

N° 2023



A.D. 1898

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Complete Specification Left, 3rd Sept., 1898—Accepted, 12th Nov., 1898

PROVISIONAL SPECIFICATION.

An Apparatus for Using the Magnesium Light in Photography.

I, GASTON LEVY-LAJEUNESSE, of No. 10, Rue Elisa Borey, Paris, in the Republic of France, Mechanical Engineer, do hereby declare the nature of this invention to be as follows:—

The use of magnesium to obtain portraits by means of photographic stereotype plates or blocks has hitherto been attended by serious inconveniences. It was difficult, if not impossible notwithstanding the rapidity of combustion of the magnesium, to obtain a sufficiently brief pose to prevent any alteration being caused in the features by the dazzling effect of the flash. On the other hand after the first trial or negative the gaseous magnesium fumes become diffused throughout the studio, and not only vitiate the atmosphere, but also render the studio totally unfit for making a second trial.

The present invention relates to an apparatus whereby the two inconveniences above referred to are perfectly remedied. It permits of the reduction to the minimum of the duration of the flash of light, and consequently of the interval. Moreover the apparatus is so arranged that it completely imprisons the vapours and fumes produced by the said combustion, and being easily transportable, it can be emptied outside the studio.

The apparatus consists principally of a drum of cylindrical or other suitable shape in which there are placed small cups or bowls for burning the magnesium. The posterior end of this drum forms a reflector; the whole of the front face, which is uncovered before the operation, is formed of two movable shutters which act as an obturator directly the flash is produced.

The combustion of the magnesium is effected by exploding caps by the aid of strikers the stroke of which is delivered simultaneously with the closing of the shutters and by means of one and the same disengagement or releasing mechanism. The said mechanism is actuated by the pressure transmitted to a spring by means of a simple pneumatic rubber ball which, if desired, could be made to control the obturator of the objective at the same time.

The fixed drum, made of aluminium or other material—the inner surface being plated or coated so as to form a reflector—engages by means of the slides with the feet or branches of a tripod or stand which may be adjusted at the desired inclination at the head of the central supporting leg which slides into the tripod or support of the apparatus.

A cylindrical tube is supported at its ends by two pivots attached to the side walls of the drum—these walls forming the two bases closing the apparatus at its ends. The cups are intended to receive the magnesium powder, and have in the centre a depression and points upon which a cap can be fixed.

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In the centre of the tube carrying the cups there is fixed the end of a coiled spring wound round a rod placed parallel with the tube and on this there are fixed the hammers arranged opposite or over the cups.

The said rod pivots on two small supports fixed to the tube. The end of the recoil spring is fixed to this rod which constantly tends to throw the hammers on to the cups. 5

The lower shutter is governed from top to bottom by two springs and fixed respectively at and by one of their ends to the lateral wall corresponding to them, of the fixed drums, and by their other ends to the arms and which form the lateral end walls of the shutter. These arms pivot around the shafts fixed to the lateral walls of the drums. 10

The upper shutter is governed from top to bottom by the springs, fixed respectively by one of their ends to the lateral walls of the drum, and by their other ends to the lateral walls of the said shutter.

The shutter is engaged at one end by a staple and at the other by a hasp fixed to one wall. The upper shutter in the same way is engaged on one side by a staple and on the other by a hasp fixed to the other wall. 15

The said staples are retained respectively by the arms of a three armed lever, one arm of which is fixed to one of the arms of the spring which commands simultaneously the throwing out of gear of the shutters and that of the rod which carries the percussion hammers. 20

The hasps are retained by the curved branches of another three-armed lever. The arm pivots at both its ends around two trunnions fixed to the lateral wall of the drums. On the lever fixed to the arm there rests the transmission shaft on which the arm of the governing spring acts, and a recoil spring rests against the said lever. 25

The rod on which the hammers are supported is thrown out of gear by means of an arm the end of which carries a snug which engages against the arm fixed to the coiled spring.

The action of the apparatus is as follows:—

The apparatus being in normal or out of gear position the shutters are thrown into gear successively by placing them—by means of knobs in a suitable position. By means of the arm the rod is made to revolve; the spring is thus stretched and the shaft being thrown into gear cocks the hammers. The shutters and shaft carrying the hammers being thrown into gear and the apparatus placed at the desired inclination, the pneumatic ball is pressed; the current of air actuates the governing spring which is forced in the posterior direction of the apparatus and pushes the arm in the same direction and also the levers and the shaft. 30 35

The shutters and percussion hammers are thus thrown simultaneously out of gear. The shutters then bear against leather guards which deaden the shock. 40

Dated the 25th day of January 1898.

PHILLIPS & LEIGH,
Agents for the Applicant.

COMPLETE SPECIFICATION. 45

An Apparatus for Using the Magnesium Light in Photography.

I, GASTON LEVY-LAJEUNESSE, of No. 10, Rue Elisa Borey, Paris, in the Republic of France, Mechanical Engineer, do hereby declare the nature of this invention

Levy-Lajeunesse's Apparatus for Using the Magnesium Light in Photography.

and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The use of magnesium to obtain portraits by means of photographic stereotype plates or blocks has hitherto been attended by serious inconveniences. It was difficult, if not impossible, notwithstanding the rapidity of combustion of the magnesium, to obtain a sufficiently brief pose to prevent any alteration being caused in the features by the dazzling effect of the flash. On the other hand, after the first trial or negative, the gaseous magnesium fumes become diffused throughout the studio, and not only vitiated the atmosphere, but also rendered the studio totally unfit for making a second trial.

The present invention relates to an apparatus for use with the magnesium light in photography whereby the two inconveniences above referred to are perfectly remedied. It permits of the reduction to the minimum of the duration of the flash of light, and consequently of the interval. Moreover the apparatus is so arranged that it completely imprisons the vapours and fumes produced by the said combustion, and being easily transportable, it can be emptied outside the studio.

The following is a description of my invention with reference to the attached drawings, in which:—

Figure 1 is an elevation of the face of the apparatus shown open.

Figure 2 is a transverse section following the line A—B of Figure 1 showing the arrangement of the apparatus on a suitably shaped foot which enables it to be adjusted at the height and inclination desired for the projection of the light upon the subject it is desired to photograph.

Figure 3 is a transverse section following the line C—D of Figure 1.

Figure 4 is a section similar to that of Figure 2, the apparatus being closed, that is to say the shutters and the hammers occupy the positions which they take up when thrown out of gear and after the taking of the negative.

Figure 5 is a fragment in plan shewing on a larger scale one of the cups for the reception of the magnesium powder.

The apparatus consists principally of a drum of cylindrical or other suitable shape in which there are placed small cups or bowls for burning the magnesium. The posterior end of this drum forms a reflector; the whole of the front face, which is uncovered before the operation, is formed of two movable shutters which act as an obturator directly the flash is produced.

The combustion of the magnesium is effected by exploding caps by the aid of strikers the stroke of which is delivered simultaneously with the closing of the shutters and by means of one and the same disengagement or releasing mechanism. The said mechanism is actuated by the pressure transmitted to a spring by means of a simple pneumatic rubber ball which, if desired, could be made to control the shutter of the objective at the same time.

The fixed drum 1, made of aluminium or other material—the inner surface being polished plated or coated so as to form a reflector—engages by means of the slides 2 with the feet or branches 3 of a tripod or stand which may be adjusted at the desired inclination at the head of the central supporting leg 4 which slides into the tripod or support of the apparatus.

5 is the lower shutter, 6 the upper shutter, 7 is a cylindrical tube supported at its ends by two pivots 8 attached to the side walls of the drum 1—these walls forming the two bases closing the apparatus at its ends. The tube 7 may be made to revolve with hard friction on its pivots; it carries fixed on to it, following one of its stops, a certain number of cups 9 (shown in longitudinal elevation in Figure 1 and in plan in Figure 5). These cups are intended to receive the magnesium powder, and have in the centre a depression and points 10 upon which a cap can be fixed.

In the centre of the tube carrying the cups there is fixed the end of a coiled spring 11 wound round a rod 12 placed parallel with the tube 7, and on this there are fixed the hammers 13 arranged opposite or over the cups 9.

Levy-Lajeunesse's Apparatus for Using the Magnesium Light in Photography.

The said rod 12 pivots on two small supports 14 fixed to the tube 7. The end of the recoil spring 11 is fixed to this rod which constantly tends to throw the hammers on to the cups 9.

The lower shutter 5 is governed from top to bottom by two springs 15 and 15¹, fixed respectively at 16 and 16¹ by one of their ends to the lateral wall, corresponding to them, of the fixed drum 1, and by their other ends to the arms 5¹ and 5² which form the lateral end walls of the shutter. These arms pivot around the shafts 17, 17¹ fixed to the lateral walls of the drum 1.

The upper shutter 6 is governed from top to bottom by the springs 18, 18¹, fixed respectively by one of their ends at 19 and 19¹ to the lateral walls of the drum 1, and by their other end to the lateral walls 6¹, 6² of the said shutter.

The shutter 5 is engaged at one end by a staple 20 and at the other by a hasp 20¹ fixed to one wall. The upper shutter 6 in the same way is engaged on one side by a staple and on the other by a hasp 21¹ fixed to the other 6².

The said staples 20 and 21 are retained respectively by the arms *l*, *l*¹ of a 15 three armed lever one arm *l* of which is fixed to one of the arms *r* of the spring *r* R *r*¹ which commands simultaneously the throwing out of gear of the shutters and that of the rod 12 which carries the percussion hammers.

The hasps 20¹ and 21¹ are retained by the curved branches *l*² *l*² of another three-armed lever *m* M *m*¹. The arm M pivots at both of its ends around the 20 two trunnions *t* *t*¹ fixed to the lateral wall of the drum 1. On the lever *u* fixed to the arm M there rests the transmission shaft 22 on which the arm *r*¹ of the governing spring acts, and a recoil spring *u*¹ rests against the said lever *u*.

The rod 12 on which the hammers are supported is thrown out of gear by means of an arm 12¹ (Figure 3) the end of which carries a snug which engages 25 against the arm R¹ fixed to the coiled spring R.

The action of the apparatus is as follows:—

The apparatus being in normal or out of gear, position the shutters 6 and 5 are thrown into gear successively by placing them—by means of the knobs 24 and 25—in a suitable position. By means of the arm 23 the rod 12 is made to 30 revolve; the spring 11 is thus stretched and the shaft being thrown into gear cocks the hammers. The shutters and shaft carrying the hammers being thrown into gear and the apparatus placed at the desired inclination, the pneumatic ball 26 is pressed; the current of air actuates the governing spring which is forced in the posterior direction of the apparatus, arrow *f* (Figure 1) and pushes 35 the arm R¹ in the same direction and also the levers V, *l*¹ and the shaft 22.

The shutters and percussion hammers are thus thrown simultaneously out of gear. The shutters then bear against the leather guards B which deaden the shock.

Thus it will be seen that the more essential features of my invention are the 40 three-armed springs *r* R *r*¹ the central arm of which is actuated by a current of air and carries an arm R¹ to throw the shaft carrying the percussion hammers out of gear; the arm *u* of this spring actuates a lever *l*, V, *l*¹, to disengage the shutters at one of their ends and the arm *r*¹ is connected with a shaft 22 bearing on the arm *u* of the lever with three arms *m*, M, *m*¹, which revolves so as to throw 45 the shutters out of gear at their opposite end.

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:—

1. An apparatus for using the magnesium light in photography, consisting of 50 a drum the bottom of which forms a reflector and the front part of which can be opened or closed by shutters of movable nature, these shutters being opened and closed by the disengaging action which at the same time actuates a system of percussion hammers the shock of which ignites the magnesium; the automatic closing of the shutters producing not only the obturation of the lamp, 55

Levy-Lajeunesse's Apparatus for Using the Magnesium Light in Photography.

but also the instantaneous imprisonment in the drum of all the vapours and smoke produced by the combustion, as described and set forth.

2. An apparatus for using the magnesium light in photography, constructed operated and working substantially as described and set forth.

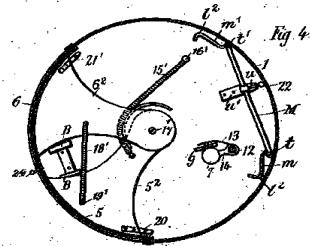
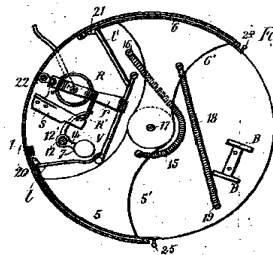
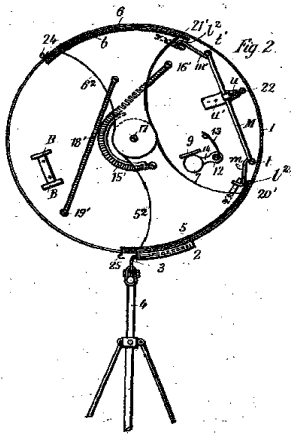
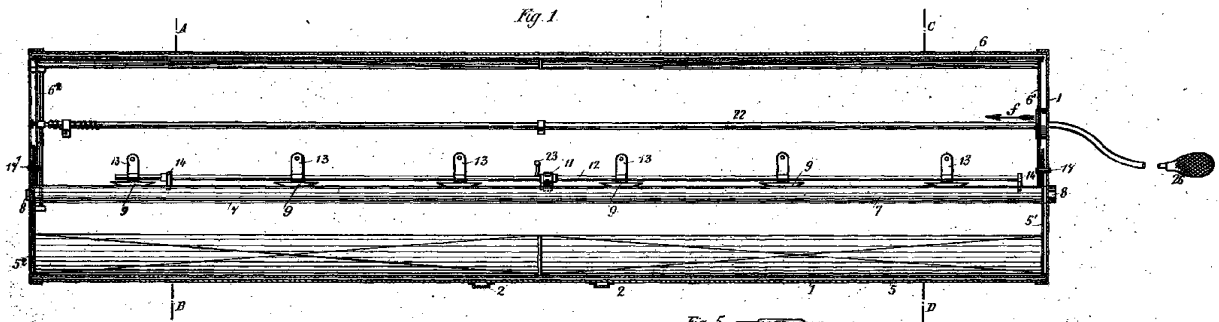
5 Dated the 3rd day of September 1898.

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No. 22, Southampton Buildings, Chancery Lane, London, W.C.,
Agents for the Applicant.

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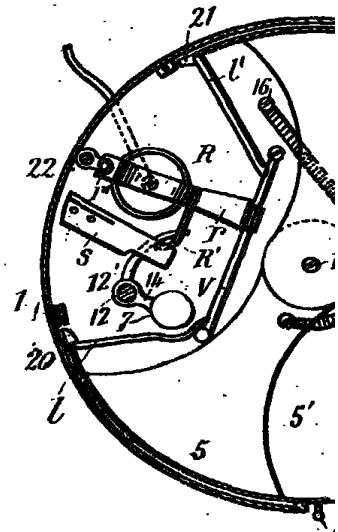
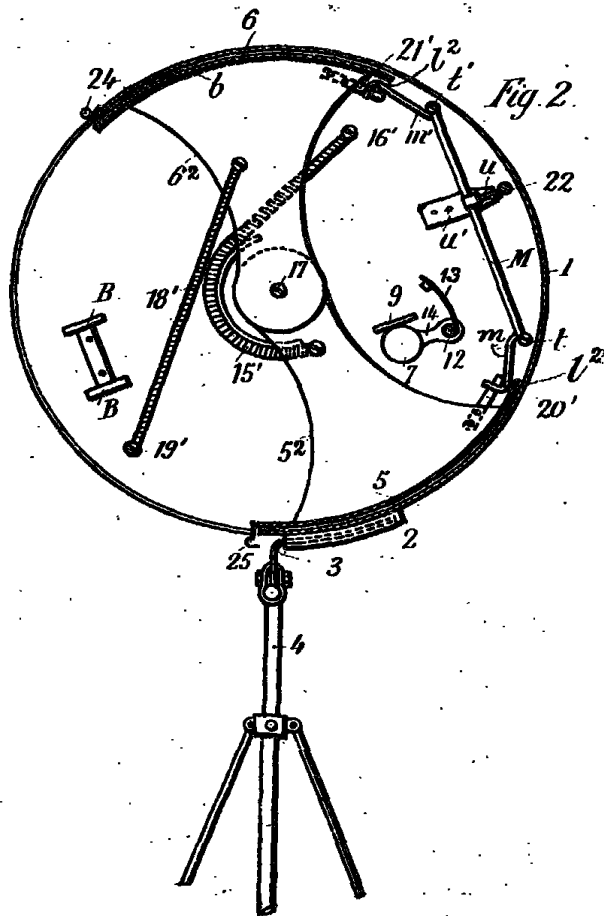
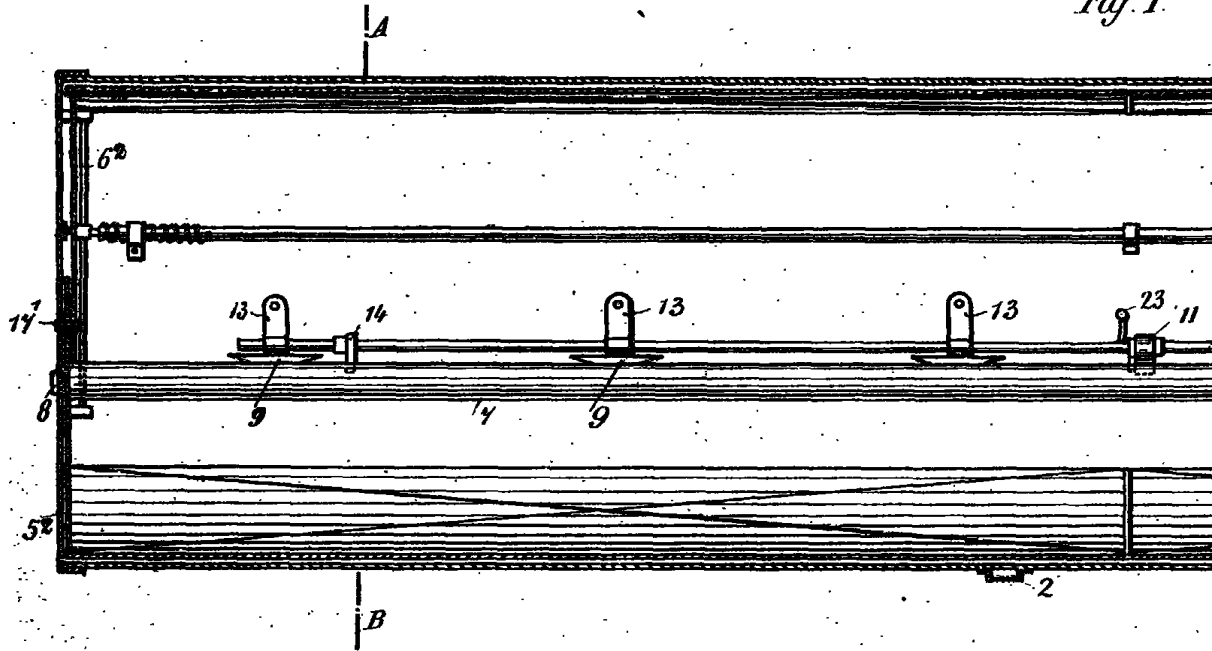
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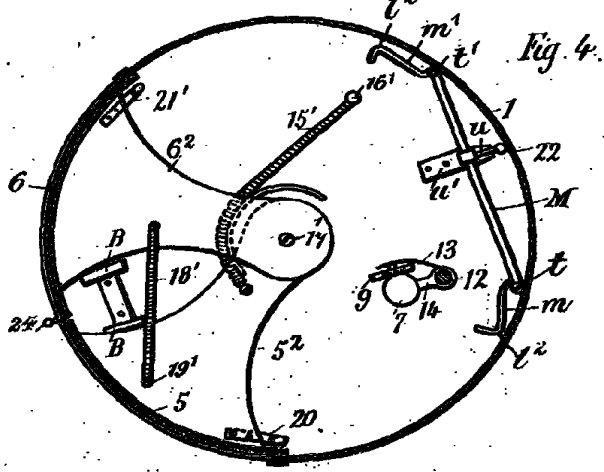
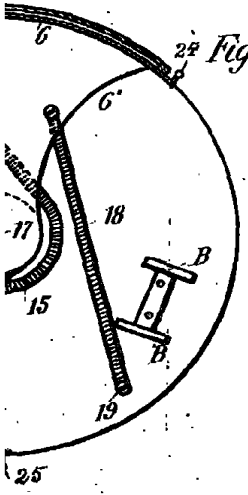
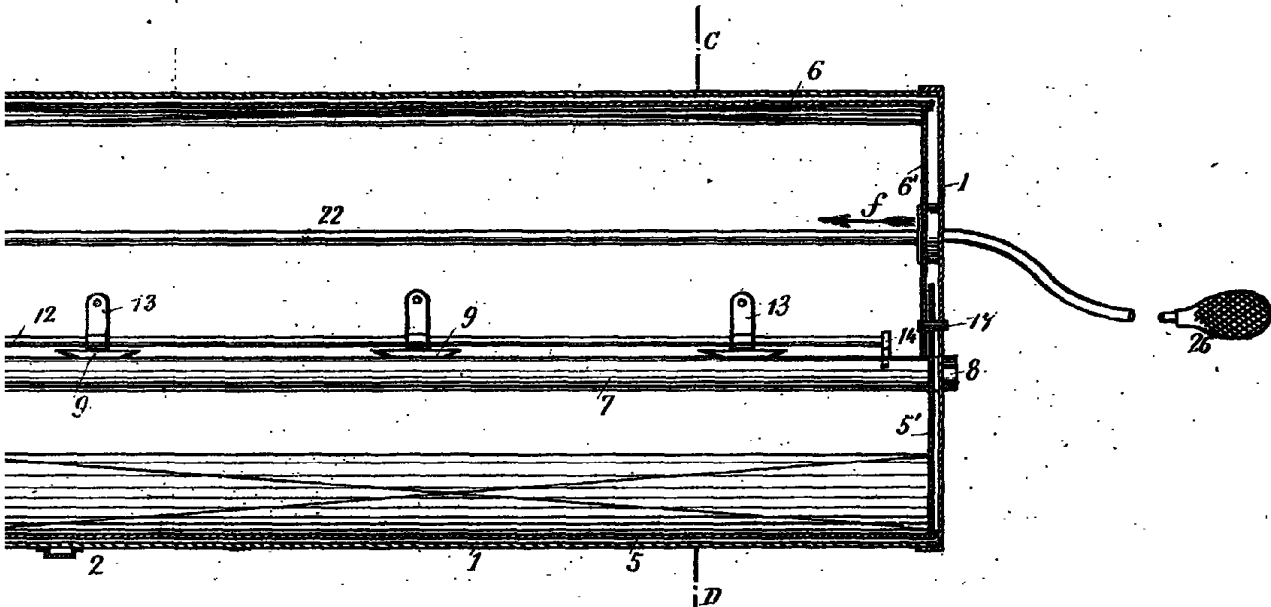
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Fig. 1.





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