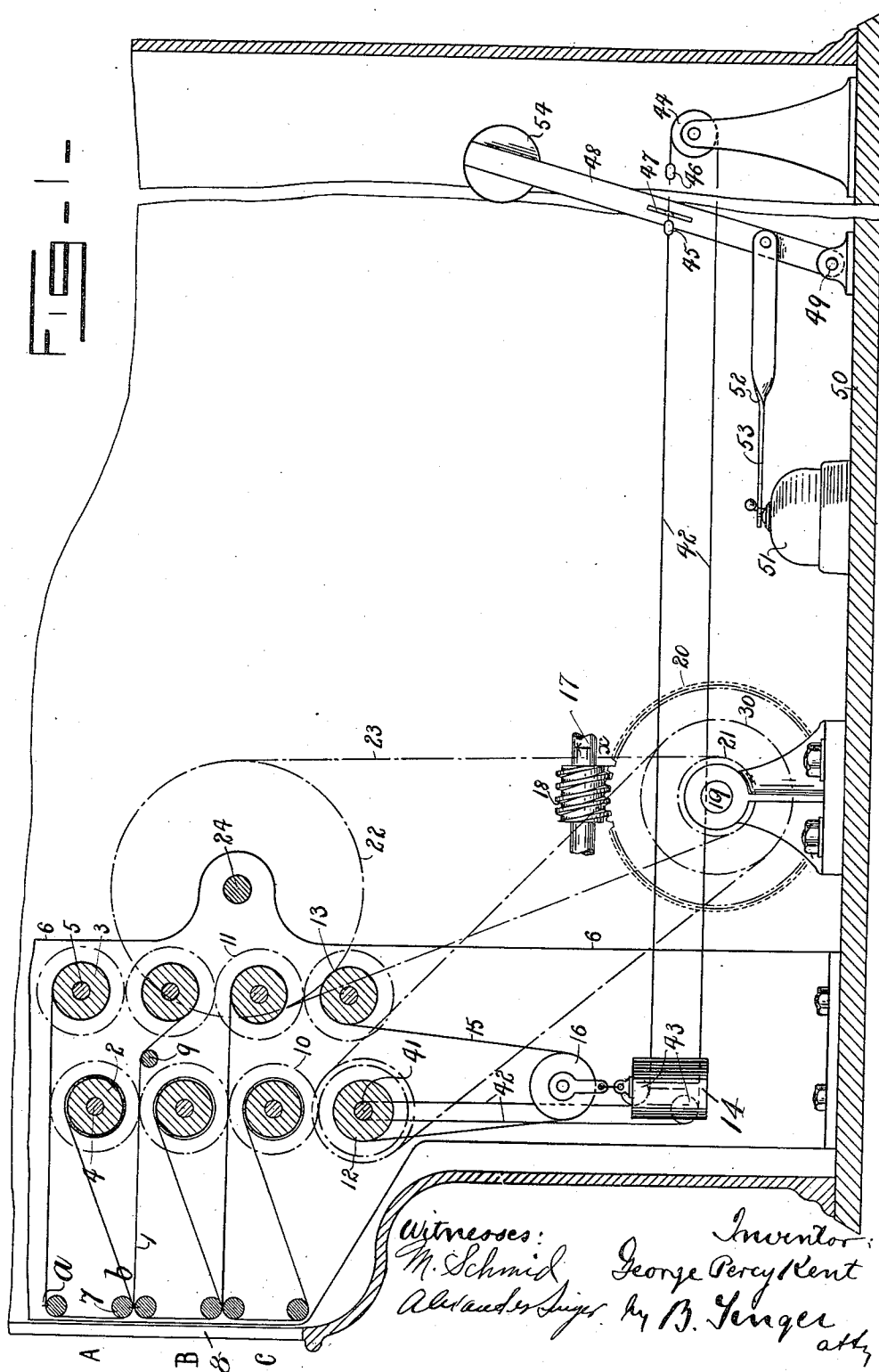


1,016,944.

G. P. KENT.
ADVERTISING APPARATUS.
APPLICATION FILED AUG. 29, 1910.

Patented Feb. 13, 1912.

2 SHEETS—SHEET 1.



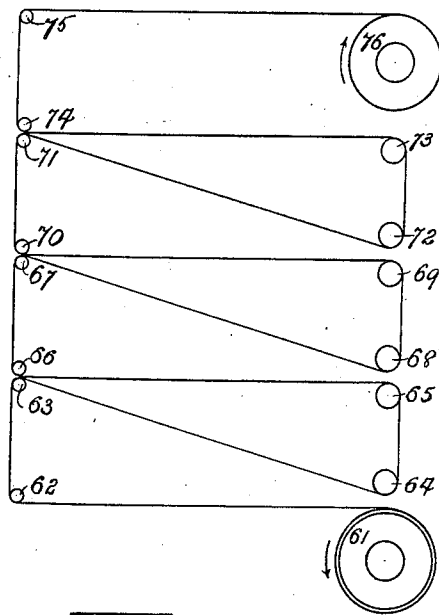
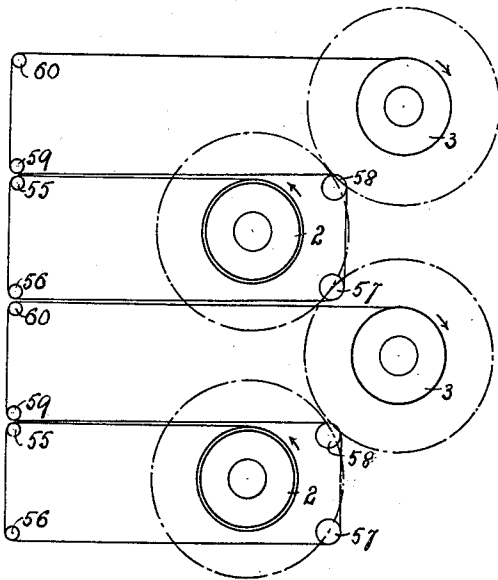
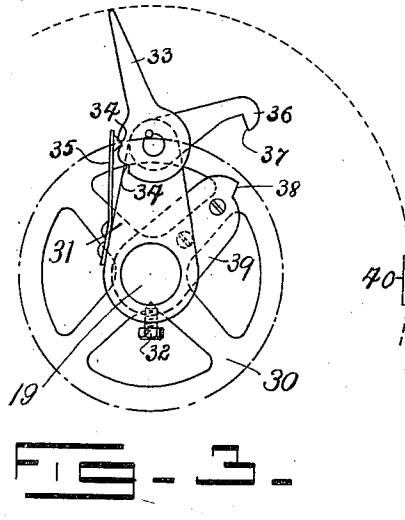
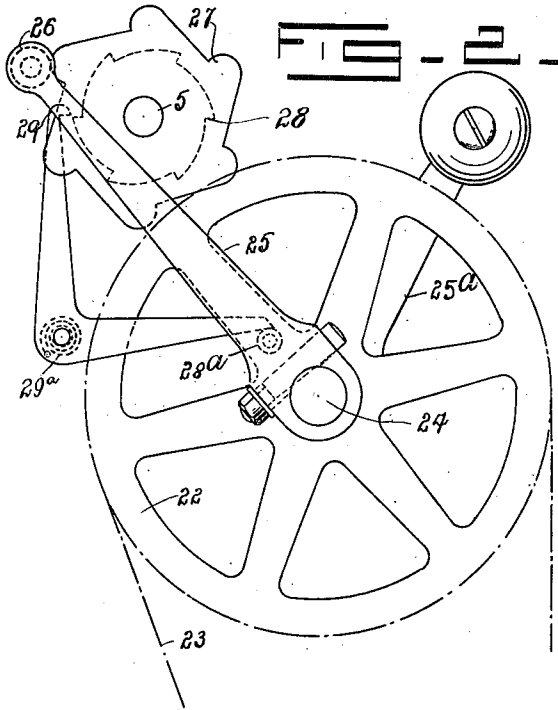
Witnesses:
M. Schmid George Percy Kent
Alexander Singer by B. Jenger atty

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2 SHEETS—SHEET 2.



Witnesses:
M. Schmidt
Alexander J. J.

Inventor:
George Percy Kent
by B. Singer atty.

UNITED STATES PATENT OFFICE.

GEORGE PERCY KENT, OF SOUTHEND-ON-SEA, ENGLAND.

ADVERTISING APPARATUS.

1,016,944.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed August 29, 1910. Serial No. 579,559.

To all whom it may concern:

Be it known that I, GEORGE PERCY KENT, of 14 Grove road, Southend-on-Sea, in the county of Essex, England, have invented certain new and useful Improvements in Advertising Apparatus, of which the following is a specification.

This invention relates to a new or improved moving picture display apparatus of the type wherein a number of picture portions are carried upon bands adapted to be moved so as to cause a succession of complete pictures made up of a number of picture portions to be displayed.

The object of my present invention is to provide an automatic advertising apparatus which will intermittently display the whole series of advertisements or pictures in the forward direction and will then automatically reverse so as to display the pictures backward and then again change its direction of movement, thereby providing an effective and continuously operating apparatus. The movement of the pictures in the reverse direction may be intermittent or continuous and at the same or a different rate of progression as the forward movement.

A further feature of my invention consists in the manner of winding the picture carrying bands so that both sides of the band may be employed for carrying the picture portions, thus effecting considerable economy in space.

Moreover my invention comprises within its scope a particular mechanism for effecting the desired movements.

In order that my invention may be more readily understood and carried into practice, reference is hereby made to the accompanying sheets of illustrative drawings wherein:—

Figure 1 is a sectional elevation of a machine constructed in accordance with my invention. Figs. 2 and 3 are elevational views, on an enlarged scale, of some important details, while Figs. 4 and 5 illustrate different methods of winding the canvas to effect the object of my invention.

Referring to these drawings wherein like letters of reference indicate corresponding parts wherever occurring, the numeral 1 designates a band of a width at least equal to that of the pictures to be painted, printed or otherwise worked thereon. This band is fastened at its ends to the rollers 2 and 3,

mounted upon spindles 4 and 5 respectively, which spindles 4 and 5 are journaled in the side plates 6 of which there are of course two to accommodate both ends of the spindles aforesaid of the rollers 2 and 3. The band 1 passes over the rollers 7 which guide it before the display aperture 8. This constitutes a complete unit. The display sheet is made up of a multiple of these units of which three are shown in Fig. 1. A jockey pulley such as that indicated by the reference numeral 9 may be provided wherever found necessary in order to prevent the bands rubbing together and thus obliterating or damaging the pictures or signs applied thereto. Motion is transmitted from one roller 2 to another, throughout the series, by gear wheels, the pitch circles of which are indicated by the dash lines 10. Likewise the rollers 3 are geared together by similar gear wheels, the pitch circles of which are indicated by the chain lines 11. Beneath the bottom unit an extra pair of rollers 12 and 13 is arranged and similarly geared from the other pairs forming the units. These rollers 12 and 13 serve, among other things which will hereafter be set forth, to support the weight 14 by the cord 15 which is attached to their peripheries and passes around the pulley 16. The function of this weight is to produce a turning moment upon the rollers 12 and 13 which is communicated to the rollers 2 and 3 and is such as to keep the band 1 always in tension. The pictures or signs are as aforesaid painted or otherwise worked upon the bands 1 in sections each section being of a length equal to the distance between the centers of the rollers 7 together with half the length of the circumference of the said rollers 7; that is from *a* to *b* in Fig. 1. Each band will thus comprise a number of sections of different pictures or signs arranged in the correct order and occupying the same sized space of each band so that the various sections always register to display a complete picture as the bands pass the front of the machine. In Fig. 1 the bands are shown wound upon the rollers 2, and in one of the extreme positions. In this particular position the sections A, B, and C together make up a complete picture or sign. If now, the bands be wound upon the rollers 3 until the band has been caused to travel through a distance equal to that from *a* to *b*, there will

be a new set of sections exposed to view which will register together to make up another complete picture or sign. The pictures can thus be changed at any desired interval until the whole lengths of the bands capable of being exposed have been exposed when the bands may be reversed to their first and normal starting position, as shown, or the steps may be retraced exposing the pictures or signs in the reverse order.

I have shown, in Figs. 1, 2 and 3, of the drawings, a convenient mechanism which may be employed to effect, mechanically, the operations hereinbefore set forth. This particular mechanism is well adapted to expose the pictures in turn and at predetermined intervals. The return movement in this example is quick and continuous, it being found best to show the pictures in a certain fixed order. The pictures may however be shown in an alternating order by duplicating the forward mechanism for the return instead of employing the quick return. The mechanism shown is driven by any form of reversible motor—an electric motor is preferred—and this mechanism is described as driven by such. A motor running continuously in one direction may however be employed provided of course that it is fitted with some form of reversing gear. Upon the shaft 17 of the motor—not shown—a worm 18 is provided which drives the shaft 19 by the worm wheel 20 in either direction according to the direction of rotation of the motor which as aforesaid is reversible.

In the construction shown, the pictures or signs are displayed while the bands 1 are intermittently wound off the rollers 2 on to the rollers 3, the reverse being rapid and continuous. In order to cause the bands to travel in the forward direction, it will be necessary to drive the worm wheel 20 in a clockwise direction which will necessitate the motor shaft 17 being driven in the direction indicated by the arrow *x*. Assume this to be the case and the shaft 17 to be rotating as aforesaid and the shaft 19 consequently in a clockwise direction. The sprocket wheel 21 mounted upon the shaft 19 will drive the chain wheel 22 by means of the chain 23, also in a clockwise direction. Upon the shaft 24 which carries the chain wheel 22 a crank arm 25 is mounted which serves through the roller 26, to turn the star wheel 27 through the circumferential distance of one tooth—one sixth of a revolution. The star wheel is mounted upon the uppermost one of the spindles 5 and thus communicates motion to the rollers 3. A ratchet 28 may be provided fast upon the spindle 5 or integral or connected fast to the star wheel 27. A hook pawl 29 engages the teeth of this ratchet 28 and thus prevents the star wheel 27 from overrunning.

This hook pawl 29 is released from the ratchet 28, when the star wheel 27 is about to be operated, by the roller projection 28^a upon the chain wheel 22. This motion is continued until the whole of the pictures have been shown when the direction of motion of the band 1 is reversed and the band brought rapidly back to its normal or starting position ready for the next exhibition. Spring 29^a normally maintains the catch 29 in engagement with the roller 28^a. The sprocket 21 forms part of a ratchet clutch which rotates with the shaft 19 when the said shaft is rotating in a clockwise direction but is free when the shaft 19 is rotating in the counter clockwise direction. This sprocket therefore remains inoperative while the band 1 is traveling in the return direction. The return drive is effected by the sprocket 30 which is loosely mounted upon the shaft 19. Upon this shaft 19 and adjacent the sprocket 30 is an arm 31 secured fast to the shaft 19 by the set screw 32. Pivoted to this arm 31 is a rocking finger 33 which is retained by means of the spring 35 in either of two positions, determined by the notches 34. Mounted upon the same spindle as the finger 33 a lever 36 is arranged and is provided with a nose 37 which is adapted to engage the projection 38, upon the arm 39 integral with or attached to the sprocket 30, when the finger 33 is in the one of its two positions other than that shown in the drawings. While the shaft 19 is rotating in the clockwise or forward direction, the finger 33 passes the resilient arm or stop 40, pushing it aside at every revolution. When however, the direction of the shaft 19 is reversed, the finger 33 strikes the underside of the resilient stop 40 and is thereby thrown over into its second position wherein the nose 37 of the lever 36 rotates in the path of the projection 38 and is thus carried around with the shaft 19. When however, the return movement of the band 1 is completed, the motor is again reversed and the finger 33 is thrown back into the position shown thus freeing the sprocket 30 from the shaft 19. The sprocket 21 now "picks up" and drives the band 1 intermittently in the forward direction in the manner previously described.

The reversal of the direction of rotation of the motor is effected as follows:—Upon the spindle 41 of the roller 12 an endless cord or other flexible connection 42 is wound or the cord may instead of being endless have both its ends secured to the spindle. Again, the endless cord may be secured to the spindle to prevent slipping or it may be wound a sufficient number of times thereon to produce the necessary friction. This cord 42 is guided by pulleys 43 to an extreme pulley 44 around which it passes.

Upon the cord are two stops or obstructions 45 and 46 arranged at a suitable distance apart. The cord passes through a hole or slot 47 provided upon the arm 48 which is pivoted at 49 to the base 50 of the apparatus. The hole or slot 47 while being sufficiently large to accommodate the cord 42 is not large enough to permit of the passage through it of the stops 45, 46. As the mechanism is operated the cord is caused to travel, the direction of travel being governed by the direction of the motor. The stops 45, 46 are so adjusted upon the cord 42 that they throw the arm 48 over the opposite of the vertical, thus operating the reversing switch 51. The link 52 of the reversing apparatus may be slotted as at 53 and the weight 54 provided upon the arm 48 to effect the necessary impulsive force to reverse the switch. This reversing mechanism is shown and described as applied to an electric motor. It may, however, be applied to other prime movers such as the reversing gear of an explosion motor or the valves of a steam engine.

The spindle 24 (see Fig. 2) may be provided with a second crank arm 25^a, at or near the end of which is mounted a weight. This crank arm is secured to the spindle 24 in such an angular position relatively to the crank arm 25 as to cause the spindle and the sprocket 21 to overrun at or about the time when the roller 26 contacts with the star wheel 27 and thus bring about a speedy change of pictures.

In Figs. 4 and 5 I have shown modified methods of mounting the bands 1. In Fig. 4 the band is so constructed and arranged as to serve for the simultaneous display of two consecutive sections of the same picture. To this end it is secured as before to the rollers 2 and 3 but passes from the roller 2 over the rollers 55, 56, the supplementary guide rollers 57 and 58 thence by guide rollers 59 and 60 to the roller 3. In this figure all the rollers 2 and 3 are shown geared together. They need not however be so arranged. They may be arranged as shown in Fig. 1 and may also be provided with a weight similar to that shown in Fig. 1 for keeping the bands taut. Fig. 5 illustrates a means whereby one continuous but not endless band may be employed. The band passes from the roller 61 over the rollers 62 to 75 inclusive, thence to the roller 76. In this case the whole of the sections for all the pictures are placed on one band but the movement of the band has to be limited to a length equal to that from the roller 63 over the rollers 64 and 65 to the roller 66.

I have described my invention as an advertising apparatus wherein the pictures are changed at intervals. It will however be understood that by providing the necessary picture changes and running the band

through continuously and at a sufficient speed, a kinematograph effect can be produced.

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

1. A picture display mechanism comprising in combination, a plurality of bands provided with display matter, a plurality of rollers geared to cause operation of the bands in prescribed relation with respect to each other, and means connected with one of the rollers for moving said bands to a starting position and comprising a shaft having an arm rigidly mounted thereon, a pawl pivoted on said arm, means for releasably holding said pawl in one of two positions, a pawl arm loose on said shaft and arranged to be engaged and operated by said pawl, and a trip device for throwing the pawl into and out of position to engage with said pawl arm.

2. A picture display mechanism comprising in combination, a plurality of bands provided with display matter, a plurality of rollers geared to cause operation of the bands in prescribed relation with respect to each other, a shaft adapted to be driven in different directions, a wheel loose on said shaft and operatively connected with one of said rollers, a pawl arm rigidly mounted on said shaft and having a pawl with means for releasably holding the pawl in a plurality of positions, and a trip device for throwing said pawl into driving relation with said wheel when said shaft is rotating in one direction and for throwing said pawl out of driving relation with said wheel upon rotation of the shaft in the other direction.

3. A picture display mechanism comprising in combination, a plurality of bands provided with display matter, a plurality of rollers geared together to cause operation of the bands in prescribed relation with respect to each other, a shaft arranged to be driven in opposite directions, mechanism operated by said shaft when driven in one direction to intermittently advance the bands, and mechanism operated by said shaft when driven in the other direction for returning said bands to a starting position.

4. A picture display mechanism comprising in combination, a plurality of bands provided with display matter, a plurality of sets of rollers with the rollers of each set geared together to operate the bands in prescribed relation with respect to each other, a shaft arranged to be driven in opposite directions, mechanism operated by said shaft when driven in one direction and connected with one set of rollers to intermittently advance the bands, and mechanism operated by said shaft when driven in another direction and connected with the other set of rollers for returning the bands to a starting position.

5. A picture display mechanism comprising in combination, a plurality of bands provided with display matter, rollers geared to each other to cause operation of said bands
5 in prescribed relation with respect to each other, a shaft adapted to be driven in opposite directions, means operated from said rollers for reversing the direction of rotation of said shaft, mechanism operated by
10 said shaft to intermittently advance said

bands, and mechanism operated by said shaft for returning said bands to a starting position.

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

GEORGE PERCY KENT.

Witnesses:

ALF. N. THOMLIN,
VINCENT HUGHES.

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