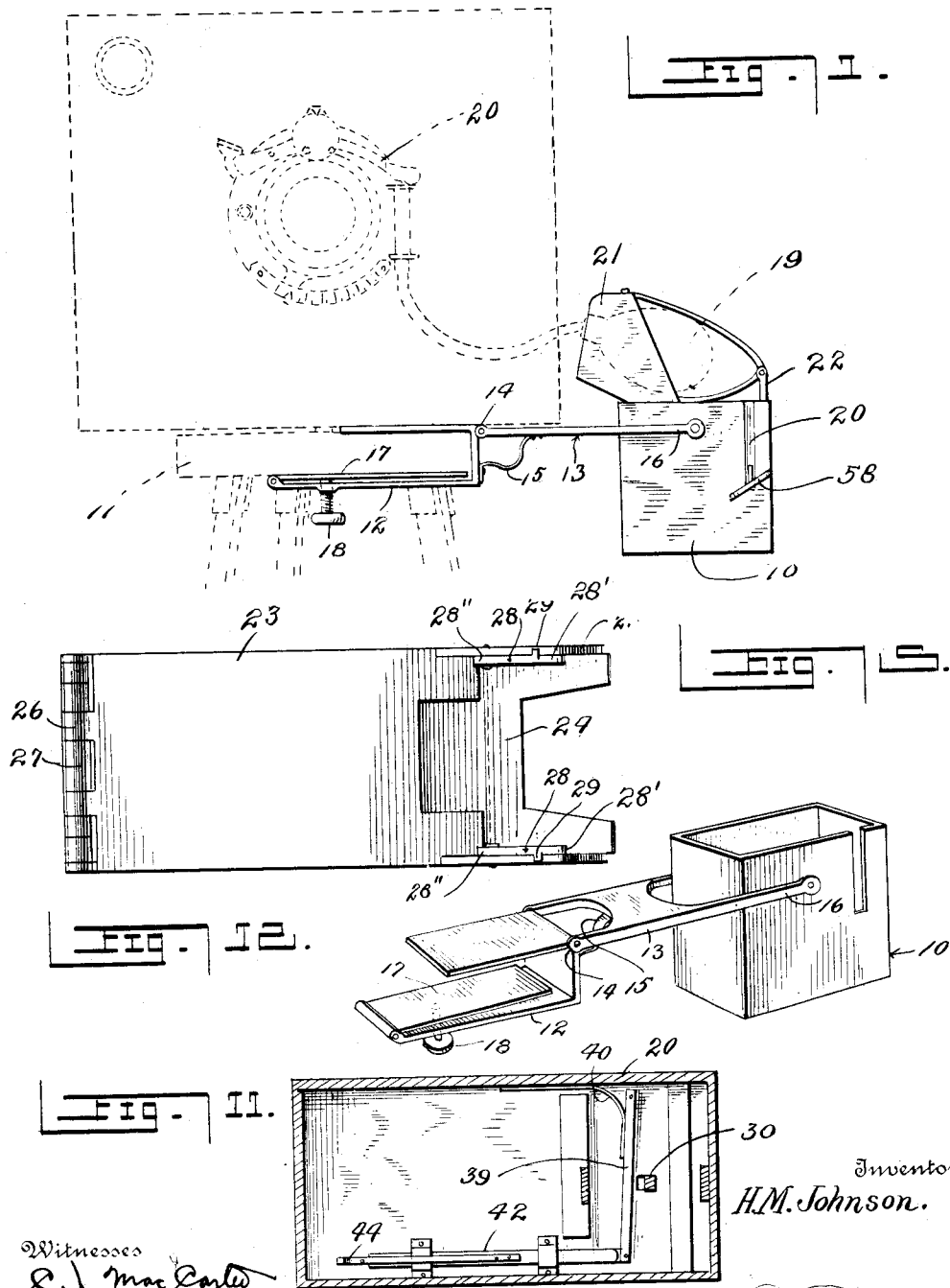


H. M. JOHNSON.
 AUTOMATIC EXPOSURE ATTACHMENT.
 APPLICATION FILED SEPT. 19, 1912.

1,060,259.

Patented Apr. 29, 1913.

3 SHEETS—SHEET 1.



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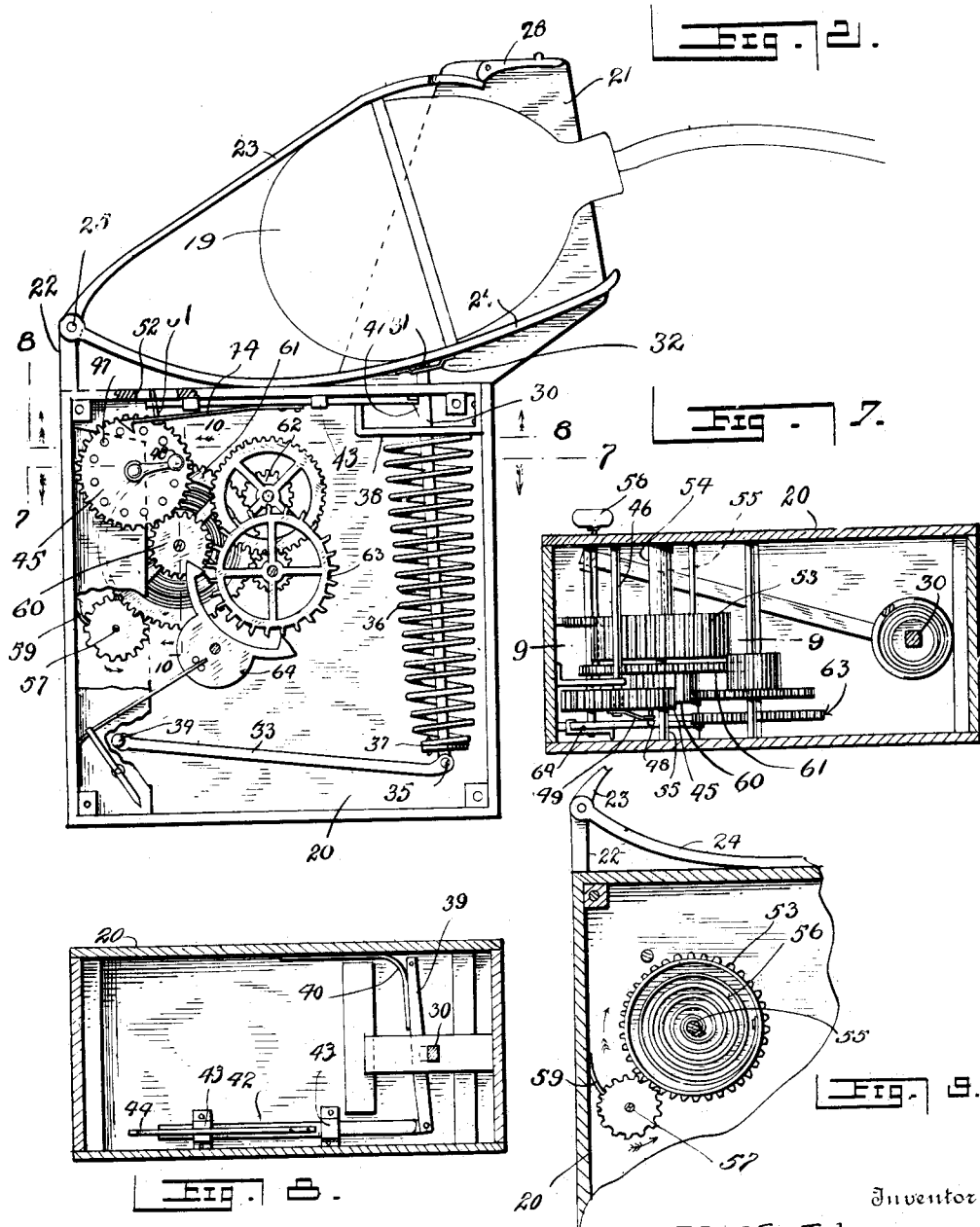
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3 SHEETS—SHEET 3.

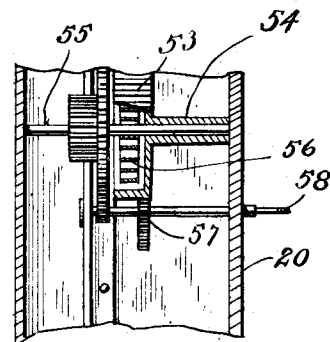
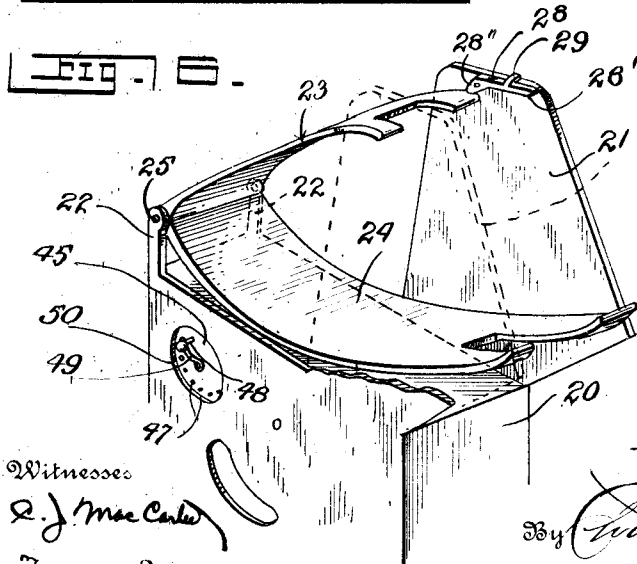
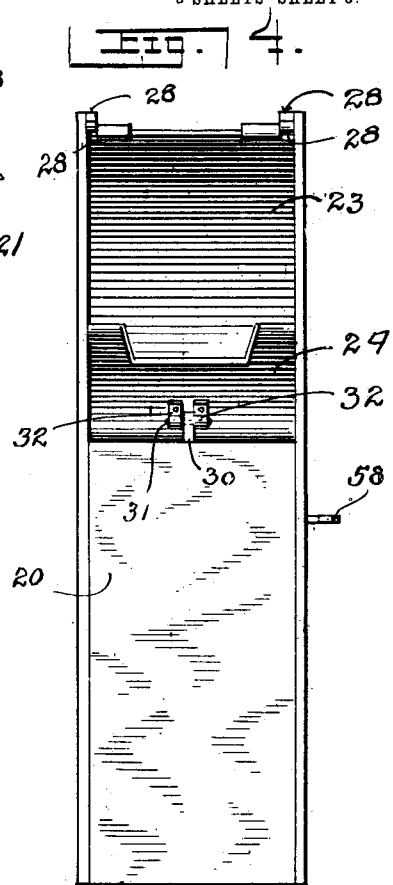
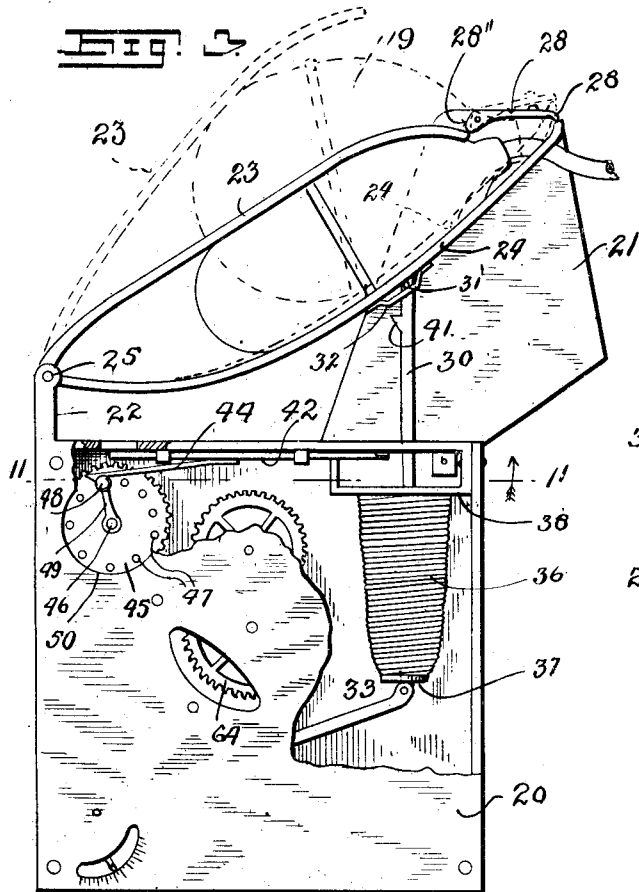


FIG. 10. Inventor
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UNITED STATES PATENT OFFICE.

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AUTOMATIC EXPOSURE ATTACHMENT.

Specification of Letters Patent.

Patented Apr. 29, 1913.

1,060,259.

Application filed September 19, 1912. Serial No. 721,238.

To all whom it may concern:

Be it known that I, HARRY M. JOHNSON, a citizen of the United States, residing at Fresno, in the county of Fresno, State of California, have invented certain new and useful Improvements in Automatic Exposure Attachments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to automatic camera shutter operators, and has for an object to provide a novel bulb holder that will compress the bulb at a predetermined time, thus enabling the operator to take his own picture.

A further object of the invention is to provide novel means for actuating the holder.

With the above objects in view, the invention consists of certain novel details of construction and combination of parts hereinafter fully described and claimed, it being understood that various modifications may be made in the minor details of construction within the scope of the appended claims.

In the accompanying drawings forming part of this specification, Figure 1 is a side elevation of the device applied. Fig. 2 is a side elevation of the device in normal position with the parts removed to expose the clock working mechanism. Fig. 3 is a side elevation of the device in operative position with parts broken away. Fig. 4 is a front elevation of the device. Fig. 5 is a plan view of the device. Fig. 6 is a detail perspective view of the bulb holder. Fig. 7 is a horizontal sectional view taken on the line 7-7 Fig. 2. Fig. 8 is a horizontal sectional view taken on the line 8-8 Fig. 2. Fig. 9 is a fragmentary vertical sectional view taken on the line 9-9 Fig. 7. Fig. 10 is a fragmentary vertical sectional view taken on the line 10-10 Fig. 2. Fig. 11 is a horizontal sectional view taken on the line 11-11 Fig. 3. Fig. 12 is a detail perspective view of the attaching bracket.

Referring now to the drawings in which like characters of reference designate similar parts, 10 designates a box into which my invention is designed to be inserted, the box being preferably secured to the tripod table 11 by a bracket such as is shown in

Fig. 12, the bracket including a U-shaped member 12 which is adapted to straddle the edge of the table 11, and an arm 13 which is pivotally attached to the member 12, as shown at 14 and is normally held in horizontal position by a leaf spring 15, the arm being bifurcated to receive the box, as shown at 16, and there being a hinge leaf 17 applied to the bottom leg of the U-shaped member and operated by a set screw 18 to bind against the table 11, as shown in Fig. 1, to secure the bracket thereto.

The device for momentarily squeezing the bulb 19 to actuate the shutter lever 20, is shown to comprise a casing 20 of sufficient size to snugly fit within the box-10 and having a pair of fixed parallel ears 21 rising from the top, these ears being adapted to project above the box, as shown in Fig. 1. A standard 22 is fixed to each front upper corner of the casing, as shown in Fig. 6, and between these standards a pair of superposed divergent bulb squeezing plates 23 and 24 are arranged, a pintle 25 being passed through the standards and through interfitting hinge lugs 26 and 27 on the plates to pivotally secure the plates together at their meeting.

The free ends of the bulb squeezing plates project between the fixed ears 21 of the casing, and each ear is provided on the inner face near the upper edge with an angular gravity catch 28, the long leg 28' of which is provided with a stop finger 29 that bears upon the top edge of the plate and normally holds the catch in such a position that upon the bulb being inserted between the plates the free end of the upper plate will contact with the short leg 28'' of the catch, as shown in Figs. 5 and 6.

The lower bulb squeezing plate 24 is of greater length than the upper bulb squeezing plate 23 so that when the former is urged upwardly, as will presently be described, its free end contacts with the long leg 28' of each catch and rocks the catches upwardly with a resultant disengagement of the short legs 28'' of the catches from the upper bulb squeezing plate, as shown in Fig. 3. The bulb is squeezed during the travel of the lower plate toward the upper plate, and at the instant the latter is freed by the catches, the bulb expands, the upper plate being carried upwardly by and offering no resistance to such expansion of the

bulb. During this momentary squeezing of the bulb the shutter of the camera is actuated in the usual manner.

For actuating the lower plate 24, a stand rod 30 is pivotally connected at the upper end to the plate by means of a pivot pin 31 passed transversely through the upper end of the rod and bearing within strap brackets 32 secured to the bottom face of the plate. 15 on opposite sides of the rod, as shown in Figs. 3 and 4. A vertically swinging lever 33 is secured at one end to the inner face of one of the side walls of the casing by means of a pivot pin 34 and is pivotally 15 connected to the lower end of the stand rod by means of a pivot pin 35. A helical spring 36 is seated on the stand rod between a collar 37 fixed to the rod and a stationary stop bracket 38 fixed to the casing. 20 The spring is expanded during manual depression of the lower plate to insert the bulb, as shown in Fig. 2, and is held in this position by a time controlled locking mechanism which will be presently described. 25 Upon release of this mechanism, the spring contracts and urges upwardly the stand rod and lower plate, as shown in Fig. 3.

For locking the stand rod at its lower limit of movement, a horizontally swinging 30 locking bar 39, best shown in Figs. 8 and 11, is pivoted at one end to the inner face of the casing top, and is normally held in contact with the stand rod by means of a leaf spring 40. A projection 41 formed in 35 tegral with the stand rod near the top of the latter engages underneath of this bar when the stand rod is depressed, as shown in Figs. 2 and 8, and in this position of the parts the stand rod is locked against 40 returning to initial position until the locking bar is moved from engagement with the projection by the time controlled mechanism.

For releasing the locking bar, the free end 45 of the latter is pivotally connected to a pull rod 42 which is slidably fitted in brackets 43 secured to the inner face of the casing top and is centrally equipped with a depending hook 44. A revoluble gear 45 50 is fixed to a shaft 46 and is formed with a circular series of openings 47 arranged concentrically with the shaft, these openings being adapted to receive a pin 48 carried by a leaf spring 49 which is loosely 55 mounted on the shaft 46. A side opening 50 formed in the casing exposes the gear 45. Referring to Figs. 2 and 3, it will be seen that the hook 44 is arranged in the path of movement of the pin 48, and during 60 rotation of the gear the pin will engage the hook and pull the pull rod 42 out of engagement with the projection of the stand rod. The pull rod is limited in its movement

due to the action of the pin by means of a stop lug 51 which projects through a slot 52 in the casing top, this lug engaging the end wall of the slot as shown in Fig. 3 and performing the dual function of limiting movement of the pull rod and holding the gear 45 against further rotation. To time the release of the stand rod, the pin 48 may be moved from the position shown in Fig. 3 back to the position shown in Fig. 2, or into 75 that particular opening of the series 47 which will permit of a predetermined lapse of time before the pin is carried by rotation of the gear into engagement with the hook.

Any desired means may be employed for 80 actuating the gear 45, but in the present embodiment of the invention, a clock work mechanism is illustrated, and will be briefly described. By referring to Figs. 7, 9 and 10, it will be seen that a gear 53 is provided 85 on one side with a sleeve 54 which is loosely mounted on a shaft 55 and is provided on the opposite side with a recess which receives a coil spring 56 that is connected at one end to the shaft and at the opposite 90 end to the gear. This gear is only for the purpose of winding up the spring, and meshes with a gear 57 which may be rotated in one direction by a winding key 58 and is held against rotation in the opposite 95 direction by a spring 59, thus holding the gear 53 stationary after the latter has been actuated to wind the spring. The shaft 55 is equipped with a gear 60 which actuates the above described pin carrying gear 45 100 during rotation of the shaft 55 under the unwinding action of the spring 56. The shaft 55 is further equipped with a gear 61 which meshes with a pinion 62 that drives a retarding train of gearing 63, which in 105 turn is controlled by an escapement 64.

The operation of the device is as follows: The operator depresses the lower bulb squeezing plate 24 and inserts the bulb as shown in Fig. 2. The pin 48 is then engaged in that particular opening of the gear 45 which will permit of a predetermined lapse of time before the pin is rotated by the gear into engagement with the pull rod hook 44. The winding key is then 110 actuated to wind the coil spring 56 and when released the spring immediately sets in motion the clock work mechanism above described with a resultant rotation of the gear 45. The operator may then take position 115 in front of the camera and when the predetermined time has elapsed the pin will have moved into the position shown in Fig. 3 with a resultant momentary squeezing of the bulb and actuation of the camera shutter. 12

What is claimed is:—

1. A bulb compressing device including relatively movable bulb compressing members, a catch for holding one of said mem- 13

bers stationary, and means for moving the other of said members toward the first named member to compress the bulb, the last named member being adapted to engage and
5 release said catch whereby to free the first named member and permit of expansion of the bulb.

2. A bulb compressing device including bulb compressing members hingedly connected together and adapted to embrace a
10 bulb, a pivoted catch for normally holding one of said members stationary and means for moving the other member toward the stationary held member to compress the bulb.
15 said movable member at the completion of its compression movement tilting said catch to release the stationary held member and permit of expansion of the bulb.

3. A bulb compressing device including bulb compressing members hingedly connected together and adapted to embrace a
20 bulb, a stationary support, spring actuated time controlled means for moving one of said members toward the other member, and a catch on said support engaging and holding
25 the last named member stationary, said movable member being adapted during its movement to engage and release said catch with resultant release of said stationary member.

In testimony whereof, I affix my signature, in presence of two witnesses. 30

HARRY M. JOHNSON.

Witnesses:

ADOLPH J. H. SCHUBERT,
CLARENCE H. NIELSEN.