A. R. MITCHELL.

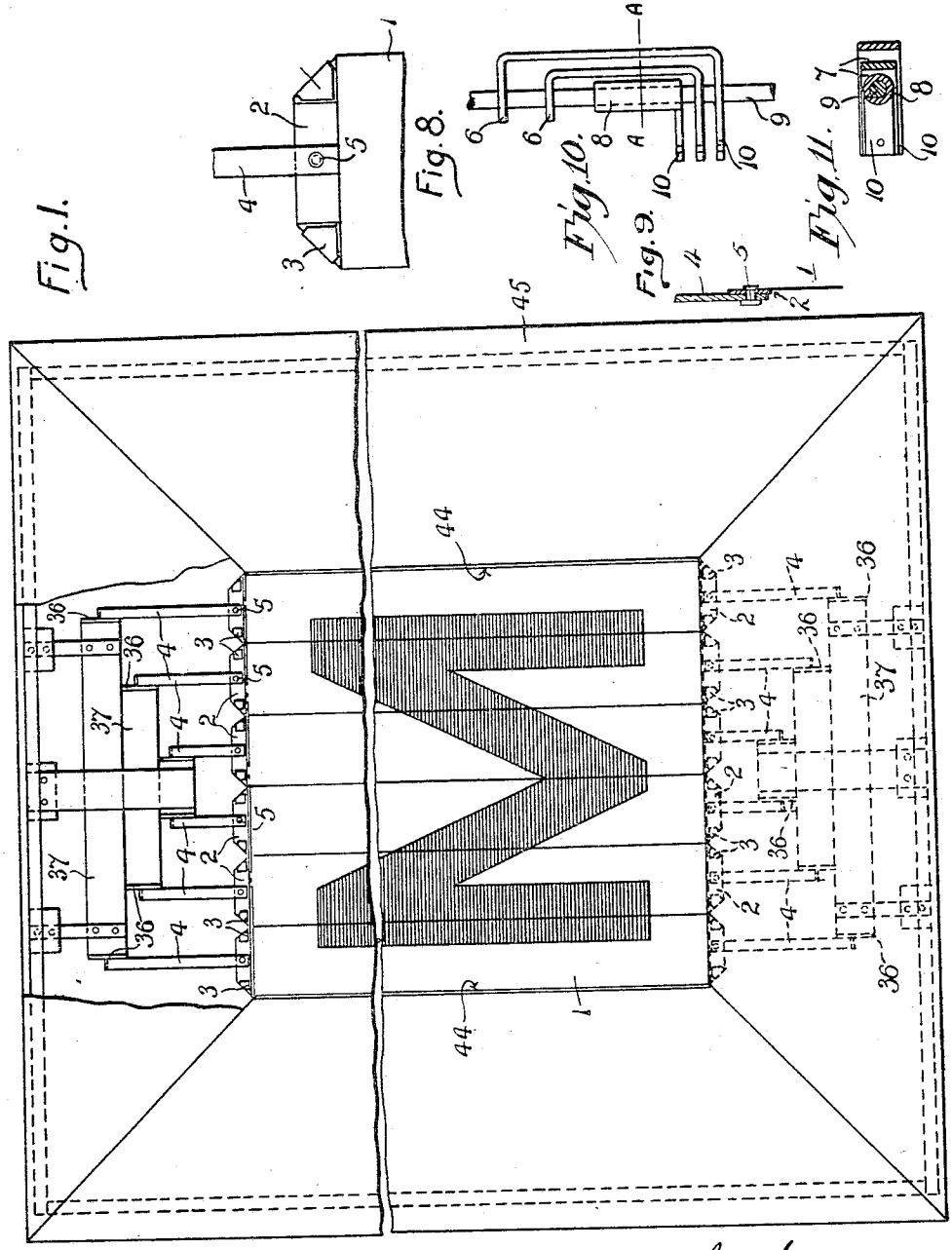
PICTURE DISPLAY APPARATUS.

APPLICATION FILED OCT. 11, 1916.

1,288,114.

Patented Dec. 17, 1918.

3 SHEETS—SHEET 1.



Inventor:
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By: B. Singer
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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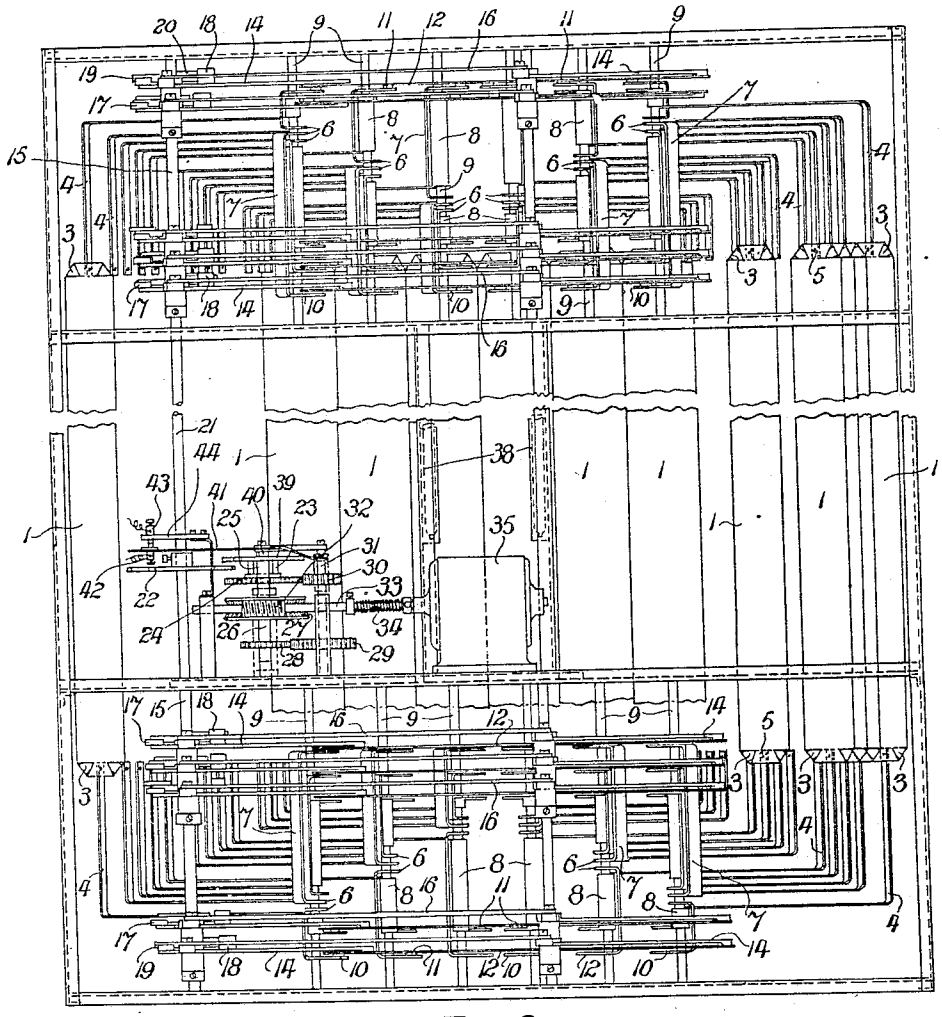


Fig. 2.

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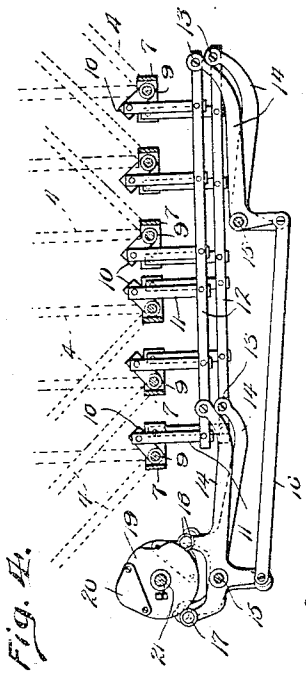


Fig. 4.

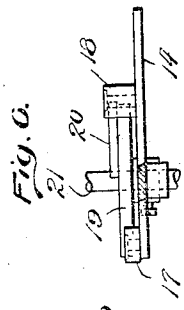


Fig. 6.

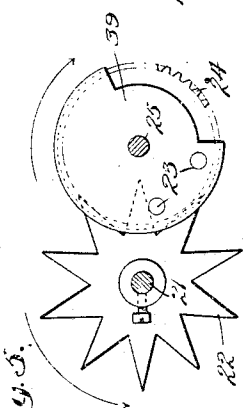


Fig. 5.

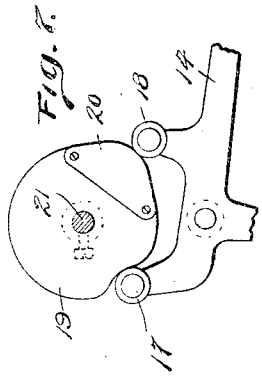


Fig. 7.

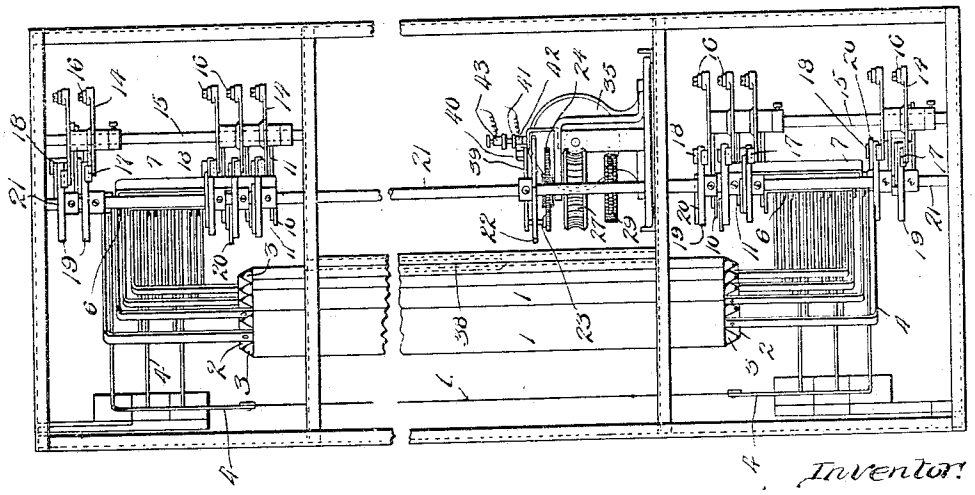


Fig. 3.

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UNITED STATES PATENT OFFICE.

ARCHIBALD ROBERTSON MITCHELL, OF LONDON, ENGLAND.

PICTURE-DISPLAY APPARATUS.

1,288,114. Specification of Letters Patent. Patented Dec. 17, 1918.

Application filed October 11, 1916. Serial No. 125,104.

To all whom it may concern:

Be it known that I, ARCHIBALD ROBERTSON MITCHELL, a subject of His Majesty, the King of Great Britain, and resident of London, England, have invented certain new and useful Improvements in Picture-Display Apparatus, of which the following is a specification.

This invention relates to an improved picture display apparatus of the kind wherein a number of pictures composed of registering picture portions or sections are successively displayed.

The object of my present invention is to provide a machine which can be utilized to display ordinary printed posters.

The advantage possessed by such a machine as I propose will be readily appreciated when it is remembered that mechanical advertising machines of the general character to which my invention relates suffer from the disability that the series of pictures which the machine displays cannot be readily changed and another series substituted.

With my improved machine any picture of the series can be readily removed and another substituted in its place, and moreover if it is desired to display at any time any ordinary poster of the size of the machine all that is necessary is to cut the poster up into strips and attach these strips to the machine.

The invention consists broadly in providing a number of movable structures adapted to support removable and interchangeable picture or poster strips or sections and to move the strips or sections into and out of display position. Preferably the poster sections are held in tension between the ends of two or more arms.

In order that the invention may be readily understood and carried into practice, reference is hereby made to the accompanying drawings in which is illustrated a practical embodiment of the invention. In the apparatus depicted, five pictures are capable of being shown in succession at predetermined intervals of time, each picture being composed of six sections.

Referring to the drawings Figure 1 is a front view of a picture or poster displaying apparatus arranged in accordance with my invention, with a portion of the wood framework broken away.

Fig. 2 is a rear elevational view of the apparatus with the wood framework and some of the poster sections removed for clearness.

Fig. 3 is a side elevational view of Fig. 2.

Fig. 4 is a sectional plan view of part of the apparatus shown in Figs. 2 and 3.

Fig. 5 is an enlarged plan view of a part of Figs. 2 and 3.

Fig. 6 is an enlarged elevational view of a part of Figs. 2, 3 and 4.

Fig. 7 is a plan view of Fig. 6.

Fig. 8 is an enlarged detail of a part of Figs. 1, 2 and 3.

Fig. 9 is a section of Fig. 8.

Fig. 10 is an enlarged elevational view of a detail of the apparatus shown in Figs. 2, 3, and 4, and

Fig. 11 is a section on line A—A of Fig. 10.

Referring to these drawings wherein like numerals indicate corresponding parts wherever occurring, the numeral 1 designates the picture or poster section, the top and bottom corners of which are folded over thin metal plates 2, the said corners being clamped down by means of clips 3, which securely hold the top and bottom parts of the poster sections to the plates 2. These plates are held in position on the ends of the radial supporting arms 4 by means of the projecting buttons or studs 5 (see particularly Figs. 8 and 9) which are fixed to the ends of the said supporting arms, the enlarged ends of the studs passing through holes in the plates 2 when the latter are pressed on. It will be appreciated that the operating mechanism of the apparatus is in duplicate, one set operating the upper radial arms and the other set the lower radial arms, while the movements of these two sets of mechanism are arranged to synchronize as will be hereinafter explained.

The supporting arms 4 are preferably made of flexible material such as strip steel so that when the plates 2 carrying the picture or poster sections are placed in position the picture sections will be maintained in a state of tension.

Each one of the radial supporting arms is bent at right angles, the ends to which the plates 2 are attached being maintained in vertical planes while the other parts of the arms are in horizontal planes as will be readily understood by reference to Figs. 2 and 3 of the drawings.

The ends of some of the horizontal parts of the arms 4 are rigidly secured to the pro-

jecting lugs 6 of the brackets or cages 7, the other ends being also rigidly attached to lugs formed on the sleeves 8. The cages and sleeves carrying the radial supporting arms 4 are arranged to turn freely on the fixed spindles 9, and are also provided with projecting ends 10 to which are pivotally connected the ends of the levers 11, the other ends of these levers being connected to the cross-bars 12, which in turn are connected at 13 to the curved bell-crank levers 14. These bell-crank levers are pivotally mounted on fixed spindles 15, and are connected together by means of tie-bars 16.

Certain of the bell-crank levers 14 are provided with short arms carrying rollers 17 and 18 as may be seen particularly in Figs. 4 and 7, adapted to contact with cams 19 and 20 respectively mounted upon the rotatable shaft 21. Each pair of cams 19 and 20 are arranged one above the other in such a manner that the lower cam only contacts with the roller 17 while the upper cam 20 contacts only with the roller 18, as will be readily understood by reference to Figs. 6 and 7. The contour of the cams is such that the levers 14 are positively locked in both the normal and operative positions.

Rigidly secured to the shaft 21 is a star wheel 22 provided with ten pointed members and engaging with these pointed members are two pins 23 fixed to the toothed wheel 24 which is loosely mounted on the fixed shaft 25.

Also loosely mounted on this shaft is a sleeve 26 carrying the worm wheel 27 and toothed wheel 28, this wheel gearing with another wheel 29 connected by means of a sleeve with the toothed wheel 30, said sleeve being also loosely mounted on the auxiliary fixed shaft 31. Gearing with the worm wheel 27 is a worm 32 driven by the shaft 33, and this shaft is coupled by means of the flexible connection 34 to the shaft of the motor 35. The operation of the apparatus is as follows: On starting up the motor, the worm wheel 27 is caused to rotate, by means of the worm 32, so causing the toothed wheel 24 also to rotate at a certain predetermined speed through the medium of the wheels 28, 29 and 30 which constitute a suitable reduction gear. As the wheel 24 slowly rotates the pins 23 will be caused to engage with the star wheel 22 once in every revolution of the wheel 24, and this will have the effect of turning the star wheel and also the shaft 21 an amount equal to one fifth of a revolution. Each time the said star wheel and shaft are so operated the cams 19 are also moved a corresponding amount, and one of the levers 14 in the upper part of the apparatus will be moved in unison with corresponding lever 14 in the lower half of the apparatus, the respective sets of levers 11 and 12 connected to these levers 14 being moved at the same time so operating the top and bottom radial arms carrying the sections of one picture or poster to be displayed. It will thus be seen that for each picture or poster displayed one set of cams and connecting levers in the upper part of the apparatus is moved in unison with a corresponding set in the lower part of the apparatus and thus the necessary synchronous movement of the radial arms carrying the top and bottom ends of the picture or poster sections is obtained.

Each set of cams so operating together are arranged at such an angle to the set next operated that the picture sections in the displayed position are withdrawn before the next set of picture sections are brought into the displaying position.

In order to bring the radial arms 4 properly to register in their required positions and also to minimize any vibration that might be set up, buffers 36 of rubber or other suitable material may be provided, supported by members 37 arranged near the front of the apparatus as shown in Figs. 1 and 3.

To provide for the illumination of the displayed pictures or posters at night, lamps 38 may be provided situated in the interior of the apparatus, and in order that the lights may be put out at the moment of changing the pictures or posters, a make and break device is included in the lamp circuit. This device may conveniently take the form of a plate 39 (see particularly Figs. 2, 3 and 5) with a part of its edge cut away, which plate is carried by the pins 23. Arranged above this plate and normally in contact with it is a small block 40 of insulating material attached to the underside of a flat spring 41 which carries at one end a terminal 42. Immediately above this terminal is another terminal 43 carried by the fixed support 44. Normally the block 40 is maintained above the top surface of the plate 39 against the action of the spring 41 so closing the contacts between the terminals 42 and 43 and consequently the lamp circuit, but at the moment of changing one picture or poster for another, the block 40 would drop slightly owing to the cut away part of the plate 39. This would have the effect of breaking the lamp circuit until the block was again raised by means of the wedge like action between the block and the edge of the said plate.

An alternative method of illuminating is to provide lamps in a convenient position outside the apparatus, preferably near the inner edges 44 of the framing 45, so that the displayed pictures or posters would be illuminated from the outside instead of the inside of the apparatus.

What I claim and desire to secure by Letters Patent is:—

1. A picture display apparatus compris-

ing means for carrying a number of pictures each consisting of separated flexible strips, means for maintaining tension upon each strip, means for causing certain of the strips to register together side by side in abutting relation in the same plane, and means for separating the flexible strips forming the displayed picture one from the other and carrying them out of display position whereby different complete pictures made up of separate flexible strips are successively displayed and removed from display position in sequence.

2. A picture display apparatus comprising means for carrying a number of pictures each consisting of separated flexible strips, means for removably attaching each strip to its carrying means, means for maintaining tension upon each strip, means for causing certain of the strips to register together side by side in abutting relation in the same plane, and means for separating the flexible strips forming the displayed picture one from the other and carrying them out of display position whereby different complete pictures made up of separate flexible strips are successively displayed and removed from display position in sequence.

3. A picture display apparatus comprising radial swinging arms for carrying a number of pictures each consisting of separated flexible strips, means for maintaining tension upon each strip, means for causing certain of the strips to register together side by side in abutting relation in the same plane, and means for separating the flexible strips forming the displayed picture one from the other and carrying them out of display position whereby different complete pictures made up of separate flexible strips are successively displayed and removed from displaying position in sequence.

4. A picture display apparatus comprising radial swinging arms of resilient material for carrying and holding separate flexible picture strips in tension, means for removably attaching each strip to its carrying means, means for maintaining tension upon each strip, means for causing certain of the strips to register together side by side in abutting relation in the same plane, and means for separating the flexible strips forming the displayed picture one from the other and carrying them out of display position whereby different complete pictures made up of separate flexible strips are successively displayed and removed from display position in sequence.

In testimony whereof I affix my signature in presence of two witnesses.

ARCHIBALD ROBERTSON MITCHELL.

Witnesses:

VINCENT HUGHES,

DAISY EVERY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."