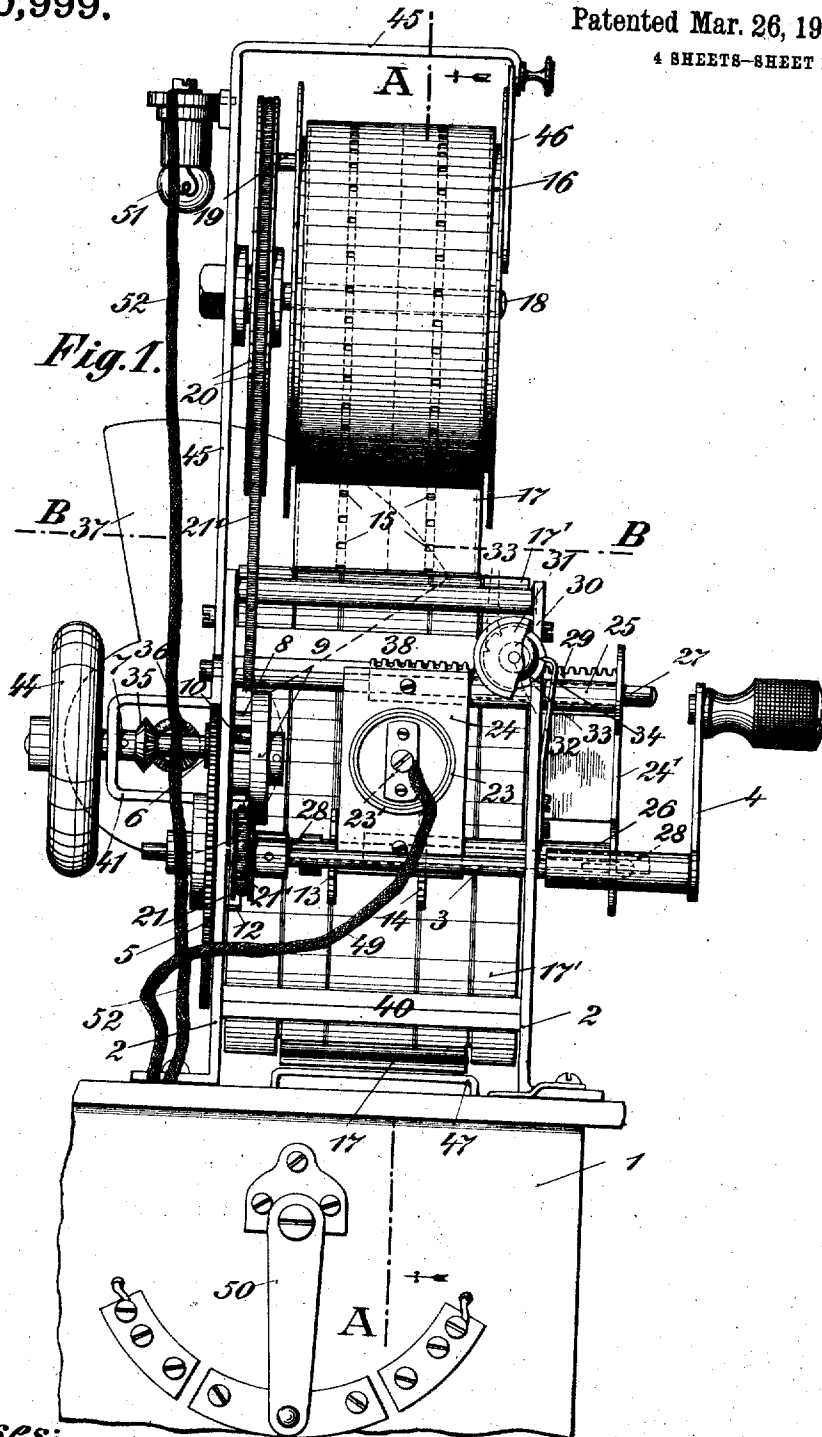


O. MESSTER.
TOY KINEMATOGRAPH.
APPLICATION FILED OCT. 22, 1909.

1,020,999.

Patented Mar. 26, 1912.

4 SHEETS-SHEET 1.



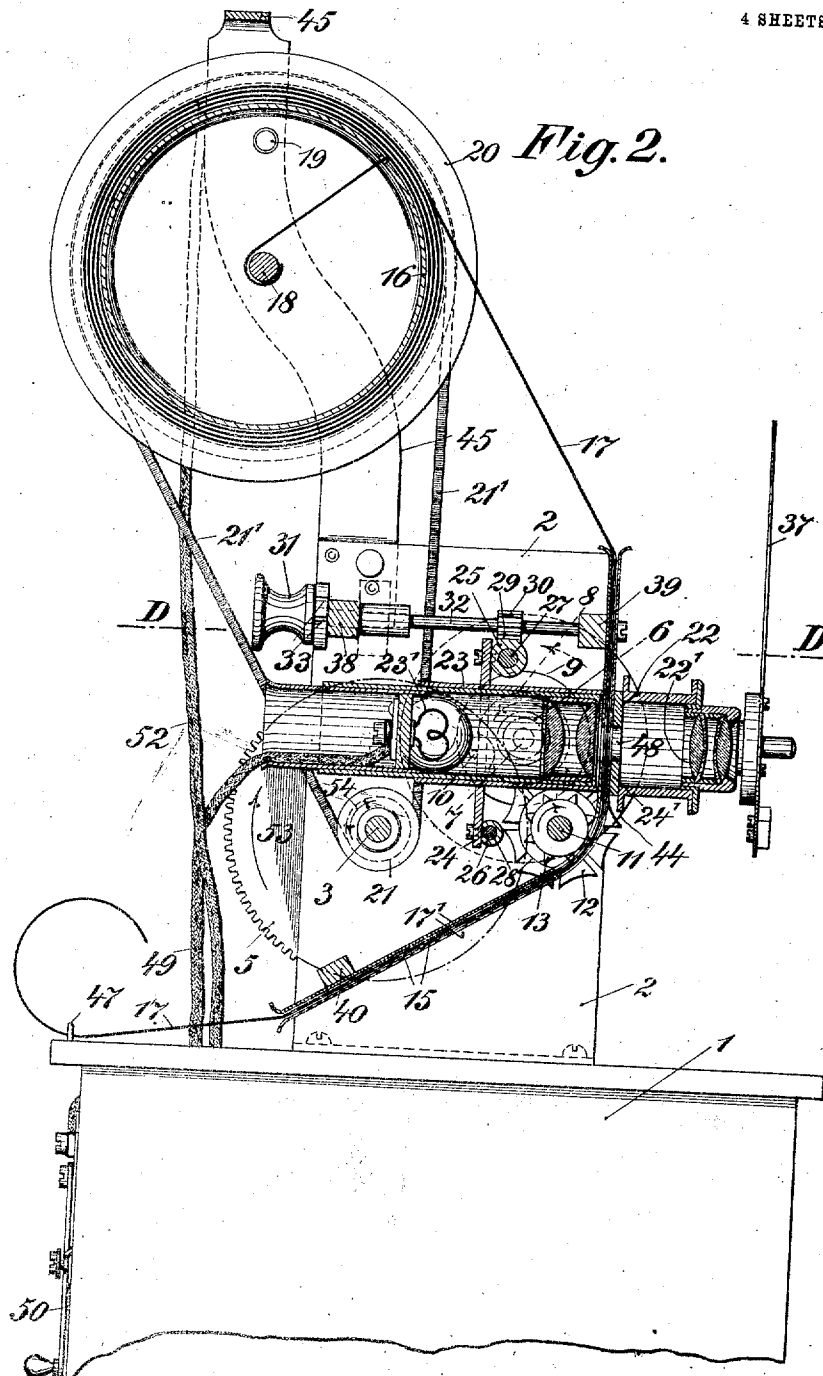
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4 SHEETS-SHEET 2.



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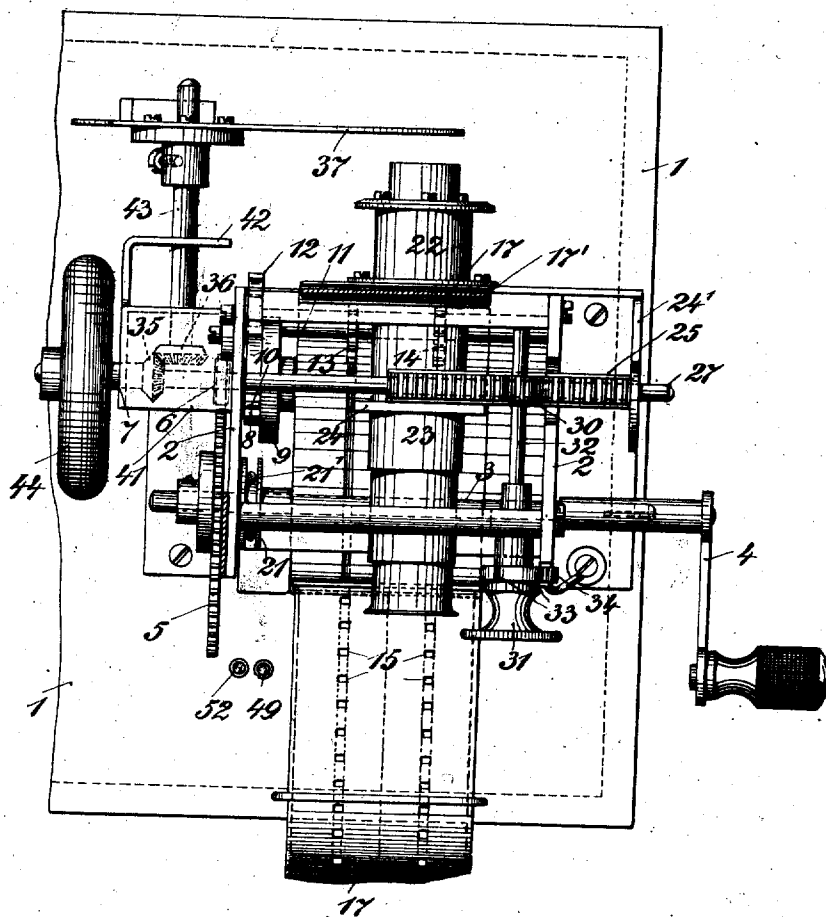
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4 SHEETS-SHEET 3.

Fig. 3.



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1,020,999.

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Fig. 4.

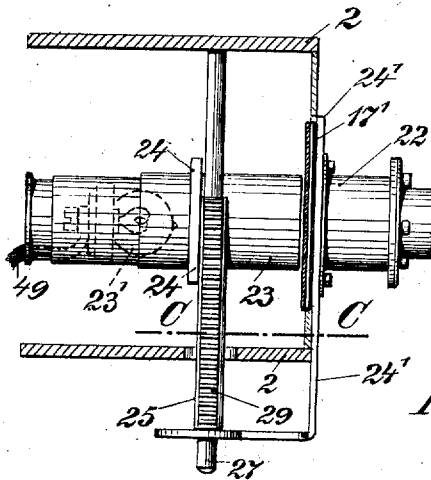


Fig. 7.

4 SHEETS—SHEET 4.

I	II	III	IV
a'	b'	c'	d'
1000	1	1000	1
999	2	999	2
998	3	998	3
997	4	997	4
996	5	996	5
995	6	995	6
994	7	994	7
↓		↑	
7	994	7	994
6	995	6	995
5	996	5	996
4	997	4	997
3	998	3	998
2	999	2	999
1	1000	1	1000
a	b	c	d

Fig. 5.

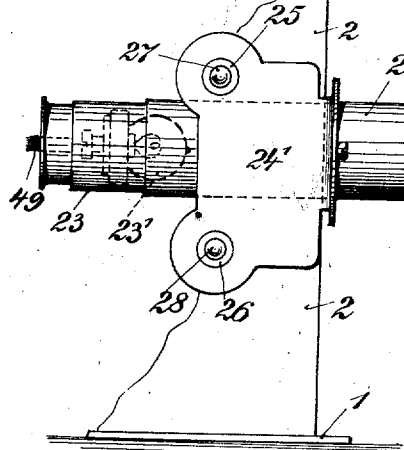
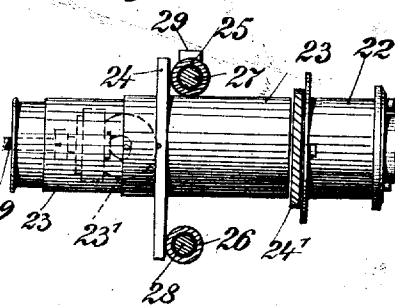


Fig. 6.



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UNITED STATES PATENT OFFICE.

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TOY KINEMATOGRAPH.

1,020,999.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed October 22, 1909. Serial No. 523,944.

To all whom it may concern:

Be it known that I, OSKAR MESSTER, a citizen of the Empire of Germany, residing at Berlin, in the Empire of Germany, have invented a new and useful Toy Kinematograph, of which the following is a specification.

My invention relates to improvements in toy kinematographs, whereby the range of the pictures to be exhibited is considerably extended, while the management of the apparatus remains simple and easy. The film band comprising several juxtaposed series of pictures is so disposed, that the pictures in alternating series follow one another in one direction and the pictures in the other series follow one another in the opposite direction. A drum is disposed for winding on and off this film band, and a stationary guide is also disposed for the film band.

One improvement consists in providing a carriage guided in the frame of the apparatus transversely relative to the film band and adapted to carry both the objective and the projecting device between which the film band requires to be moved through the stationary guide.

A further improvement consists in a device for so shifting at will the carriage as to cause the center line of the objective and the projecting device to cut the longitudinal center line of any of the several juxtaposed series of pictures. A mechanism driven by a hand-crank is disposed for intermittently moving the film band in either direction in accordance with the order in which the pictures of each series require to be exhibited. The hand-crank will then require to be turned in either direction for winding the film band off or on the drum, after the carriage with the objective and the projecting device has been displaced with regard to the film band for changing from any series to the next one.

I will now proceed to describe my invention with reference to the accompanying drawings, in which—

Figure 1 is a rear view of the toy kinematograph, a part of the box below containing a battery being broken away. Fig. 2 is a vertical longitudinal section through the same on the line A—A in Fig. 1, seen

in the direction of the arrows; Fig. 3 is a horizontal cross section through the same on the line B—B in Fig. 1, Fig. 4 is a horizontal section through the line D—D in Fig. 2 and shows in a plan view the carriage with the objective and the projecting device, Fig. 5 is a side view of the same, and Fig. 6 is a vertical section through the line C—C in Fig. 4. Fig. 7 is an illustration of the type of film used with my apparatus.

Similar characters of reference refer to similar parts throughout the several views.

A box 1 of any known construction and containing a battery or other source of current carries two parallel vertical frame plates 2, 2, which are connected together by stays 38, 39, 40. A driving shaft 3 is mounted in the two plates 2, 2 to turn and carries a hand-crank 4, a small belt pulley 21 and a large gear wheel 5. A box-like support 41 with a bent arm 42 (Fig. 3) is affixed to one frame plate 2 and carries two shafts 7 and 43 turnable in it at right angles to one another. The shaft 7 has fastened on it a pinion 6 meshing with the gear wheel 5, a disk 9 provided with a pin 10 (Fig. 2), a notched disk 8 and a fly wheel 44. The two shafts 7 and 43 are geared together by means of two bevel wheels 35 and 36 and the shaft 43 has fastened at its front end a balanced shutter 37 having the shape of a segment (Fig. 1). A shaft 11 is mounted in the two plates 2, 2 to turn and has fastened on it a star wheel 12 and two guiding wheels 13, 14 with pins on their periphery. A bent support 45 fastened on one frame plate 2 carries a horizontal long pin 18, on which a large belt pulley 20 and a drum 16 are mounted to turn independently of one another. However, the pulley 20 carries a pin 19, which engages in a hole (Fig. 2) of the drum 16, whereby the latter is obliged to partake in the revolution of the pulley 20. The drum 16 can be taken off the pin 18 and again replaced, while a turnable lack 46 or the like on the support 45 serves for preventing the drum 16 from moving endwise. A film band 17 is fastened with its one end on the drum 16 and is longitudinally provided with two parallel series of holes 15. A bent stationary hollow guide 17' is fastened on the stays 39 and 40 and serves for guiding the film band 17. It

is provided with two parallel slots or the like for permitting the pins of the two guiding wheels 13 and 14 to engage in the holes 15 of the film band 17. A further guide 47 may be disposed on the box 1 for guiding the film band 17, which may be permitted to hang down or to slide into some receptacle not shown. The two belt pulleys 21 and 20 are connected together by an endless belt 21' or the like. Two parallel horizontal guiding pins 27 and 28 are fastened at one end in the one frame plate 2 and extend at the other end through holes (Fig. 4) in the other frame plate 2. On these two guiding pins 27 and 28 two sleeves 25 and 26 are mounted to slide, while they are rigidly connected together by two plates 24 and 24'. The plate 24' is bent at right angles and its free part is made to slide on the stationary guide 17' and is provided with an opening 48 (Fig. 2). The upper sleeve 25 is shown as made in one with a rack 29. A horizontal shaft 32 is mounted in the two stays 38 and 39 to turn and carries a pinion 30 meshing with the rack 29 and a knurled knob 31, which latter can be turned with the fingers.

It will be seen, that the parts 24, 25, 26 and 24' form a carriage, on which an objective 22 of any known construction and a projecting device 23 are fastened. The projecting device 23 is shown to be similar in construction to a telescope and to contain an illuminating device consisting of a small incandescent lamp 23'. The latter can be supplied with current through some conductor 49 from the battery or other source in the box 1 by switching on a switch 50 or the like. The support 45 may be provided with an incandescent lamp 51 (Fig. 1) for the operator, which lamp 51 can be supplied with current through another conductor 52.

The film band 17 is assumed to comprise four juxtaposed series of pictures, which are not actually shown but are merely indicated by parallel dotted lines in Fig. 1. The pictures in alternating series, for example in the first and third series in Fig. 1, when counting from left to right, follow one another in the direction from below to above, so that the film band 17 requires to be moved downward for exhibiting the pictures. The pictures in the other series, that is in the second and fourth series, follow one another in the direction from above to below, so that the film band requires to be moved upward, in other words it must be wound on the drum 16. Of course it is necessary that the horizontal center line of the objective 22 and the projecting device 23 should cut the vertical center line of any of the series of pictures. In order to insure this, an inner circular portion of the knob 31 is provided with notches 33, into any of which the bent end of a leaf spring 34 (Fig.

1) fastened on one frame plate 2 can engage. It will now be clear, that for changing from one series of pictures to the other one the knob 31 requires to be turned with the fingers, so that the free end of the spring 34 gets out of the respective notch 33 and slides on the periphery of the circular portion, until it engages in the next notch 33, when the carriage will be adjusted.

The manner of operating the cinematograph will now be evident. Supposing the first picture in the first series is in line with the opening 48 in the carriage, then the operator may turn the crank 4 say in the direction to the right, that is to say in the direction of the arrow 53 in Fig. 2 for unwinding the film band 17 from the drum 16 and at the same time for actuating the star wheel 12 in the following manner. As long as the periphery of the notched disk 8 is in contact with any of the arched recesses of the star wheel 12, the latter will stop. At the moment that the pin 10 on the disk 9 engages in the next radial slot of the star wheel 12, the latter will in a known manner be turned through a partial revolution for changing from one picture to the next following one. During this period the shutter 37 moves past the objective 22 for preventing the change of pictures from being projected on the plane of projection. The operator continues turning the crank 4 for exhibiting all the pictures of the first series one after the other. After the last picture has appeared, the operator turns the knob 31 for changing from the first series to the second one, after which he turns the crank 4 in the opposite direction, that is to say in the direction of the arrow 83 in Fig. 2 for winding the film band 17 on the drum 16 and exhibiting the pictures of the second series one after the other. At the end of the second series the operator again turns the knob 31 for changing from the second series to the third one, after which he turns the crank 4 in the opposite direction indicated by the arrow 53. In this manner the operator actuates the apparatus until he has exhibited all the pictures.

From the above description it will be seen, that the crank 4 can be turned in either direction without disturbing the apparatus. The stationary guide 17' requires to have two opposite horizontal slots for permitting the rays of light to pass from the source 23 to the objective proper 22'.

The cinematograph described can be varied in many respects without departing from the spirit of my invention.

I claim:

In a cinematograph the combination with means for carrying and moving a film having a number of longitudinally-juxtaposed rows of pictures, of an objective, an illuminating device, means for connecting this

objective and the illuminating device rigidly
together, means slidably carrying the objec-
tive and illuminating device so that the two
latter can be adjusted transversely of the
5 film, a gear for such adjustments, a thumb-
piece for operating the said gear, notches in
the said thumb-piece, and a spring-catch

adapted to engage any one of such notches,
substantially as set forth.

OSKAR MESSTER.

Witnesses:

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WOLDEMAR HAUPT.