

(No Model.)

2 Sheets—Sheet 1.

J. H. DALES & H. G. UNSWORTH.
MECHANICAL ADVERTISING APPARATUS.

No. 512,163.

Patented Jan. 2, 1894.

FIG. 1.

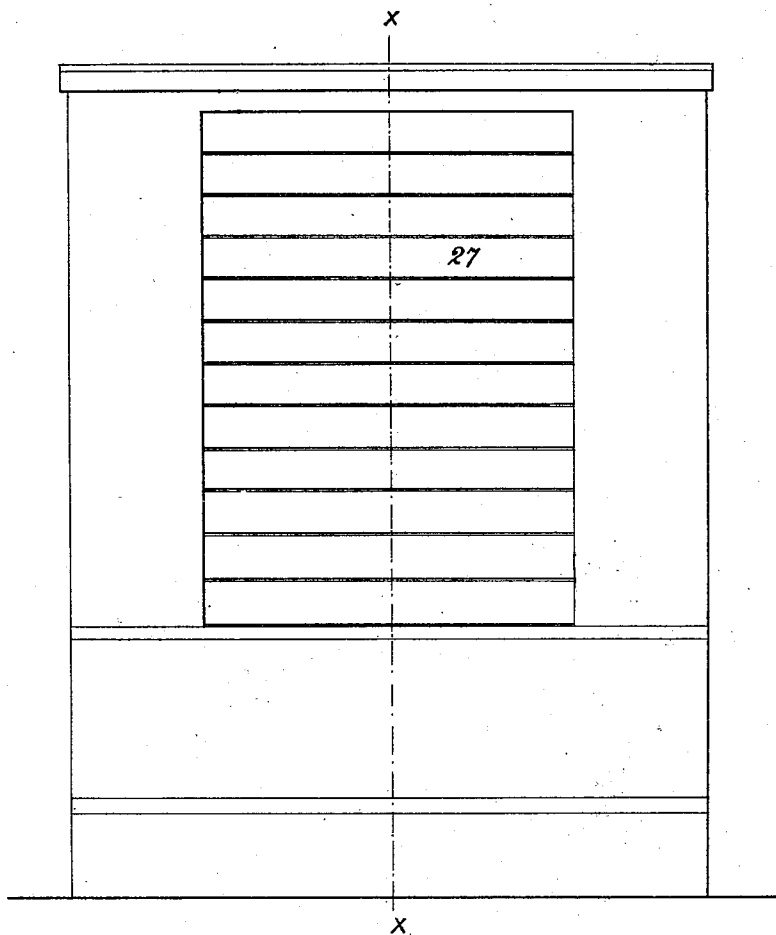
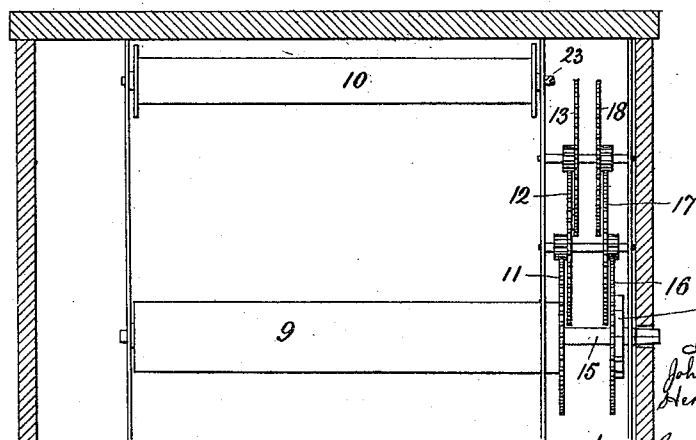


FIG. 2.



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2 Sheets—Sheet 2.

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FIG. 4.

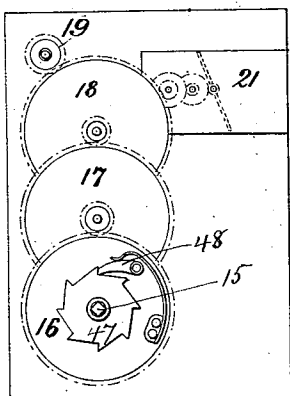


FIG. 5.

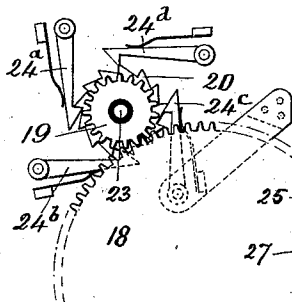


FIG. 3.

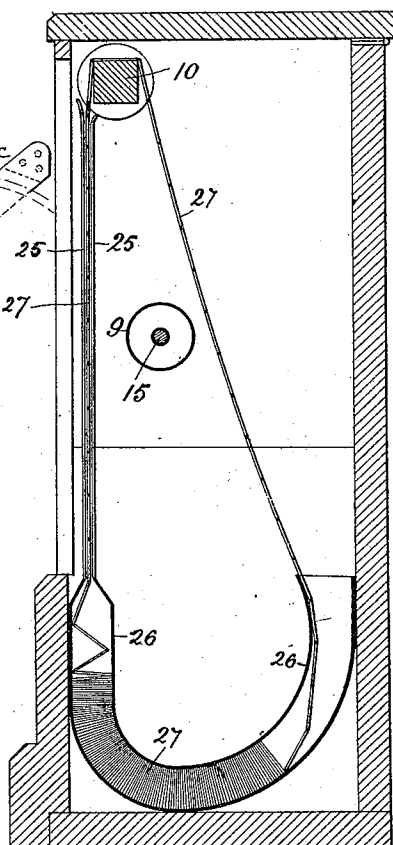


FIG. 6.

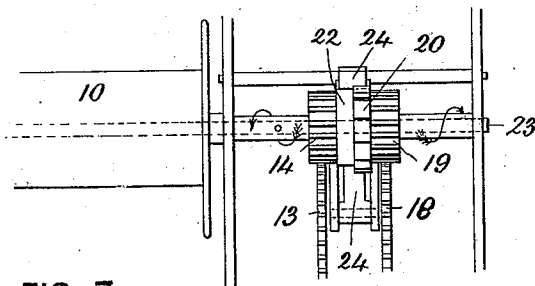


FIG. 7.

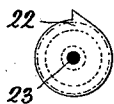
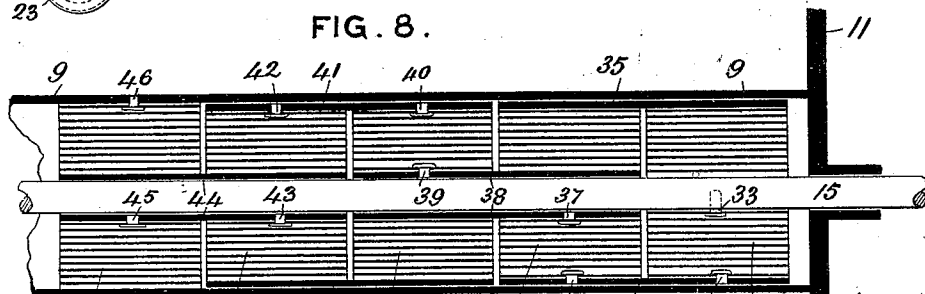


FIG. 8.



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UNITED STATES PATENT OFFICE.

JOHN HANDSLEY DALES, OF LEEDS, AND HERBERT G. UNSWORTH, OF
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MECHANICAL ADVERTISING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 512,163, dated January 2, 1894.

Application filed August 12, 1893. Serial No. 482,949. (No model.) Patented in England March 29, 1892, No. 6,108.

To all whom it may concern:

Be it known that we, JOHN HANDSLEY DALES, civil engineer, residing at 45 Lofthouse Place, Leeds, in the county of York, and HERBERT GEORGE UNSWORTH, mechanical engineer, residing at Grove Villas, Osmaston Road, Derby, in the county of Derby, England, subjects of the Queen of Great Britain, have invented an Improved Mechanical Advertising
10 Apparatus, (for which we have obtained a patent in Great Britain, No. 6,108, bearing date March 29, 1892,) of which the following is a specification.

Our invention consists of an improved
15 method and apparatus for exhibiting at an aperture in a suitable case a series of articles printed or other advertising matter or samples of goods in which the exhibition cards, strips, cases or the like are automatically
20 moved and folded into a suitable receptacle and out of the same for the purposes of the apparatus by means of main springs, hydraulic power, movement of doors or any suitable means. The folding motion is of a similar
25 nature to that of the pattern card motion of a Jacquard loom. The motion of the advertisements may be made continuous, but is by preference made intermittent as being more striking to the public eye when seen in shop
30 windows in which it is chiefly intended to employ the invention.

In carrying out the invention we employ driving power by preference consisting of a main spring and train of wheels, divided into
35 two sections, one for moving the exhibits and the other for releasing the first from its stop action; one section of the train being driven from the spring barrel and the other from the spring spindle; and in order that our said invention may be particularly described and as-
40 certained, reference is hereby made to the accompanying drawings in which similar figures of reference indicate corresponding parts.

Figure 1 is a front elevation of our inven-
45 tion. Fig. 2 is a front view partly in section, showing the driving mechanism. Fig. 3 is a section on the line $x-x$ of Fig. 1. Figs. 4, 5, 6, 7 and 8 are detail views of the mechanism.
In Figs. 2 and 6 the spring barrel 9 is

shown geared to the roller 10 by the train of 50 wheels 11, 12, 13, 14. The spring spindle 15, which obviously revolves in an opposite direction to the spring barrel is geared by a train of wheels 16, 17, 18, 19, to a let off wheel 20 which is made with an odd number of 55 teeth. The spring spindle train is controlled by a fly motion at 21 or by an ordinary clock escapement geared to any convenient part of the train 16, 17, 18, 19. The spring barrel train is stopped on the single toothed snail 60 22, fitted on the roller spindle 23 (Figs. 6 and 7) in four or any desired number of places by pawls 24^a, 24^b, 24^c, 24^d. The pawl teeth are made to engage the tooth of the snail 22 and also the let off wheel at the same time in 65 such a manner that the let off wheel teeth which back against the pawl teeth can lift one pawl at a time out of gear with the snail tooth and so allow the snail tooth to move to the next pawl and so on continuously, thus 70 turning the roller 10 and moving the exhibits which are carried round by its motion. The manner in which this is accomplished is more clearly shown in Figs. 5 and 6. By the means before described the gear wheels 14 75 and 19 are caused to rotate in opposite directions, (see Fig. 6) the let off wheel 20 revolving with the wheel 19, and the snail 22 revolving in the opposite direction with the wheel 14. By providing the let off wheel 20 80 with an odd number of teeth the pawls 24^a, 24^b, 24^c, and 24^d are prevented from engaging the teeth simultaneously. By referring to Fig. 5 it will be seen that the pawl 24^a is in full engagement with one of the teeth, the 85 pawl 24^b has started to disengage one of the teeth, the pawl 24^c is nearing the point when another tooth will be engaged, and the pawl 24^d is in the act of engaging a tooth, having just released the snail tooth. The snail be- 90 ing rotated under the impulse of the spring barrel 9 in a direction opposite to the rotation of the let off wheel 20, revolves until its movement is arrested by the pawl 24^a engaging snail tooth, thus holding one of the cards 95 in front of the sight aperture until the revolution of the let off wheel 20 disengages the pawl 24^a from the snail tooth, upon which the

snail will again revolve until its tooth is engaged by the pawl 24^b, and its movement arrested. This movement is continued at regular intervals, the pawls successively engaging the snail tooth and thus imparting an intermittent rotation to the roll 10, which successively brings into view one of the cards before the sight aperture, where it is held for a few moments before the succeeding card is brought into view.

It will readily be understood, by referring to Figs. 5 and 6 of the drawings, that the snail 22 and the let-off wheel 20 revolve in opposite directions, as shown by the arrows in Fig. 6. Thus, the teeth of the let-off wheel 20 lift the pawls 24^a, 24^b, 24^c and 24^d out of engagement with the single tooth of the snail 22—shown in Fig. 7—and permit the shaft to make a further quarter-revolution until the next succeeding pawl is engaged by the snail.

Enlarged views of the let off motion are shown by Figs. 5 and 6.

By preference the exhibits are placed on cards 27 which are suitably laced together edge to edge as shown in Fig. 3, and the cards or other articles are moved down or up between guides 25 which may extend right across the cards at the back and may consist of strips of metal or suitable material at the sides in the front of the cards or of a sheet of glass in front. The guides are placed in front as shown and lead into a rectangular curved passage 26 in which they are folded to and fro by their falling motion and are moved through the said passage to the point where they are drawn up by the roller 10, by their own gravity and the excess of weight of cards in the entering end of the said passage 26. The arrows show the direction of the preferably endless string of cards 27. The main spring in the drawings is compounded of several coils in order to obtain, conveniently, a spring capable of winding many turns for maintaining the motion of the apparatus for a sufficient length of time. The example shown in Fig. 8 consists of five such sections 28, 29, 30, 31 and 32, which are ordinary clock springs.

The coil 28 is fastened on the inside to the spindle 15 by means of a headed stud 33 and on the outside to a headed stud 34, fixed in a tube 35. The coil 29 is fixed on the outside by a headed stud 36 to the tube 35 and on the inside to a headed stud 37 fixed in a tube 38 which is loose on the spindle 15. The coil 30 is fixed on the inside to a headed stud 39 on the tube 38 and on the outside to a headed stud 40 on a third tube 41. The coil 31 is fixed on the outside to a headed stud 42 in the tube 41 and on the inside by a headed stud 43 to a fourth tube 44 also loose on the spindle. The coil 32 is fixed on the inside to the tube 44 by a headed stud 45 and on the outside to a headed stud 46 in the spring barrel 9 thus completing the series. The tubes 35 and 41 are free to rotate in the spring barrel.

The springs are wound up by rotating the spindle 15, and in order to accomplish this without imparting movement to the train of gears 16, 17, 18, 19, I mount the gear 16 loosely on the spindle 15 and rigidly secure to the spindle 15 a ratchet wheel 47, and to the gear 16 a spring actuated pawl 48, which loosely rides over the ratchet wheel 47 when the spindle is rotated in the proper direction to wind up the springs, but engages said ratchet wheel when the spindle rotates in the opposite direction and causes the gear 16 to rotate with the spindle.

I claim—

1. In a mechanical advertising device, the combination with the casing provided with a curved tubular reservoir, of a rotating cylinder and a motor for driving the same, an endless chain of cards passing over said cylinder, and automatic mechanism for intermittently arresting the rotation of the cylinder, to successively expose the cards before an opening in the casing, substantially as described.

2. In a mechanical advertising device, the combination with the casing and rotating cylinder, of the endless chain of cards passing over said cylinder, a motor for driving said cylinder, and mechanism driven by said motor and operating to automatically arrest and release the rotating cylinder at regular intervals, to successively expose the cards before an opening in the casing, substantially as described.

3. In a mechanical advertising device, the combination with the casing and the rotating cylinder 10, of the endless chain of cards 27 passing over said cylinder, a motor 9 for driving said cylinder, a let off wheel 20 driven by the motor in a direction opposite to that of the cylinder 10, a snail 22 revolving with said cylinder, and pawls successively engaging said snail and released by the let off wheel 20, substantially as described and for the purpose specified.

4. In a mechanical advertising device, the combination with the rotating cylinder 10 and the endless chain of cards 27 passing over said cylinder, of a motor 9 for driving said cylinder, a let off wheel 20 provided with an odd number of teeth and driven by the motor in a direction opposite to that of the cylinder 10, a snail 22 revolving with said cylinder, pawls 24^a, 24^b, 24^c, 24^d, successively engaging said snail to arrest the movement of the cylinder and automatically released at regular intervals to permit a partial rotation of the same, and a governor to regulate the speed of the let off wheel, substantially as shown and described and for the purpose specified.

5. In a mechanical advertising device, the combination with the rotating cylinder 10 and the endless chain of cards 27, of a motor comprising a spindle 15 and barrel 9 free to rotate in opposite directions and a series of volute springs arranged within said barrel, the sections of which are coupled together in such manner as to exert their power in succession

to rotate the barrel and spindle in opposite directions, to drive the cylinder 10 and stop and let off mechanism, substantially as shown and described.

directions, to drive the cylinder 10 and stop and let off mechanism, substantially as described. 20

Dated 19th day of July, 1893.

JOHN HANDSLEY DALES.
H. G. UNSWORTH.

Witnesses to the signature of the said John Handsley Dales:

EDWD. WHITELEY,
JOSH HY WHITAKER,
Clerks to Messrs. Turner & Turner, Solicitors, Leeds.

Witnesses to the signature of the said Herbert George Unsworth:

HENRY SCOTT,
34 *Queen's Gate, S. W., London.*
J. INGRAM,
Willesden Green, London, N. W.

5 6. In a mechanical advertising device, the combination with the rotating cylinder 10 and the endless chain of cards 27, of a motor comprising a spindle 15 and barrel 9 free to rotate in opposite directions, a series of concentric tubes 35, 38, 41 and 44 contained within said barrel and adapted to rotate independently thereof and of the spindle, convolute springs, 28, 29, 30, 31, 32 alternately secured at their inner and outer ends to the inner and outer tubes, the inner end of the spring 28 being fastened to the spindle 15, and the outer end of the spring 32 to the barrel 9, said springs operating to successively exert their power to rotate the spindle and barrel in opposite 10 15