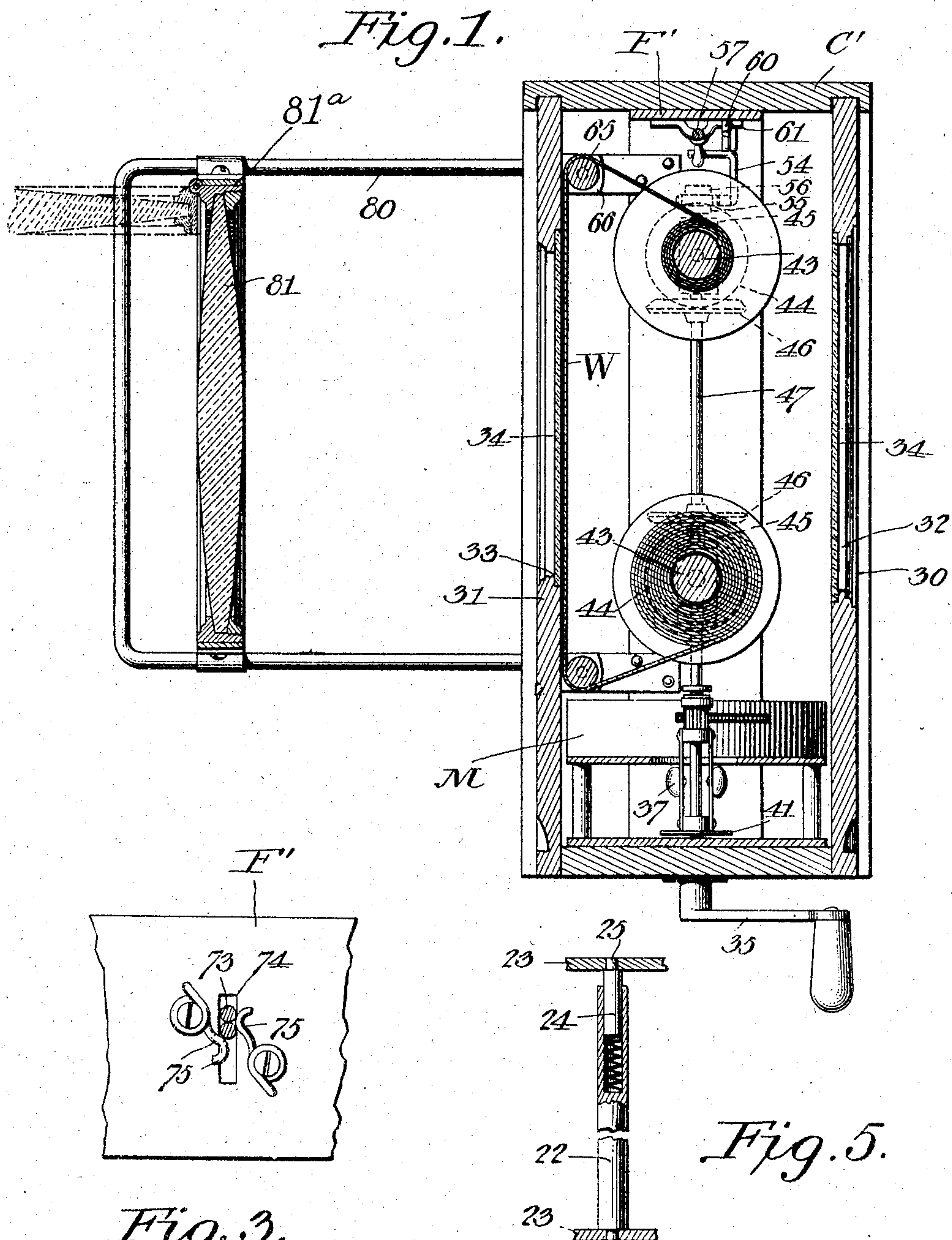


No. 778,347.

PATENTED DEC. 27, 1904.

C. W. ANDERSON.
PICTURE EXHIBITOR.
APPLICATION FILED OCT. 29, 1903.

2 SHEETS—SHEET 1.



Witnesses
Edw. Stewart
Baxter Morton

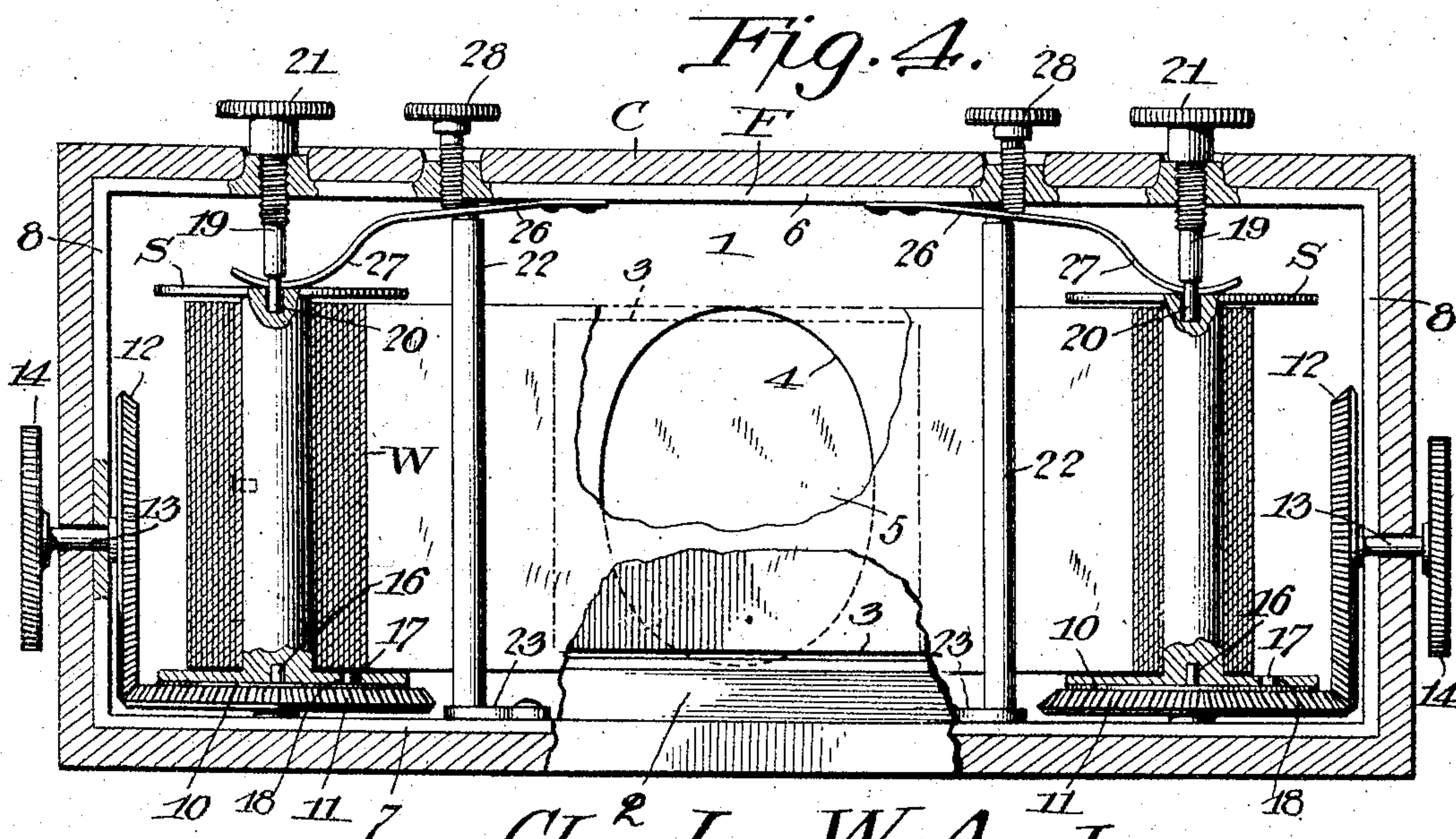
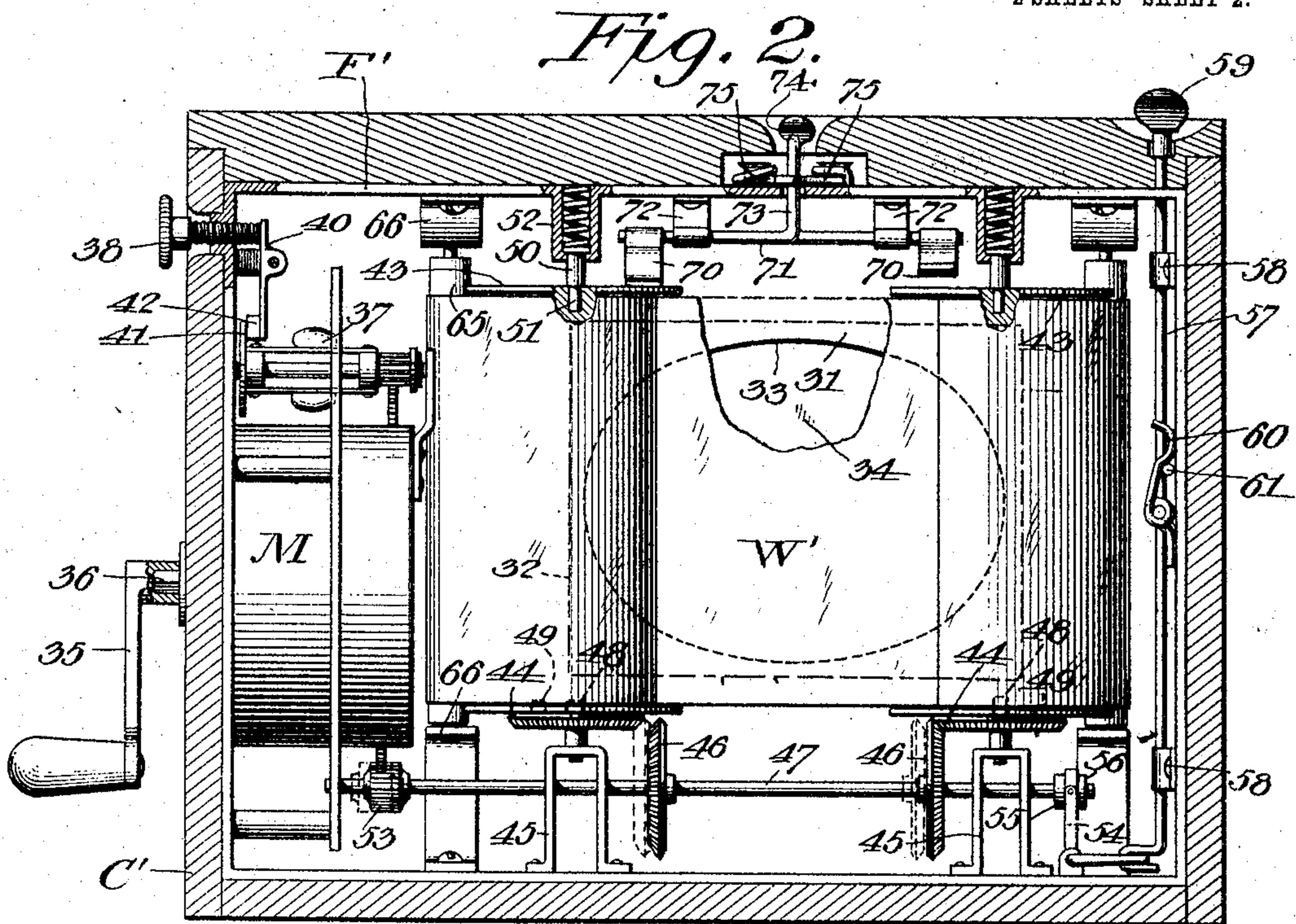
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PICTURE-EXHIBITOR.

SPECIFICATION forming part of Letters Patent No. 778,347, dated December 27, 1904.

Application filed October 29, 1903. Serial No. 179,044.

To all whom it may concern:

Be it known that I, CHARLES WILLIAM ANDERSON, a citizen of the United States, residing at Bisbee, in the county of Cochise and Territory of Arizona, have invented a new and useful Picture-Exhibitor, of which the following is a specification.

This invention relates to picture-exhibitors, and more especially to that type of picture-exhibitors in which a plurality of pictures mounted upon a web are exhibited by causing the web to travel across an opening in the casing of the machine.

The principal object of the invention is to improve the construction of picture-exhibitors of the class specified by providing improved means for controlling the movement of the web upon which the pictures are mounted, by providing improved spools upon which to wind the web, and by providing improved means for supporting the spools within the apparatus.

In attaining the objects above mentioned I make use of the apparatus shown in somewhat different forms in the accompanying drawings, described in the following specification, and having novel features thereof particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view in horizontal section through the motor-operated exhibitor. Fig. 2 is a view in vertical longitudinal section through the motor-operated exhibitor. Fig. 3 is a detail view showing the catches by which the rock-shaft is held in different positions. Fig. 4 is a longitudinal vertical section through a hand-operated exhibitor looking from the rear, a fragmentary portion of the back of the casing being included to show the rear removable slide having a rectangular exposure-opening. Fig. 5 is a detail view, partly in side elevation and partly in section, showing the mode in mounting one of the guide-rolls in the hand-operated exhibitor.

Referring to the drawings, in which corresponding parts are designated by similar characters of reference, C in Fig. 4 designates the

casing of a machine of small size and simple construction intended, primarily, for use in homes as a substitute for an album and operated by hand. The casing C is preferably of rectangular form and is provided at front and back with slides 1 and 2, the former of which is provided with an oval opening 4 and the latter of which has a rectangular opening 3. The slides 1 and 2 are interchangeable, so that the opening made in the slide in front of the picture-carrying web may be adapted in form to the pictures to be exhibited.

In the preferred form of the device each of the slides will be provided with a piece of glass 5 to fill the opening therein and exclude dust and dirt from the interior of the exhibitor.

The mechanism of the exhibitor is supported within the casing C in a rectangular metallic frame F, which is preferably set in the casing and is rigidly secured in position by any preferred fastening means. The frame F consists of top and bottom portions 6 and 7, respectively, and end portions 8, the latter being disposed adjacent to the end walls of the casing of the exhibitor. The frame F has mounted on the bottom member 7 thereof two rotatable disks 10, each of which is provided at its periphery with beveled gear-teeth 11 and is also disposed adjacent to one end of the frame where the beveled gear-teeth 11 may mesh with similar teeth upon a beveled gear 12, supported on a shaft 13, which turns in bearings provided for it in one of the end members 8 of the frame F. The shafts 13 extend through the end walls of the casing C and bear on their outer ends hand-wheels 14, by means of which rotary movement may be imparted to the shafts. The disks 10 are provided to afford support for web-carrying spools S, and each disk is provided at the center of its upper surface with an upwardly-projecting stud 16, which is adapted to enter a socket provided therefor in the bottom of one of the spools. Each of the disks is also provided at a point between the center and the periphery with another upwardly-projecting stud, 17, which is lower

than the stud 16 and is adapted to enter an opening 18 in the bottom flange of one of the spools S.

To prevent displacement of the spools from their positions upon the disks 10, threaded spindles 19 are mounted in the top member 6 of the frame and are provided with reduced lower ends 20 for entrance into sockets in the upper ends of the web-carrying spools. The spindles 19 are provided on their upper ends with heads 21, by which the spindles may be turned to raise or lower them, as may be necessary to introduce or secure the spools within the casing.

In order to hold the picture-carrying web W in close proximity to the slide at the front of the casing, guide-rolls 22 are journaled in brackets 23, extending forward from the top and bottom members of the frame F. The rolls 22 are removably supported in the brackets, each roll having in one end a spring-supported block 24, (shown in Fig. 5,) which has a projection 25, which forms one of the journals upon which the roll turns. When it is desired to remove one of the rolls 22 from its bearings, the block 24 may be forced back into the roll sufficiently to permit the other journal to be displaced from its bearings.

In order to keep the picture-carrying web under sufficient tension at all times, springs 26, having downwardly-bent ends 27, are rigidly attached to the top member 6 of the frame F in such position that the bent ends 27 rest upon the upper flanges of the web-carrying spools S. The pressure exerted by the springs upon the spools may be regulated by means of screws 28, mounted in threaded openings in the upper frame member 6 and having their lower ends disposed above the springs 26.

In using the exhibitor as described in the preceding paragraphs the spool upon which the picture-web is wound will be secured upon one of the disks 10, and the end of the web will be passed in front of the guide-rolls and then secured in any preferred manner, as by means of a hook, (not shown,) upon the other spool. The pressure of the spring 26 upon the spool upon which the web is wound will then be adjusted to any desired degree, and the slide 1 or 2, as may be best adapted to the form of the pictures of the web, will be placed in position at the front of the casing. Motion will then be imparted to the disk supporting the spool upon which the web is to be wound by turning the wheel 14 at that end of the casing, the rate of travel of the web behind the opening in the slide being controlled by the rate at which the wheel 14 is turned. With this form of the invention the rate at which the pictures are changed may be varied by the operator to suit his convenience, and this form of the invention is intended for use in exhibiting pictures to one person at a time only.

When it is desired to exhibit pictures to a number of persons simultaneously or to exhibit other pictures than those which may be conveniently displayed by means of the apparatus already described, it is desirable to employ an apparatus of the form exhibited in Figs. 1 and 2, in which the power necessary to impart movement to the picture-carrying web is furnished by the motor and the rate and direction of travel of the web controlled by means of devices especially provided for that purpose.

In the apparatus shown in Fig. 1 the casing C' is similar in general features to the casing already described, being rectangular in form and being provided with slides 30 and 31 at the front and back of the apparatus. The slide 30 is provided with a rectangular opening 32, and the slide 31 is provided with an oval opening 33, the slides being interchangeable to adapt the form of opening to the form of the pictures to be displayed. The openings are preferably covered with pieces of glass 34.

The exhibiting mechanism is supported within the casing C', being mounted in a rectangular metallic frame F', which is secured by screws or other suitable fastening means within the casing. At one end of the frame F' is mounted a motor, designated generally as M and preferably of the type driven by means of a coiled spring, which may be wound by means of a crank 35, which fits over a square shaft 36, which projects through the adjacent end wall of the casing C'.

The speed of the motor is controlled and regulated by means of a governor 37 of ordinary centrifugal type, to which motion is imparted by one of the pinions on the motor. The starting and stopping of the motor is effected by means of a screw 38, which is mounted in the end of the casing, with the head projecting through an opening therein. The screw 38 has its inner end in contact with a pivoted arm 40, one end of which rests upon a disk 41, rigidly connected, with the governor 37. The arm 40, the end of which presses upon the disk 41, is provided with a brake-shoe 42, of leather or other suitable material, to engage frictionally with the disk 41 and prevent rotation thereof when sufficient pressure is exerted by the arm.

The web-carrying spools 43 are supported upon disks 44, rotatably mounted upon supporting-brackets 45, which are attached to the bottom members of the frame F'. The disks 44 are provided at their peripheries with beveled gear-teeth to mesh with beveled gears 46 upon a driving-shaft 47, which is journaled in the brackets 45 below the disks 44. The disks 44 are provided on their upper surfaces with centrally-placed studs 48 for engagement with central sockets in the lower ends of the web-carrying spools and with eccentrically-placed studs 49 for engagement with suitably-

placed openings in the bottom flanges of the web-carrying spools. The upper ends of the spools are held in position by spring-pressed spindles 50, having reduced ends 51 and slidably mounted in sleeves 52, attached to the top member of the frame F'. The spindles 50 engage with sockets provided for that purpose in the upper ends of the web-carrying spools, and being spring-pressed they are normally held in engagement with the sockets in the spools, but are susceptible of retraction to release the spools from engagement therewith and from engagement with the studs upon the disks 44. The driving-shaft 47 is rotatably and slidably supported in the bearings afforded by the brackets 45, and motion is imparted to said shaft by means of a pinion of the motor, which meshes with an elongated pinion 53 at one end of the shaft. Longitudinal movement is imparted to the shaft by means of a bell-crank lever 54, which is mounted in the frame F' and has a bifurcated end which fits between two collars 55 and 56, mounted on the adjacent end of the shaft 47. This bell-crank lever is rocked by means of a rod 57, slidably mounted in guides 58 at one end of the frame F' and having a hooked lower end which engages with the bell-crank lever. The rod 57 is provided at its upper end with a head 59, by means of which it may be conveniently reciprocated, and it is held in raised or lowered position by means of a spring-catch 60, which engages with a cross-piece 61, rigidly attached to the rod and adapted to prevent rotation of the rod, with consequent disengagement of the hook at its extremity, and the bell-crank lever.

The web W' is guided by guide-rolls 65, rotatably mounted in brackets 66, which are rigidly secured within the frame F' and project forward into close proximity to the front of the casing C'. The requisite tension of the picture-web W' is maintained when the web is traveling in either direction by means of brake-springs 70, which are mounted upon a rock-shaft 71, supported in bearing-brackets 72 between the spindles 50. The rock-shaft 71 has projecting upward therefrom an arm 73, which passes through an opening 74 in the top of the casing C' and is secured in one end of the opening or the other by means of spring-catches 75 of the form shown in Fig. 3. The springs 70 are so disposed relative to the rock-shaft 71 that when one of the springs is in contact with the upper flange of one of the web-carrying spools 43 the other spring will be out of contact with the other. Consequently by shifting the arm 73 the spring engaging one spool may be thrown out of operation and the other spring be brought into engagement with the other spool.

To facilitate the view of the pictures on the web, a support 80 of any suitable construction is mounted on the front of the casing C', and a magnifying-glass 81 is adjustably mounted in the support in such position that it may

be moved toward or away from the picture-carrying web in order to secure accurate focus on the picture exposed to view. This support and glass are by no means necessary, however, as the desired magnification may be obtained by means of an ordinary reading-glass held in the hand, and in many cases the use of a glass to magnify the picture will be undesirable. When it is not desired to magnify the picture, the glass 81 may be easily removed from the support or swung to one side upon the hinge 81^a, as indicated by dotted lines in Fig. 1 of the drawings, where it will not interfere with the view of the picture.

In both forms of the apparatus described the pictures must necessarily be flexible, and they may be mounted upon the web or may actually form the web which is wound upon the spools.

In the form of apparatus first described the reversal of the direction of movement whenever desired is accomplished by simply ceasing to turn one of the wheels 14 and using the other as means for operating the machine. In the form of the invention last described, in which the winding of the web from one spool to another is accomplished by means of a motor, the reversal of the direction of movement of the web is accomplished by shifting the driving-shaft 47 longitudinally in its bearings. When the driving-shaft is pushed to the right, as shown in solid lines in Fig. 2, one of the gears 46 on the shaft will be in mesh with the gear-teeth on the disk 44 at the right of the machine, and when the shaft is shifted to the left, as shown in dotted lines, the other gear will be brought into engagement with the teeth on the disk 44 adjacent to the other end of the machine. As the two gears 46 are arranged to mesh with opposite sides of the disks 44, it will be obvious that notwithstanding the fact that the direction of movement of the motor is unchanged the direction of travel of the web will be reversed by shifting the shaft 47 from its solid-line position to its dotted-line position, or vice versa.

If it is desired to stop the movement of the web without stopping the movement of the motor, the shifting of the shaft 47 to a position intermediate between the two described in the foregoing paragraph will throw the two gears 46 out of engagement with the gear-teeth carried by the disks 44 and will allow the motor to run unimpeded while the web remains stationary.

In the operation of the larger form of exhibitor the spools (one completely wound and the other practically empty) will be mounted upon the disks 44 with the studs on the disks in engagement with the openings provided therefor in the bottom of the spools, and the upper ends of the spools will be secured by means of the spring-pressed spindles 50. The rock-shaft 71 will be set in position to bring

the spring on one end thereof into engagement with the upper end of the spool upon which the web is wound, and the driving-shaft will be set in position to impart movement to the empty spool. The members having been adjusted in the manner explained and the web having been passed over the guide-rolls and its end attached to the empty spool, the motor may be set in operation by turning the screw 38 and reducing the pressure of the arm 40 upon the disk 41, connected with the governor 37. By varying the pressure of the arm 40 on the disk 41 the speed of movement imparted to the web W' will be perfectly controlled, and the pressure of the spring 70 upon the wound spool will keep the web at such tension that the pictures will be properly displayed and slack in the web prevented.

Whenever it is desired to reverse the direction of movement of the web, the shaft 47 will be shifted in position by means of the mechanism provided for that purpose, and change in the direction of movement can be accomplished without the necessity of stopping the motor. It will, however, be necessary whenever the direction of the movement of the web is changed to shift the position of the rock-shaft 71 in order to keep the brake in operation upon the spool from which the web is to be unwound. In default of such change in position of the shaft 71 the spool from which the web is to be unwound will run too freely and so much slack in the web will be produced that clear view of the pictures will be rendered impossible.

As the form of motor employed in connection with the exhibiting apparatus forms no part of the invention, I have described the same in general terms only and have not illustrated the details of construction. Furthermore, the character of the motor employed may be varied without in any way affecting the construction of the remainder of the apparatus, and I wish it to be understood that the spring-motor shown may be replaced by any other preferred form of motor when it is desirable to do so.

By substituting for a motor adapted to operate continuously a motor adapted to produce intermittent movement of the web-carrying spools the apparatus may be made to expose each picture to view for a definite period and then shift it quickly out of position and then bring another into view for a same length of time. If such a motor be employed, it will merely take the place of that shown and need not necessitate the alteration in any way of the remaining portions of the apparatus.

While the preferred forms of embodiment of the invention have been described and illustrated, it is to be understood that various changes in the details of construction may be

resorted to without departing from the spirit of the invention.

The devices for securing the web-carrying spools in particular may be varied at will. In lieu of the disks having studs thereon for engagement with openings in the lower ends of the spools disks having any other preferred form of devices for securing the spools may be substituted for those shown, and I wish it to be understood that I do not limit myself to the form of spool-retaining devices shown, but reserve the right to employ any other suitable devices for the same purpose.

Having thus described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a picture-exhibitor, the combination with a casing, of a pair of rotatable disks, spools detachably connected at corresponding ends to the disks, spring-pressed stationary spindles carried by the frame and engaging axial sockets in the other ends of the spools, means for rotating the disks, brakes frictionally engaging the ends of the spools which are supported by the spring-pressed spindles, and means for varying the pressure of the brakes.

2. In a picture-exhibitor, a rotatable disk having spool-engaging means consisting of a plurality of studs upon its upper surface, a spool having in its bottom flange a plurality of openings for engagement with said studs, means for holding said spool in engagement with said studs, and means for imparting rotary movement to said disk.

3. In a picture-exhibitor, a pair of web-carrying spools rotatably mounted, means for imparting movement to either of said spools, a rock-shaft disposed above said spools, and brake members carried by said rock-shaft and attached thereto at such angles that when one of said brake members engages one of said spools the other brake member is out of engagement with the other spool.

4. In a picture-exhibitor, the combination with a casing of a pair of web-carrying spools rotatably mounted therein, means for imparting movement to either of said spools, a rock-shaft disposed above said spools, brake members rigidly attached to said rock-shaft and disposed one over each spool, an arm projecting from said rock-shaft and forming means whereby the shaft may be turned in its bearings, and spring-catches adapted to engage with said arm to hold the rock-shaft in adjusted position.

5. In a picture-exhibitor, the combination with a casing provided with a view-opening, of upstanding rotatable spools within the casing at opposite sides of the view-opening, a picture-carrying web connected to the spools to travel across the view-opening, a motor located between one of the spools and the adjacent side of the casing, gears for the lower

ends of the spools, an endwise-shiftable drive-
shaft located below the spools and provided
with gears for alternate engagement with the
gears of the spools, an operative connection
5 between one end of the shaft and the motor,
and a bell-crank lever connected to the op-
posite end of the shaft, a pull-rod located be-
tween the other spool and the adjacent side
of the casing with one end connected to the
10 bell-crank lever and its opposite end projected
through the casing, a motor-controlling de-
vice piercing the casing to give access thereto,
a rock-shaft carried above the spools and pro-

vided with an arm projected through an
opening in the top of the casing, and brake- 15
shoes carried by the rock-shaft and disposed
for alternate frictional engagement with the
adjacent ends of the respective spools.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in 20
the presence of two witnesses.

CHARLES WILLIAM ANDERSON.

Witnesses:

E. M. JONES,

A. H. LUTHER.