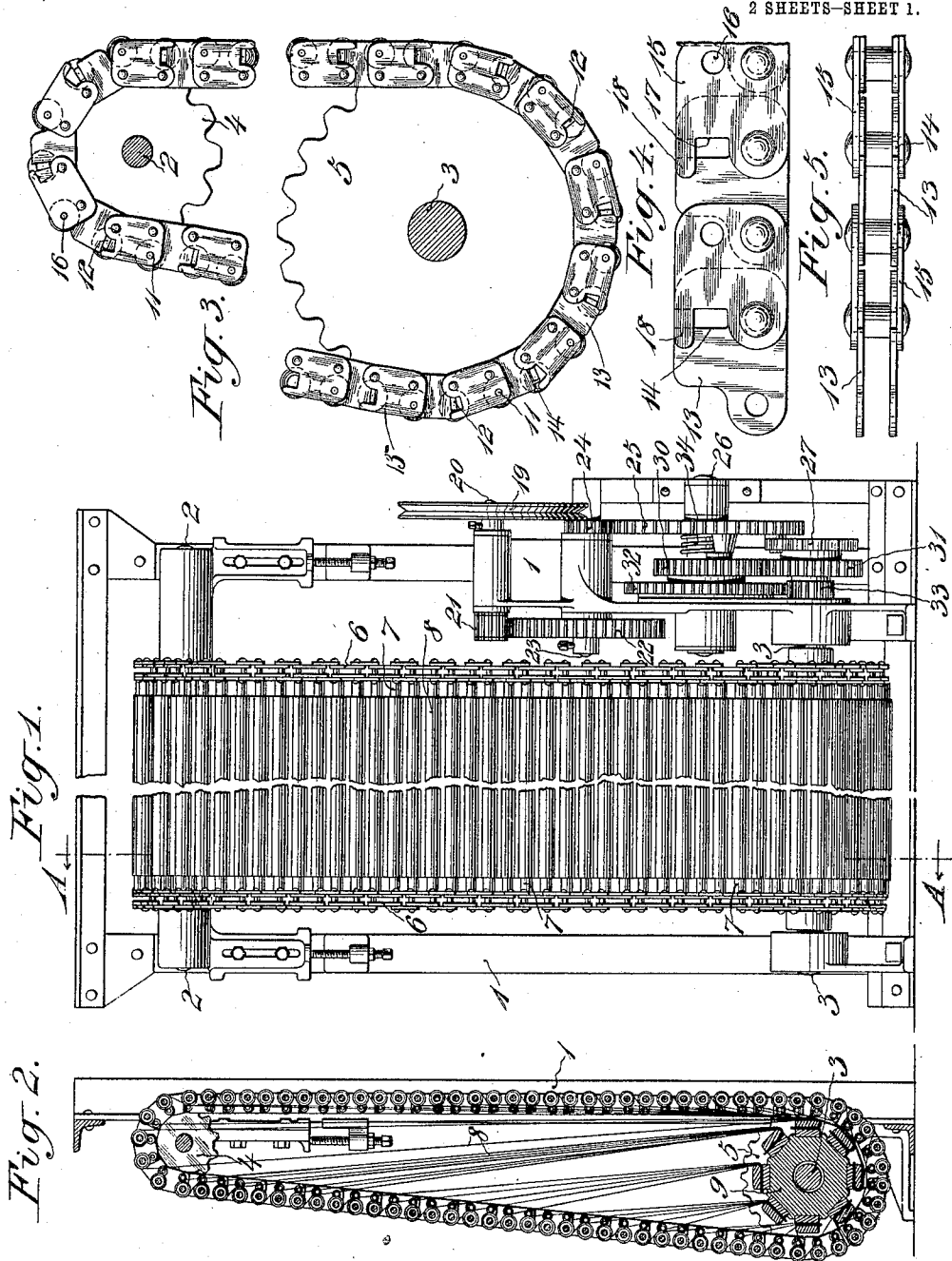


H. S. ROGERS.
 PICTURE DISPLAY MACHINE.
 APPLICATION FILED NOV. 20, 1908.

1,030,611.

Patented June 25, 1912.

2 SHEETS—SHEET 1.



Witnesses:
W. G. Gentry
J. George Barry

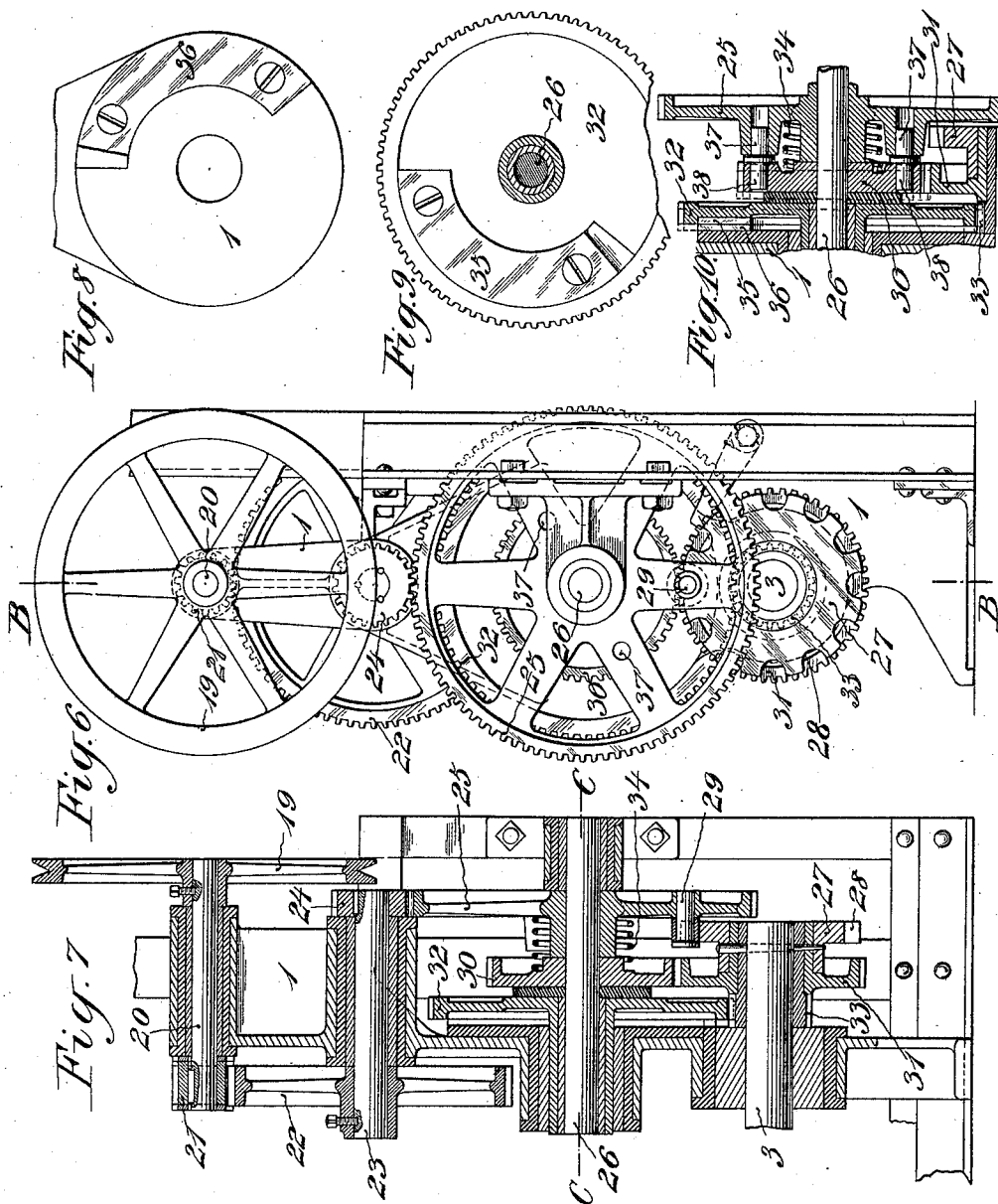
Inventor:
Horace S. Rogers
by his attorneys
Morgan & Seward

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2 SHEETS-SHEET 2.



Witnesses:
 W. G. Spiller
 J. George Bandy.

Inventor:
 Homer S. Rogers
 by his attorney
 Brown & Seward

UNITED STATES PATENT OFFICE.

HOMER S. ROGERS, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO KINETOPLANE
DISPLAY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PICTURE-DISPLAY MACHINE.

1,030,611.

Specification of Letters Patent.

Patented June 25, 1912.

Application filed November 20, 1908. Serial No. 463,613.

To all whom it may concern:

Be it known that I, HOMER S. ROGERS, a citizen of the United States, and resident of East Orange, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Picture-Display Machines, of which the following is a specification.

This invention consists in a picture display machine adapted to produce a continuous moving picture display; a stationary picture display; or any desired combination of the two displays.

The object of this invention is to provide certain improvements in the construction, form and arrangement of the several parts of the machine whereby the above-named results may be accomplished in a very simple and effective manner.

This invention is applied to that type of machine in which a plurality of design carrying aprons are attached at their outer ends to a rotating drum and at their inner ends to successive spring actuated rollers carried by endless chains which pass over sprockets at the top and bottom of the machine.

In the accompanying drawings, Figure 1 is a front elevation, partially broken away, of a picture display machine embodying my invention, Fig. 2 is a section taken in the plane of the line A—A of Fig. 1, Fig. 3 is an enlarged detail side view, partially broken away, of one of the improved roller carrying chains and its upper and lower sprockets, Fig. 4 is a still more enlarged detail side view of several of the links of one of the roller carrying chains, Fig. 5 is a plan view of the same, Fig. 6 is an enlarged detail side view of the driving mechanism, Fig. 7 is a section through the same taken in the plane of the line B—B of Fig. 6, Fig. 8 is a detail face view of the stationary cam for controlling the intermittent or continuous movement of the roller carrying chains, Fig. 9 is a detail view of the rotary cam and its head which coacts with the stationary cam to control the movement of the said chains, and Fig. 10 is a partial transverse section taken in the plane of the line C—C of Fig. 7.

The frame of the picture display machine is denoted by 1 and it is provided with bear-

ings for upper and lower shafts 2, 3, on which shafts are mounted, at the sides of the machine, pairs of upper and lower sprockets 4, 4, 5, 5, over which the roller carrying chains 6, 6, travel. An endless series of apron carrying rollers 7 are mounted at their ends in the side chains 6, 6.

The picture display aprons are denoted by 8, the inner end of each apron being secured to one of the rollers 7 and the outer ends of groups of these aprons being secured to a rotary support, such as a drum 9, arranged within the path of the rollers, which drum is mounted on the lower shaft 3. This drum 9 is mounted so as to turn with the shaft 3.

The rollers 7 are of the well known spring shade-roller type, tending to wind the aprons thereon. As the rollers pass downwardly from the small upper sprockets 4, 4, the aprons will be gradually wound around the rollers and as the rollers pass upwardly from the large sprockets 5, 5, the aprons will be gradually unwound from their rollers, owing to the fact that the outer ends of these aprons are attached to the rotary drum 9. The apron carrying rollers 7 are arranged in pairs and are so mounted that the rollers of each pair will rotate in opposite directions, as the rollers travel along their common path. One of the rollers of each pair will have its round journal 11 mounted in one of the chains 6 and its angular journal 12 mounted in the other chain 6, while the other roller of the pair will have its round and angular journals mounted in the reverse positions.

The chains 6 have been specially constructed so as to permit the insertion and removal of the rollers as the chains pass over the small upper sprockets 4, 4, as follows:—The alternate links 13 of each chain are provided with recesses 14 for the reception of the angular journals 12 of the rollers 7. The alternate links 15 are provided with round recesses 16 for the reception of the round journals 11 of the rollers and also with angular recesses 17 which coact with the angular recesses 14 for receiving the angular journals 12 of said rollers. These alternate links 15 are further provided with fingers 18 which normally extend over the tops of the angular roller journals 12 for retaining the journals in position. However,

when the chains curve sharply over the small sprocket wheels 4, 4, the fingers 18 will uncover the recesses 14, 17, and thus permit the insertion and removal of the rollers as clearly shown in Fig. 3.

The mechanism for driving the chains and thereby the rollers in an endless path, either intermittently or continuously, or a combination of the two, is as follows:—The main driving pulley is denoted by 19 and it is fixed to a shaft 20 mounted in suitable bearings in the frame 1. This shaft 20 has fixed thereto a gear 21 which drives a gear 22 fixed to a shaft 23 mounted in suitable bearings in the frame 1. This shaft 23 has fixed thereto a gear 24 which drives a gear 25 loosely mounted on a shaft 26 suitably mounted in the frame 1. A star wheel 27 is fixed to the shaft 3, which star wheel is provided with any desired number of peripheral recesses 28 arranged to be successively engaged by a pin 29 carried by the gear 25 for moving the shaft 3 intermittently a short distance for every rotation of the gear 25. If this drive alone were to be used, it would be seen that a succession of stationary picture displays would be produced. A gear 30 is loosely mounted on the shaft 26 and meshes with a gear 31 fixed to the shaft 3. Another gear 32 is loosely mounted on the shaft 26 and meshes with a gear 33 fixed to the shaft 3. The gears 30, 32, have a limited lateral movement on the shaft 26, a spring 34 serving to press the gears 30, 32, away from the gear 25 and co-acting rotary and stationary cams 35, 36, serving to press the gears 30, 32, toward the gear 25 at predetermined intervals. The cam 35 is fixed to the face of the gear 32 and the cam 36 is fixed to the face of the frame 1. The gear 25 is provided with one or more abutments such, for instance, as a pair of pins 37 and the gear 30 is provided with one or more abutments such, for instance, as a pair of pins 38, the heads of the pins 37 and 38 being brought into and out of the same plane according to whether the cams 35 and 36 are coacting or not. When these cams 35, 36, are coacting, a continuous movement of the shaft 3 is provided by the interlocking of the gear 25 with the gear 30 through the pins 37, 38, and due to the fact that the gear 30 will drive the gear 31 on the shaft 3.

It will be seen that the relation of the cams 35, 36, may be varied so as to cause the machine to produce a continuous moving picture display or an alternating moving picture display and stationary picture display or only a succession of stationary picture displays; *i. e.*, the cams 35 and 36 may be arranged so that they will not coöperate at any time, as by removing one of the cams from the frame 1 or the wheel 32, in which case a succession of stationary displays will

be brought about. By arranging the cams so that they will coöperate at fixed intervals, an alternating moving picture display and stationary display will take place. By arranging the cams so that they will be continuously in coöperation, a continuous moving picture display will be provided. In the present instance, the relation of the gear 33 to the cam gear 32 is such that a moving picture display of considerable length is provided interspersed with a succession of stationary picture displays.

In a picture display machine constructed as hereinabove set forth, it will be seen that as the rollers are caused to travel in their endless path, different surfaces on the picture display aprons are presented during the passage of the rollers through the picture plane. The stopping and moving of the rollers while in the picture plane, will produce either a stationary picture effect or a moving picture effect so that by a series of intermittent movements and continuous movements of the rollers in their endless path, a series of stationary picture effects and moving picture effects may be produced.

What I claim is:—

1. In a picture display machine, a plurality of rollers arranged to travel in a common path, picture display aprons wound thereon, means for moving the rollers intermittently along said path for producing changing stationary picture effects, means for moving the rollers continuously along said path for producing moving picture effects and a cam device arranged to bring the last-named means into and out of operation at predetermined intervals.

2. In a picture display machine, a plurality of rollers arranged to travel in an endless path, picture display aprons wound thereon, means for moving the rollers intermittently along said path for producing changing stationary picture effects, means for moving the rollers continuously along said path for producing moving picture effects and a cam device arranged to bring the last-named means into and out of operation at predetermined intervals.

3. In a picture display machine, small upper and large lower sprocket wheels, chains arranged to travel over the same, rollers carried by said chains, picture display aprons wound on said rollers and means for moving the chains and thereby the rollers to produce different picture effects, said chains being composed of links arranged to receive the journals of the rollers so as to lock the rollers during their travel except when they are passing over the small sprocket wheels, in which latter position they may be inserted and removed.

4. In a picture display machine, small upper and large lower sprocket wheels, chains arranged to travel over the same, rollers car-

ried by said chains, picture display aprons
wound on said rollers and means for moving
the chains and thereby the rollers to produce
different picture effects, each of said chains
5 being composed of two sets of alternate links,
the links of one set being slotted for receiv-
ing the angular journals of the rollers and
the links of the other set having a bearing
for the rounded journals of the rollers and
10 provided with fingers adapted to overlap

the angular journals except when the rollers
are passing over the small sprocket wheels.

In testimony, that I claim the foregoing
as my invention, I have signed my name in
presence of two witnesses, this ninth day of 15
November, 1908.

HOMER S. ROGERS.

Witnesses:

F. GEORGE BARRY,
HENRY THIEME.

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