Aug. 16, 1960 F. W. FLYNN ET AL 2,949,248

ROLL FILM MAGAZINE

Filed July 18, 1957 3 Sheets-Sheet 1

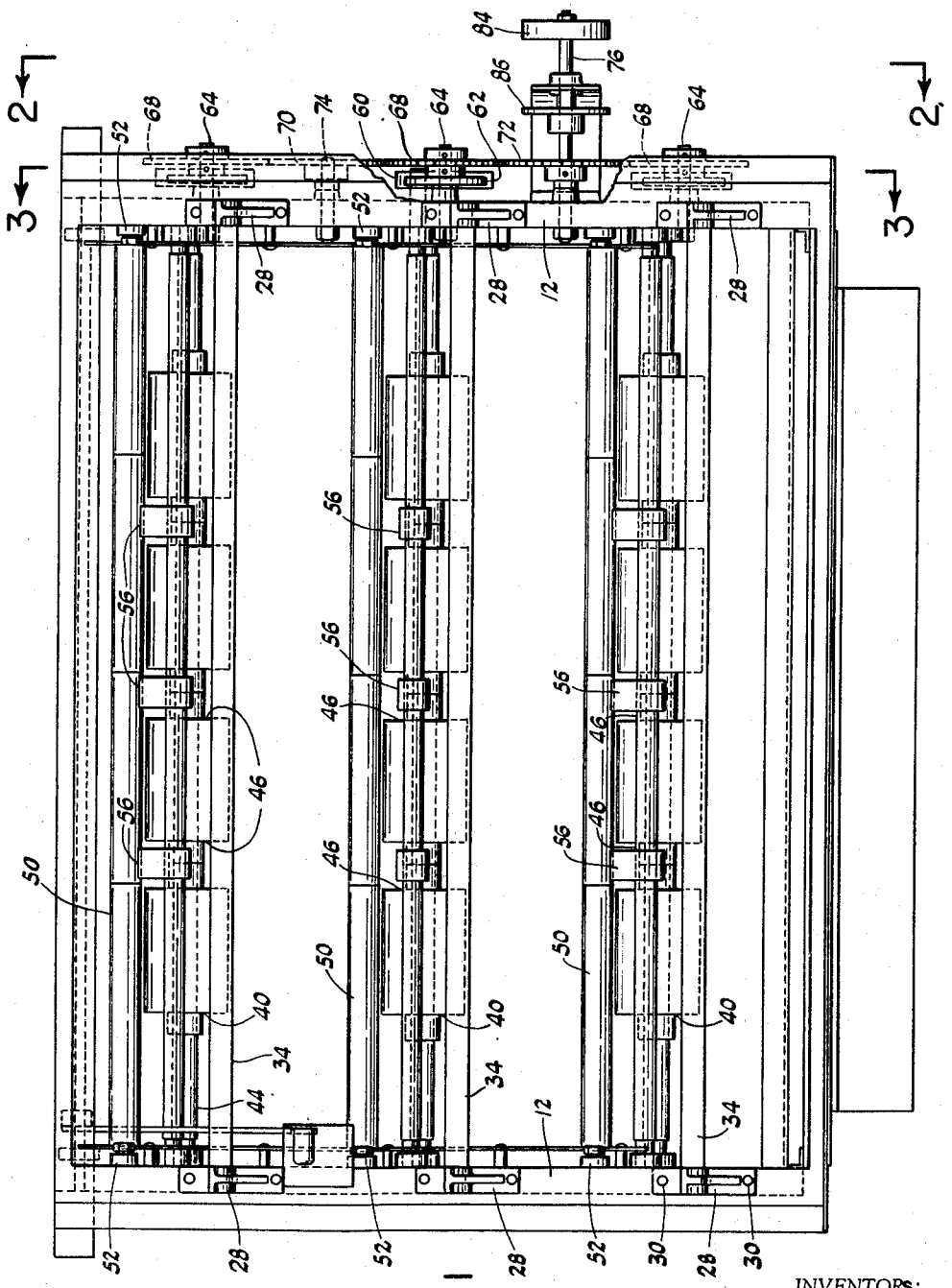


FIG. 1

INVENTORS:
FLOYD W. FLYNN
NORMAN C. SCHUTT

BY

Morgan Finnegan Durham & Pine

ATTORNEYS

Aug. 16, 1960 F. W. FLYNN ET AL 2,949,248

ROLL FILM MAGAZINE

Filed July 18, 1957 3 Sheets-Sheet 2

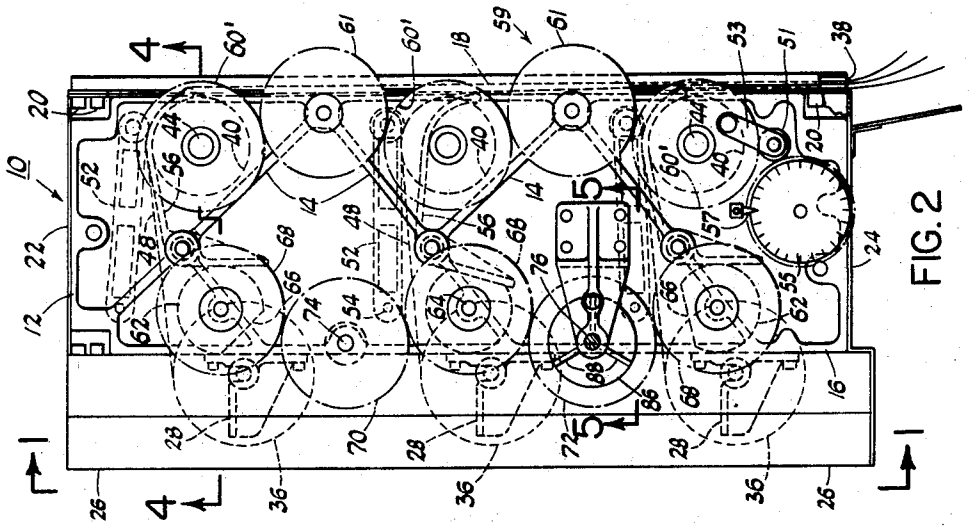


FIG. 2

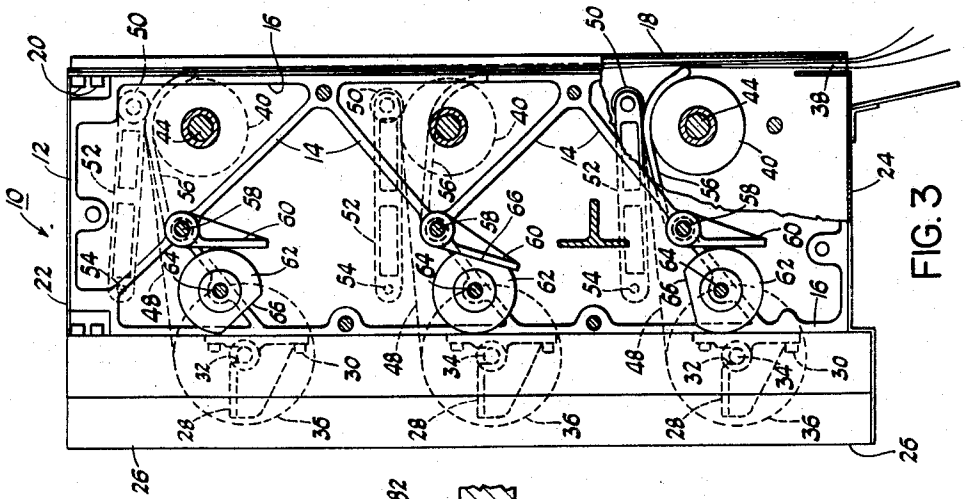


FIG. 3

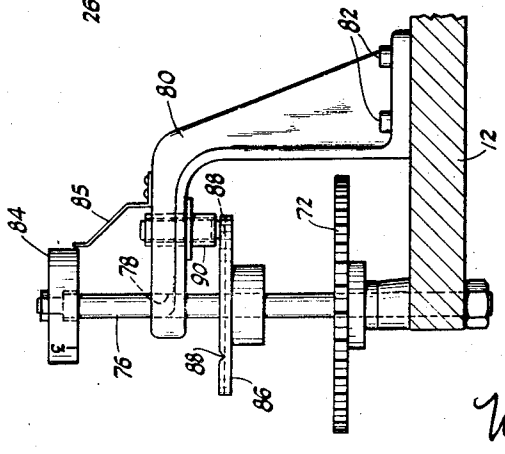


FIG. 5

INVENTORS:
FLOYD W. FLYNN
NORMAN C. SCHUTT

BY Morgan, Finnegan, Durham & Pine.

ATTORNEYS

Aug. 16, 1960 F. W. FLYNN ET AL 2,949,248

ROLL FILM MAGAZINE

Filed July 18, 1957 3 Sheets-Sheet 3

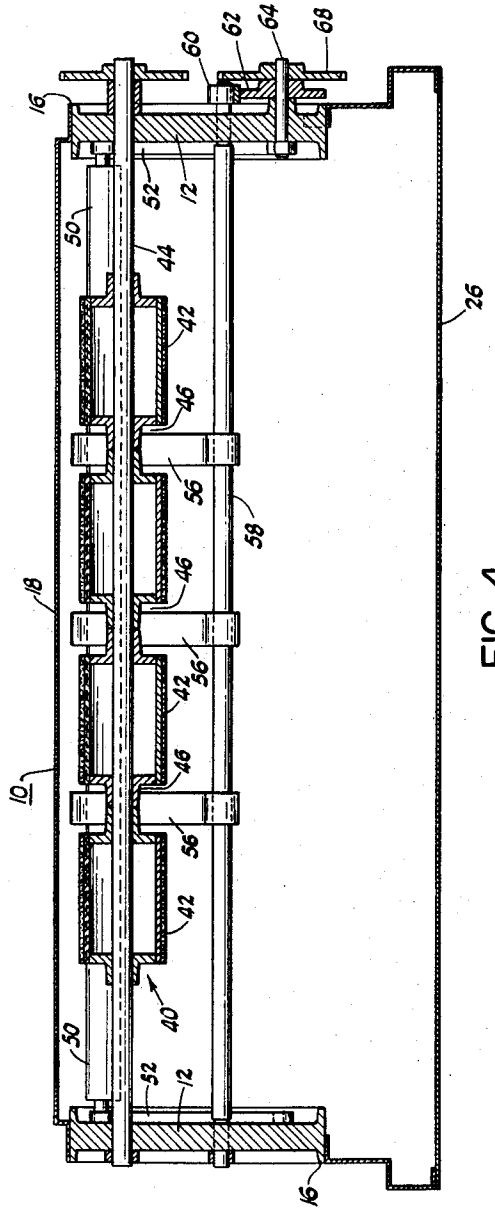


FIG. 4

INVENTORS:
FLOYD W. FLYNN
NORMAN C. SCHUTT

BY

Morgan Finnegan Durham & Pine

ATTORNEYS

United States Patent Office 2,949,248 Patented Aug. 16, 1960

2,949,248

ROLL FILM MAGAZINE

Floyd W. Flynn and Norman C. Schutt, Glen Cove, N.Y., assignors to Powers Chemco, Inc., Glen Cove, N.Y., a corporation of New York

Filed July 18, 1957, Ser. No. 672,680

10 Claims. (Cl. 242—55.3)

This invention relates to film dispenser magazines and particularly to a dispenser for selectively dispensing film from different rolls.

Objects and advantages of the invention will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate one embodiment of the invention and together with the description, serve to explain the principles of the invention.

In the drawings:

Figure 1 is a rear elevational view of the dispenser of this invention (taken generally from line 1—1 of Figure 2) with the back of the dispenser housing and the rolls of film removed to show the housing interior and with a portion of the casing on the right side thereof broken away to better show the details of construction of the selector actuating mechanism;

Figure 2 is a side elevational view of the film dispenser taken from line 2—2 of Figure 1;

Figure 3 is a sectional view taken along line 3—3 of Figure 1;

Figure 4 is a sectional view taken along line 4—4 of Figure 2, and;

Figure 5 is an elevational view of the actuator for the film selector mechanism shown at an enlarged scale and taken generally from line 5—5 of Figure 2.

The present invention in certain aspects is an improvement of the organization disclosed in U.S. application Serial No. 466,802, filed November 4, 1954, now Patent No. 2,836,373, in the name of Andrew K. Anander, and has for its object the provision of an improved film dispenser magazine for selectively dispensing film from different film rolls which may have different characteristics as for example a different width or a different emulsion. Another object of the invention is to provide such a film dispenser wherein the selector mechanism for selecting the film that is to be dispensed positively assures that film from only one roll will issue from the dispenser at a time. Another object of the invention is the provision of such a film dispenser wherein the selector mechanism is operated through a common actuator member. Still another object of the invention is the provision of such a film dispenser wherein the selector mechanism is conveniently operated from a single location and is positive and reliable in its operation yet relatively simple in construction.

In accordance with the present invention there is provided a film dispenser housing within which are mounted a number of rolls of film which may have different widths, emulsions or the like and which are horizontally mounted in vertically spaced relation for rotation about their axis.

Laterally spaced from each film roll is a feed roll generally parallel with the film roll and means are provided for simultaneously rotating the several feed rolls. Film from the adjacent film roll is passed over the feed roll and is urged into engagement with it both by gravity and by means of a pivotally mounted roll positioned above the feed roll. Adjacent each of the feed rolls are a number of fingers which are mounted on a rotatable shaft extending parallel with the feed roll and which are movable by the shaft to and from an active position wherein they engage the film sheet and maintain it in spaced relation or out of engagement with the feed roll and an inactive position where they permit the film sheet to engage the feed roll with the fingers being urged by gravity to their inactive position. Mounted on the end of this shaft is a cam follower which is in engagement with a rotatable cam journaled to a suitable stub shaft. Each of the cams is effective throughout a portion of its rotation to cam the follower to a position where the fingers are in their active position effective to maintain the film in spaced relation with the feed roll while throughout the remainder of their rotation they permit the cam follower to be positioned so that the fingers occupy their inactive position and the roll will be effective to feed the film. The cams are simultaneously rotated about their respective axes through a gear train which is driven by a common actuator and the cams are oriented in relation to one another and are constructed and arranged so that when one of the cams is in a position that permits the fingers to occupy their inactive position and accordingly permits the associated feed roll to feed film the other cams are in a position to cause the film to be maintained in spaced relation with the associated roll thereby positively preventing more than one of the feed rolls from being active or effective at any one time to feed film and accordingly preventing the simultaneous feeding of film from a plurality of film rolls.

It will be understood that the foregoing general description and the following detailed description as well are exemplary and explanatory of the invention but are not restrictive thereof.

Referring now to the drawings, wherein like characters are used throughout to designate like elements, the illustrative and preferred embodiment of the invention depicted therein comprises a light-tight container or housing designated generally **10** which includes side plates **12** that are provided with ribs **14** as well as a laterally extending lip **16** about the periphery. The front of the housing is inclosed by means of plate **18** which extends between side plates **12** and is secured thereto by cap screws **20** while at the top and bottom of the housing is provided plates **22** and **24**, respectively, which also extend between side plates **12**. Extending rearwardly from the rear edge of side plates **12** is the inclosure **26** which in effect forms an extension of the housing and is in light-tight engagement with the side plates **12** and the top and bottom plates **22** and **24**.

Rolls of film are mounted in the housing **10** by means of the spaced brackets **28**, there being three pair of these brackets in the illustrative organization and with the brackets being secured to the edge of plates **12** by screws **30** so that the pairs of brackets are in vertically spaced relation. Upwardly open slots **32** are provided in these brackets and within these slots are received the rods or spindles **34** upon which the rolls of film **36** are wound with the film of each roll having a different characteristic, as for example, a different width or a different emulsion. In order that the film rolls may be placed in and removed from the housing the back of enclosure **26** is removable.

The film from each of the three rolls **36** is fed from

housing 10 out the passage 38 in the lower end of the housing which leads into a camera upon which the film dispenser is mounted and with a cutter (not shown) being disposed at the outlet of this passage to cut the film sheets to the desired length. This feeding of the film is accomplished by means of feed rolls designated generally 40 with their being one such feed roll for each of the rolls for film and with these feed rolls being mounted in the housing 10 spaced laterally and forward of the film rolls 36. As best shown in Figure 4, each of the feed rolls 40 comprises a number of hollow cylindrical members 42 mounted on and secured to the shaft 44 which extends between side plates 12 and is rotatably mounted in these side plates. The cylindrical members are formed so as to provide at their juncture the annular recesses 46 that extend inwardly from the surface of the roll. The sheet of film from the film roll 36 extends forward in the housing and passes over the feed roll with this being best shown in Figures 2 and 3 where the film sheet is identified as 48. From the feed roll the film sheet extends downwardly in housing 10 for feeding out through the passage 38.

The feeding of film is effected by engaging the film sheet 48 with the surface of the feed roll and rotating the feed roll. The film sheet which passes over the feed roll is urged into engagement with it by gravity and in addition there is mounted above each feed roll a roller 50 which is carried by the spaced arms 52 which are pivotally mounted to side plates 12 at 54 so that the roller 50 is urged by gravity toward its associated feed roll with the roller 50 being moved away from the feed roll through the action of arms 56 when these arms move the film away from the feed roll but may be pivoted away from the roll. The feed rolls are simultaneously rotated from a common drive which includes the drive gear 51 to the shaft of which is fixed handle 53 with this drive actuating the gear train 59 which includes idler gears 61 and driven gears 60' with these latter gears being connected to shaft 44 of their respective feed roll so that all of the feed rolls rotate simultaneously and with drive gear 51 meshing with the lowermost of the gears 60'. Also meshed with gear 51 is a gear for driving the indicator disk 55 which is provided with suitable indicia and a fixed index 57 and is constructed to indicate the length of the film sheet dispensed through passage 38.

It is of course necessary to insure that sheets of film are dispensed from the film magazine from only one roll of film at a time and in order to accomplish this the film dispenser is provided with mechanism for positively preventing the feeding of film from more than one film roll at a time and for selecting, as desired, the roll of film that is to be dispensed. This selector mechanism includes finger-like members 56 which are adapted to be received within the recesses 46 of the feed rolls and which are mounted on shafts 58 adjacent to each of the feed rolls. Mounted on the end of each of the shafts 58 is the lever type cam follower 60. The disposition of the finger-like members 56 and cam follower 60 is such that the finger like members are urged by gravity into a retracted position within the recess 46 and cam follower 60 is urged into engagement with the rotatable cam 62 which is mounted adjacent the cam follower on stub shaft 64 with the shaft extending through and being journaled to the side plate 12. Cam 62, as best shown in Figures 2 and 3, is provided with a flattened portion 66 and when the follower 60 is in engagement with this flattened portion, as illustrated in the centrally located selector mechanism in Figures 2 and 3, the finger-like members 56 on the shaft on which the follower is mounted may move by gravity to their retracted position within recesses 46 while when follower 60 is in engagement with the arcuate portion of the cam the follower is moved to a position where the finger-like members 56 are rotated by shaft 58 to their active positions, as shown in the top and bottom selector mechanisms in Figures 2 and 3, where the fingers are out of the recesses and are effective to lift the film sheet 48 from the surface of the feed roll.

Operation of the cams 62 is had by means of a gear train which includes gears 68 mounted on the outer end of each of the stub shafts 64. Included in the gear train is the idler gear 70 and the drive gear 72 which are meshed with the gears 68 as shown in Figure 2 so that upon rotating gear 72 all of the gears of the train rotate including all of the gears 68 and the idler gear 70. As shown, idler gear 70 is mounted on stub shaft 74 which extends through and is journaled to side plate 12 while drive gear 72 is mounted on a somewhat longer stub shaft 76 which also extends through and is journaled to side plate 12. The shaft 76 at its outer end is received within and extends through bore 78 provided in the end of bracket 80 which is mounted on side plate 12 by means of set screws 82. On the outer end of shaft 76 is secured the knob 84 by means of which shaft 76 may be rotated and accordingly each of the cams 62 simultaneously rotated through the medium of the gear train.

In order that only the finger like members 56 that are associated with one of the feed rolls 40 may occupy their retracted position where the film sheet is in engagement with the roll at any one time the cams 62 are out of phase with each other with the flattened portions, in the illustrative organization wherein three cams are employed, being angularly spaced or oriented 120° apart. With this organization simultaneous rotation of cams 62 through manipulation of knob 84 effects successive movement or rotation of the finger-like members 56 for the several feed rolls to and from their retracted positions with it being impossible for these finger-like members for more than one of the feed rolls to occupy their retracted position at any one time thereby positively insuring against the simultaneous feeding of film for more than one of the film rolls.

In order to provide an indication as to when the cam followers 60 are in engagement with the flattened portion 66 of its respective cam there is secured to drive or stub shaft 76 plate member 86 which is provided with three slots 88 that are 120° apart and with there being a spring pressed detent 90 carried by bracket 80 and urged against the face of this plate so as to engage these slots. The slots are arranged with relation to the cams so that when the detent 90 is engaged in one of the slots one of the cams is positioned so its cam follower is in engagement with the flattened portion of the cam thereby providing an indication of when the cams are in their proper position for effecting the feed of film from one of the film rolls. To indicate which of the rolls is feeding film when the detent is in one of the slots 88, knob 84 is provided on its periphery with suitable indicia that index with the fixed pointer 85.

With this invention the selector mechanism for selecting the feed of a particular film roll is positive in its action with it being impossible to simultaneously feed from more than one roll at a time and yet manipulation of the selector mechanism is extremely simple with the mechanism being operated merely through manipulation of the finger knob 84.

The invention in its broader aspects is not limited to the specific mechanism shown and described but departures may be made therefrom, within the scope of the accompanying claims, without departing from the principles of the invention and without sacrificing its chief advantages.

What is claimed is:

1. A film dispenser comprising a plurality of film rolls, a plurality of feed rolls each for feeding film from a different film roll through frictional engagement with the film, with the film passing over the feed roll, means associated with each feed roll operative to separate the

film and feed roll in one position while permitting engagement of the two when in another position, a common operator, drive mechanism interconnecting said operator and each of said means such that manipulation of the operator moves the several means in successive order from said other position to said one position.

2. A film dispenser comprising in combination a plurality of rotatably mounted film rolls, an individual feed roll for each film roll with the feed roll and the film being urged into engagement for feeding of the film in response to rotation of the feed roll, means adjacent each feed roll controlling contact of the feed roll and the film and including a rotatable member effective throughout a limited angular extent of its total rotation to separate the film and the feed roll, common operating means for all of the rotatable members and connected therewith to simultaneously rotate the same, the connection of said members with the operating means and the shape of the rotatable members being such as to prevent simultaneous engagement of film with more than one of said feed rolls.

3. The organization of claim 2 wherein indexing means is provided to indicate when the operating means is properly positioned for feeding film from one of the film rolls.

4. In a film dispenser the combination of a plurality of feed rolls over which film passes and frictionally engages the surface thereof for feeding thereby with the film associated with each roll being from a different source, control mechanism for controlling the feeding of film by each of the feed rolls including means associated with each feed roll operable to move and retain the film in spaced relation with the feed roll, said means being biased to a retracted position where it permits the film to engage the roll, a movable drive member for each of said means operable to controllably move and retain said means in its film spacing position, means positively interconnecting the several drive members in a manner so that they move simultaneously, said drive means including means whereby the biased means are released to move one at a time to film feeding position, and a common operator for effecting simultaneous movement of the members.

5. A film dispenser comprising a housing having an outlet passage, a plurality of rolls of film mounted in the housing, a separate feed roll for each roll of film for feeding film therefrom out of said passage with the feed roll and the film being in engagement so that rotation of the feed roll will feed the film, means for controlling engagement of the film and the feed roll including a movable cam and an engaging cam follower associated with each feed roll and operative when the cam is in one position to cause the film and the feed roll to be separated and in another position to permit them to be in operative engagement, a common operator for operating said cams and means operatively interconnecting said operator and said cams so that manipulation of the operator successively moves the several cams to and from said one position from and to said other position.

6. In an organization of the type described the combination of a housing from which film is fed, a plurality of rolls of films in said housing, a plurality of feed rolls each for feeding film from a different film roll and with the film passing over the respective feed roll and in engagement therewith for feeding upon rotation of the feed roll, a drive for simultaneously rotating said feed rolls, control mechanism operative to regulate the feeding of the film to prevent the simultaneous feeding of film from more than one film roll and including means adjacent each feed roll operative in one position to maintain the film out of engagement with the feed roll and in another position permitting such engagement, a cam follower for operating said means and a rotatable cam engaging said follower and operative in one rotative position to cause the follower to maintain said means in said one position and in another rotative position permit the means to move to said other position, a common operator for the several cams effectively interconnected therewith to simultaneously rotate the same, said cams being related to each other and to the operator so that only one cam will be in said other position at any one time.

7. In a film dispenser the combination of a plurality of film rolls, a separate feed roll for each film roll with the film passing over the feed roll for frictional engagement therewith so that it will be fed upon rotation of the feed roll and with the film being in engagement with the feed roll, a rotatable shaft adjacent each feed roll carrying members that are rotatable by the shaft to a position where they engage the film and retain it spaced from the feed roll, said members being biased to a retracted position out of engagement with the film, a cam operating means for each of the shafts including a rotatable cam and a cam follower in engagement with the cam, said cam follower being operatively connected with said shaft so that movement of the follower by the cam rotates said shaft, the cam being operative throughout a given extent of its rotation to position the follower to effect separation of the film from the feed roll and through the remainder of its rotation to be ineffective to so position the follower thereby permitting the film to engage the feed roll, a common operator for the cams interconnected therewith in a manner to effect simultaneous rotation thereof with the cams being respectively oriented so as to prevent simultaneous feeding of film from a plurality of film rolls.

8. In a film dispenser the combination of a plurality of film rolls, a plurality of feed rolls each feeding film from a different film roll with the film passing over and being in engagement with the feed roll, means adjacent each of said feed rolls having an active position where said means is effective to retain the film in spaced relation with the feed roll and an inactive position where said means is ineffective for this purpose, a rotatable shaft adjacent to and generally parallel with said feed rolls and carrying said means with the means being moved to and from its active and inactive positions by rotating the shaft, a cam follower in the form of a lever secured to one end of each of said shafts, a separate cam for each follower mounted on a stub shaft for rotation about its axis with the follower being urged into engagement with the periphery of the cam, each of the cams being effective throughout a portion of their rotation to position the follower so said means occupies its inactive position and throughout the remainder of its rotation to position the follower so said means occupies its active position, and a common drive for the several cams operatively connected therewith to simultaneously rotate the same, with the cams being relatively out of phase so that only one of said means may occupy its inactive position at a time.

9. The organization of claim 8 wherein the common drive comprises a gear train including a gear mounted on each of the stub shafts and an operator for the gear train.

10. The organization of claim 8 wherein said operator includes indicator means effective to indicate which of the feed rolls is effective to feed film for various positions of the operator.

References Cited in the file of this patent

UNITED STATES PATENTS

1,346,970	Ohmer et al.	July 20, 1920
1,701,361	Elliott	Feb. 5, 1929
2,789,816	Haringx	Apr. 23, 1957