

N^o 13,883



A.D. 1900

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PROVISIONAL SPECIFICATION.

“Improvements in or relating to Kinetoscopic or Cinematographic Apparatus”.

I, WILLIAM FRIESE-GREENE of 39 King's Road, Chelsea in the County of London, Photographer, do hereby declare the nature of this invention to be as follows:—

This invention relates to kinetoscopic or cinematographic apparatus and it has more particularly for object to provide a self-contained apparatus of compact arrangement and small bulk for exhibiting kinetoscopic or cinematographic photographs or pictures and which by requiring only a small amount of light can be constructed in a portable form adapted for drawing room use.

According to this invention I take a dark box or chamber of suitable size and shape and in it I arrange a lantern or projecting apparatus adapted to project the kinetoscopic or cinematographic pictures to be exhibited on to a screen also situated inside the box. At a suitable point in the case of the dark box I provide one or more binocular eye pieces through which one or more observers can view the pictures projected on the screen; or through which the pictures can be viewed stereoscopically.

In the arrangement I prefer, the screen is translucent and is situated between the eye piece and the projecting apparatus so that the observer looking at the front of the screen sees the pictures which are projected on the back of the screen. The eye piece or eye pieces are provided with suitably shaped projecting frames designed to conform closely to the face of the observer so as to exclude as far as possible all extraneous light and thus render only a moderate amount of light necessary for projecting the pictured. This light I furnish in any suitable manner such for example as by means of an incandescent gas burner or an electric lamp situated behind the condensing lens of the projecting apparatus. In some cases I may provide a suitable lamp such for example as an oil lamp or acetylene lamp for this purpose. The film, which term includes a number of distinct films joined together to form a single film strip drawn from a supply spool, is traversed rapidly through the projecting apparatus with the requisite “dwell” for each photograph by means of suitable multiplying gear which is adapted to be actuated by the observer or other person by means of a handle from the outside of the dark box.

On leaving the projecting apparatus the film is wound on to a receiving spool from which it can be subsequently unwound and rewound on to the same or another supply spool for a fresh exhibition.

In the arrangement which I prefer at present, I arrange two supply spools, one full and one empty, with a receiving spool intermediate of the two supply spools and I connect and operate these three spools by gearing in such a manner that as the film is being drawn off the full supply spool for exhibition through the projecting apparatus, and is being wound on to the intermediate receiving spool, it is at the same time being unwound from the last mentioned spool and wound on to the second empty supply spool. By this means, after one exhibition of the film, the second supply spool which is now filled with film can be at once substituted for the first supply spool which is now empty, so that a fresh exhibition of the film can take place without loss of time. In this manner, by

[Price 8d.]



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reversing the positions of the full and empty supply spools after each exhibition the film can be exhibited any desired number of times without appreciable delay between the successive exhibitions. Where the film is of not too great length, it may be made endless, in which case the film is led in zig zag manner over guide rollers so arranged as to enable the film to be contained in the least possible 5 space.

I also propose to use for the purpose of exhibition films bearing latent-coloured photographs produced in accordance with my British Letters Patent No. 21,649 of 1898. For this purpose I may arrange a multi-coloured disc of the kind described in the Specification of the said Letters Patent, behind the screen in the manner therein described and provide means for rotating said disc by means of the crank handle hereinbefore referred to. 10

I may also construct my apparatus on the coin-freed principle so that an observer will only be able to view the picture after the previous insertion of a coin into a suitable part of the apparatus. 15

For this purpose the actuating mechanism of the apparatus may comprise a clutch or the like which is normally out of gear and which can only be brought into gear by or through the insertion of a coin into a convenient coin shoot or passage. The coin-freed mechanism may be so constructed that the clutch will be kept by the coin in its operative condition during one exhibition of the film, and that when the whole or a predetermined length of the film has been exhibited, the coin will be caused to automatically drop into a money drawer, and the clutch at once return into its normal inoperative condition. 20

With a view to economy and to reduce the risk of over-heating the film, I may also provide means whereby the source of illumination is normally almost cut-off during the non-exhibition of the pictures and is automatically turned on to its full power immediately before the exhibition of the film and will be automatically turned down to a suitable extent immediately on the conclusion of the exhibition of the film. In the case of an incandescent gas burner I connect the main gas supply tap with a suitable device such as a bellows regulator arrangement or a piston working in a cylinder and operated by means of a cam or the like from a suitable part of the actuating mechanism of the apparatus, whereby when the operating handle is turned by the observer after the insertion of a coin the main gas jet is immediately turned on and ignited from a small pilot jet that is normally kept burning. The arrangement is such that on or towards the termination of the exhibition, the main gas tap is shut off automatically. 25 30 35

Where I use an oil lamp I provide a corresponding arrangement for turning the lamp wick up and down for the same purpose.

Dated this 2nd. day of August 1900.

J. C. MEWBURN & ELLIS,
55 and 56 Chancery Lane, London, Chartered Patent Agents. 40

COMPLETE SPECIFICATION.**"Improvements in or relating to Kinetoscopic or Cinematographic Apparatus."**

I, WILLIAM FRIESE-GREENE of 39 King's Road, Chelsea in the County of London, Photographer, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention relates to kinetoscopic or cinematographic apparatus, and it has more particularly for object to provide a self-contained apparatus of compact arrangement and small bulk for exhibiting kinetoscopic or cinematographic 45

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photographs or pictures, and which by requiring only a small amount of light can be constructed in a portable form adapted for drawing room use or to be combined with coin-operated or released mechanism of any suitable kind.

According to my invention, I take a dark box or chamber of suitable size and shape and in it I arrange a lantern or projecting apparatus adapted to project the kinetoscopic or cinematographic pictures to be exhibited on to a screen also situated at a convenient position within the box, or in the wall of same. At a suitable point in the case of the dark box I may provide one or more binocular eye-pieces through which the pictures projected on the screen may be viewed by one or more observers, or through which the pictures can be viewed stereoscopically.

In the preferred arrangement the screen is translucent, and is situated between the projecting apparatus and the observer, so that the latter looking at the front of the screen sees the pictures which are projected on the back of the screen.

The light may be furnished by any suitable means, such for example as an incandescent gas burner or an acetylene or incandescent electric lamp situated behind the condensing lens of the projecting apparatus. The film, which term includes a number of distinct films joined together to form a single film strip, drawn from a supply spool (or if not too long it may be in the form of an endless band) is traversed rapidly through the projecting apparatus with the requisite dwell for each separate picture, by means of suitable gear adapted to be operated by the observer or other person by means of a handle from the outside of the dark box, or it may be driven by any suitable motor.

On leaving the projecting apparatus the film may be wound on to a receiving spool, from which it can be subsequently unwound and rewound on to the same or another supply spool for a fresh exhibition.

When the film is in the form of an endless band it should be led in a zig-zag manner over guide rollers so as to enable the film to be contained in the least possible space.

I may also use for the purpose of exhibition films bearing latent coloured photographs produced in accordance with the Specification of British Letters Patent No. 21649 of 1898 granted to me. For this purpose I may arrange a translucent multi-colored disc of the kind described in the said specification between the projecting apparatus and the screen in the dark box and provide means for rotating said disc in the field of projection to produce the colored effect described in my said British Specification.

The accompanying drawings of an apparatus constructed in accordance with my invention and adapted for drawing room use will serve to illustrate same.

In these drawings Figure 1 is a longitudinal section through the dark chamber or box showing the projecting apparatus and mechanism in side elevation.

Figure 2 is a transverse section on the line A—B of Figure 1. Figure 2^a is a detail view of the spring clip hereinafter described for relieving the strain upon the film during winding allowing for continuous rotation of the film winding spindle while the film itself winds intermittently, and for compensating for the variation in diameter of the roll of film as this is wound on to the receiving roller.

Figure 3 is a detail elevation showing the mechanism (as seen from the opposite side to Figure 1) for imparting the necessary periodically interrupted motion to the film and for rotating the multicoloured screen before referred to, the box being broken away to show this mechanism.

1 is the dark box or chamber; 1^a is a ground glass screen, which in the apparatus illustrated is situated in the end wall of the box. 2 is an ordinary lantern objective mounted within the box and adapted to receive the light of an acetylene lamp 3 from the condenser 4 through an aperture in the film race 5 and film 6 and project same on the screen 1^a. The lamp 3 may be conveniently mounted as shown on a bent rod 3^a, passing through the side of the box and secured by a winged nut 3^b. The lamp projects into a cylindrical casing 3^c adapted to fit over the condenser 4. 7 is the supply roller from which the film 6

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is wound off. It is mounted in an arm 8 secured to a suitable portion of the framing. From the roller 7 the film is led over a pivoted velvet-covered flanged guide table 9. A hinged plate 10, also velvet covered, is adapted to be turned down upon the table 9 to guide and steady the film in its travel over the table 9 to the film race 5, and to be turned up to release the film or for facility of inserting same. In the drawings this hinged plate is shown turned down upon the table 9 so as to bear upon the film. The table 9 is pivotted at 11, and a spring 12 causes it to bear upon a stop 11^a, while allowing sufficient play for the film. 13 is a hinged spring plate bearing normally upon the film in the film race 5. The spring plate is formed with a square aperture 13^a (Fig. 2) which corresponds with an orifice in the film race. The plate 13 may be turned forward upon its hinge to allow of the film being passed behind same, and it then returns to position under the action of its spring, so as to keep the film perfectly flat and true in its travel through the film race. 14 is a rod secured to the spring plate 13, and by means of which it can be moved up and down to adjust the aperture 13^a in the hinged plate 13 with respect to the aperture in the film race. A threaded nut 15 limits the vertical motion of the rod 14 and the hinged plate connected thereto to any desired extent. 16 is a velvet covered spring plate, bent to approximate the curvature of the film-driving roller 18, and normally bearing thereon, but adapted to be moved away from same to allow of inserting or removing the film by turning a thumb ring 17 connected to the plate 16 by a small rod passing through a bevelled slot in the framing of the apparatus. 19 is a spring steel plate mounted on an arm 19^a and bearing upon the film on the film-driving roller 18 to keep the perforations of the film in engagement with the driving pins on said roller. This plate is capable of being adjusted and secured in the desired position with respect to the film driving roller by means of a milled button 20.

The apparatus illustrated is driven by a crank handle 21 which imparts motion to the driving pulley 22, this motion being transmitted by the cord 23 to the pulley 24 keyed on the shaft 25. Upon the shaft 25 is a mitre wheel 26 gearing with a mitre wheel 26^a on the spindle 27 of a large spur wheel 28. The spur wheel 28 gears with a small spur wheel 29 (see Fig. 2) on the spindle 30^a of the multicoloured disc 30, which is thus caused to rotate before the objective 2 of the lantern as shown.

On the shaft 25 is also keyed a spur wheel 31 (see Fig. 3) gearing with a spur wheel 32 mounted on a spindle in the framing at the opposite side of the apparatus to that shown in Fig. 1. The film driving roller 18 is mounted on a shaft 33 which passes through to the opposite side of the apparatus (that shown in Fig. 3). Upon this shaft 33 is mounted a loose wheel 34 driven from the spur wheel 32 by a link 35. Two wheels 36, 37, each formed with an equal number of inclined teeth and notches as shown (conveniently six as illustrated), are keyed on the shaft 33, the inclinations of the teeth of the inner wheel 37 being directed in the opposite sense to those of the outer wheel 36, and adapted to be driven by a pawl 40 as hereinafter described. A pin 38 is secured to the face of the wheel 34, and a spring detent 39 is mounted at a suitable point of the framing to allow of engaging the successive notches in the outer notched wheel 36 and preventing rotation of the shaft 33, and consequently of the film driving roller 18, except at the desired times as hereinafter described. 40 is a driving pawl adapted to engage and drive the inner notched wheel 37 to the extent of one tooth of this wheel 37 at each down throw of the link 35. This pawl 40 is kept pressed towards the notched wheel 37 by a spring 41. It will be readily understood that at each rotation of the spur wheel 32 the link 35 is caused to reciprocate and imparts an oscillating motion to the wheel 34 about the shaft 33. In the upward throw of the link 35, the pin 38 pushes the detent 39 out of engagement with the notched wheel 36, and the pawl 40 rides backwards over an inclined tooth of the wheel 36 until it falls into driving engagement therewith under the action of the spring 41. During the down throw of the

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link 35 the pawl 40 thus drives the wheel 37 and shaft 33 until the link again commences its upthrow, the detent 39 being all this time out of engagement with a notch of the wheel 36, because when the detent is released by the pin 38 it falls upon the next inclined tooth of the wheel 36 and rides over same to the next notch, in which it becomes engaged when the link 35 is on the point of commencing its next upthrow, thus holding the shaft 33 secure until it is again released by the pin 38 for the next movement of partial rotation. Thus for each oscillation of the wheel 34 under the action of the link 35, the film driving drum 18 is rotated to the proper extent to bring the pictures successively into proper position in the lantern for projection.

A spur wheel 42 also mounted on the shaft 25 drives the film winding roller 46 through the intermediation of two spur wheels 43, 44 and a spur wheel 45 keyed on the spindle of the film winding roller at the opposite side to this roller, the spindle passing from side to side of the box 1. The end of the film at the commencement of winding is clipped to the spindle of the winding roller 46 by means of a spring clip such as shown in Fig. 2^a, which will slip on the spindle when any undue tension of the film occurs, and thus also compensate for the continually increasing diameter of the roll of film, as this is wound on, and also allow of continuous rotation of the film winding spindle while the film is wound intermittently. An ordinary slotted cylindrical shutter 47 is also mounted upon the end of the shaft 25 so as to rotate in front of the condenser 4, and its movement is so timed with respect to that of the film driving roller 18 as to cut off the light while the film is travelling. 48 49 are springs mounted respectively on the wind-off spindle and wind-on spindle of the film for the purpose of securely holding the roll of film in position laterally, in combination with the discs 50 51 respectively.

Thus in the apparatus just described a kinetoscopic view possessing all the natural colours is projected on the ground glass screen 1^a in the end wall of the box, where it may be viewed in a darkened room by any number of observers.

It will be readily understood that instead of the screen 1^a being in the wall of the dark box, it may be situated inside same, where it may be viewed even in day light by one or more observers through suitably arranged shaded eye-pieces so as to exclude as far as possible all extraneous light and thus render a moderate amount of light necessary for projecting the picture.

Further, the apparatus may be arranged stereoscopically, in which case the screen would be situated within the dark chamber, and stereoscopic eye-pieces would be arranged in the wall of the box, the film being duplicated, and the apparatus adapted for stereoscopic projection in any suitable or ordinary way, as will be obvious without further explanation.

The apparatus may also, as will be readily understood, be constructed on the coin-freed or coin actuated principle, so that an observer will only be able to view the pictures after the insertion of a coin in a suitable part of the apparatus, the coin serving for example to put a clutch or the like into gear with the driving mechanism of the apparatus. The coin-freed mechanism may be so constructed that the clutch will be kept by the coin in its operative condition during one exhibition of the film, and that when the whole or a predetermined length of the film has been exhibited, the coin will be caused to automatically drop into a money drawer, and the clutch to at once return into its normal inoperative condition.

With a view to economy, and to reduce the risk of overheating the film, I may also provide means whereby the source of illumination is normally almost cut off during the non-exhibition of the pictures and is automatically turned on to its full power immediately before the exhibition of the film, and will be automatically turned down to a suitable extent immediately on the conclusion of the exhibition of the film. In the case of an incandescent gas burner I may connect the main gas supply tap with a suitable device such as a bellows regulator arrangement, or a piston working in a cylinder and operated by means of a cam

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or the like from a suitable part of the actuating mechanism of the apparatus, whereby when the operating handle is turned by the observer after the insertion of a coin, the main gas jet is immediately turned on and ignited from a small pilot jet that is normally kept burning. The arrangement would be such that on or towards the termination of the exhibition, the main gas tap would be shut off automatically. 5

Where I use an oil lamp, I may provide a corresponding arrangement for turning the lamp wick up and down for the same purpose.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:— 10

1. A self-contained apparatus for exhibiting kinetoscopic or cinematographic pictures, said apparatus comprising the combination of a dark chamber, a lamp, lantern or other source of light, a projecting apparatus, a viewing screen, and mechanism for causing the series of pictures to be projected to travel through said projecting apparatus to produce a kinetoscopic or cinematographic view upon said screen, substantially as and for the purposes described. 15

2. A self-contained apparatus for exhibiting kinetoscopic or cinematographic pictures, said apparatus comprising the combination of a dark chamber, a lamp, lantern or other source of light, a projecting apparatus, a viewing screen, mechanism for causing a series of latent coloured photographs to travel through said projecting apparatus, and a screen composed of transparent sections of primary colours caused to travel rapidly through the field of projection, whereby a kinetoscopic or cinematographic picture in its natural colours may be projected upon said viewing screen, substantially as and for the purposes described. 20 25

3. A self-contained apparatus for stereoscopically exhibiting kinetoscopic or cinematographic pictures, said apparatus comprising the combination of parts specified in Claim 1 or Claim 2, adapted for stereoscopic projection, and means for stereoscopically viewing the pictures projected on the viewing screen, all substantially as and for the purposes described. 30

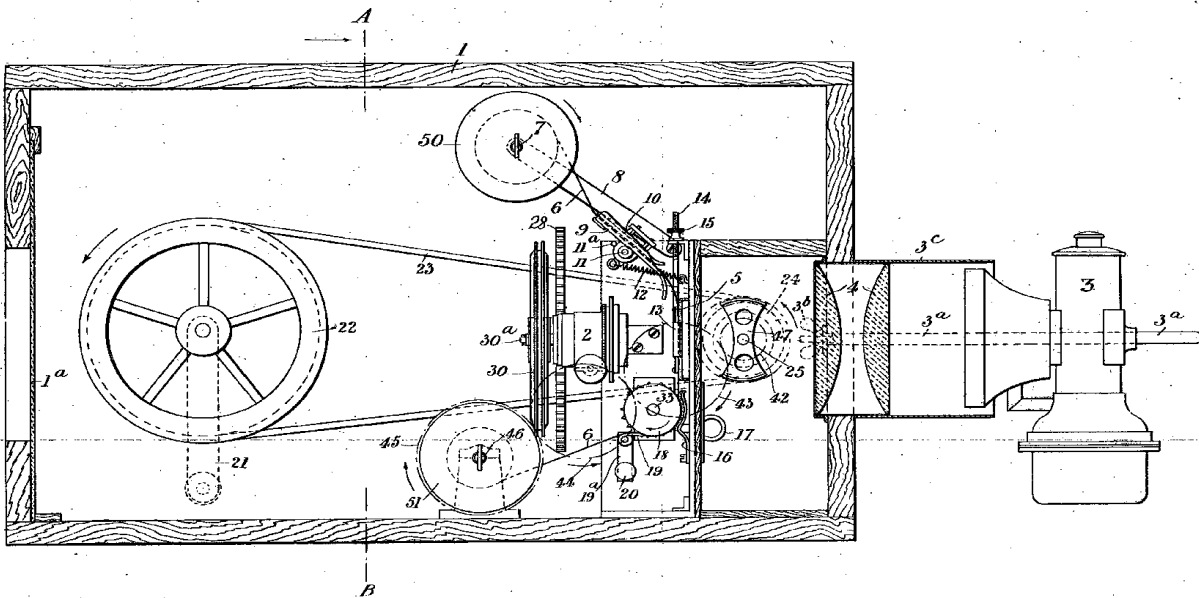
4. A self-contained apparatus for exhibiting kinetoscopic or cinematographic pictures, substantially as described with reference to the accompanying drawings. 35

Dated this 24th day of April 1901.

J. C. MEWBURN & ELLIS

55 and 56 Chancery Lane, London, Chartered Patent Agents. 35

Fig. 1.

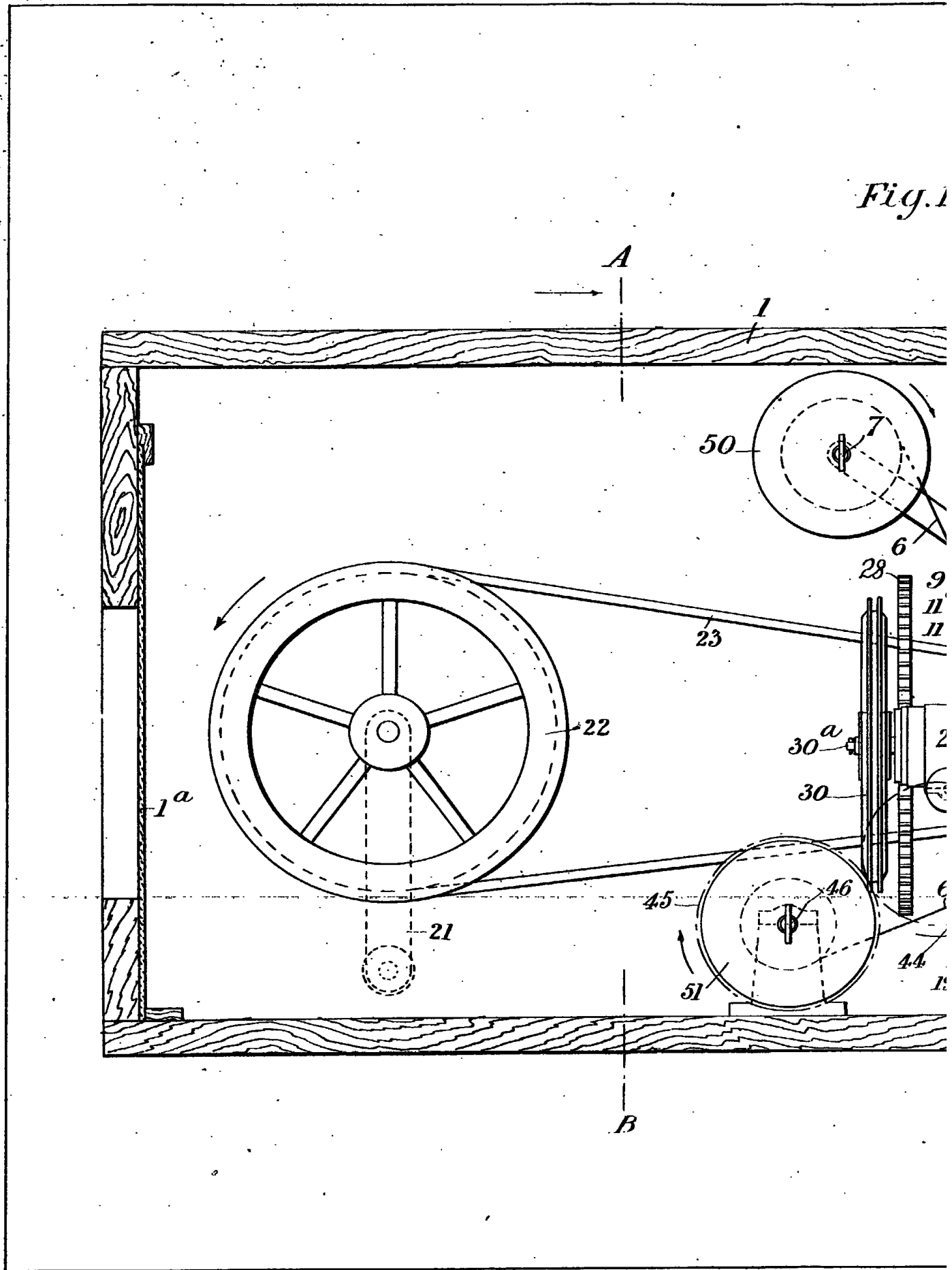


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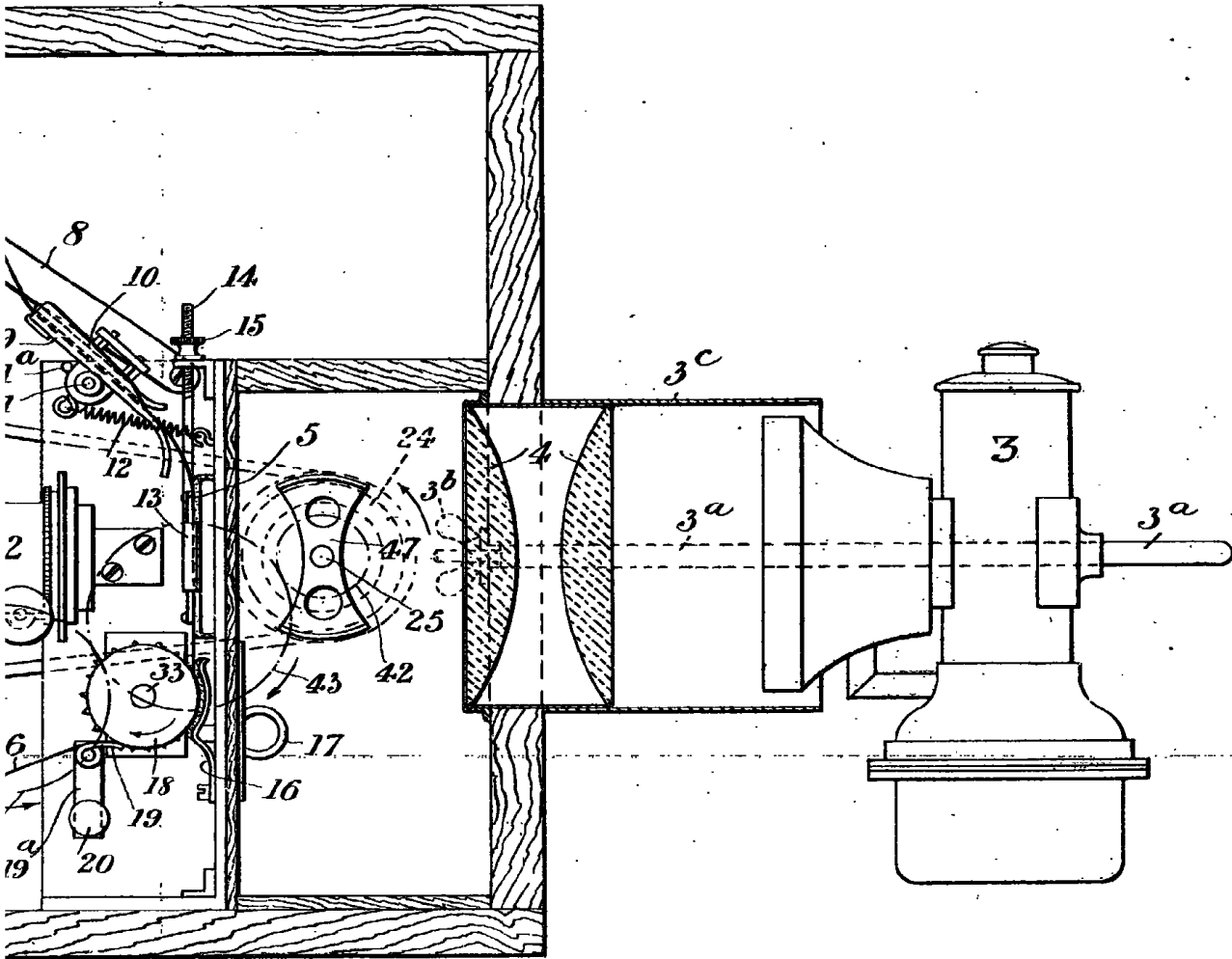
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Fig. 1



1.



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Fig. 2.

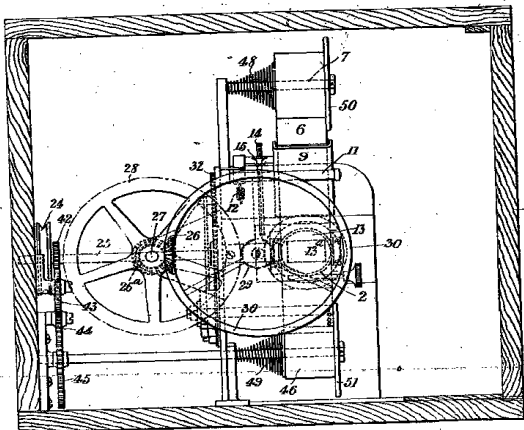
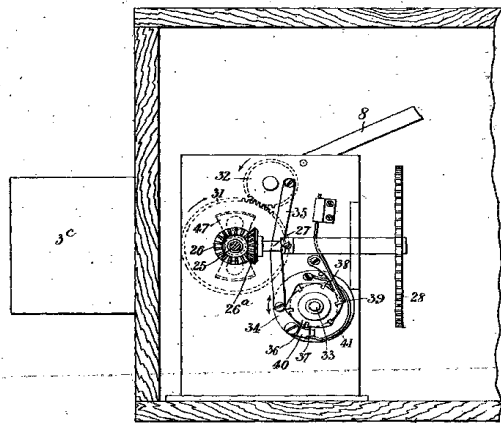


Fig. 2^a



Fig. 3.



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Fig. 2.

Fig. 2^a

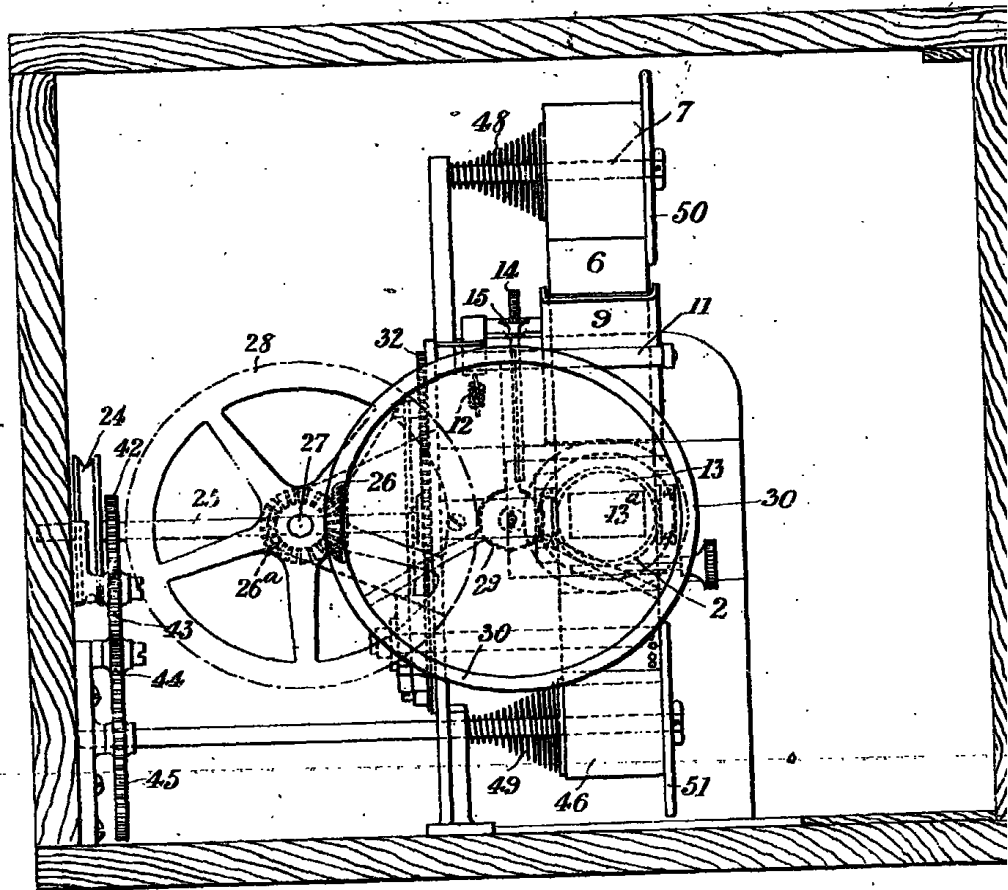
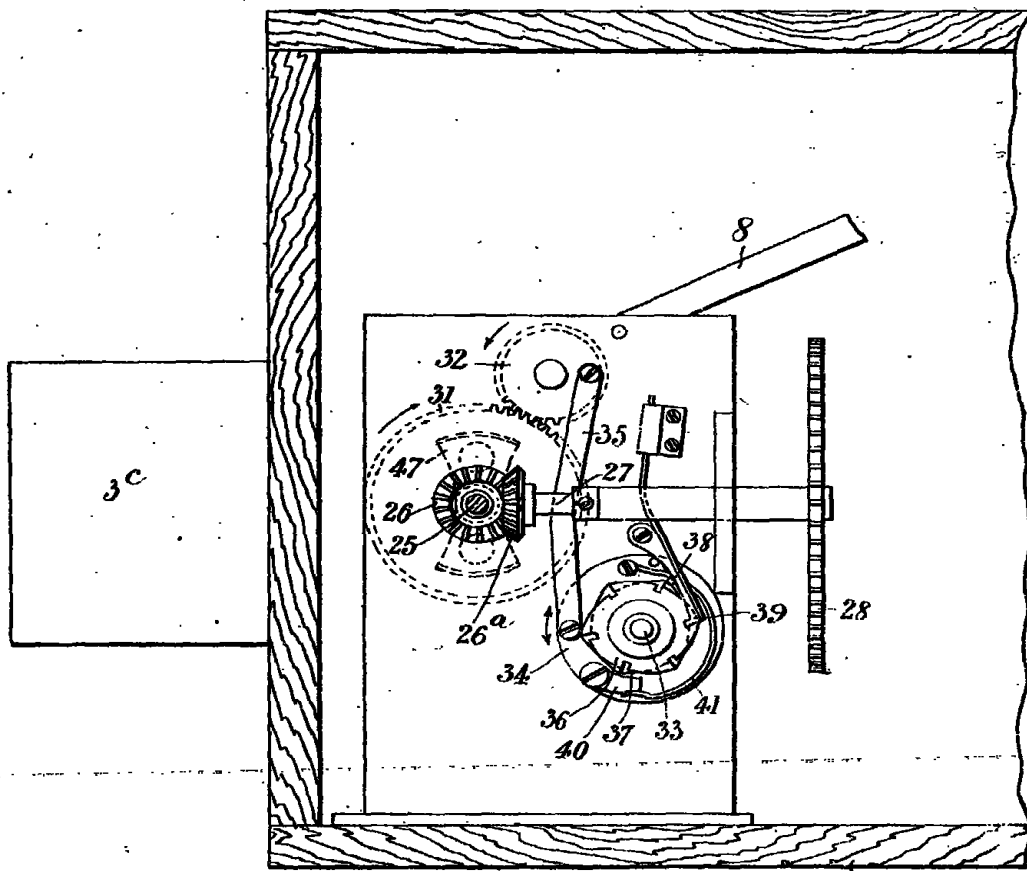


Fig. 3.



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