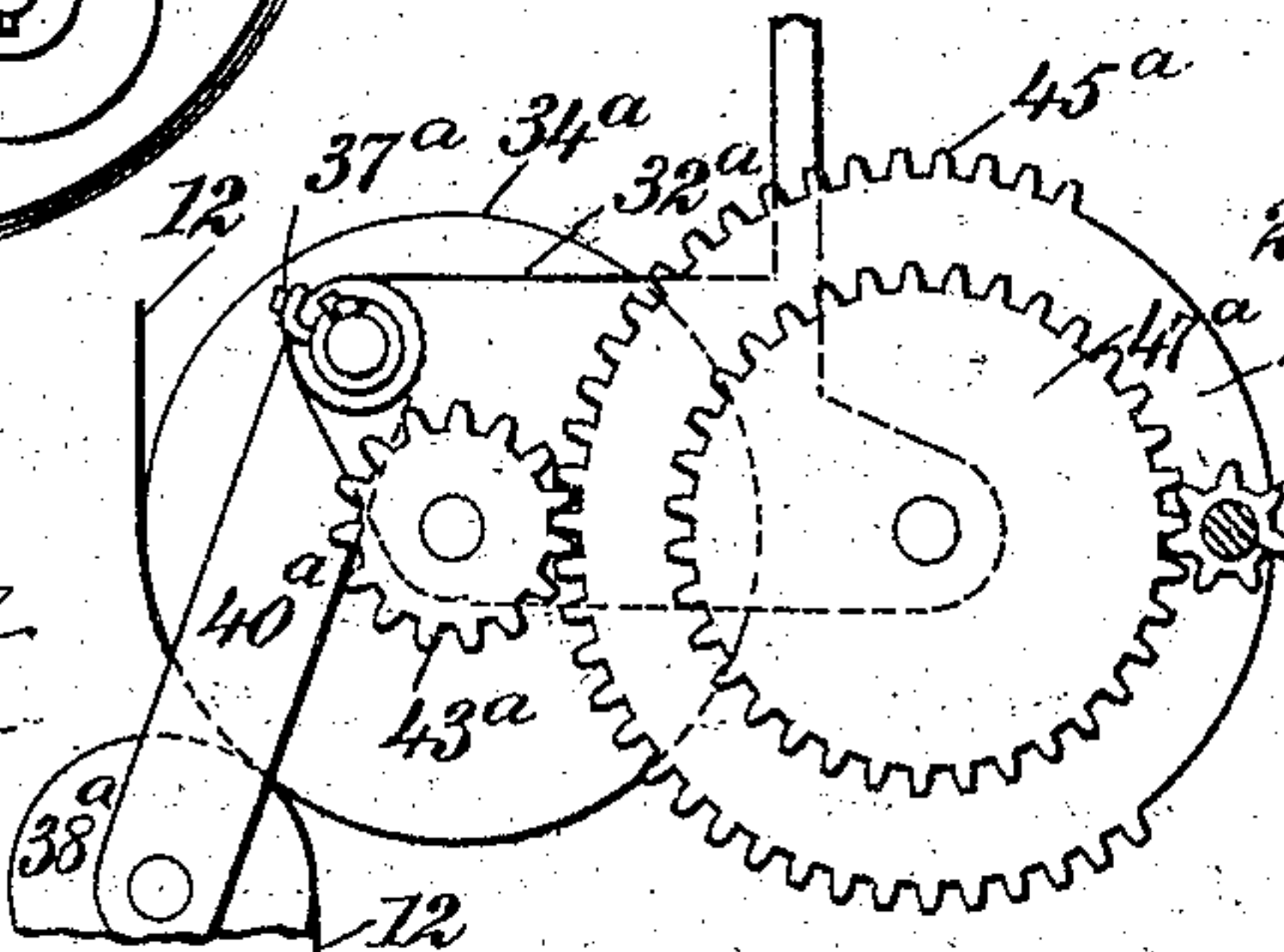


Fig. 8,



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TIMOTHY B. POWERS, OF NEW YORK, N. Y.

MOVING DISPLAY-SIGN.

SPECIFICATION forming part of Letters Patent No. 781,549, dated January 31, 1905.

Application filed January 27, 1903. Serial No. 140,691.

To all whom it may concern:

Be it known that I, TIMOTHY B. POWERS, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Moving Display-Sign, of which the following is a full, clear, and exact description.

My invention relates to moving display-signs, my more particular object being to produce an efficient sign of attractive appearance and in which intelligible characters may be displayed in a variety of ways, affording certain advantages as hereinafter described.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation showing my invention in use. Fig. 2 is a front elevation of the printed tape used therein. Fig. 3 is an enlarged fragmentary vertical cross-section showing the motor mechanism in elevation. Fig. 4 is an enlarged side elevation of the motor mechanism viewed as from the left of Fig. 1. Fig. 5 is a fragmentary vertical cross-section of the top of one of the hollow posts. Fig. 6 is a fragmentary elevation of the spring-brake for tensioning the tape. Fig. 7 is a horizontal section upon the line 7 7 of Fig. 6, and Fig. 8 is a side elevation showing a modified form of the motor mechanism for the tape.

A baseboard 1 is mounted upon a pedestal 2, and upon this baseboard are also mounted the hollow posts 3 4, provided, if desired, with ornamental tops 5 6 and with annular bases 3^a 4^a, whereby the same are strengthened. A brace-rod 7 is provided with stems 7^a, which support a board 8, this board serving as a display-rack. Superposed upon the board may be a scroll 9 or other ornamental fixture. Brackets 10 11 are secured upon the posts 3 4 and serve as guideways for the movable tape 12. The tape is provided with intelligible characters, as shown in Fig. 1, these characters being preferably arranged in distinct groups 13, each group being of a length proportionate to that of the display-rack 8, so that an entire inscription or sentence may be read at one time, as shown. The intelligible char-

acters are written, printed, or otherwise placed upon the endless tape 12, this tape being provided with a half-turn twist 14, as indicated more particularly in Fig. 2. The half-turn twist is made before the ends 15 of the tape are joined together. The intelligible characters are arranged in succession and in the order shown by the arrows in Fig. 2. Beginning with the plain central arrow at the top of Fig. 2, the several groups of intelligible characters may be read successively, as follows: straight arrows shown in full lines at the top of Fig. 2, one of these arrows being bent over the edge; straight arrows shown in dotted lines at the right of said figure; straight arrows shown in full lines at the left of said figure, one of these arrows being bent at the upper left-hand corner; straight arrows shown in dotted lines at the top of said figure; a serpentine arrow shown in dotted lines at the top of said figure; serpentine arrows shown in full lines at the right of said figure; serpentine arrows shown in dotted lines at the left of said figure, and a serpentine arrow shown in full lines at the top of said figure, whence the reckoning begins. By this arrangement the tape can be fed continuously through the apparatus until such a point is reached that a portion of the tape originally displayed will be displayed a second time, all other parts of the tape having been meanwhile displayed in succession. In other words, the several groups of inscriptions contained upon both sides of the tape will have passed successively upon the display-rack without dismounting the tape or doing anything else than to propel the same through the channel provided for it.

The tape 12 is engaged by the guides 16. (Shown to better advantage in Fig. 5.) These guides may be of any suitable material, such as glass or polished steel, and are provided with feet 18, which are secured by means of the screws 19 to the posts 3 4. Below the post 4 on an extension 24^a is a brake-shoe 20, arranged somewhat in the form of a door and provided with a knob 21. The shoe is mounted upon a hinge 22, provided with a torsional spring 23 and secured in position by means of the screws 24. By pulling or pushing the knob 21 the shoe 20 may be drawn away from

or pressed tightly against the tape 12, and thereby caused to serve as a tension device. A recess 25 formed in the extension 24^a engages the door 20 and may be slightly beveled, if desired, as indicated in Fig. 7, so that the tension of the tape may be regulated by forcing the door inward to any desired extent. The brake just described may be conveniently mounted upon a plate 26, as indicated in Fig. 7.

The motor for actuating the tape is shown at 27 and is provided with a transmission-wheel 28, from which a belt 29 runs to a driven wheel 30, mounted upon a shaft 31. This shaft 31 is supported upon brackets 32 33 and carries a friction-roller 34, as indicated more particularly in Fig. 3. The shaft 31 is preferably enlarged at 35. Mounted upon the bracket 33 and integral therewith is an annular bearing 36, provided externally with a boss 37, as indicated in Fig. 3. An idle roller 38 is mounted loosely upon a shaft 39, carried by a movable arm 40. This arm is provided with a pivotal stem 41, which extends through the bearing 36, this stem carrying a boss 43. The bosses 37 and 43 are connected by a torsional spring 42, whereby the roller 38 is tensioned against the tape 12. The roller mechanism is mounted upon a plate 42^a and depends below the board 1. When the motor 27 is in action, motion is communicated by means of the belt 29 to the roller 34, which pulls downward upon the tape 12, causing the same to glide through the hollow posts 3 4 and to display the several groups of intelligible characters, as indicated in Fig. 1. The motor may be stopped at appropriate moments, so as to enable the different groups of characters to be read.

In Fig. 8 is shown a modification of the motor-gearing. Upon a bracket 32^a is mounted a friction-roller 34^a, which engages the tape 12. The idle roller 38^a is mounted upon a radially-movable arm 40^a, which is pressed into proper contact with the tape by the torsion of a spring 37^a. The pinion 43^a for actuating the roller 34^a meshes with the teeth 45^a of a mutilated spur-gear 44^a, this spur-gear being practically integral with an ordinary spur-gear 47^a, which in turn meshes with a pinion 49^a upon the motor-shaft 50^a. It will be understood that as the motor-shaft 50^a rotates continuously the mutilated spur-gear 46^a is always in motion, but it only communicates motion to the pinion 43^a when the teeth 45^a engage the same, so that the action of the motor upon the roller 34^a is intermittent. The several parts will be so proportioned that each intermittent action of the teeth 45^a actuates the roller mechanism to a proper extent so as to draw the tape a distance commensurate with the length of one of the groups of intelligible characters. For instance, one revolution of the mutilated spur-gear 44^a might reveal upon the tape the inscrip-

tion "Victory for three platoon fight," while another revolution of this gear might disclose the inscription "Big Bill is on top," and so on to the end of the series.

My invention may be used for election purposes, for advertising, for bulletin-work, and in short for any and all purposes for which a movable display-sign may be desirable.

It will be understood, of course, that I do not limit myself to a tape in which the intelligible characters are arranged in definite groups, as obviously they may be arranged in any other manner desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A moving display-sign, comprising a frame provided with hollow posts and with guides, and also provided with a display portion, an endless tape provided with intelligible characters and threaded through said hollow posts and through said guides, motor mechanism for actuating said tape and a spring-brake for tensioning said tape.

2. A moving display-sign, comprising a frame provided with hollow posts and with guides, and also with a display portion, an endless tape threaded through said hollow posts, said endless tape being provided with a half-turned twist, substantially as described, and also provided with intelligible characters arranged successively upon both sides of said tape, motor mechanism disposed adjacent to one of said posts for actuating said tape, and a spring-brake for tensioning said tape.

3. A moving display-sign, comprising an endless tape provided with a half-turned twist, substantially as described, and also provided with intelligible characters arranged in succession and disposed upon both faces of said tape, in combination with a frame provided with members through which said tape may be threaded.

4. In a moving display-sign, the combination of a frame provided with a portion for displaying a tape, and an endless tape provided upon both of its faces with intelligible characters and also provided with a half-turn twist.

5. In a moving display-sign, the combination of a frame, provided with a portion for displaying a tape, an endless tape provided upon both of its faces with intelligible characters arranged continuously in a single series extending throughout both of said faces, and also provided with a half-turn twist, motor mechanism for actuating said tape, and means for tensioning said tape.

6. In a moving display-sign, the combination of a frame, an endless tape mounted thereon and provided upon both of its faces with intelligible characters, said tape being further provided with a half-turn twist, and means for actuating said tape.

7. In a moving display-sign, the combina-

tion of a frame, an endless tape provided with a half-turn twist and also provided upon both of its faces with intelligible characters arranged successively in the form of a single
5 endless series of such characters, and means for actuating said tape.

8. In a moving display-sign, the combination of a frame provided with a portion for displaying a tape of definite length, a tape
10 provided with a half-turn twist and with intelligible characters arranged in distinct groups, each group being of a length proportionate to that of said portion of said frame, and means for actuating said tape.

15 9. In a moving display-sign, the combination of a frame, and an endless tape provided with intelligible characters, said endless tape being provided with a half-turn twist, whereby said intelligible characters may be read
20 continuously from one face of said tape to the other without interruption.

10. In a moving display-sign, the combination of an endless tape provided on both of its faces with intelligible characters, and also provided with a half-turn twist in combination with a frame having members through
25 which said tape may be threaded.

11. In a moving display-sign, the combination of a frame, provided with guides, and also provided with a display portion, an endless tape threaded through said guides and
30 provided with a half-turn twist, said tape being also provided with intelligible characters, motor mechanism for actuating said tape, and means for tensioning said tape. 35

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

TIMOTHY B. POWERS.

Witnesses:

WALTON HARRISON,
EVERARD BOLTON MARSHALL.