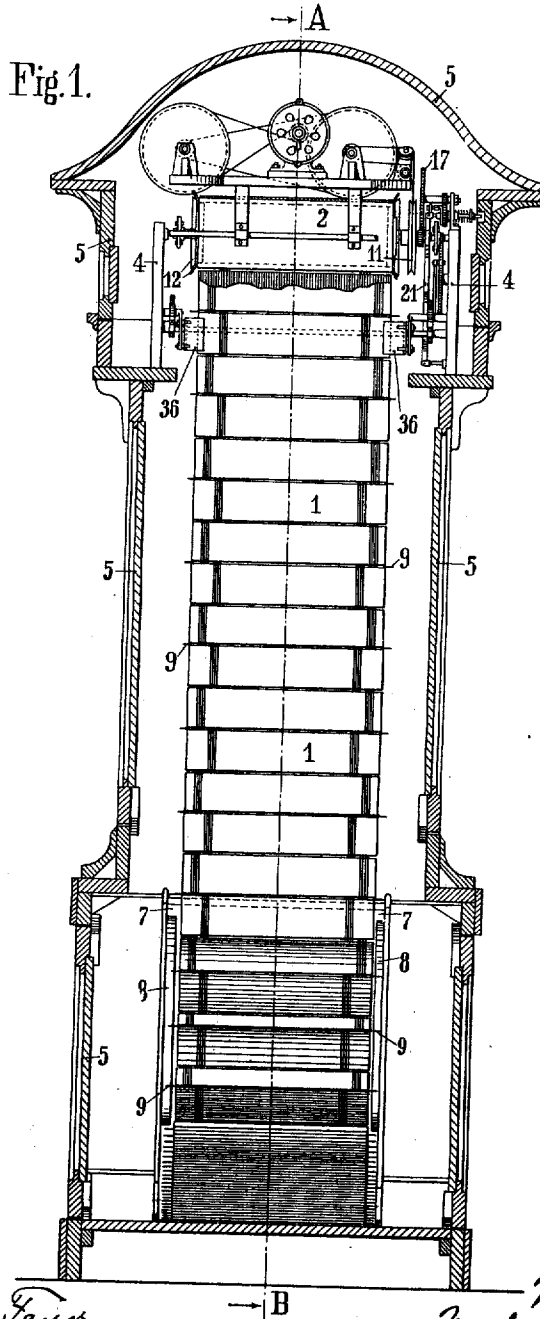


M. TANNERT & M. BÖSHERZ.
AUTOMATICALLY CHANGING ADVERTISING DEVICE,
APPLICATION FILED AUG. 10, 1907.

902,927.

Patented Nov. 3, 1908.

4 SHEETS—SHEET 1.



Witnesses:

A. Faber du Faur
Sally C. Yeady

Inventors

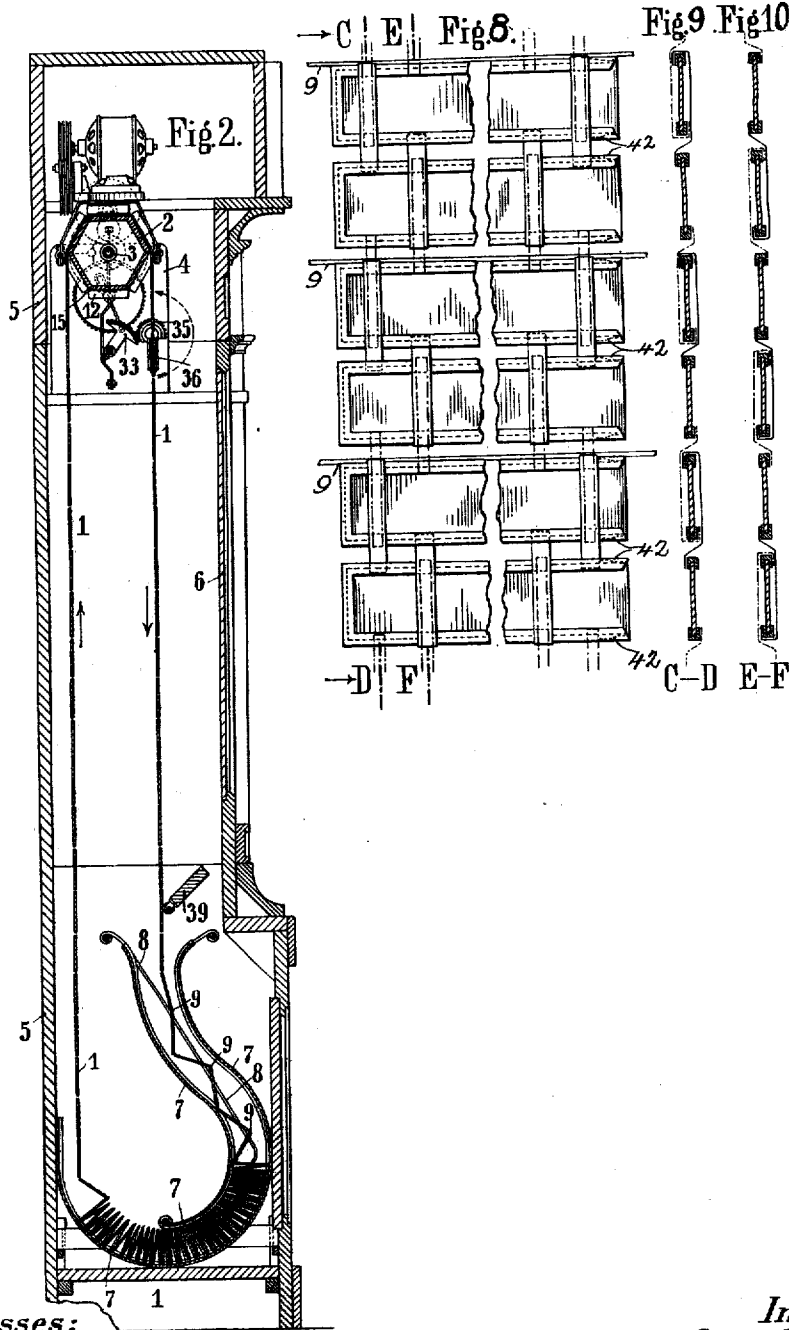
Max Tannert
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By *Redd P. Schuch* Attorney

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4 SHEETS—SHEET 3.

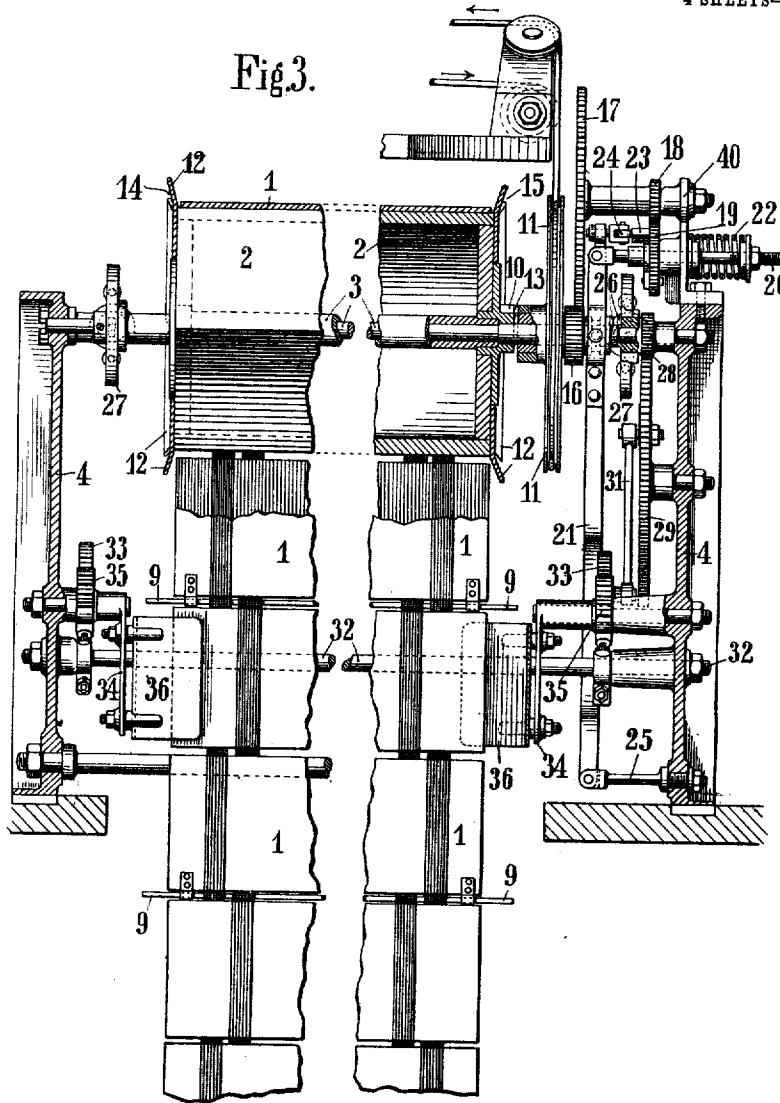
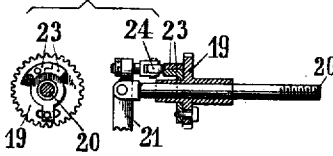


Fig. 7.



Witnesses:

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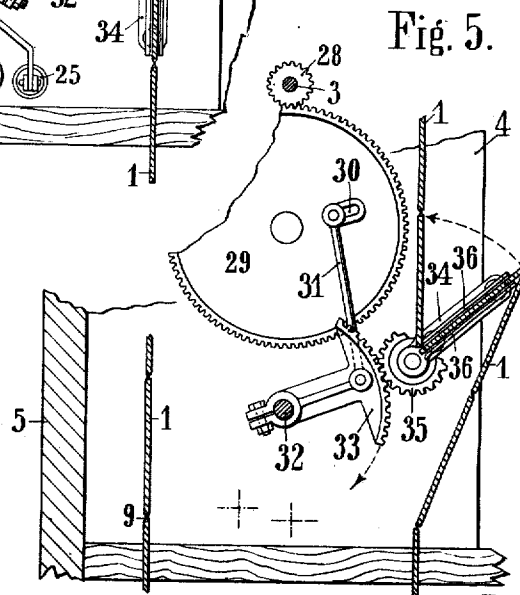
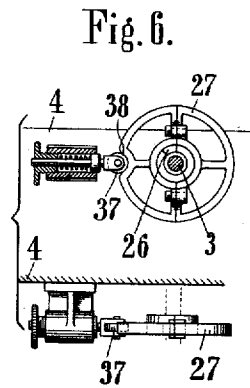
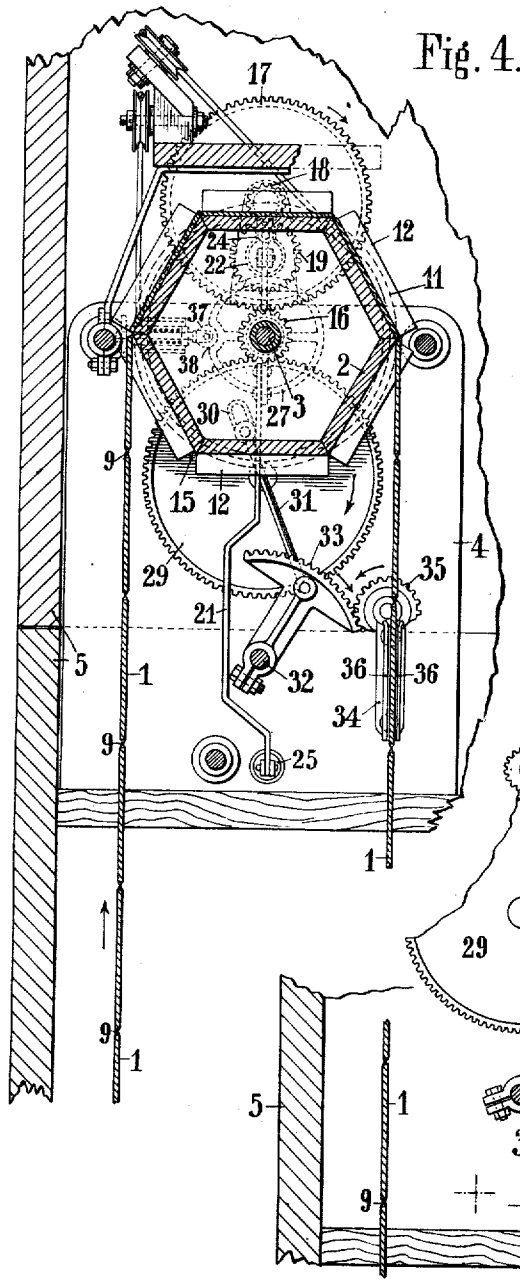
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4 SHEETS—SHEET 4.



Witnesses:

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Inventors:

Max Tannert
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UNITED STATES PATENT OFFICE.

MAX TANNERT AND MICHAEL BÖSHERZ, OF STETTIN, GERMANY.

AUTOMATICALLY-CHANGING ADVERTISING DEVICE.

No. 902,927.

Specification of Letters Patent.

Patented Nov. 3, 1908.

Application filed August 10, 1907. Serial No. 388,003.

To all whom it may concern:

Be it known that we, MAX TANNERT, professor, a subject of the German Emperor, and resident of Barnimstrasse 83, and
5 MICHAEL BÖSHERZ, engineer, a subject of the German Emperor, and resident of Barnimstrasse 79, both in the city of Stettin, Germany, have invented new and useful Improvements in Automatically-Changing Advertising Devices, of which the following is a specification.

This invention relates to an automatically changing advertising device.

It consists in applying a device which we
15 believe is known as the Jacob's ladder toy or Chinese ladder.

The present invention constitutes a considerable technical advance as it arranges this Jacob's ladder in the shape of a long,
20 preferably endless, band which is not only caused to show the front or the back of the tablets alternately, by means of a special oscillating device, but the long or endless band automatically advances at given intervals of
25 time so that an almost unlimited number of advertising pictures and the like can be arranged on the plates of the correspondingly long endless ladder and shown to the public. It will be readily understood that, owing to
30 the frequent change of single advertisements being now possible, the value of the advertising device is considerably enhanced, as the same does not tire the eye of the spectator to that extent as when always one, or
35 perhaps two pictures, are shown alternately one after another and constantly repeated.

A form of construction of the automatic advertising device according to this invention is illustrated in the accompanying
40 drawings in which

Figure 1 shows the device in elevation, the front of the casing being left out. Fig. 2 is a section through the said device on the line A—B of Fig. 1. Fig. 3 shows the driving mechanism seen from the front. Fig. 4
45 is a side elevation of Fig. 3. Fig. 5 shows the means for reversing the position of the plates by swinging. Fig. 6 shows the locking of the cam disk. Fig. 7 is a detail view
50 of the cam wheel. Fig. 8 is an elevation of the plates forming the ladder. Figs. 9 and 10 are sections taken respectively on the line C—D and E—F, Fig. 8, the parts beyond the line of section not being shown and the

dotted and full lines representing respectively the inner and outer bands connecting the plates.

In the construction illustrated the Jacob's ladder 1 formed into an endless band, travels at its upper portion over a hexagonal prism
60 2 which is mounted in a suitable manner on a spindle 3 and supported with the same in the lateral parts 4 of the casing 5. The latter can be of any desired shape. At the front end it is provided with a glass pane
65 6 through which the picture on the plates of the Jacob's ladder 1 can be seen. The bottom part of the casing 5 is suitably designed so as to receive and guide the folded plates of the Jacob's ladder.

Fig. 2 shows the said guide clearly. It consists of two plates 7 made of sheet metal or other suitable material and secured to the casing in such a manner that they receive between them the plates below the glass pane
75 6. Lateral guide ledges 8 are arranged between the sheet metal plates 7 and cooperate with lateral pins 9 secured alternately to the plates 1 in such a manner that each plate is forced to travel along the path formed by
80 the said guide ledges 8, the result being that all the plates of the Jacob's ladder in the lower part of the casing are folded together between the guide plates 7 in a special manner, viz. so that the edges of the plates to
85 which the pins 9 are secured, rest on the wall of the outer sheet metal plate. The weight of the plates resting on each other, forces the said plates to move further forwards on the rounded off portion of the said outer sheet
90 metal wall until they are again lifted off during the advance of the prism as the spindle 3 is rotated by means of a specially arranged driving mechanism at the rear of the casing and again repeat their path along the back
95 wall of the casing 5. During the said movement of the Jacob's ladder, the plates are turned over at given intervals of time by a swinging device. In order to enable the number of the advertisements to be increased
100 to any desired extent, there is provided a device which advances the Jacob's ladder at given intervals of time to the extent of a given portion of their length. The arrangement is so made that the Jacob's ladder,
105 after being advanced should be caused by the swinging device to show alternately the front and the back of its plates and further

that the plates cannot be advanced during the swinging. The said arrangement consists in the driving wheel 11 mounted on the main spindle 3 and capable of being alternately coupled to the prism 2 and to the driving gear for the swinging device. To that end, a coupling tappet or cam 10 is mounted on the lateral guide- and covering-surface 12 of the prism and can engage at intervals with a cam 13 of the wheel 11, so that the rotating driving wheel also forces the prism with the Jacob's ladder 1 resting on it, to rotate or to advance.

In order to insure the advance of the Jacob's ladder, the lateral covering surfaces of the prism are provided with slots 14 and 15 with which the guide pins 9 of the plates can engage. To the opposite side of the driving wheel is secured a pinion 16 engaging with the toothed wheel 17 situated above it, which it drives. The toothed wheel 17 is supported with its spindle by the lateral parts 4 and transmits its movement through the gear 18 to the toothed wheel 19 arranged below it and supported in the bracket 40. The rod 20 passing through the said wheel is of such shape that it is secured with its inner end to a lever 21, while its outer end has the shape of a buffer and rests against the spring 22, the other end of which rests against the bracket 40. It will be seen that the spring has the tendency to force the loose rod with its end projecting inwards, against the hub of the wheel. The latter is provided at the said inner surface with a specially formed cam 23, and the lever carries at its upper part a guide roller 24 which at times travels in the lateral surface of the said wheel 19 or on the cam 23. The cam 23 is made in two pieces one of which is fixed to the toothed wheel 19; and the other of which is movable, being adjustable by means of a suitable bolt and slot with respect to said other piece to vary the length of the cam. While the guide roller 24 travels over the cam, the lever is swung out laterally and throws into gear the clutch between the driving disk 11 and the prism 2, so that the latter is also moved, and it will be seen that by adjusting one part of the cam, the movement of the Jacob's ladder can be made correspondingly greater or smaller.

The lever 21 which projects vertically downwards, is as already stated a one-armed lever and is rotatably supported at its lowest end by the rod 25 attached to the part 4. At the point of intersection of the lever 21 with the spindle 3 the former is so shaped that it can surround the spindle and at the same time alternately throw in and out of gear a clutch 26. The said coupling or clutch has for its object to transmit at times the rotation of the main driving pulley to the pinion 28 with the fixing disk 27 and from the lat-

ter to a driving disk or wheel 29, which latter is also supported by means of journals in the part 4 and is provided with a connecting rod 31 adjustably secured by means of a slot 30 so as to move toothed segments 33 keyed to the spindle 32, the said segments again engaging with the toothed wheel 35 driving the swinging device 34.

The swinging device comprises guides 36 between which the plates are caused to pass. They are also loosely mounted in the parts 4 by means of journals. As will be seen from the drawing and as already stated, the spindle 32 carries a toothed sector 33 at each side of the Jacob's ladder, the said sectors being capable of moving one swinging device at each side of the plates, whereby a uniform guiding of the latter is obtained. It will be seen therefore that, while the guide roller 24 rests on the cam 23 of the toothed wheel 19 and the driving disk 11 is coupled to the prism, only a movement of the toothed wheel 17 and of the pinion 18 takes place which movement is only transmitted to the cam wheel 19, while the other parts of the turning over mechanism remain standing still. In order to insure the said position of rest, that is to say, in order to prevent the pinion 28 from being driven by the friction of the spindle, whereby the plates would be caused to swing out and to turn, there is provided a locking device of such kind that the wheel 27 is formed at its circumference into a cam wheel, and a buffer roller 37 arranged at the back and controlled with adjustable pressure by its spring, slides on the said circumference and can engage with the recess 38 of the circumference when the clutch is thrown out of gear. A similar cam disk with a fixing or locking roller can be arranged on the opposite side of the prism, as for instance, shown in the drawing (Fig. 3).

Below the glass plane in the interior of the casing is arranged an oblique board 39 provided with guide rollers, the object of the said board being to limit the downward turning of the Jacob's ladder to the portion visible behind the glass during the swinging out of the plates, and at the same time to guide the band.

In order to explain the above-mentioned working of the advertising device, it must be pointed out that a motor or some other driving device is arranged in a suitable manner above the prism, and the speed of the main driving gear regulated at will by putting in a transmission gear. By throwing into gear the motor and driving the main driving disk 11, first the clutch with the prism 2 is thrown in, that is to say, the guide roller 24 of the lever 21 moves on the cam 23, and the prism will, therefore rotate, and the Jacob's ladder advance until the guide roller has left the cam. Then, owing to the action

of the spring 22, the lever 21 swings out, the clutch between the main driving disk and the prisms is thrown out of gear, but the clutch 26 connecting to the pinion 28 and to the disk 27, is thrown into gear. These two latter are now rotated, the buffer roller 37 sliding on the circumference of the disk 27. In that way the large toothed wheel disk 29 is rotated, and the said rotation transmitted through the connecting rod 31 to the toothed sectors 33, whereby the swinging device 34 is turned upwards and the plate rectilinearly guided by the latter, is raised and turned. Owing to the arrangement of the endless band in the form of the Jacob's ladder, the plates freely suspended behind the glass pane will now automatically rotate and expose their backs. This takes place until with the further movement of the toothed disk 29 the connecting rod brings back the sectors and thus the swinging device, whereby the plates are also automatically returned into their original position, and show the same picture or advertisement as previously. At the same time the guide roller 24 has again reached the cam 23, slides over the same and thus, by means of the lever 21, throws the clutch of the driving gear for the swinging device out of gear, and the clutch between the main driving disk and the prism into gear. The buffer-roller has engaged with the recess 38 of the locking disk and prevents the driving gear for the swinging device from continuing to slide, the prism with the Jacob's ladder resting on it turns and brings a new picture or advertisement in front of the glass pane. At the same time the plates are received between the sheet metal walls 7 and folded together by means of the lateral guide ledges 8, so that they continue to slide on the rounded off portion of the sheet metal wall and collect at the lower part of the casing. In this construction there are for instance 144 plates in the bottom round portion of the guide, which number could be considerably increased. It will thus be seen that an advertising device with very numerous changes is produced.

The essential point of the invention is first of all, the arrangement of the Jacob's ladder in the form of a long continuous band containing a series of single placards or pictures, the device for folding together so that the length can be greatly increased independently of the height of the casing, and the arrangement of the mechanism in such a manner that the plates are advanced at regular intervals of time and swung out and turned, while the said device for advancing or moving back is automatically thrown out of gear. The arrangement and construction of the said parts can be effected in various ways, the drawing merely showing one example. It must be expressly pointed out that the apparatus can also be constructed in such a

manner that the band constituted by different placards can be first intermittently moved downwards and when the whole series of placards in that direction is unrolled, it can be again moved back upwards, the plates or placards being turned during the standstill of each single set. In this construction the intermittent movement of the whole series of plates or placards is automatically reversed at each end of the long Jacob's ladder and the plates alternately collect in one of the two collecting tanks provided.

The plates of the ladders can be formed as shown in Fig. 9 as grooved or folded sheet metal frames, or frames of any suitable shape into which the advertisements could be introduced in an easily interchangeable manner. The frames may be provided with springs 42 or other holding devices for preventing an accidental shifting of the plates during the movement of the ladder.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed we declare that what we claim is:—

1. In an advertising device: a so-called Jacob's ladder adapted to carry advertising pictures and the like; means to advance said ladder at given intervals of time; and means to swing said ladder in such a manner as to alternately expose the front and back thereof.

2. In an advertising device: a so-called Jacob's ladder comprising a succession of frames adapted to carry advertising pictures and the like; means to advance said ladder at given intervals of time; means to swing said ladder in such a manner as to alternately expose the front and back thereof; and means to cause said ladder to be stored at a given point, the frames lying with their surfaces on top of each other.

3. In an advertising device: a so-called Jacob's ladder comprising a succession of frames adapted to carry advertising pictures and the like; means to temporarily advance said ladder at given intervals of time; and means to then cause said succession of frames to turn in series.

4. In an advertising device: a so-called Jacob's ladder comprising a succession of frames adapted to carry advertising pictures and the like; means to advance said ladder at given intervals of time; means to swing said ladder in such a manner as to expose the front and back thereof; and means to automatically switch in or out at the beginning of the advance of said ladder, the means for swinging the same.

5. In an advertising device: a so-called Jacob's ladder adapted to carry advertising pictures and the like; driving mechanism; a prism operated thereby and adapted to advance said ladder; means to swing said ladder in such a manner as to expose the front

and back thereof; and means to automatically couple said driving mechanism alternately to said prism and to said means for swinging said ladder.

6. In an advertising device: a so-called Jacob's ladder comprising a succession of frames adapted to carry advertising pictures and the like; driving mechanism; a toothed wheel 28 adapted to be temporarily driven thereby; a driving disk 29 meshing with the said wheel 28; toothed segments arranged laterally with respect to said frames and by means of which segments the frames may be caused to turn over; and intermediate mechanism between said disk 29 and the said segments.

7. In an advertising device: a so-called Jacob's ladder comprising a succession of frames adapted to carry advertising pictures and the like; means to advance said ladder at given intervals of time; means to swing the frames of said ladder in such a manner as to alternately expose the front and back thereof; and means to lock said swinging

means to prevent accidental operation of same.

8. In an advertising device: a so-called Jacob's ladder comprising a succession of frames alternately provided with lateral guide pins, and adapted to carry advertising pictures and the like; means to advance said ladder at given intervals of time; means to swing said ladder in such a manner as to alternately expose the front and back thereof; guide conduits for the said frames; and ledges therein adapted to engage with said guide pins and adapted to cause said ladder to be stored, and the frames to lie with their surfaces on top of each other.

In testimony, that we claim the foregoing as our invention, we have signed our names in presence of two witnesses, this 18th day of July 1907.

MAX TANNERT.

MICHAEL BÖSHERZ.

Witnesses:

KARL KUNZE,

HANS HILDEBRAND.