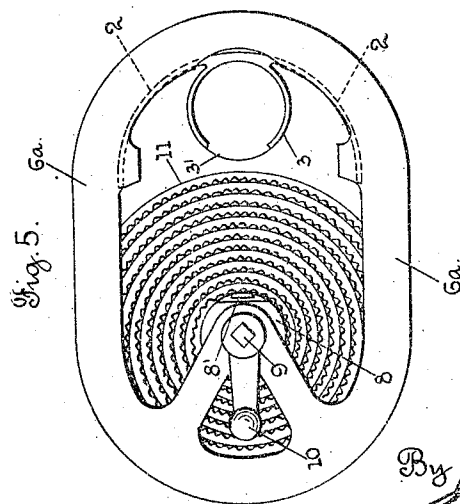
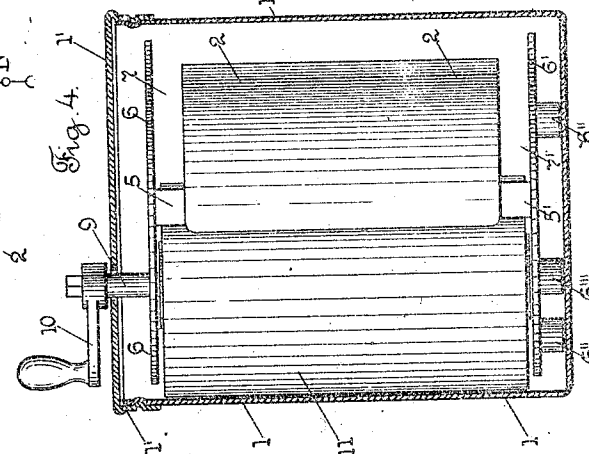
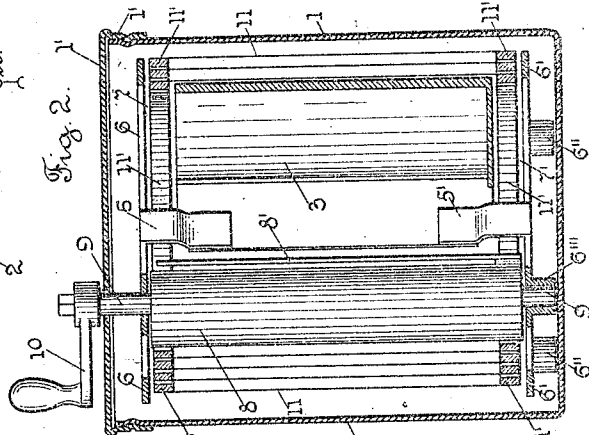
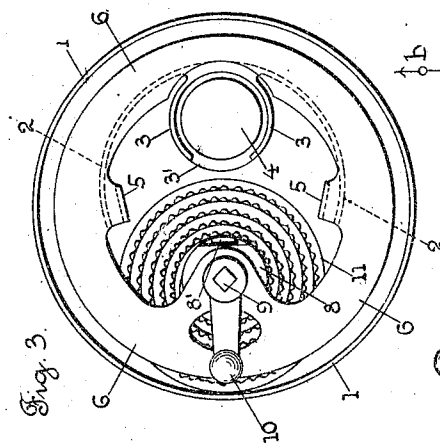
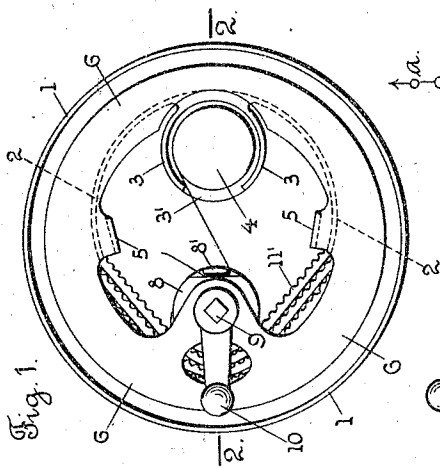


H. WYMAN.
 PHOTOGRAPH FILM DEVELOPING DEVICE.
 APPLICATION FILED DEC. 5, 1910.

1,043,496.

Patented Nov. 5, 1912.



Witnesses
 M. Bradt.
 W. H. Hall

Inventor
 Horace Wyman.
 By John C. Dewey
 Attorney

UNITED STATES PATENT OFFICE.

HORACE WYMAN, OF WORCESTER, MASSACHUSETTS.

PHOTOGRAPH-FILM-DEVELOPING DEVICE.

1,043,496.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed December 5, 1910. Serial No. 595,587.

To all whom it may concern:

Be it known that I, HORACE WYMAN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Photograph-Film-Developing Devices, of which the following is a specification.

My invention relates to a photograph film developing device, and the object of my invention is to provide a photograph film developing device of simple construction and operation.

My invention consists in certain novel features of construction of my photograph film developing device, as will be hereinafter fully described.

My photograph film developing device consists of a segment of a cylinder, having a circular flange or plate at each end, attached thereto. There is an open space next to the flanges, that is intermediate the flanges and the ends of the segment of the cylinder. Within the segment of the cylinder and secured thereto, is a tubular hollow receptacle, to loosely receive and hold the film to be developed. Arranged opposite the segment of the cylinder, and having its axis parallel to that of the said segment is a reel carried on a spindle, which has bearings in the flanges or plates above referred to. A flexible apron, having its edges or borders raised above its surface, and one end attached to the reel, is wound or wrapped in layers around the outside of both the segment of the cylinder and the reel. The raised borders or edges pass into the spaces between the flanges and the ends of the segment of the cylinder, whereby the surfaces of the segment, and the apron may contact, and the borders are guided by the end flanges or plates. Any suitable means are provided to attach one end of the film to the reel. A tank, containing a developing solution, to receive my developing device above described, is used, and means are provided to rotate the reel, to wind the film and apron thereon. A crank handle on the spindle carrying the reel is preferably used to rotate the reel. By turning the crank handle the reel is rotated and the apron is drawn around the segment of the cylinder, and wound together with the film, in layers on the reel in the solution.

Referring to the drawings:—Figure 1 is a plan view of my photograph film develop-

ing device, with the cover of the tank removed. Fig. 2 is a section, on line 2, 2, Fig. 1, looking in the direction of arrow *a*, same figure, and showing the cover of the tank in position. Fig. 3 corresponds to Fig. 1, but shows the apron and film wound on the reel. Fig. 4 is a side view of my photograph film developing device, looking in the direction of arrow *b*, Fig. 3; the tank with its cover in position, are shown in section, and, Fig. 5 corresponds to Fig. 3, but shows a modified construction of the film developing device; the tank shown in Fig. 3 is not shown in this figure.

In the accompanying drawing, 1 is a tank for holding the developing solution, and into which my film developing device is placed. The tank 1 is preferably made of metal and of circular shape, and has a detachable cover 1', shown in Figs. 2 and 4.

My photograph film developing device consists of a segment of a cylinder 2, preferably made in one part as a single segment, and having its open side on the inside of the device. Within the segment 2 of the cylinder and secured thereto, is a tubular hollow receptacle 3, to loosely receive and hold the film 4, see Figs. 1 and 3. The receptacle 3 has its inner side open, as shown at 3', see Figs. 1 and 3, to allow the film to pass out from said receptacle. The segment 2 has attached to each end thereof, in this instance near its inner open side, by a pair of arms 5, an upper flange 6, and by a pair of arms 5', a lower flange 6'. There is an opening or space 7, see Figs. 2 and 4, between the upper end of the segment 2 and the upper flange 6, and an opening or space 7' between the lower end of the segment 2 and the lower flange 6'. The lower flange 6' has in this instance two or more bosses or extensions 6'' thereon, to rest on the bottom of the tank 1. A reel 8, extending between the two flanges and having its axis parallel to that of the segment 2, is carried on a spindle 9, to which it is removably attached. The flanges 6 and 6' have their middle portions cut out to give access to the inside of the device, and next to one of the flanges the tubular receptacle has its end open to receive a film roll, which may be passed into it, and the reel 8 has a bar 8' attached to it, with a space between it and the reel open, next to the same flange, for the insertion of the free end of the covering of the film of the roll, at the same time the roll is inserted into the receptacle. The

spindle 9 in this instance extends at its lower end into and has a bearing in a boss or bearing 6''' on the lower flange 6'. The upper end of the spindle 9 extends through an opening in and has a bearing in the upper flange 6. The upper end of the spindle 9 also extends through an opening in the cover 1'. A detachable handle 10 is secured upon the upper end of the spindle 9 to rotate the same, and with it the reel 8.

A flexible apron 11 has its edges or borders 11' raised above its surface, and said raised borders or edges 11' extend within the spaces 7 and 7', between the ends of the segment 2 and the flanges 6 and 6', see Fig. 2. One end of the flexible apron 11 is attached to the reel 8. The reel 8 is provided with suitable means, shown at 8', Fig. 1, for attaching the end of the film 4 thereto.

In Fig. 5 is shown a modified construction of my photograph film developing device. In said figure, which corresponds to Fig. 3, except the tank 1 is not shown in this figure, the film developing device is of elongated or oval shape, having the elongated or oval shaped upper flange 6^a, with rounded ends.

In Fig. 5, the same figures of reference are used as in the other figures for similar parts, except in the case of the flange 6^a, and the construction and operation of the parts are the same as already described in connection with the other figures. In the modified construction shown in Fig. 5, a longer apron 11 may be used, and also a longer film.

The operation of my photograph film developing device will be readily understood by those skilled in the art. My device is intended for time development. The method of proceeding is to remove the device from the tank, and having the apron in layers wrapped around the outside of the segment 2, and the reel 8, as shown in Fig. 1, the raised borders 11' of the apron 11 extending into the open spaces 7 and 7', between the ends of the segment 2 and the flanges 6 and 6', the apron contacting with the surface of the segment, then the tank being filled with the developing solution, the exposed film roll to be developed is taken, and the free end of the black paper covering is unwound from the loose end of the film, which is fastened to the paper covering by a gummed surface, in the usual way. The film 4 is inserted through the opening in the flange of the device, and placed in the receptacle 3, and the free end placed in the space under the bar 8' on the reel 8, as shown in Fig. 1, to project out therefrom, as shown in Fig. 1. The device is then placed in the tank 1, containing the developing solution, and the cover 1' placed thereon, and the handle 10 on the spindle 9, as shown in Fig. 2, and the handle 10 turned clockwise, or in

the direction of movement of the hands of a clock. The segment, the flanges, and the film receptacle, remain stationary, while the reel is being turned to draw the flexible apron from around the segment and wind it upon the reel, with the film drawn from the roll and transferred between the layers of the apron. The spindle of the reel may then be removed, and the hole closed in the cover, and the development proceeded with, by reversing the tank endwise occasionally.

It will be understood that the details of construction of my improvements in photograph film developing devices may be varied if desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a film developing device, a segment of a cylinder, guiding flanges attached thereto at each end, a rotatable reel supported on said flanges, and having its axis parallel to that of said segment, and means for rotating said reel to wind thereon a flexible film carrying apron, and said flexible film carrying apron.

2. In a film developing device, a segment of a cylinder, a film roll receptacle within said segment, guiding flanges at each end of the segment, a rotatable reel supported on said flanges and having its axis parallel to that of said segment, and adapted to support a flexible film carrying apron extending around said segment and reel, and said apron, having its end attached to the reel, and means for rotating said reel.

3. In a film developing device, a segmental support for a film carrying apron, a receptacle for a film roll inside of said support, and guiding flanges at each end of said support, a rotatable reel supported on said flanges, and having its axis parallel to that of said support, means for attaching one end of a film to said reel, a flexible film carrying apron extending around said support and said reel, with one end attached to the reel, and means to rotate the reel to cause the apron and attached film to be wound in layers upon the reel.

4. In a film developing device, a film carrying apron, a segmental support therefor, guiding flanges at each end of said support, a rotatable reel supported on said flanges, and having its axis parallel to that of said support, and means for rotating said reel and apron, which has raised borders above its surface to be wrapped in layers around said support and said reel, with its raised borders adapted to pass into a space or depression at each end of said support, when the surface of said apron contacts with the surface of said support.

5. In a film developing device, a segment of a cylinder, a receptacle for a film, a rotatable reel, an apron with one end attached

to said reel, and disposed in layers outside of said segment, and means to turn the reel to wind the apron thereon.

6. In a film developing device, a receptacle for a film roll, flanges at the ends of said receptacle, a reel supported on said flanges, and having its axis parallel to that of said receptacle, a film carrying apron surrounding said receptacle, and means to turn the reel to wind said apron thereon.

7. In a film developing device, a receptacle for a film roll, flanges at each end of said receptacle, a rotatable reel supported on said flanges, and having its axis parallel to that of said receptacle, an apron attached to said reel and passing around said receptacle, and means for turning the reel to wind said apron thereon.

8. In a film developing device, a receptacle having an opening at its ends and side, for the insertion of a film roll and the withdrawal of the film from the roll, a rotatable reel having its axis parallel to that of said receptacle, a film carrying apron extending around said receptacle, and attached to said reel, and means for turning said reel, to wind the film and apron thereon.

9. In a film developing device, a segment of a cylinder, flanges at each end of said segment, one of said flanges having an opening therethrough for the insertion of a film roll, a receptacle for the film roll inside of said segment, said receptacle having an open

end, a rotatable reel supported on said flanges, and having its axis parallel to that of said segment, and provided with means to attach the end of the film thereto.

10. In a film developing device, a segment of a cylinder, flanges at each end of the segment, one flange having an opening there- through for the insertion of a film roll, a receptacle inside the segment for a film roll, said segment having an open end slotted side for the passage of the end of the film to a rotatable reel, and said reel, supported on said flanges and having its axis parallel to that of said segment, and having a slotted opening for the insertion of one end of the film, and means for rotating said reel.

11. In a film developing device, a segment of a cylinder, a receptacle for a film roll inside said segment, said receptacle having an open end for the insertion of the film roll, a rotatable reel having its axis parallel to that of said receptacle, and having an open side for the insertion of the end of the film, two flanges, one at each end of said segment, to support said reel, one of said flanges being open through its central part, to give access to the film roll receptacle, and to the open side of the reel, and a film carrying apron guided by said two flanges.

HORACE WYMAN.

Witnesses:

JOHN C. DEWEY,

MINNA HAAS.