No. 708,164. Patented Sept. 2, 1902.

G. N. PIFER.

MEANS FOR LOADING AUTOMATIC PHOTOGRAPHIC APPARATUS.

(Application filed Oct. 25, 1901.)

(No Model.)

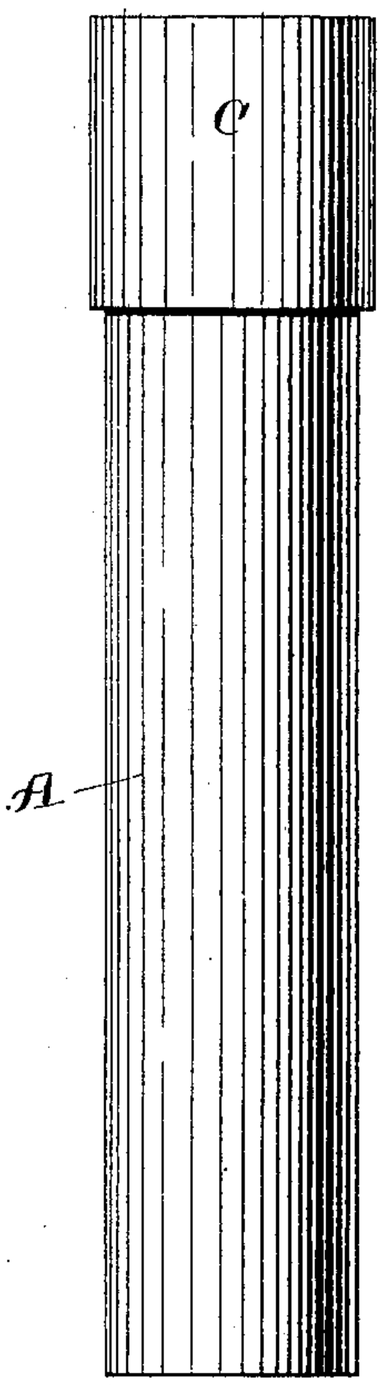

Fig. I.

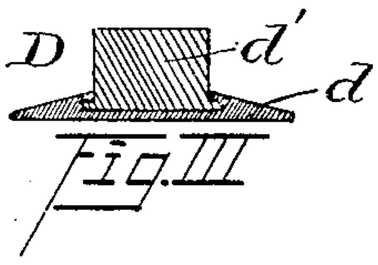

Fig. III.

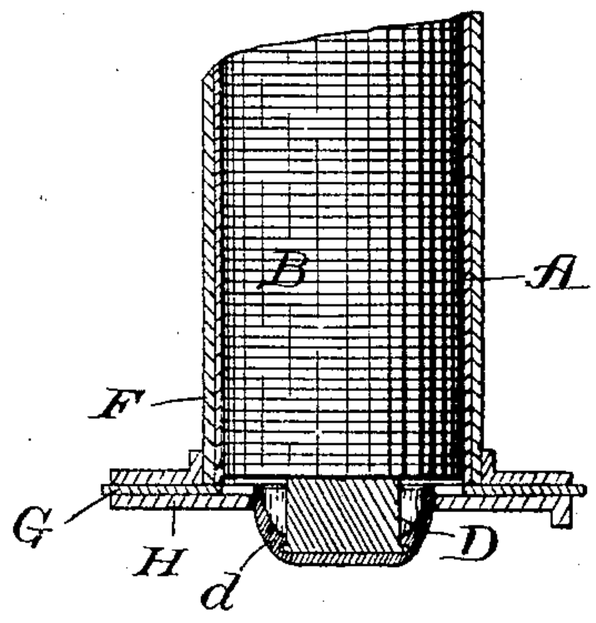

Fig. IV.

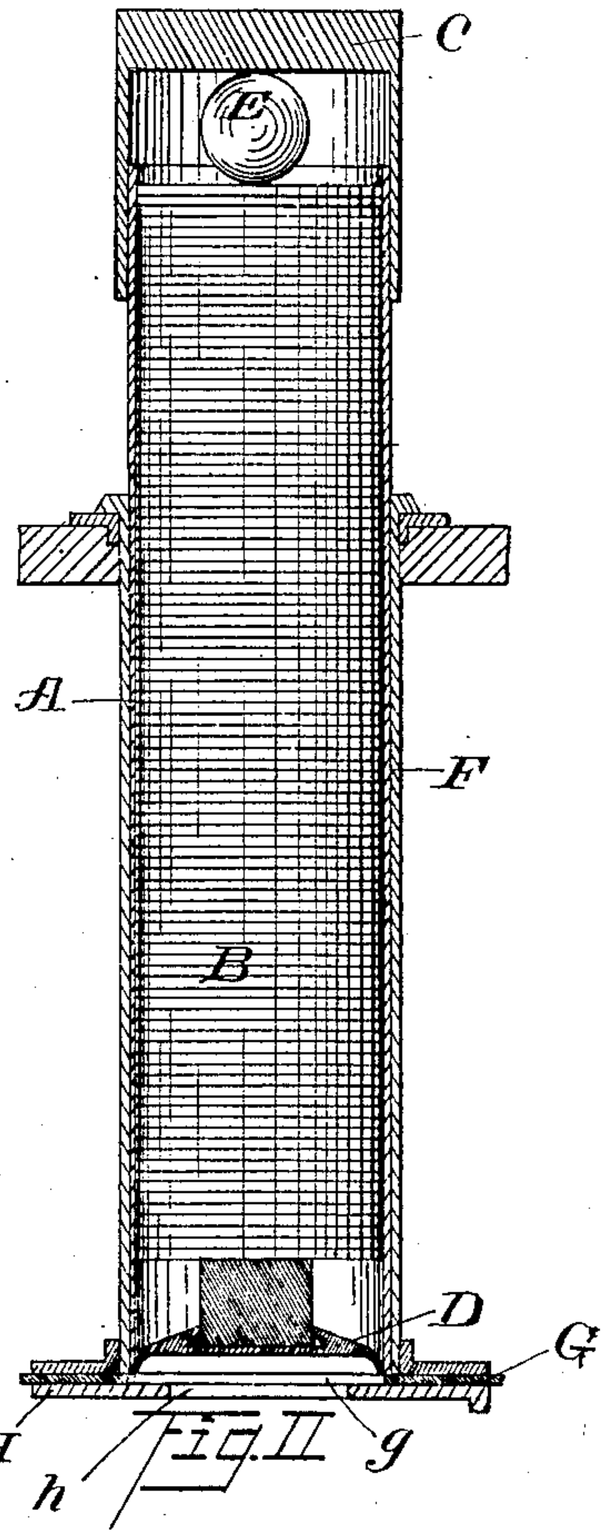

Fig. II.

WITNESSES:

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GEORGE N. PIFER, OF CLEVELAND, OHIO, ASSIGNOR TO THE AMERICAN AUTOMATIC PHOTOGRAPH COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

MEANS FOR LOADING AUTOMATIC PHOTOGRAPHIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 708,164, dated September 2, 1902.

Application filed October 25, 1901. Serial No. 79,994. (No model.)

To all whom it may concern:

Be it known that I, GEORGE N. PIFER, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Means for Loading Automatic Photographic Apparatus, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to means for loading photographic apparatus with sensitized plates, and is particularly adapted for use in automatically-operated apparatus of such character. The object of such invention is to provide means for packing and transporting sensitized plates, whereby a plurality of such plates may be readily placed in a camera and exposed as desired, at the same time providing a receptacle capable of continued and indefinite employment.

The invention consists of means hereinafter fully described, and specifically set forth in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents an elevation of a device embodying my invention. Fig. II represents a sectional view of same, showing also adjacent parts of a photographic apparatus to which it is applied. Fig. III represents a sectional detail view of a closure used in said invention detached; and Fig. IV represents a sectional view of the lower portion of the invention, showing adjacent photographic apparatus parts and illustrating the closure in the bottom thereof in the act of being ejected from the plate-receptacle.

A cylindrical tube A is provided at each end with a light-tight closure and forms a holder or receptacle for a column B, consisting of a plurality of sensitized plates which it is desired to feed to the photographic apparatus. The upper closure C consists of a cup-shaped cap snugly fitting, light-tight, and slidable upon the outside of the upper end of tube A. The lower end of the tube is closed by a plug D, consisting of a rubber disk *d*, having a centrally-located and inwardly-projecting non-flexible teat *d'*, preferably made of wood or hard rubber, secured thereto, as illustrated in Fig. III. The diameter of the rubber disk is somewhat in excess of that of the interior of the tube, forming thereby a light-tight joint, the flexibility of the peripheral portion making it possible, however, to readily insert the plug in such interior. To obtain increased flexibility and insure a light-tight contact of such peripheral portion, the disk is made frusto-conical, as shown. The diameter of the teat is, as shown, made considerably less than that of the disk for a purpose which will further appear. The bottom of the column B of plates rests upon the teat *d'* when the receptacle is loaded, the frictional contact of the disk causing it to engage the tube sufficiently to effect the support of the column. Intermediately of the top of the column and the adjacent inner bottom surface of the cap C and contacting such bottom and the top of the column is placed a detached ball E, having a diameter considerably greater than the distance of the top of the column from the plane to the top of the tube and which acts as a separator for maintaining, before the device is applied to the photographic apparatus, a distance between such cap-bottom and the top of the tube.

The device, as above described and illustrated in Fig. II, is capable of being transported from place to place without injuring or exposing the plates therein and is ready to be inserted into a photographic apparatus, the relevant parts of which are illustrated in said figure. Such parts are embodied in an automatically-operated photographic apparatus of my invention, the principles of which are shown and described in an application filed by me for United States Letters Patent October 3, 1900, Serial No. 31,920, and upon

an improved form of which I intend to make separate application for Letters Patent of the United States. Such device embodies an upright tube F, connected with the automatic apparatus, Fig. II, adapted to receive the tube A and at the bottom of which is a slot *g*, formed in the supporting frame-plate G, into which the plates may be caused to drop from the plate-holder and through which they may be automatically removed laterally from beneath the tubes F and A by means of suitable mechanism (not shown) embodied in the photographic apparatus Beneath plate G is a second plate H, having a central aperture *h* of a diameter sufficient to permit the plug D to be forced through it, at the same time prohibiting the passage therethrough of one of the sensitized plates. Such aperture is located centrally relatively to tube F, as shown.

In operating the above-described device the loaded holder is shoved down into tube F and over slot *g* and aperture *h*. Cap C is then shoved down, thereby moving the column of plates downwardly and ejecting plug D from the bottom of the holder, which upon further downward movement is squeezed through aperture *h* and is thus removed from the slot *g*. This action permits the lowermost plate to drop into said slot into position to be removed laterally as required. Each such removal permits the next plate above to drop into the position of its predecessor. The ball thus passes downwardly through tube A, and finally, on the removal of the last plate, drops through the aperture *h* and is caused by its momentum to operate means to indicate upon the exterior of the apparatus the exhaustion of the supply of plates, its diameter being made such to permit such passage. Such indicating apparatus will be shown, described, and claimed in my above-named prospective application.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the means herein disclosed, provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention—

1. Means for loading photographic apparatus, comprising the combination of a receptacle adapted to carry a column of photographic plates, a removable closure at one end of said receptacle, and means embodied in said receptacle for removing such closure.

2. Means for loading photographic apparatus comprising the combination of a receptacle, adapted to carry a column of photographic plates, a removable closure at one end of said receptacle, and means embodied in said receptacle for moving said column of plates in said receptacle, whereby said closure may be removed.

3. Means for loading photographic apparatus comprising the combination of a receptacle, adapted to carry a column of photographic plates, a removable closure at one end of said receptacle, and a movable cap at its opposite end whereby said closure may be removed by the movement of said cap when a column of plates is in said receptacle.

4. Means for loading photographic apparatus, comprising the combination of a receptacle adapted to carry a column of photographic plates, a removable closure at one end of said receptacle having a flexible peripheral portion, and means embodied in said receptacle for removing said closure.

5. Means for loading photographic apparatus, comprising the combination of a receptacle adapted to carry a column of photographic plates, a removable closure at one end of said receptacle, and a movable cap at its other end whereby said column may be removed by the movement of said cap when a column of plates is in said receptacle.

6. Means for loading photographic apparatus, comprising the combination of a receptacle, adapted to carry a column of photographic plates, a removable closure at one end of said receptacle, a movable cap at its other end, and a separator adapted to rest intermediately of said cap and said column of plates, whereby said closure may be removed by the movement of said cap when a column of plates is in said receptacle.

7. In means for loading photographic apparatus, the combination of a receptacle adapted to carry a column of photographic plates, a movable cap at one end of said receptacle and a detached member adapted to rest intermediately of said cap and a column of plates, and adapted to pass through said receptacle.

8. In means for loading photographic apparatus, a receptacle adapted to carry a column of photographic plates, a removable light-tight closure adapted to fit within the interior of one end of said receptacle, a movable cap at the other end of said receptacle and means embodied in said receptacle for removing said closure.

Signed by me this 22d day of October, 1901.

GEORGE N. PIFER.

Attest:

A. E. MERKEL,

D. T. DAVIES.