PATENT SPECIFICATION

Convention Date (France): Feb. 21, 1921.

175,968

Application Date (in United Kingdom): Feb. 2, 1922. No. 3145/22.

Complete Accepted: May 2, 1923.

COMPLETE SPECIFICATION.

Improved Motion Picture Projection Apparatus.

We, PATHE CINEMA, ANCIENS ETABLISSEMENTS PATHE FRERES, 30, Boulevard des Italiens, Paris, France, Manufacturers, a company organized under the laws of France, 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 a small cinematographic projection apparatus or toy apparatus which is simple to handle and capable of being easily used by amateurs; in particular the charging of the apparatus, the re-rolling of the film and the automatic stoppage of the film for the fixed projection of any picture, being effected in an extremely simple manner.

In the ordinary cinematographic apparatus various devices have already been suggested for automatic stoppage of the film, for instance, for the fixed projection of a picture. In these devices a member in constant contact with the film and which can be actuated by projections or notches in the film, mechanically or electrically controls the rotary finger driving the Maltese cross, so that this finger, while still continuing to rotate, is moved away from the cross which thus remains stationary. At the same time the drums on which the film is rolled or unrolled are disengaged from the driving device.

According to the present invention the driving mechanism of the film is subjected to the action of a lever or like member which cooperates with a contact member bearing against one of the edges of the film in such a manner that when the said contact member falls into a notch provided in the edge of the film, the said lever or like member acts on the driving member of the film in order to move it away from the latter, so that the driving member continues to act but without driving the film, which is consequently stationary either in order to obtain a fixed projection, or to prevent the film becoming detached from its storage-spool towards the end of the projection.

This arrangement affords the advantage of allowing a moving projection to pass to a fixed projection without stopping any member of the driving mechanism, thereby avoiding any shock or effect of inertia.

Other features and advantages of the invention will be set forth in the following description.

In the accompanying drawings, given by way of example:—

Fig. 1 is a vertical longitudinal section of the apparatus on the line A—A (Fig. 2).

Fig. 2 is a vertical cross-section on the line B—B (Fig. 1).

Fig. 3 is a diagrammatic view of the mechanism providing for the stop of the film either during the course of the projection or at the end of the same by the withdrawal of the claws of the driving mechanism.

As shown in the drawing:

1 is the storage reel with its core 2 whereupon is permanently secured one end of the film to be projected the said core being provided on the other hand with a groove 5 for the mechanical drive.

3 indicates the cheeks of the storage reel and 4 the aperture in the wall of the latter.

6 is the support for holding the storage reel in place on the projection apparatus.

7 is a guideway for the film.

8 is the projection opening of the apparatus.

9 is a cam.

10 is the frame driven by the said cam, driving the support 11 of the claw and the claw 12.

13 is the helical cam affording the forward or back motion of the claw support 11 holding the claw 12. This cam is slidable on the shaft 14 of the cam 9 and is separated from this cam by a spring 15; the cam is also caused to partake of the movement of rotation of the shaft 14 by a suitable key device.

16 is a lever (Figs. 1 and 3) acting upon a ring 17 to impel the cam 13 towards the cam 9.

18 is a slidable piece having at its end a roller 19 bearing on the edge of the film and actuating a trigger 20 whose nose 21 engages the lever 16 in normal working. The spring 22 maintains the contact between the roller 19 and the film.

When the roller enters a suitable notch provided at the required point in one edge of the film, the lever 16 is released and the cam 13 under the action of the spring 15 will separate the claw 12 from the film. In this manner the film will be automatically immobilized, the feeding mechanism operating idly and having no further action on the film. By this means a stationary projection is automatically obtained, which may be used for projecting a title, the image of an inanimate object *etc.* To resume the motion picture projection, the lever 16 is pushed by hand by its end 16^a; the nose 21 of the trigger 20 resumes its position of engagement with the lever, the film again commences to travel and the lever can now be released.

At a point towards its end, the film is also provided with a lateral notch whereby the feeding claws are automatically disengaged from the film and the latter brought to a standstill when the projection is finished. By this means there is no risk of the film being torn off the revoluble core of the storage reel.

23 is a control screw mounted on the shaft 14.

24 is a tangent wheel and 25 a pulley mounted on the shaft of the crank 26.

39 is a flat circular box wherein the film enters directly after having been engaged in the guideway 7 in order to move before the opening 8 and to engage the claw of the intermittent entraining mechanism. The film is wound upon itself in this box which may be provided with means for preventing the same from rubbing in the interior such for instance as rollers disposed around the periphery and ribs disposed on the cheeks and periphery.

The mechanism for re-winding the film is constituted by the shaft 27 carrying at its end the screwdriver 28 engaging the groove 5 of the core 2 of the storage reel 1. This shaft is actuated by the motion of the crank by means of the pulley 25, the belt 29, the pulley 30, the tangent wheel 31 and the screw 32.

The teeth of the wheel 31 and of the screw 32 are oblique and in this manner the shaft 27 which has a sufficient play in its bearings is kept separated from the storage reel when the handle is turned in the direction corresponding to the projection and is engaged with the core when this handle is turned in the contrary direction.

The apparatus is completed by an objective 33, a fly-wheel shutter 34 and an optical projection device comprising the lantern 35, the lamp 36, the mirror 37 and the condenser 38.

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

1. A motion picture projection apparatus, characterized in that the feeding mechanism for the film is submitted to the action of a lever (16) or like element co-operating with a contact element (19) bearing upon one edge of the film, in such manner that when the said contact element falls into a notch formed in the edge of the film, the said lever or like element will act upon the feeding member (12) for the film to withdraw it from the latter, whereby the feeding mechanism shall continue to operate but to no effect and without driving the film, the latter being thus immobilized either for stationary projection purposes or to prevent the film from being detached from the storage reel towards the end of the projection.

2. A motion picture apparatus according to Claim 1, characterized in that a cam (13) producing the displacement of the feeding claws (12) in a direction perpendicular to the plane of the film is disposed upon a revoluble sleeve which is slidable under the action of a spring and is normally retained by the pivoted lever (16), the latter being retained by a spring-actuated pivoted catch (20) connected with a roller (19) constituting the contact element engaging the film.

3. A motion picture apparatus according to Claim 1, characterized in that the film to be projected is permanently secured at the rear end to the revoluble core of the storage reel containing the said film, the apparatus being provided with means for effecting the reverse rotation of the said core in order to re-wind the film after the projection.

4. A motion picture apparatus according to Claim 3, characterized in that the

driving shaft (26ª) of the apparatus actuates the revoluble core (2) of the storage reel through the intermediary of a worm gearing (31, 32) in such manner as to provide for the automatic coupling of the actuating element with the core of the reel upon rotating the shaft to the rear for re-winding purposes.

5. A motion picture apparatus according to Claim 1, characterized in that it comprises a flat circular chamber (39) which the film enters in an approximately tangential direction after leaving the feeding members, the film being thus enabled to roll up automatically in spiral form within the said chamber during the projection and to be unrolled in like manner during the re-winding.

6. A motion picture projection apparatus, substantially as described and as shown in the accompanying drawing.

Dated this 2nd day of February, 1922.

For the Applicants,
HERBERT HADDAN & Co.,
Chartered Patent Agents,
31 and 32, Bedford Street, Strand,
W.C. 2, London.

Abingdon: Printed for His Majesty's Stationery Office, by Burgess & Son.
[Wt. 8002A—50/9/1934.]

Fig.1

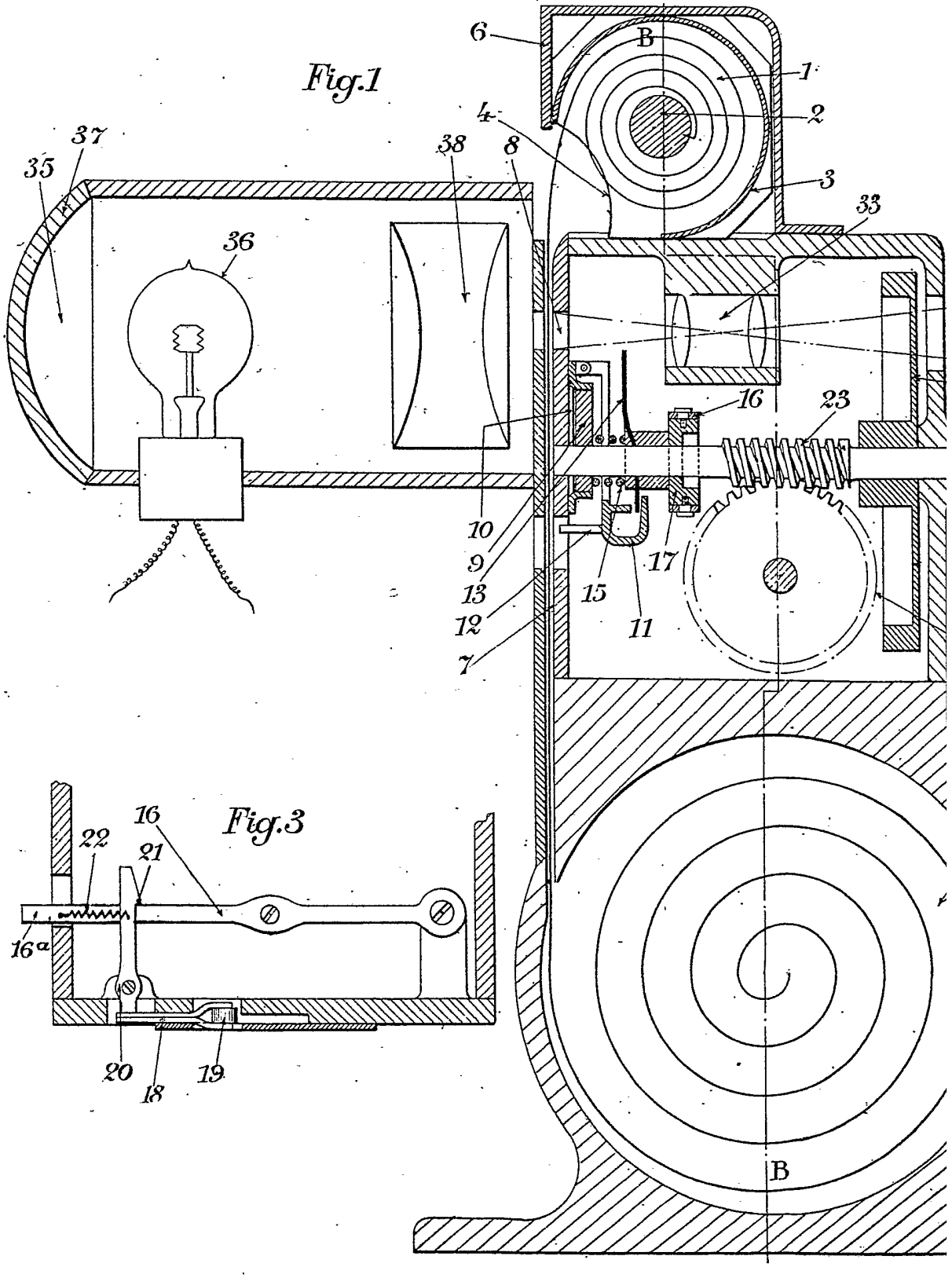


Fig.3

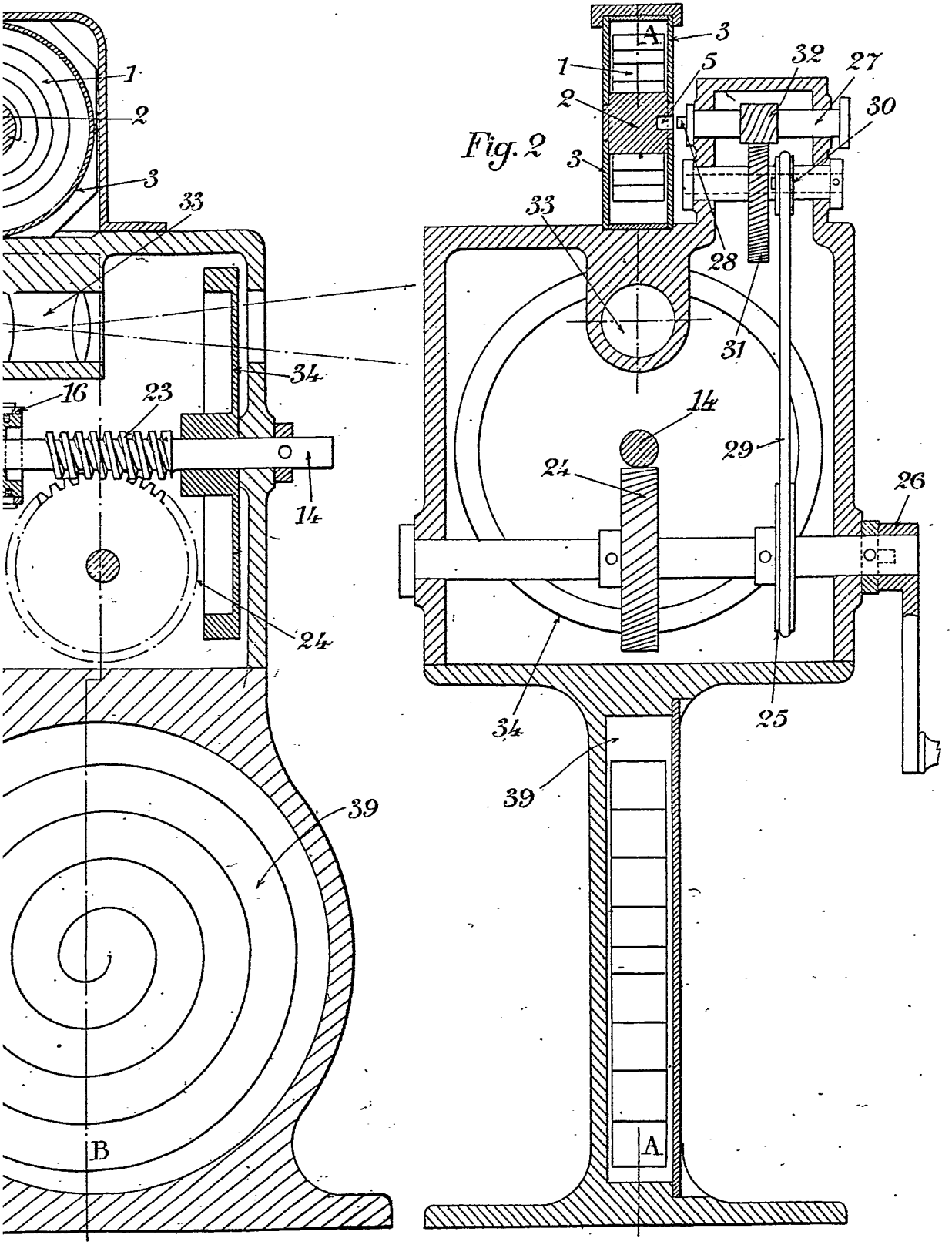


Fig. 2

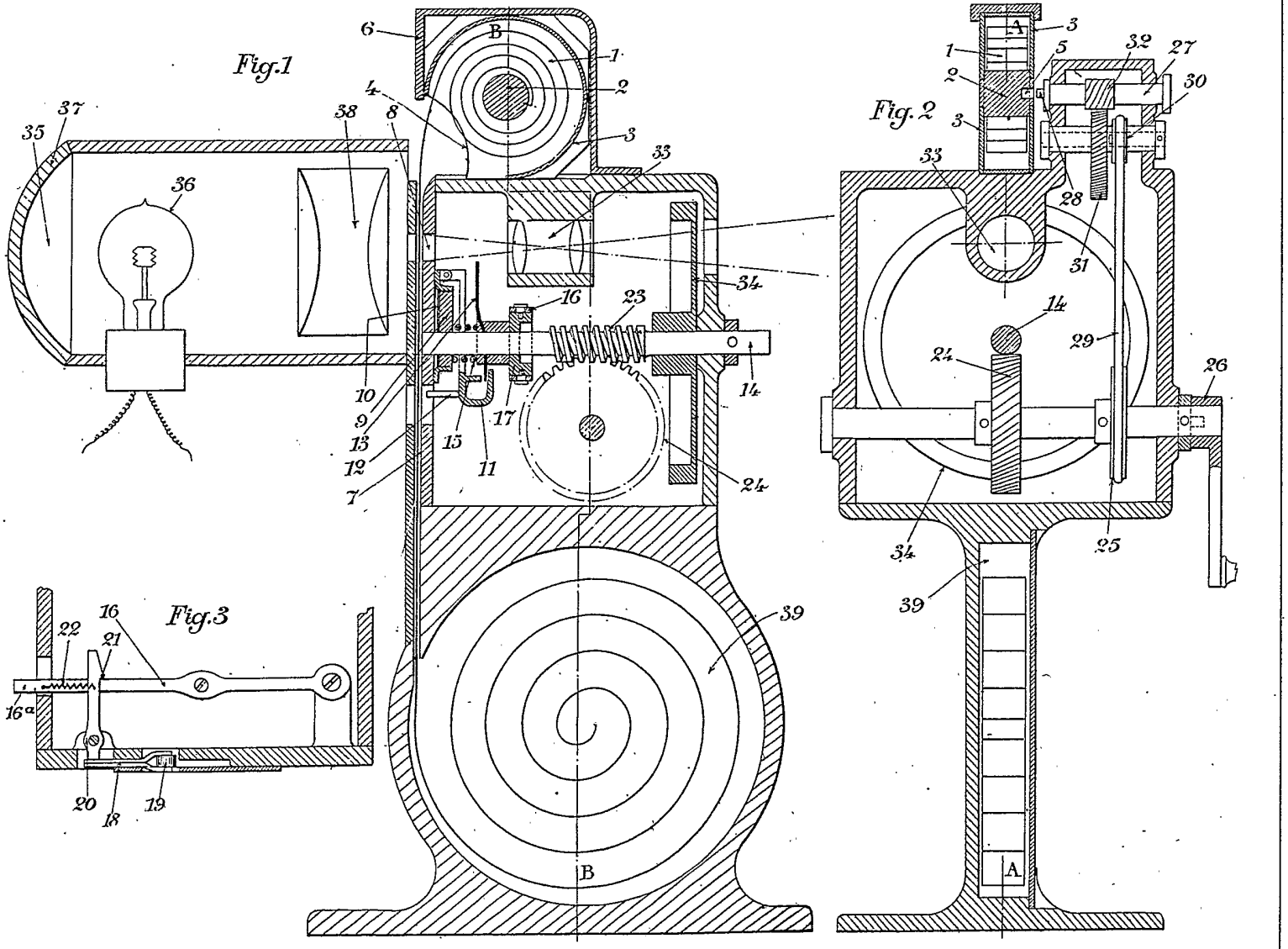
Malby & Sons, Photo-Litho.

175,968 COMPLETE SPECIFICATION

2nd Edition

1 SHEET

[This Drawing is a reproduction of the Original on a reduced scale.]



Malby & Sons, Photo-Litho.