

C. H. KING, JR.
ADVERTISING MACHINE.
APPLICATION FILED FEB. 12 1912

1,035,602.

Patented Aug. 13, 1912.

3 SHEETS-SHEET 1.

Fig. 1.

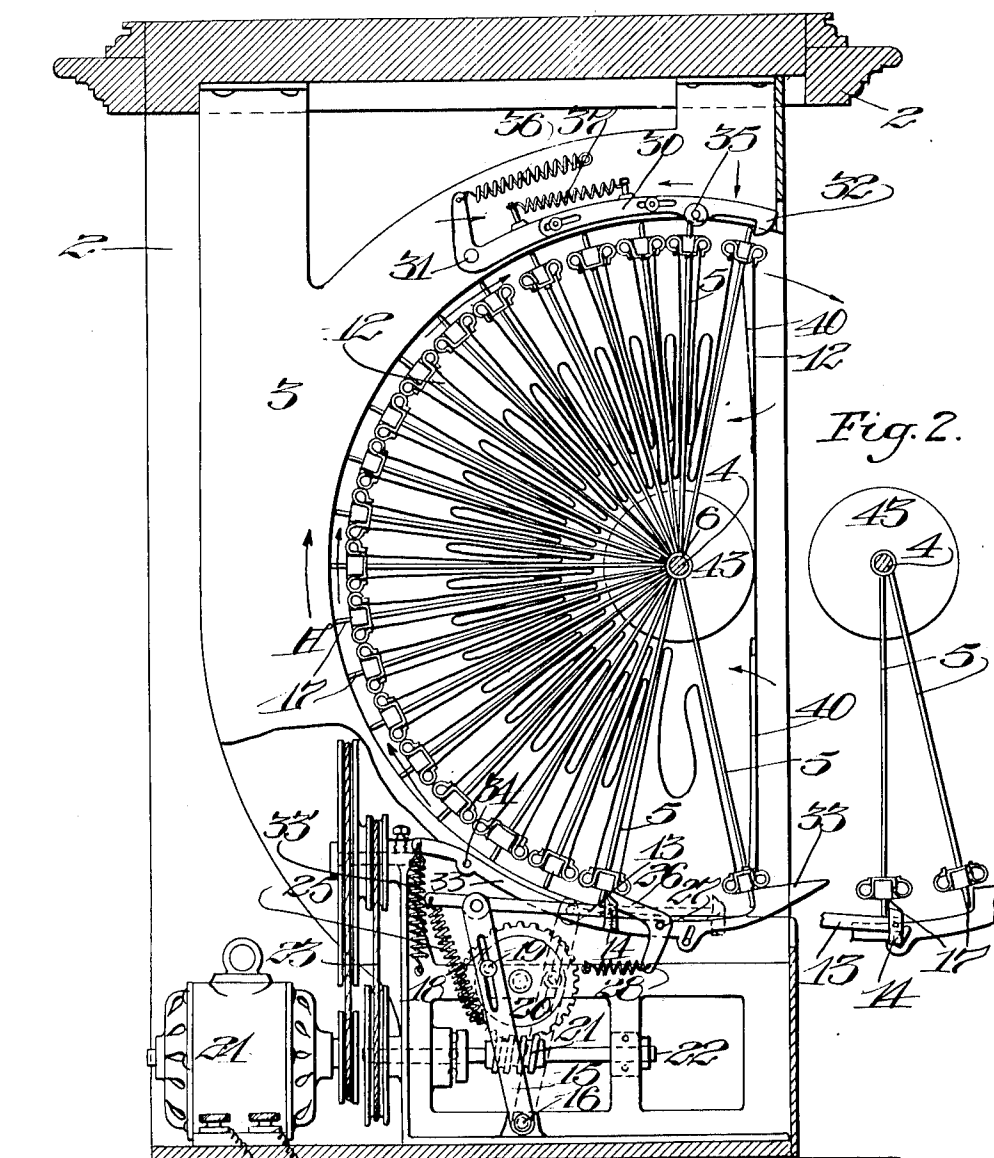


Fig. 2.

Witnesses:
Thos. Eastling
A. S. Bump

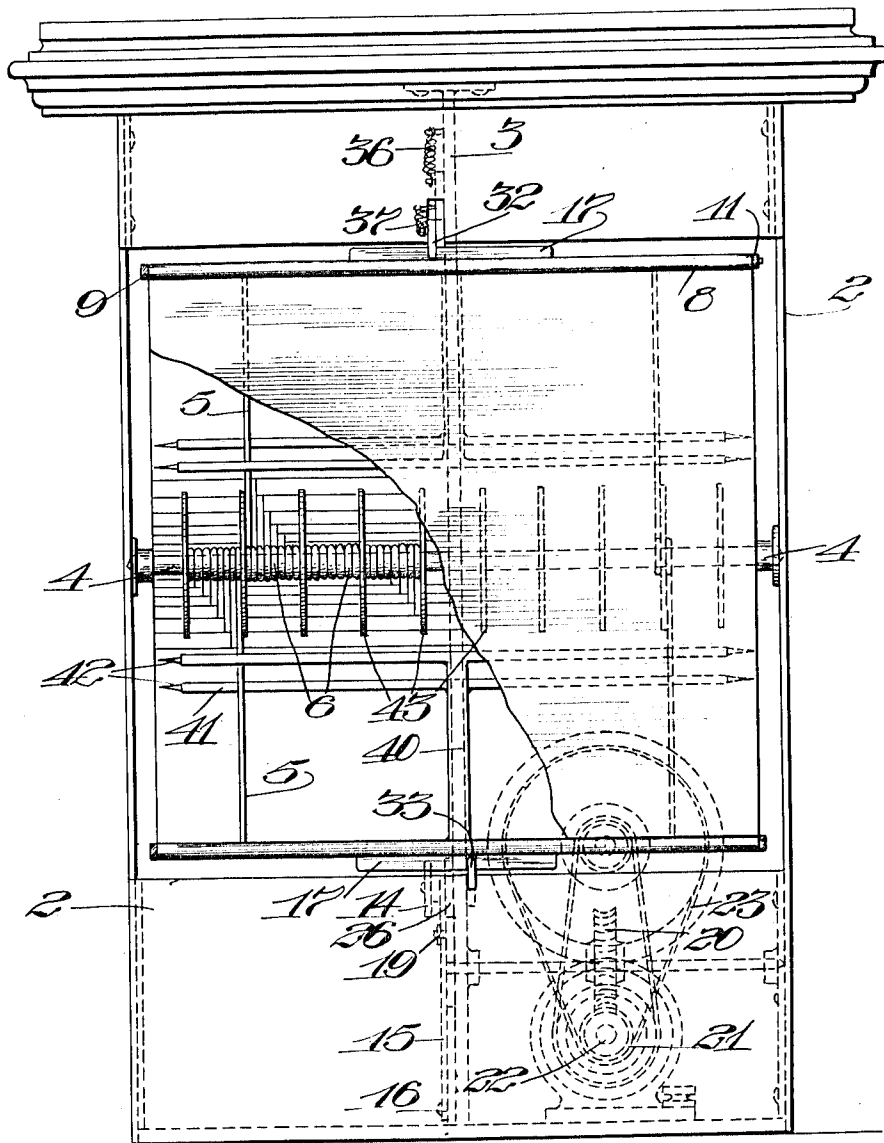
Inventor:
Charles H. King, Jr.
by E. H. Strong
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3 SHEETS SHEET 2.

Fig. 3.



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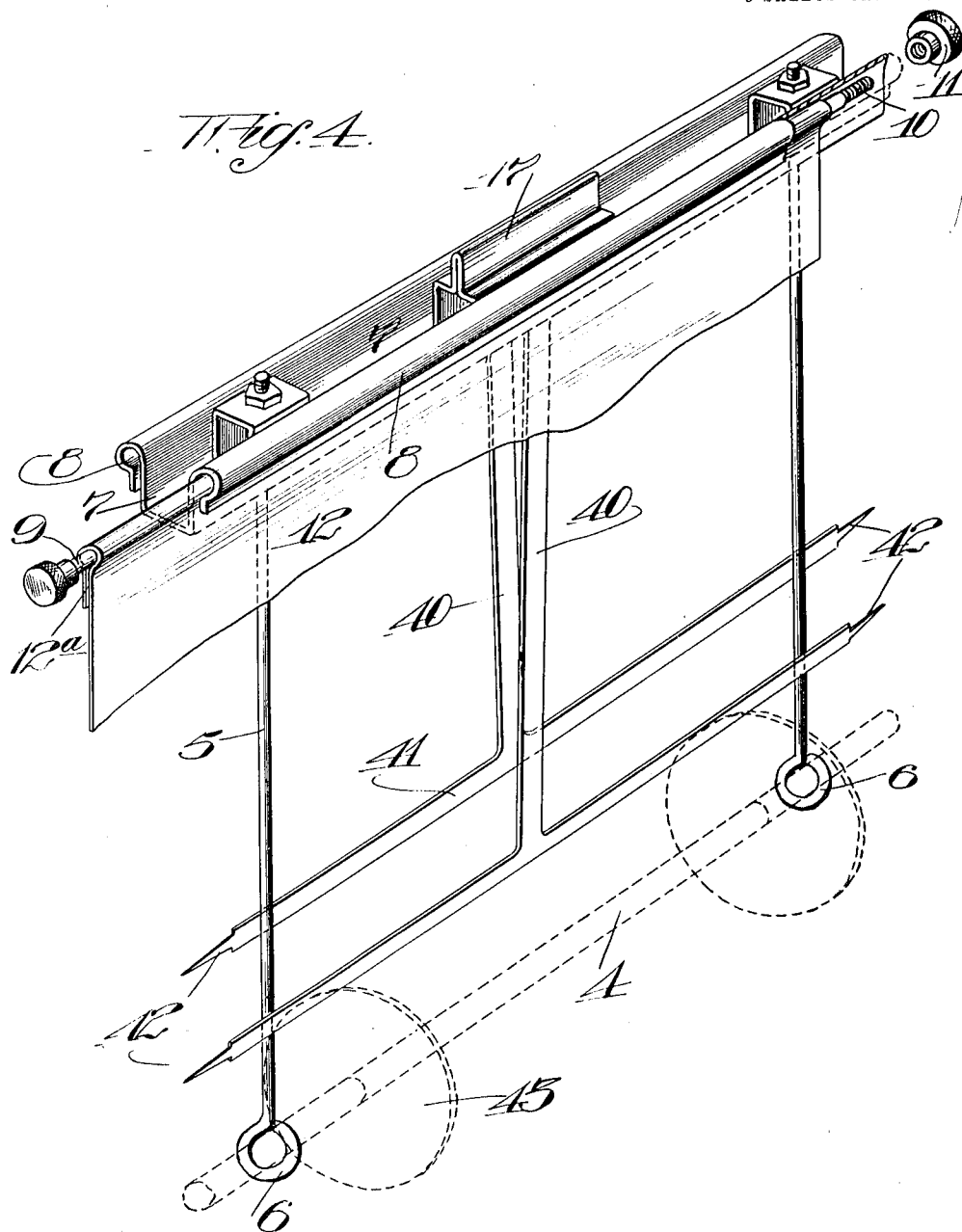
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3 SHEETS SHEET 3.



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UNITED STATES PATENT OFFICE.

CHARLES H. KING, JR., OF OAKLAND, CALIFORNIA.

ADVERTISING-MACHINE.

1,035,602.

Specification of Letters Patent.

Patented Aug. 13, 1912.

Application filed February 12, 1912. Serial No. 677,269.

To all whom it may concern:

Be it known that I, CHARLES H. KING, JR., a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Advertising-Machines, of which the following is a specification.

This invention relates to advertising apparatus.

The object of the invention is to provide a simple, automatically operable, compact and reliable advertising device involving a plurality of flexible webs adapted to be tensioned in a plane at one side of an axis.

A further object is to provide means for sustaining the advertising web or fabric in a taut, smooth condition; and it is a particular object to eliminate to the greatest possible extent the possibility of inoperation or mishap in the machine, thereby making it extremely useful in conditions and places where it may be erected for observation, and may be operated for a considerable period without requiring any personal attention.

Still another object of the invention is to provide in advertising apparatus a number of flexible webs or sheets bearing advertising matter in combination with means whereby contraction and expansion of the advertising medium is automatically compensated.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a vertical sectional view through the apparatus, showing parts in elevation. Fig. 2 is a diagrammatic view representing the position of two of the wings at a certain time. Fig. 3 is a front elevation of the apparatus partly broken away. Fig. 4 is a perspective view of one of the web-carrying wings, and the combined folder and stretcher.

In the present form of my invention 2 represents a casing which may be used or not as desired, and 3 is a frame of suitable design, in the sides of which are supported axles 4, upon which are loosely mounted separately movable or independent wings 5, which are shown in Fig. 4 as provided with hubs 6 turnable freely about the shaft 4. The wings 5 are adapted to project radially and the outer transverse bar 7 of the frame

is appropriately designed and is shown as provided with tubular beads or bearings 8 on opposite longitudinal sides or edges, into which beads may be inserted and removed spindles or rods 9, which may be threaded at one end, as at 10, to receive a lock nut 11, after the rods are inserted in their respective bearings or beads 8.

An important feature of the invention is to arrange and design the several frames 5 so that they can be assembled in a large number about the axle 4. To the adjacent or facing sides of each adjacent pair of wings there is connected a flexible web or sheet 12, one or both sides of which may be printed, or otherwise formed, with advertising matter. The transverse ends of the webs 12 are folded or seamed, as at 12^a, to receive the hangers or rods 9 and after the rods have been inserted in the opposite parallel edges of the web or sheet 12, the rods and sheet edges are inserted in the bead or journal flanges 8, so that, when one of the wings is restrained in a position above the axle 4, as indicated in Fig. 1, and the adjacent wing on the outside is allowed to drop to a position below the axle 4, Fig. 1, then the web or advertising sheet 12 will be stretched to form a continuous unbroken smooth surface, extending from the outside edge of the upper forward wing to the outer edge of the lower forward or foremost wing.

When the wings are moved into juxtaposition, the several bearings 8 of the adjacent wings or frames 5 abut one another, so that the entire superposed series of wings 5 may be uniformly and intermittently advanced or turned upwardly in the direction of the arrow A, Fig. 1, about the axle 4.

Any appropriate mechanism may be employed for moving the abutting or superposed contacting frames 5 upwardly about the axle 4 and in the present embodiment of my invention this means comprises an impeller 13 having a trip pawl 14 pivoted at its outer end, which is adapted to tilt freely when the impeller is projected forwardly by its actuator or lever 15 which is pivoted at 16. As the impeller moves forwardly from the front of the case 2, the trip 14 automatically rides under the outer edge of a projection 17 arranged on the frame 5 and which is adapted to be engaged by the trip pawl 14, so that, as the impeller 13 moves rearwardly, that particu-

lar wing 5 which is engaged by the pawl 14 and all the wings resting upon the engaged wing will be turned about the axle 4 when the actuator 15 is moved backwardly.

The actuator 15 is shown as slotted at 18 to receive a crank pin 19 on a driving gear 20 appropriately mounted in the bearing or frame 3 of the apparatus, and which gear 20 is driven by a worm or other gear device 21 on the shaft 22 which is driven by a suitable gear 23 deriving power from a motor 24 of suitable character. When the driving gear 20 revolves, its crank 19 oscillates in the slot 18 to move the actuator, to the upper end of which is connected the impeller 13 this being in the form of a lever, the short end of which is connected to a spring or other equivalent device 25, whose function is to lift the outer end of the impeller into engagement with the projection 17 on the frames 5. As the impeller 13 moves in its forward stroke, the superposed and contacting wings 5 will be sustained or supported against dropping by a latch 26 pivoted at 27 on the frame 3 and normally thrown upwardly by contractile spring 28; the latch being automatically depressed by each of the wings 5 as the wing is drawn from the foremost lower position rearwardly by the impeller 13. As the impeller moves rearwardly and carries with it a wing 5, this carried or impelled wing will abut against its next adjacent wing, and all of the successive superposed wings will be turned slightly about the axle 4, so that a pawl or restraining device, consisting of a two-part or telescopic lever 30, pivoted at 31 on the frame 3, will be lifted by one of the wings 40 most nearly vertical above the shaft or axle 4. As the restraining device 30 is lifted, the foremost outwardly inclined wing 5 will be released from a trip 32 and allowed to gravitate to a lower position, when it will impinge against a lower restraining device or bolt 33:

The uppermost restraining lever 30 is normally drawn downward to carry a roller 35 into the path of the flange or projection 17 on each of the wings, by means of a contractile spring 36 connected to the short arm of the lever 30. The trip or releasing pawl 32 is movable relative to the swinging pawl or its carrying part 31 and is normally contracted thereon by a contractile spring 37, one end of which is connected to the swinging lever 31 and the other end to the sliding releasing device 32.

The operation of the device is as follows: Assuming that the entire series of radial wings or frames 5, save two, are superposed and resting upon each other and supported in stationary position by the yieldable bolt or supporting device 26, then, as the impeller 13 moves rearwardly, it will turn the super-

posed series of abutting wings 5 until the second forwardmost one above the axle 4 will ride against the roller 35 on the slidable trip 32. As the wing 5 engages the roller 35, the trip 32 will be projected forwardly slightly by the pressure of the wing and the pivoted lever or restraining device 30 will be lifted slightly about its fulcrum 31, as the wing abutting the roller 35 is forced beneath the roller. Just at or about the time the wing 5 passes or is forced beneath the roller 35 the forwardmost outwardly inclined frame 5, which has heretofore been restrained by the latch or releasing device 32, will be allowed to swing without restraint past the point of the device 32 and gravitate around the axle 4 until it swings over the lock 33 which the flange or projection 17 is adapted to engage, thus depressing the bolt 33 against the tension of its spring 33' which is connected on the short arm of the lever 31, thus being fulcrumed at 34 on the frame 3. As soon as the particular wing 5, which is being forced beneath and elevating the roller 35, passes beneath the center of the roller, this automatically thrusting the active wing 5 forwardly, due in part to the circular surface of the roller and in part to the thrust action of the spring 36, the function of which is to swing the lever 31 with its associated elements downwardly to restrain movement of the wings 5. The moment one wing passes beneath the roller 35 and is projected forwardly, the outermost and slightly forwardly inclined foremost wing having been released, falls and the latch or trip device 32 is pulled down by the spring 36 in time to engage the particular wing which has just passed beneath the cam roller 35. Preferably the design of the frame 5 is such that it will fall with sufficient force to spring somewhat past the lower restraining or locking bolt 33, and this will be effective to prevent the outward or upward movement of the lower foremost frame 5, thus stretching the exposed sheet 12 in a straight smooth plane from the outermost bead of the upper foremost wing 5 to the foremost bead of the lower foremost wing 5. In order to assist in the folding of the flexible sheets or webs 12, as a wing 5 is released by the trip 32, I have devised and provided and successfully used a combined folding and stretching device, which is clearly illustrated in Fig. 4, comprising a pair of spring arms 40 of slightly different length, connected at their outer ends to the cross-bar 7 of the frame 5; these springs having the function of drawing toward each other transverse spring arms or bows 41, the ends of which may be pointed, as at 42, to be projected into the web or sheet 12, after the springs 41 have been slightly bowed, and the springs 41 acting when bowed to spread the sheet 12 to

take out wrinkles or convolutions which may possibly exist in the material.

From the foregoing it will be seen that, as the upper foremost wing 5 is released, that particular spring blade or arm 40 which has been sprung outwardly while the web 12 is in the exposed position in front of the axle 4 will automatically contract or spring inwardly to carry the adjacent portion of the web toward the frame 5. Simultaneously the spring 40 of the lower foremost wing 5 will spring rearwardly to fold its adjacent part of the web or sheet 12. This folding of the web is facilitated by the introduction of a plurality of disks 43 suitably spaced and mounted on the axle 4 and being of such diameter that their surface at one point substantially coincides with the plane in which the web 12 is stretched in front of the axle 4 by the two restrained outermost wings. The normal tendency of the folding springs or arms 40 to draw the sheet 12 inwardly is overcome by the taut condition in which the exposed web 12 is restrained in front of the axle 4; this condition of the sheet 12 existing by reason of the restraint of the upper foremost wing 5 by the trip 32 and the restraint of the lock 33 of the bottom wing 5. It is for the purpose of maintaining the desired tension in the exposed sheet 12 in front of the axle 4 that I provide the yieldable point or trip 32 on the restraining device 30. The spring 37 attached to the lever 30 and to the trip 32 normally tends to pull the outer foremost wing 5 backwardly, while the lower foremost wing 5 is restrained from swinging forwardly by the lock bolt 33; thus, the sheet 12 in exposed position is constantly under a tension which keeps it smooth and free from wrinkles. Instantly the trip 32 restraining the foremost wing 5 is lifted, due to the action of the impeller 13 which forces the superposed wings 5 upwardly, so that the second foremost wing 5 will engage the roller 35, then the folding springs 40 become operative to draw the sheet 12 inwardly, the centermost portion of which will be supported somewhat by the surface of the spaced stationary folders 43. When the trip 32 has been released and falls through the arc in front of the axle 4, the lower foremost wing 5 is released, since the tension is taken from the exposed sheet 12, and gravitates backwardly until it hangs substantially centrally below the axle 4, at which time the falling wing will strike the suspended wing, and the falling wing will be restrained against outward springing movement, due to the tension of its newly exposed sheet by the lever 33.

The action of the impeller 13 is as follows: During the constant rotation of the master wheel 20 in one direction the actuator 15 is oscillated on its fulcrum 16 and the im-

PELLER OR LEVER 13 IS CARRIED BACKWARDLY AND FORWARDLY, THE FORWARD MOTION HAVING AN ACCELERATED SPEED OVER THE BACKWARD MOTION, AND WHEN THE PAWL 14 IS IN ITS FOREMOST POSITION, INDICATED IN DOTTED LINES FIG. 1, IT PASSES BENEATH THE FLANGE OR PROJECTION 17 OF THE SECOND FOREMOST LOWER WING 5, AND WHEN STARTING REARWARD AGAIN THE IMPELLER 13 WILL, THROUGH MEANS OF THE PAWL 14, PULL THE ENGAGED WING 5 BACKWARDLY UNTIL IT IS BROUGHT INTO CONTACT WITH THAT PARTICULAR WING 5 WHICH IS MOMENTARILY SUPPORTED WITH THE LOAD OF ALL OF THE SUPERPOSED WINGS BY THE SUPPORTING PAWL 26. THE FORCE OF THE REARWARDLY MOVING IMPELLER 13 WILL BE SUFFICIENT TO MOVE BODILY THE SUPERPOSED CONTACTING SERIES OF WINGS 5 BEHIND THE SHAFT 4, SO THAT THE SECOND FOREMOST WING ABOUT THE AXLE 4 WILL BE CARRIED INTO ENGAGEMENT WITH THE ROLLER 35 OF THE SLIDABLE TRIP 32, MOVING THIS SLIGHTLY FORWARD DUE TO THE IMPACT, AND SIMULTANEOUSLY LIFTING THE OPPOSITE LEVER 30—32, RELEASING THE FOREMOST UPPER WING 5.

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

1. In an advertising apparatus, the combination with swinging wings, of a continuous, flexible medium foldable between the wings when they are in close relation and connected to their facing outer edges, and means connecting with the medium and imparting tension thereto to prevent transverse wrinkling.

2. In an advertising apparatus, the combination with swinging wings, of a continuous, flexible medium foldable between the wings when they are in close relation and connected to their facing outer edges, and an automatic folding and stretching device attached to the medium for preventing transverse wrinkling thereof.

3. In an advertising apparatus, the combination with swinging wings, of a continuous, flexible medium foldable between the wings when they are in close relation and connected to their facing outer edges, an automatic folding and stretching device attached to the medium for preventing transverse wrinkling thereof, and means for successively advancing the wings to a position for adjusting said medium in displaying plane.

4. In an advertising apparatus, the combination with a support, of a plurality of wings turnable about the support, continuous flexible webs connected to facing edges of the wings, means for successively turning the wings about the support, and automatic stretching and folding devices for each web.

5. In an advertising apparatus, the combination with a support, of a plurality of moving wings thereon, flexible mediums connecting the facing edges of each wing,

means for stacking superposed wings at one side of the support, and successively advancing the mediums on the wings to displaying position, and members for maintaining the
5 displayed medium under tension in a plane at one side of the support.

6. In an advertising apparatus, the combination with a support, of a plurality of moving wings thereon, flexible mediums
10 connecting the facing edges of each wing, means for stacking superposed wings at one side of the support, and successively advancing the mediums on the wings to displaying

position, members for maintaining the displayed medium under tension in a plane at
15 one side of the support, and devices for stretching the medium transversely in all its positions.

In testimony whereof I have hereunto set my hand in the presence of two subscribing
20 witnesses.

CHARLES H. KING, JR.

Witnesses:

CHARLES EDELMAN,
C. C. COOK.