No. 877,212. PATENTED JAN. 21, 1908.

O. MEYER.

COIN FREED MECHANISM.

APPLICATION FILED MAY 29, 1906.

3 SHEETS—SHEET 1.

Fig. 1

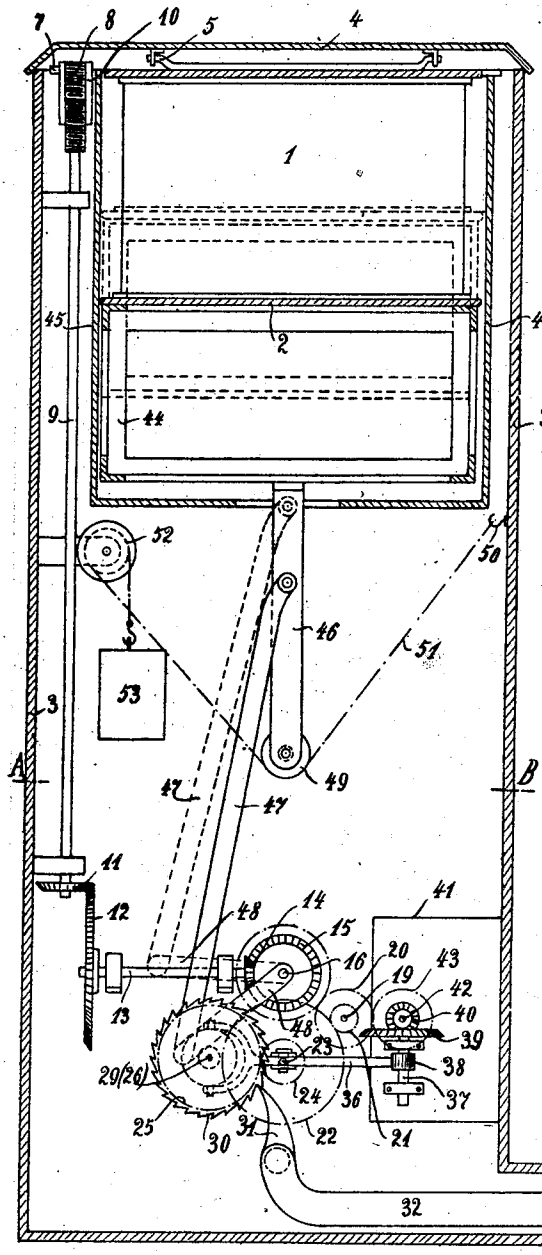
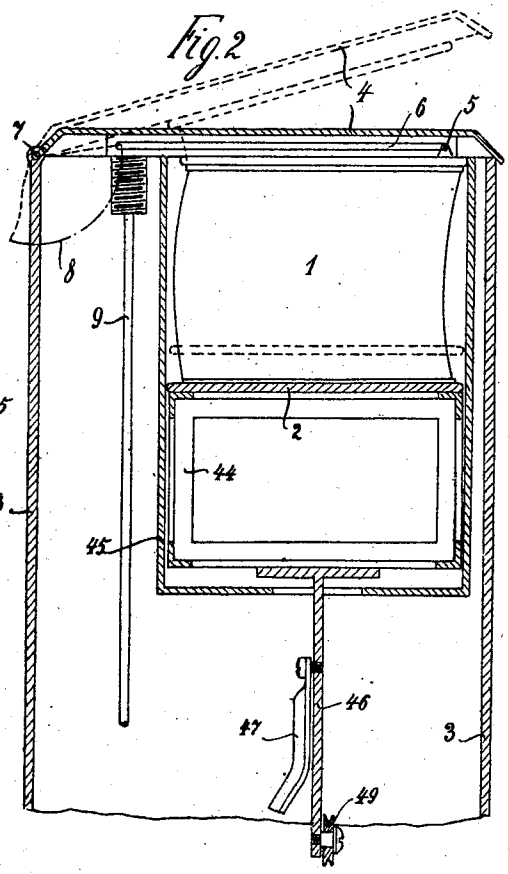


Fig. 2



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3 SHEETS—SHEET 2.

Fig. 4

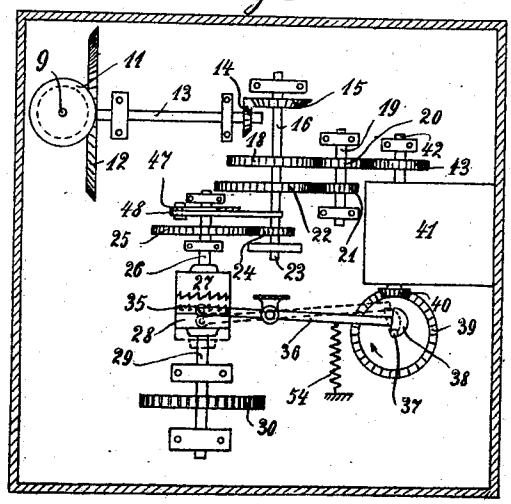
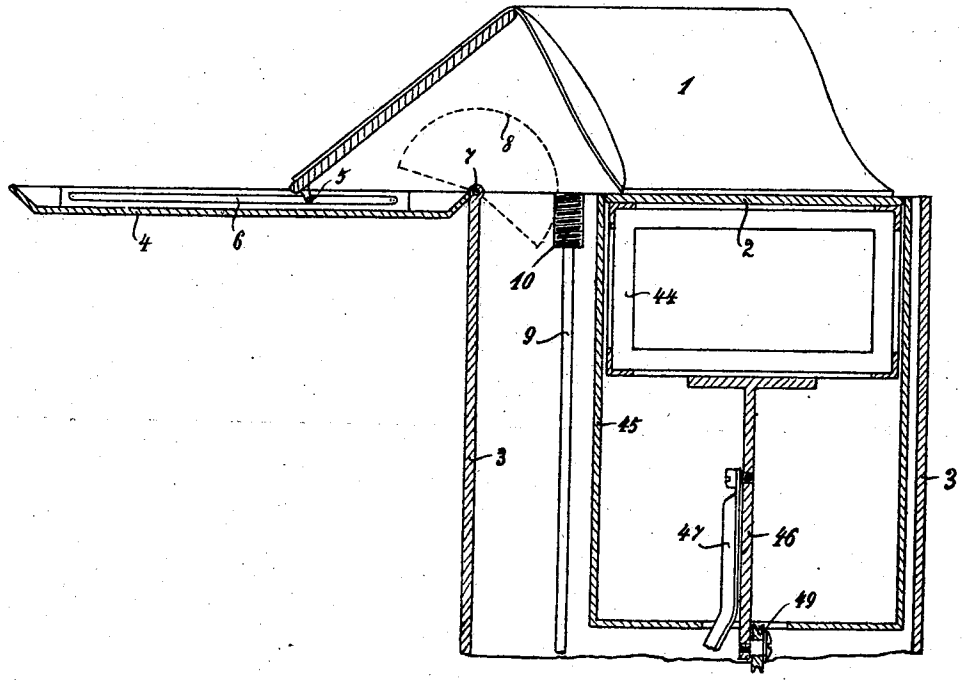


Fig. 3



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3 SHEETS—SHEET 3.

Fig. 5

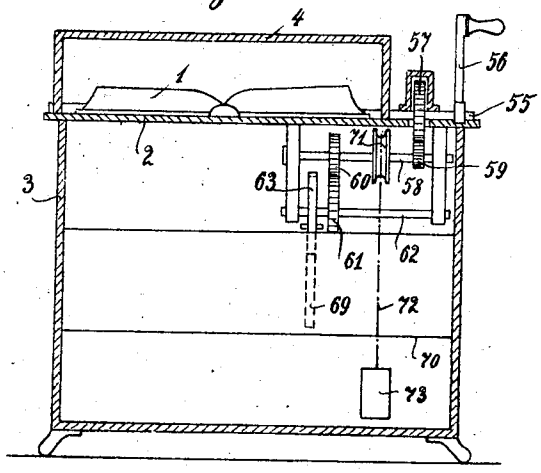
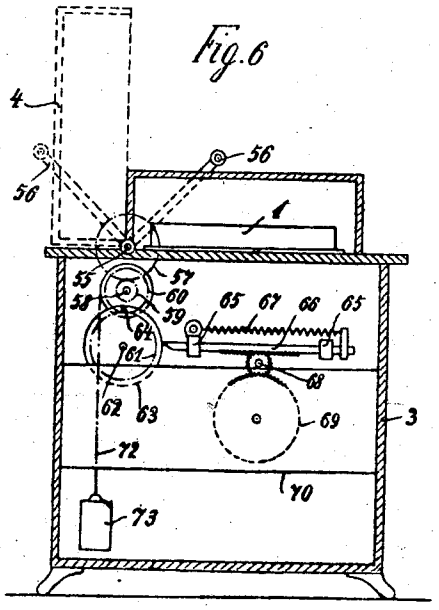


Fig. 6



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THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OSKAR MEYER, OF GÖTTINGEN, GERMANY.

COIN-FREED MECHANISM.

No. 877,212. Specification of Letters Patent. Patented Jan. 21, 1908.

Application filed May 29, 1906. Serial No. 319,234.

To all whom it may concern:

Be it known that I, OSKAR MEYER, a subject of German Emperor, and residing at Göttingen, in the Province of Hanover, Germany, have invented new and useful Improvements in or Relating to Coin-Freed Mechanism, particularly for use in conjunction with books of reference or the like, of which the following is a specification.

This invention relates to that class of mechanism which permits a book being inspected after the insertion of a coin, and has for its object to close or cover the book automatically at the expiration of a predetermined time interval.

In addition to releasing the book the introduction of the coin releases in the well known manner mechanism by means of which energy in some shape is stored at each operation by the weight of the human body, or by some similar means.

According to this invention, a special releasing device for the energy accumulated, controlled by means of clock-work, is connected to any known coin freed mechanism in such manner that the clock-work, after the expiration of a predetermined interval of time automatically utilizes the energy accumulated to close the book. The arrangement can also be such that the automatic release and closing of the book is independent of each operation or accumulation of energy, sufficient energy for several operations being stored in advance by winding up a spring or raising a weight. The energy is then employed at the required intervals for opening the book upon the introduction of a coin and for closing the book by means of the clock-work.

Two constructions according to this invention are illustrated in the accompanying drawings in which,

Figure 1 is a side elevation, Figs. 2 and 3 are front elevations showing the book respectively closed and opened, Fig. 4 a horizontal section on the line A—B of Fig. 1, and Figs. 5 and 6 show respectively a front and a side elevation of another construction of this invention.

The book to be inspected, for instance a directory 1 rests upon a table 2, and the casing or cabinet 3 contains the mechanism. In the construction illustrated in Figs. 1–4 the table on which the directory is placed, is arranged so that it can be raised and lowered, and the directory, in the position of rest, is closed by a simple flap or lid 4. The cover of the directory is connected to the lid 4 by a pin 5 engaging with a slot 6 (Fig. 2) formed in the flap. To the spindle 7 of the lid 4 is rigidly secured a worm wheel sector 8 with which engages a worm 10 rigidly secured to a vertical spindle 9. The bottom end of the spindle 9 is connected by bevel wheels 11 and 12 (Fig. 1) to a horizontal spindle 13 which, in turn, is connected by bevel wheels 14 and 15 to a spindle 16 carrying a spur wheel 18 (Fig. 4). The wheel 18 engages with a spur wheel 20 secured to a spindle 19 to which is also keyed a small pinion 21. The pinion 21 engages with a large spur wheel 22 secured to a spindle 23 and the spindle 23 is connected by spur wheels 24 and 25 keyed to it to a spindle 26 carrying clutch members 27 and 28. A spindle 29 arranged co-axial with the spindle 26, carries a clutch member 28 and a ratchet wheel 30 and the clutch member 27 and the ratchet wheel 30 are keyed to spindles while the clutch member 28 is adjustably mounted by means of a groove and spline upon the spindle 29. A pawl 31 is mounted on the end of a lever 32 pivoted at 33 (Fig. 1) and is constantly pressed against the teeth of the ratchet wheel 30, by means of a suitable spring not shown in the drawing. On the short end of the lever 32 a pedal or table 34 rests.

The above mentioned adjustable clutch member 28 is connected by means of a slide ring 35 provided with pins and a double lever 36 to a cam disk 38 secured to a spindle 37 (Fig. 4). The spindle 37 has secured to it a bevel wheel 39 engaging with a bevel wheel 40 (Fig. 1). The spindle of the bevel wheel 40 leads to clock-work mechanism 41 in which there is a spring of any known kind, inserted between the two halves of the spindle. The clock-mechanism 41 is connected to the spindle 19 by means of a spindle 42, spur wheel 43 and the already mentioned spur wheel 20.

The table 2, on which the directory is placed, is supported by a frame 44 adjustable in guides 45 and provided with an arm 46 projecting downwards into the casing 3. To this arm is pivoted one end of a rod 47 (Fig. 1) the other end of which is connected to a crank 48 mounted on the spindle 16. The arm 46 of the table frame 44 carries a roller 49 over which a cable, chain or cord or the like 51, passes which is secured at one end to a hook 50 in the casing 3, and whose other end

carries a balance weight 53. The cord also passes over a roller 52 secured to the casing opposite the hook 50.

The working of the apparatus shown in Figs. 1–4, is as follows:—By depressing the pedal 34, the long end of the lever 32 is moved upwards. The pawl 31 consequently turns the ratchet wheel 30 and with it the spindle 29 to which the spindle 26 is coupled by the clutch 28, 27. The spur wheels 25 and 24, as well as the spindle 23, are thus rotated and by means of the spur wheels 22 and 21 and 20 and 18, the spindle 16 is rotated to move the crank 48 upwards. Owing to this, and by means of the pivoted rod 47, the table 2 with its frame 44 is raised into the position shown in Fig. 3, the lid 4 being at the same time raised, and the book opened by the pin 5 engaging with the guide 6. The opening of the book and of the lid 4 is also effected from the ratchet wheel, the crank shaft 16 already mentioned turning through bevel wheels 14, 15, the spindle 13, the bevel wheels 11 12 and the vertical spindle 9, the worm 10 and therefore the worm wheel sector 8 mounted on the spindle of the lid. The raising of the book 1 is facilitated by the action of the weight 53 which balances the weight of the book and of the frame carrying it. Even if the user releases the pedal 34 when the book is in the open position, the book and the lid cannot be closed as the worm 10 prevents such movement. In the same way, an unauthorized or arbitrary opening of the covering plate or lid 4 is prevented by the worm 10.

Owing to the operative movement of the pedal and of the above described parts of the mechanism, the spindle 42 of the clock-work 41 is also caused to rotate by means of the toothed wheels 20 and 43 (Fig. 4), and the clock-work thus wound up. The automatic closing of the lid and of the book can take place only after the spring of a clock-work, which has been wound up as described has been released. The arrangement of this clockwork can be of known kind, in which the tension of the spring, by means of a suitable gear and by the provision of an escapement, brings about a slow rotation of the bevel wheel 40 projecting from the clockwork case. At the end of the winding up movement, the spring of the clockwork must be automatically disengaged from the main driving gear, and connected to the gear 40. This bevel wheel 40, by means of the bevel wheel 39, rotates the spindle 37 and therefore the cam disk 38. The ratio of transmission is calculated in such manner that the time fixed for the use of the directory (say about 2–5 minutes) approximately corresponds to the time of one revolution of the cam disk 38. When the time has expired, the cam disk 38 causes the coupling lever 36 to move the clutch member 28 out of engagement with the part 27, as shown in dotted lines in Fig. 4. In this way, the portion of the mechanism adjoining the clutch member 28, is thrown out of gear so that the remainder of the mechanism which is connected to the clutch member 27, can now turn back under the influence of the clockwork spring. Meanwhile the clockwork has been automatically engaged with the main mechanism for under the influence of the clock spring the parts 42, 43, 20, 19, 18, 16, 48, 15, 13, 12, 11, and 9 of the mechanism rotate back, so that the table on which the book is placed, is lowered, and the book and the lid closed.

The clockwork 41 continues to rotate until the cam disk 38 comes into the position shown in Fig. 4 in full lines when the coupling lever 36, under the influence of the tension spring 54 returns to its original position and so throws the clutch back into gear. As soon as the user releases the pedal 34, the lever 32, under the influence of the weight of its long arm, or of a suitable spring, returns to its original position, the pedal 34 is correspondingly raised, so that the mechanism described can again be operated by the weight of the body of the user.

The arrangement for introducing the coin, is made in some known manner, in such a way that normally the mechanism is locked, so that pressing on the pedal 34 before introducing a coin, does not have any effect. Only after a coin has been introduced, it is possible to start the apparatus by depressing the pedal.

The arrangement of the coin freed mechanism or of the locking device which the coin releases can be of any known kind, but it should be noted that the introduction of a second coin, when the book is in the open position enables the time use to be extended. As will be seen, the arrangement is such that, even if the closing movement of the lid 4 is prevented, it will not result in the destruction of the mechanism as the only result will be that the clockwork will be stopped until the obstacle has been removed.

The construction shown in Figs. 5 and 6, differs from the construction described in that the book or directory 1 is from the beginning arranged in open position on the table 2. The book covers are secured to the table 2 in such manner that they cannot be closed or opened, so that, when the apparatus is in the open position, it is merely possible to turn over leaves of the book. When not in use the open book is closed by a lid 4 which can be folded backwards. To that end, there is provided a pivot spindle 55 to which is secured a crank handle 56. At the same time, to the spindle 55 is secured a spur wheel 57 engaging with a spur wheel 59 secured to the spindle 58. The spindle 58 is connected by means of a toothed wheel 60, secured to it and through a pinion 61 to a spindle 62 to which is rigidly secured a ratchet or locking wheel 63

(Fig. 5). The ratchet wheel 63 is provided at its circumference with a recess 64 inclined at one side, the shape of which corresponds to that of a locking bar 66 mounted in guides 65 (Fig. 6). The end of the locking bar 66 is always forced by a tension spring 67 against the circumference of the ratchet wheel 63. A portion of the locking bar is provided with a tooth rack, with the teeth of which engages a toothed wheel 68 meshing with a toothed wheel 69 driven by clockwork 70. To the spindle 58 connected to the crank shaft 56, is also secured a rope pulley or chain wheel 71 to which is secured the rope or the chain 72 of a weight 73.

The working is as follows:—By introducing a coin, the crank 56 becomes free to rotate so that the user can turn it and open the lid 4. Owing to this movement, the various toothed wheels engaging with each other, are rotated together with their spindles, the said movement continuing so far, owing to the rate of transmission adopted, that the locking bar 66 engages with the recess 64 of the ratchet wheel 63. At the same time, however, the weight 73 is raised. This weight cannot, however, become operative until the locking bar is released. The desired release of the locking bar is effected by the clockwork 72, of well known construction, in the same way as in the construction illustrated in Figs. 1–4, the rotation of the crank 56 by means of the parts of the mechanism described, chiefly the toothed wheel 69, winding up the clock spring. At the end of the winding movement, the clock spring must be automatically disengaged from the parts of the mechanism. The clock spring then slowly rotates the toothed wheel 69, and by means of the small wheel 68, gradually pushes back the locking bar 66 within a given period of time corresponding to the time during which it is intended that the directory should be used. After the locking bar has become disengaged from the recess 64 of the ratchet disk 63, the mechanism can again automatically return to its original position under the influence of the weight 73, the lid 4 being closed. To insure the closing movement taking place slowly an escapement or brake gear of suitable construction may be provided.

If, as stated in the introduction, it is not desired that the winding up of the clockwork spring or of the weight should be left to the user, the said winding can be effected before-hand to such an extent as to enable the apparatus to be used several times without requiring additional winding. To that end, it is merely necessary to make the spring sufficiently strong, or the weight sufficiently heavy, or the drop sufficiently great so as to have sufficient energy available.

The apparatus which closes or covers the directory during the time it is not in use, can be constructed in various ways. Thus, for instance, instead of the lids or protective boxes shown in the drawing, simple bars could be used, only partially covering the book. Or slides or drawers could be used, according as the book is fixed or is to be first moved for the purpose of releasing it.

It will be understood that the details of construction may be varied without departing from the spirit of this invention.

What I claim is:—

1. In a mechanism of the character described, the combination of a frame adapted to support a book, with a shaft operatively connected to the frame, a clock-work actuating the shaft, a treadle, and means actuated by the treadle for winding the clock-work, substantially as specified.

2. In a mechanism of the character described, the combination of a frame adapted to support a book, with a lid adapted to be secured to the book-cover, a worm-wheel sector secured to the lid, a worm engaging the worm-wheel sector, a clock-work, and means actuated by the clock-work for raising the frame and rotating the worm, substantially as specified.

3. In a mechanism of the character described, the combination of a frame adapted to support a book, with a lid adapted to be secured to the book-cover, a worm-wheel sector secured to the lid, a worm engaging the worm-wheel sector, a clock-work, means actuated by the clock-work for raising the frame and rotating the worm, a treadle, and means actuated by the treadle for winding the clock-work, substantially as specified.

Signed by me at Mainz, Germany, this 16th day of May, 1906.

OSKAR MEYER.

Witnesses:

WALTER HAUSING,

WALTER SCHUMANN.