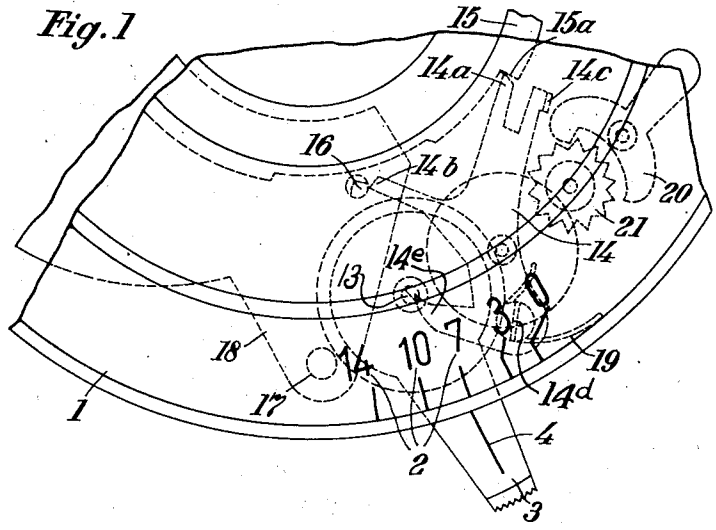
Oct. 5, 1937. A. LINGG ET AL 2,094,799

DELAY ACTION MECHANISM OR TIMING DEVICE FOR PHOTOGRAPHIC SHUTTERS

Filed Feb. 9, 1935

Fig. 1



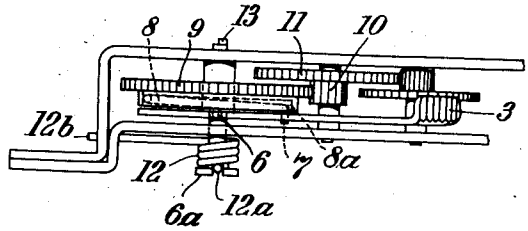


Fig. 2

Fig. 3

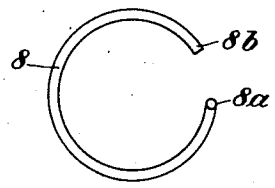
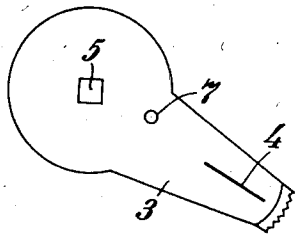


Fig. 4



Inventors

Alfred Lingg and Gustav Ziegler

By their Attorneys

Hutz and Jordan

Patented Oct. 5, 1937 2,094,799

UNITED STATES PATENT OFFICE

2,094,799

DELAY ACTION MECHANISM OR TIMING DEVICE FOR PHOTOGRAPHIC SHUTTERS

Alfred Lingg and Gustav Ziegler, Munich, Germany, assignors to Agfa Ansco Corporation, Binghamton, N. Y., a corporation of New York

Application February 9, 1935, Serial No. 5,736
In Germany February 13, 1934

1 Claim. (Cl. 161—26)

Our present invention relates to a delay action mechanism or timing device for photographic shutters.

One of its objects is an improved delay action mechanism or timing device for photographic shutters. Further objects will be seen from the detailed specification following hereafter. Reference is made to the accompanying drawing in which

Fig. 1 shows the timing device combined with a shutter,

Fig. 2 shows a section through the gearing of the timing device, and

Figs. 3 and 4 show parts of the timing device.

Unlike the types already known, the delay action mechanism according to the invention is adapted to be adjusted to operate in a definite period and can be actuated without an exposure being made. This is an advantage, as the operator can change his mind at any time and pass from taking photographs of persons to taking photographs of landscapes or vice-versa, without being hindered by the delay action mechanism which may have been energized in error.

By means of the new device it is also possible to adjust the period of operation of the mechanism to quite a definite time by means of a scale. Thus, according to the distance of the apparatus from the subject to be photographed, a shorter or longer period of operation can be arranged, whereas hitherto an unnecessarily long period of waiting has frequently led to faulty exposures.

According to the invention, between the actuating lever of the delay action mechanism and its gearing there is fitted a friction device the frictional force of which is stronger than the driving power of the tensioning spring. The friction device also has the great advantage that the wheels of the said mechanism cannot be damaged by the lever being moved in the wrong direction.

The invention will now be described with reference to the accompanying drawing.

On the shutter housing 1 there is arranged a scale 2, graduated, for example, in seconds, and a fiducial mark 4 is provided on the actuating lever 3. The period of operation of the delay action mechanism is determined by the adjustment of the mark 4 in relation to one of the numbers on the scale. The lever 3 has a square hole 5 which is fitted on to the square spindle 6. The lever 3 also has a bore 7 in which the end 8*a* of the friction spring 8 is placed. The free end 8*b* of the spring 8 presses against the cylindrical inner periphery of the toothed wheel 9 and thus establishes a spring-urged frictional connection between the actuating lever and the toothed wheels 9, 10, 11, etc., of the delay action mechanism. The tension spring of the delay action mechanism is denoted by 12. The inner end 12*a* of the tension spring 12 is mounted in the notched end 6*a* of the shaft 6, while the outer free end 12*b* is fixed to the shutter housing.

The operation of the device is as follows. The axle of the actuating lever 3 is provided with a semi-circular shoulder 13 which co-operates with the projection 14*e* of the lever 14 in such a manner that on tensioning the lever 3 and setting the shutter, the nose 14*a* engages the shoulder 15*a* of the annular release lever 15 of the shutter and the nose 14*b* the shoulder 16 of crescent shape provided on the shutter blade 18 rotatable about the pivot 17. An exposure can only take place when the shutter blade 18 and the shutter release lever 15 are set free to return in their original position. This is only possible after the actuating lever 3 of the timing device has returned to its zero position and the lever 14 pivoted at 14*d* has released the shoulders 16 and 15*a* by the action of the semi-circular shoulder 13 contrary to the action of the spring 19. At the free end 14*a* of the lever 14 there is provided a projection 14*c* which stops the lever escapement device 20, 21 after the actuation of the shutter. If the delay action mechanism is set to zero position the projection 14*e* of the lever 14 is pressed against the semi-circular shoulder 13. This latter prevents rotation of the lever 14 so that its projection 14*a* and 14*b* cannot engage the shutter release lever 15 and the shoulder 16 on tensioning the former.

What we claim is:

In combination a photographic shutter and a delay action mechanism comprising two walls, means for setting said shutter mechanism, a gearing located between said walls, means capable of adjustment into different positions for driving said gearing, means frictionally engaging said means for driving said gearing and permitting one to bring said driving means into zero position, a shutter release member, a stop on said shutter release member, a shutter blade, a stop on said shutter blade, a lever pivotally mounted on said walls, projections on said lever, means forcing said projections on said lever to engage said stops on said shutter release member and said shutter blade on tensioning said delay action mechanism and setting said shutter, and means preventing said projections on said lever from engaging said stops on said release member and said shutter blade when setting said shutter without tensioning said delay action mechanism.

ALFRED LINGG.
GUSTAV ZIEGLER.