ABSTRACT: A stacking device for film sheets wherein the film sheets after having been exposed in an illuminated area are transmitted over a curved path to the inlet opening of a receiving magazine is particularly characterized by a device rotatably mounted at the inlet opening and driven in synchronism. When the front edge of an exposed film sheet approaches the inlet opening the device moves to the side all film sheets already present in the magazine, so that a free passage into the magazine is provided for the new film sheet.
DEVICE FOR STACKING FILM SHEETS

This invention relates to a device for use with a camera, adapted to stack film sheets, wherein the film sheets after being exposed are transmitted over a curved path to the inlet opening of a receiving magazine.

An object of the present invention is to improve existing devices.

Another object is the provision of a device which will place film sheets in a magazine in the order in which they were photographed.

Other objects will become apparent in the course of the following specification.

In the accomplishment of the objectives of the present invention it was found desirable to provide a device which is rotatably mounted at the inlet opening and driven in synchronism, the device being so constructed that when the front edge of an exposed film sheet approaches the inlet opening it will push to the side all film sheets already located within the magazine, so that a free passage of the new film sheet into the magazine is assured.

According to a further feature of the present invention a slide is provided which moves in the guide of a rotatably mounted angular member and which receives a combined longitudinal and rotary movement from a crank driven by a shaft.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawings showing by way of example only, a preferred embodiment of the inventive idea.

In the drawings:

FIG. 1 is a longitudinal section through a portion of a film stacking device with attached magazine, which includes the subject matter of the present invention.

FIG. 2 is similar to FIG. 1 but shows the device in a different operative position.

FIG. 3 is a perspective view of the device. The illustrated film stacking device includes the usual arrangement of two amplifying screens 1 and 2 constituting the exposure area. An X-ray film 3 is located between the screens 1 and 2. A transporting wheel 4 cooperates with a counter-pressure roller 5 for withdrawing the film 3 out of the exposure area between the screens and moving it against a fixed guide 6. The guide 6 has an approximately cylindrical surface, the curvature of which is substantially equal to that of the outer surface of the wheel 4. During this movement the film is bent to the extent of nearly 90° and is introduced into the receiving magazine 7, the longitudinal direction of which extends substantially at right angles to the surface of the film when it is located in the exposure area between the screens 1 and 2. During its insertion into the inlet opening of the magazine 7 the film is guided by guide plate 8.

A tubular shaft 13 is rotatably mounted between the sidewalls of a casing and has at one end, or at both ends, recesses for receiving a slide 9. A separate angular member or cube 12 is located inside the tube and is provided with a slit for guiding the slide which can reciprocate in the slit. The slide 9 and the cube 12 constitute the rotary member described in the claim. One end of the slide 9 extends downwardly through a rectangular opening 15 provided in the guide plate 8, while the other end of the guide is rotatably mounted upon a crank 11. The crank 11 is driven by and forms a part of a shaft mounted in the sidewalls of the casing. One end of the shaft projects out of the casing and carries the friction wheel 10. A suitable drive (not shown) engages the wheel 10 and causes the shaft to make 1 revolution during each feed, namely, every time a film sheet 3 is introduced into the receiving magazine 7.

The operation of the described device is as follows:

FIG. 1 shows the position of the slide 9 directly after a film sheet has been removed from the exposure field between the screens 1 and 2 and has been inserted into the magazine 7. A new film sheet 3 has been exposed and must be also introduced into the magazine 7 by rollers 4 and 5. Before the front edge of this new film sheet 3 has reached the upper edges of the film sheets 14 already located in the magazine and, as shown in FIG. 1, extending curve-line out of the inlet opening, the shaft 13 has been turned clockwise to such an extent (FIG. 3) that the slide 9 will engage the upper edges of the package of film sheets 14 and will shift them to the left (looking in the direction of FIG. 2), thereby pushing them to the side and providing free entry for the new film sheet 3. While the new sheet is being introduced into the magazine 7, the crank 11 is further rotated and causes the withdrawal of the slide 9, so that the edge of the film package is freed. The new film sheet 3 will drop completely into the magazine and the device will return to the position shown in FIG. 1.

It is apparent that the receiving magazine can be located in a different position than that illustrated, in relation to the exposure field between the screens 1 and 2. For example, the magazine can be located below the field and substantially parallel thereto. Then the film sheets will have to be curved to the extent of about 180° and the guide 6 will be correspondingly lengthened.

1. In combination with a film-receiving magazine for use with a camera, said magazine having an inlet opening, means shifting exposed film sheets individually through said inlet opening and into said magazine, a rotary member located adjacent said inlet opening and comprising a slide and an angular member having a slot, said slide being slidable in said slot, a shaft having a crank connected with said slide and means rotating said shaft to cause said slide to carry out a combined longitudinal and rotary movement to push said film sheets located in said magazine when the front edge of a new film sheet approaches said inlet opening.

2. A device in accordance with claim 1, comprising a guide plate extending close to said inlet opening for guiding a film sheet through said inlet opening, said guide plate having an opening receiving said slide when a film sheet is being exposed.

3. A device for stacking film sheets for use with a camera, comprising in combination with a film exposure area, a magazine having an inlet opening, a guide plate having an opening located adjacent said inlet opening, a slide located adjacent said inlet opening and means moving film sheets individually from said exposing area into said magazine and simultaneously actuating said slide to move it during film exposure into the opening of said guide plate to cover said inlet opening and during the approach of an exposed sheet to move it out of the opening of said guide plate into said inlet opening and move aside film sheets already located in the magazine to facilitate passage of said exposed sheet into the magazine.

4. A device in accordance with claim 3, wherein said means comprise a rotary cube having a slit, said slide being slidable in said slit, and a driving shaft having a crank connected with said slide.