

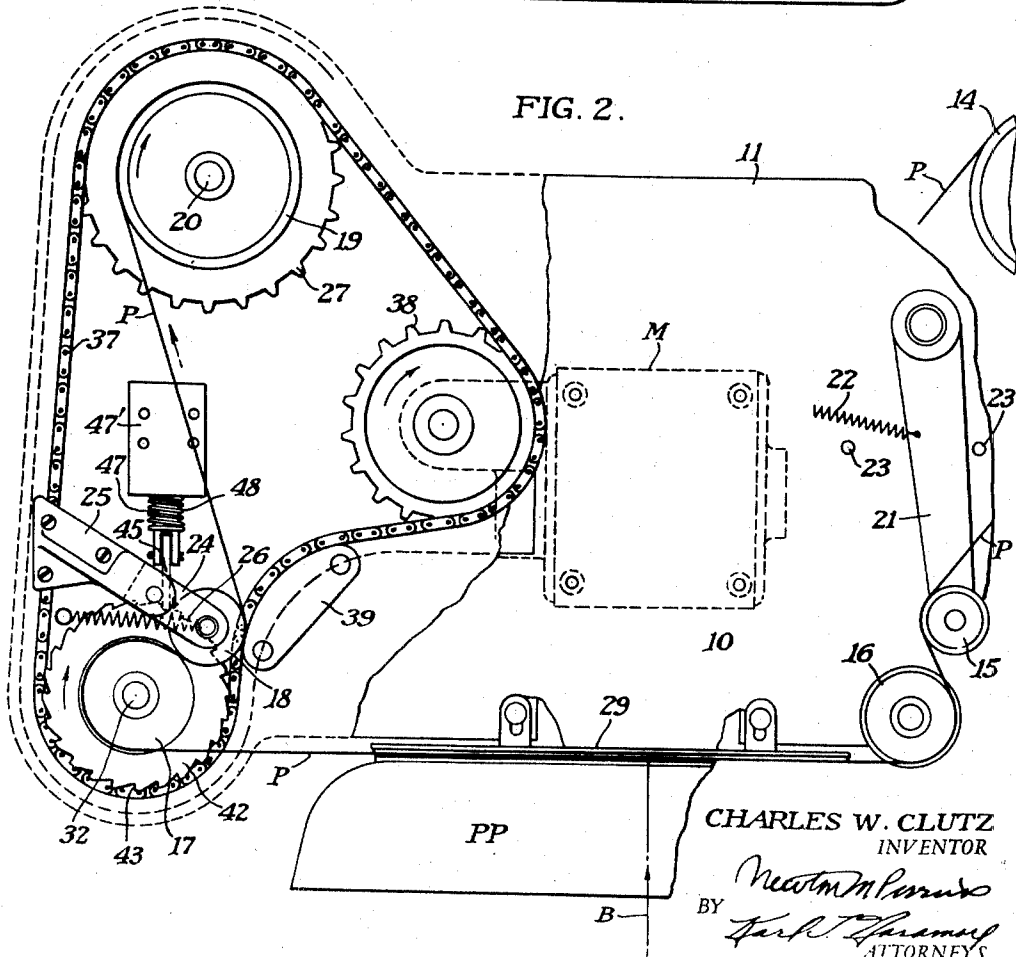
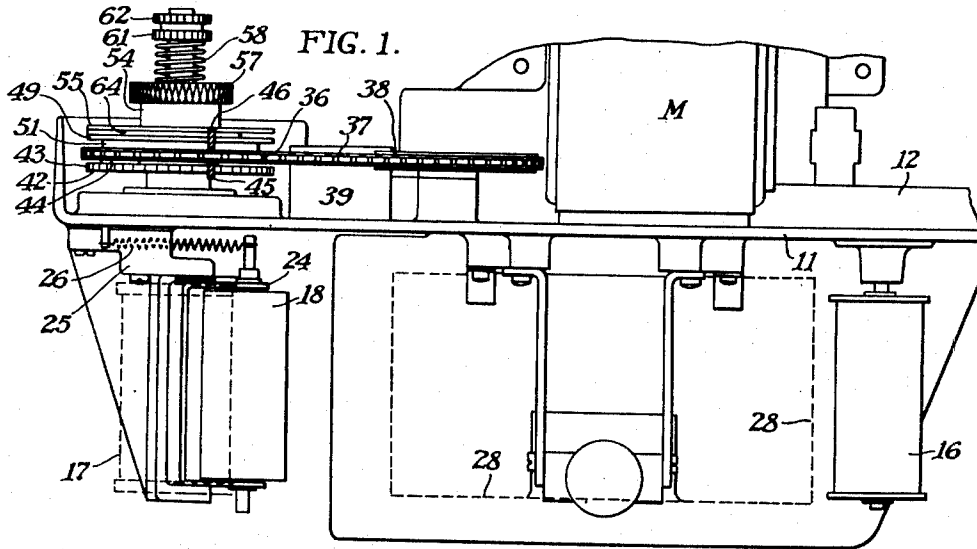
Feb. 13, 1951

C. W. CLUTZ
WEB FEEDING APPARATUS

2,541,013

Filed Jan. 10, 1948

2 Sheets-Sheet 1



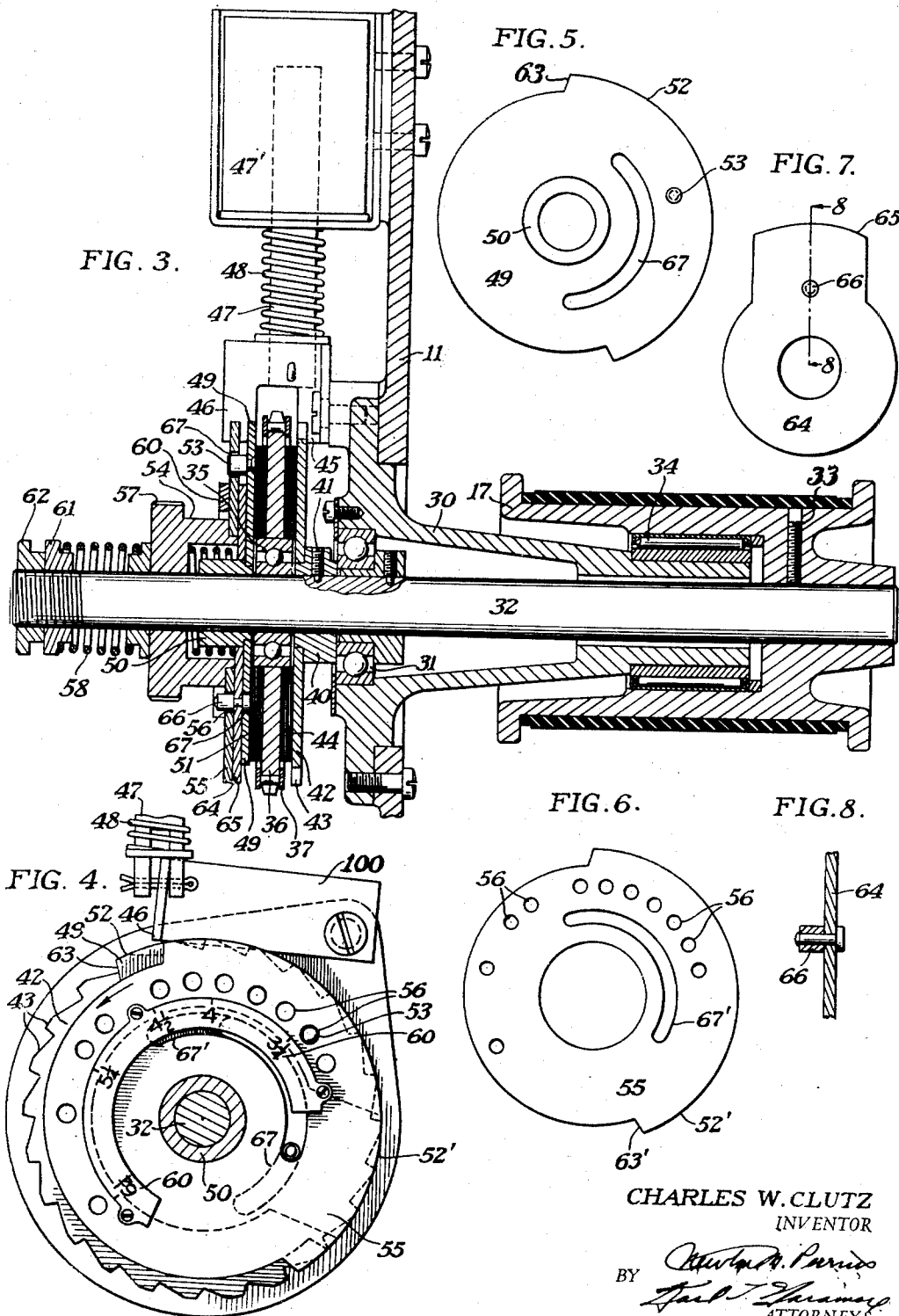
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2 Sheets-Sheet 2



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2,541,013

WEB FEEDING APPARATUS

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The present invention relates to photographic printers in which successive lengths of light-sensitive paper are moved into the printing plane for exposure, and particularly to an adjustable paper-feed mechanism by the use of which different lengths of paper can be automatically moved into the printing plane, depending upon the size of print desired.

There are projection printers available on the market which are adapted to accommodate photographic negatives of all sizes and make standard size prints which vary from 3" x 3½" to 3½" x 6½" including the borders. In the operation of these printers it is customary to place the negatives individually, or in strip form, in a negative carrier and individual sheets of printing paper of the proper size are fed into the printing plane; the size of the paper depending upon the size of print to be made. By the use of interchangeable lenses and/or the location of the negative, horizontally or vertically in the negative carrier, it is possible to standardize the width of the printing paper at 3½".

In order to speed up the production on these printers, it has been suggested that the printing paper be handled in strip form and be automatically intermittently fed into the printing plane in lengths commensurate with the print size desired. Such a procedure eliminates the necessity of the operator having to feed individual sheets of printing paper into the printing plane for exposure and then remove them after exposure and therefore allows him, or her, to confine their efforts merely to loading the negative into the negative carrier. A complete roll of paper, after exposure, can then be processed in strip form, thereby cutting down on the processing job ordinarily requiring the handling of individual prints.

Accordingly, a roll-paper head has been designed for application to existing projection printers which permits the printing paper to be fed from a large supply roll intermittently into the printing plane for exposure and then to a take-up roll. In order to be useful to commercial photofinishers, this roll-paper head must have a paper feed which will accommodate all of the standard print sizes and therefore must be capable of feeding lengths of paper varying from 3" to 6½"; the 3½" dimension common to all prints being used as the width of the paper strip. The problem of providing adjustable web-feeding mechanisms which will intermittently feed different lengths of a web has been long

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existent, and the many solutions to this problem have resulted in rather complex mechanisms which constantly require adjustment and supervision to keep them in proper operating condition.

One object of the present invention is to provide an adjustable web-feeding mechanism, adapted for intermittently feeding different desired lengths of a continuous web past a given point, which is simple and rugged in construction; accurate to within $\pm\frac{1}{64}$ of an inch in its feed, and compact enough to be adapted to a roll-paper head attachable to existing photographic printers as an accessory unit.

Another object of the present invention is to provide an adjustable web-feeding mechanism whose feed can be readily altered.

And a further object is to provide an adjustable paper feed wherein the paper strip is pulled from a supply roll by the partial rotation of a measuring feed roll engaging the paper and feeding it to an over-running take-up roll; the amount of rotation of the measuring feed roll determining the length of paper being fed.

And, yet another object is to provide an adjustable paper feed of the type set forth wherein the rotation of the measuring feed roll is effected by a pawl and ratchet controlled friction clutch; the ratchet being masked by an adjustable masking cam which controls the amount of rotation transmitted to the measuring roll and, consequently, the length of paper fed thereby upon any single operation.

The novel features that I consider characteristic of my invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and its methods of operation, together with additional objects and advantages thereof, will best be understood from the following description when read in connection with the accompanying drawings, in which

Fig. 1 is a partial top plan view of a roll-paper head adapted to be applied to existing projection printers as an accessory unit and incorporating an adjustable paper feed constructed in accordance with a preferred embodiment of the present invention;

Fig. 2 is a partial front elevation of the roll-paper head shown in Fig. 1 with the mechanism plate broken away from the left-hand side to clearly show the driving means for the take-up spindle and measuring feed roll. The supply roll of paper is indicated out of position in this view because of lack of space;

Fig. 3 is a vertical section taken through the measuring feed roll and the drive therefor;

Fig. 4 is a rear elevational view of the drive for the measuring feed roll and showing the pawl engaging the masking cam for the ratchet as it does just after the start of a feeding operation;

Fig. 5 is an elevational view of the cam member forming a part of the composite masking cam which is connected to the sprocket by a friction drive;

Fig. 6 is an elevational view of the adjustable cam member forming a part of the composite masking cam;

Fig. 7 is an elevational view of the third cam member constituting a part of the composite masking cam; and

Fig. 8 is a sectional detail taken substantially on line 8—8 of Fig. 7.

Like reference characters refer to corresponding parts throughout the drawings.

While the present invention is shown as a part of a roll-paper head adapted to be attached to the top of existing projection photographic printers for the purpose of automatically feeding proper lengths of light-sensitive paper in strip form across the focal or printing plane of the printer, it is pointed out that this feed is adapted for use on any type of apparatus where the feeding of different lengths of any type of web is necessary.

Briefly, the present invention is shown as a part of a roll-paper head comprising a friction-retarded supply spindle on which a supply roll of paper is mounted, a driven take-up spindle for taking up the exposed paper, and a rubber-surfaced feeding and measuring roll which pulls measured amounts of paper from the supply roll and across the focal plane and thus feeds it to the take-up roll. The take-up spindle and the measuring feed roll are driven through friction clutches which each includes a constantly driven sprocket connected by a common chain to a drive sprocket geared to an electric motor.

The driven member of the clutch on the measuring roll is a ratchet fixed to the shaft on which the feed roll is mounted. A pawl, associated with this ratchet, controls the driving engagement between the feed roll and the driving member of the clutch. When the pawl drops down under the action of a spring to engage the teeth of the ratchet, the feed roll is held stationary and when the pawl is retracted by a solenoid, controlled by a foot switch, the ratchet is freed and the feed roll starts to drive and continues until the pawl is again allowed to drop down and engage the ratchet teeth.

The start and duration of drive of the feed roll is controlled by a composite masking cam which is also frictionally connected to the driving sprocket of the clutch and the effective cam portion of whose periphery acts to hold the pawl out of engagement with the ratchet teeth for a selected partial rotation of the feed roll. After an exposure has been made, the pawl lies in engagement with the ratchet because it has dropped off the effective cam portion of the masking cam. When it is desired to make the next paper advance, the solenoid is energized by operation of a foot switch to withdraw the pawl from engagement with the ratchet and masking cam whereupon the feed roll and masking cam immediately start to advance. Then, although the solenoid is almost immediately deenergized and the pawl falls, the effective periphery of the masking cam holds the pawl out of engagement

with the ratchet, and the feed roll and cam continue to rotate until the pawl drops off the end of the effective cam surface of the masking cam and reengages the ratchet to stop the feed roll. The cam continues to rotate until the leading edge of its effective surface comes into engagement with the pawl; then it is held against rotation by the pawl along with the ratchet. The masking cam thus recycles itself to a start position while the paper is stationary during exposure; this recycling operation resulting from the friction drive provided for the cam.

To permit the feeding roll to advance different lengths of paper for different-sized prints, the masking cam is made so that its effective cam surface can be varied in length. To this end, the cam is composed of two like cams in face-to-face relation; one being adjustable relative to the other to alter the effective length of the cam surfaces thereof. In order to adapt the feed to handle lengths of paper varying from 3" to 6½", a third cam is added to the two just mentioned. This third cam is sandwiched and floats between the first two cams and includes a pin extending therethrough which engages an arcuate slot in each of the other two cams. This pin and slot connection between the third cam and the other two limits the relative rotation of the three cams and provides the necessary connection between the third cam and the adjustable one of the other two.

Referring now to the drawings, a preferred embodiment of the present invention is shown as a part of a roll-paper head 10 comprising a vertical mechanism plate 11 having a horizontal flange or supporting plate 12 on the bottom thereof for attaching the head to the top of an existing projection-type photographic printer wherein the image to be printed is projected upwardly onto a printing plane, as indicated in Fig. 2, where PP indicates the top of a projection printer. Since this type of printer is well known, it has not been shown in the drawings, but to indicate the location of the printing plane, the axial beam of the upwardly projected rays of the printer has been indicated as B in Fig. 2.

Looking at the front of the roll-paper head, as shown in Fig. 2, rotatably mounted on the mechanism plate 11 at the upper right-hand corner of the head is a supply spindle, not shown, on which a supply roll of paper 14 may be slid. The paper is usually supplied on cardboard cores, and any suitable means, not shown, such as spring-retracted teeth mounted to move radially of the supply spindle to engage the core of the supply reel of paper, are provided to keep the roll of paper from turning freely on the spindle. Any suitable and known form of friction retard can be applied to the supply spindle to prevent the paper from feeding off thereof too freely.

The paper P, upon leaving the supply roll, passes over a tension roller 15 to guide roller 16 and thence horizontally across the printing plane of the head to a rubber-covered measuring feed roll 17, over a pressure roller 18 which acts to hold the paper in wrapped relation with the measuring feed roll and thence to the take-up roll 19 mounted on a take-up spindle 20 rotatably mounted on the mechanism plate 11 at the upper left-hand corner. It will be noticed that the guide roller 16 and the measuring feed roll 17 locate the paper in the printing plane of the head and, consequently, they have to be located accurately. The tension roller 15 is mounted on a pivoted arm 21 moved in a clockwise direc-

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tion by a spring 22 and is provided primarily for the purpose of keeping that portion of the paper moving through the printing plane under tension so as to hold it in a flat condition. Stop pins 23 extending from the mechanism plate into the path of movement of the arm 21 serve to limit movement of the arm in both directions.

Pressure roller 18 is carried by an arm 24 pivoted to a bracket 25 fixed to the mechanism plate 11 and is acted upon by spring 26 which pulls the roller downwardly to hold the paper in wrapped relation with the measuring feed roll 17. This pressure roller thus insures that there will be no slip between the paper P and the measuring feed roll 17; it also acts as a snubber to insure that portion of the paper lying in the printing plane being held under tension.

Since the take-up roll merely serves to take up the slack between the measuring feed roll and itself at intervals when the feed roll is operating, the take-up spindle may be driven by any suitable type of tendency drive which will not put too much pull on the paper when the same is stationary. I have provided a conventional type of friction clutch drive for the take-up spindle including a constantly driven sprocket rotatable relative to the take-up spindle and connected thereto by a disk connected to the spindle and between which and the sprocket there is located a disk of friction material. The driven disk and disk of friction material are forced against the face of the sprocket by an adjustable spring so that the force of the drive can be adjusted to any desired degree. Since such a friction drive is well known and, in fact, is a modification of the drive I have shown for the measuring feed roll 17, I have shown herein only the constantly driven sprocket thereof at 27 in order to show the tie-up between the drive for the take-up spindle and the measuring feed roll 17.

The horizontal flange 12 for attaching the roll head 10 to the top of the projection printer includes an exposure aperture 28 through which the projected negative image passes to the emulsion surface of the paper located in the printing plane. The top of said horizontal flange defines the printing plane and the paper is held flat against this surface by a platen 29 which is loosely mounted on the flange adjacent the exposure aperture to float relative to the paper and hold it flat in the printing plane due to its own weight. This platen need not be moved away from the paper before the latter is advanced, because the platen exerts only very little pressure on the paper and the top surface of the flange is cut away so that only the lateral margins of the emulsion surface of the film rub on the emulsion surface of the paper during its advance movement.

Coming now to the present invention which is the adjustable drive for the measuring feed roll 17, by the use of which different selected lengths of paper may be automatically intermittently fed across the printing plane of the roll paper head at the instigation of an operator, in Fig. 3 I have shown the support for the measuring feed roll 17 as a hollow spindle 30 fixed to and extending from the mechanism plate 11. Rotatably mounted in this spindle by a ball-bearing 31 is a shaft 32 on the end of which is mounted the measuring feed roll 17. The roll is fixed to the shaft by a set screw 33 and the roll and shaft are further journaled on a roller bearing 34 between the hub of the roller and the outside end of the spindle 30.

Rotatably mounted on the shaft 32 by a ball-bearing 35 is a constantly driven sprocket 36

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(see Fig. 3). This sprocket, as well as the sprocket 27 of the friction drive of the take-up spindle, are connected by a chain 37 with a third sprocket 38 which is constantly driven by a motor M through a suitable reduction gear (see Fig. 2). That reach of the chain between sprockets 36 and 38 passes over an adjustable guide 39 by adjustment of which the tightness of the chain may be varied and which also serves to increase the wrap of the chain with each of the sprockets 35 and 38.

Fixed to a collar 40 connected to the shaft 32 by a set screw 41 is a ratchet disk 42 having ratchet teeth 43 spaced around its periphery. This ratchet must be rotated in order to drive the measuring feed roll 17. A frictional driving connection between the sprocket 36 and the ratchet 42 is provided by friction disk 44 made of a suitable friction material, i. e., leather, cork, etc., which engages the adjacent faces of the sprocket and ratchet. I have shown the friction disk 44 as a separate member slidably mounted on the outer race of the ball-bearing 35, but it may be a facing forming a part of either the sprocket or ratchet disk.

Pivoted to the inside face of the mechanism plate 11 is a pawl 100, the engaging end of which is bent at right angles to the arm thereof and is U-shaped to provide two spaced engaging ends 45 and 46 adapted to bridge the sprocket 36 (see Fig. 3). This pawl is connected to the end of the plunger 47 of a solenoid 47' which is encircled by a compression spring 48 normally acting to move the pawl downwardly into an operative position wherein the finger 45 thereof engages a tooth of the ratchet disk 42. As will be clearly evident from Fig. 3, when the engaging end 45 of the pawl is in engagement with a tooth of the ratchet, the ratchet is positively held against rotation and the measuring roll is stopped, notwithstanding the fact that the sprocket 36 continues to rotate. When it is desired to start the drive, the operator merely energizes the solenoid 47' by closing a foot switch (not shown) whereupon the pawl will be pulled up into its inoperative position out of engagement with the ratchet teeth, and the friction drive will immediately pick up the ratchet and drive it along with the measuring feed roll 17. Such a condition is shown in Fig. 4.

To automatically control the duration of the drive of the measuring feed roll and make it adjustable for different lengths of web feed, I provide an adjustable composite masking cam, which will now be described, for holding the pawl in its inoperative position for a given degree of rotation of the measuring roll 17. This composite masking cam comprises a first cam member 49 of the form best shown in Fig. 5 and which is rotatably mounted relative to the shaft 32 but being carried on a sleeve 50 on the shaft. This cam member is frictionally connected to the opposite face of the sprocket 36 by friction disk 51 located on the shaft 32 between the sprocket and cam member. As shown in Fig. 5, this cam member 49 has an effective cam surface 52 which is of such a radius that when engaged by the end 46 of the pawl 100, it holds the pawl in its inoperative position in which the ratchet is free to drive the feed roll 17. (See Fig. 4.) Fixed to the cam member 49 and extending from the outside face thereof is a connecting pin 53.

Fixed to a sleeve 54 rotatably mounted on the shaft 32 is a second cam member 55 of the form best shown in Fig. 6 constituting a part of the

composite masking cam and which is of the same configuration as cam member 49. This cam member has a plurality of holes 56 spaced arcuately around its center and into which the connecting pin 53 on the first cam member is adapted to snap to positively connect the two cam members together in different positions of relative rotation. This second cam member has an effective cam surface 52' of the same radius and length as the effective cam surface 52 on the cam member 49 so that when the second cam is rotatably adjusted relative to the first, the effective cam surface of the second serves to extend the effective length of the other; or, in other words, the two together constitute an adjustable cam. For adjusting the length of the effective cam surface of the composite cam, a knurled flange 57 on the sleeve 54 is grasped by the operator and the sleeve and cam 55 are moved longitudinally of the shaft 32 against the action of compression spring 58 to disengage the connecting pin 53 from the hole 57 in the cam member 55. Then, while the cams 49 and 55 are disconnected, the cam member 55 is rotated relative to cam member 49 until the desired length of effective cam surface is obtained whereupon the sleeve 54 is released to allow the connecting pin 53 to engage the selected hole 56 in the cam member 55. (See Fig. 4.) An indexing scale plate 60 is mounted on the face of the second cam member 55 and is marked in one-quarter inch increments of paper feed length opposite successive holes 56 to facilitate adjustment of the composite cam. This interval of length is selected in the present instance because commercial photographic print sizes vary in one-quarter inch intervals between three and six and one-half inch lengths. By adjusting the nuts 61 and 62 on the end of shaft 32, the degree of drive in the friction clutches between the ratchet 42 and cam member 49 and the drive sprocket 36 can be adjusted.

Looking at Figures 3 and 4 it will be noticed that when the pawl 100 drops down to its operative position wherein the end 45 thereof will engage a tooth on the ratchet to hold the measuring feed roll against rotation, the end 46 thereof will engage the leading edge 63 of the effective cam surface 52 on cam member 49 and hold the composite cam against rotation. Now, when the solenoid is energized to raise the pawl to its inoperative position, both the ratchet and composite cam are simultaneously released and start to rotate under the action of their friction drives with the sprocket 36, as shown in Fig. 4. Now, when the pawl drops down upon release of the foot switch, the end 46 of the pawl engages the effective cam surface of the composite cam and the pawl will be held in such position that the end 45 thereof will not engage the ratchet teeth. The ratchet and composite cam continue to rotate until the end 46 of the pawl drops off the trailing end 63' of the composite cam whereupon the end 45 of the pawl drops into engagement with the ratchet and immediately stops the feed roll 17.

While the feed roll is stationary during the making of an exposure, the composite cam continues to rotate due to its friction clutch drive until the leading edge 63 of the effective cam surface again comes into contact with the end 46 of the pawl. Accordingly, the friction clutch drive of the masking cam allows the cam to recycle itself so that it is ready for controlling the web feed upon the next operation of the foot switch.

As pointed out above, in the present applica-

tion of this web-feeding mechanism the range of feeds to be accommodated extend from a minimum of 3" to a maximum of 6½". The minimum length of feed determines the length of the effective cam surfaces 52 and 52' of each of cam members 49 and 55 respectively and when the composite cam is adjusted to give this minimum length of feed, the two cam members will be adjusted so that their effective cam surfaces 52 and 52' will be axially aligned and act as one of the cams would alone. By adjusting the cam member 55 relative to the cam member 49, the effective cam surface of the composite cam can be extended to accommodate feeds up to 6" which is the sum of each of the individual effective cam surfaces 52 and 52' and, in this condition of adjustment, the leading edge of the cam surface on one cam member will abut the trailing edge on the other. This is, therefore, the extreme adjustment which can be obtained with these two cam members alone because if the cam member 55 were adjusted to the 6½" feed position, there would be a break between the two effective cam surfaces 52 and 52' which would allow the pawl to drop into operative position at the end of a 3" feed and stop the feed roll 17.

Thus, to extend the feed range of this drive from 3" to 6½", I have introduced into the composite masking cam a third cam member 64 of the form best shown in Figs. 7 and 8. This cam member has an effective cam surface 65 of the same radius of the effective cam surfaces 52 and 52' of cam members 49 and 55 respectively, and the length thereof is a little longer than the span which will exist between the adjacent ends of the cam surfaces 52 and 52' when cam member 55 is adjusted relative to cam member 49 to give a 6½" paper feed. The cam member 64 has a pin 66 fixed therein and extending from both faces thereof. It is rotatably mounted on the sleeve 54 between cam members 49 and 55 and is connected to said first two cam members by one end of the pin 66 extending into an arcuate slot 67 in the cam member 49 and the other end of the pin 66 extending into a similar arcuate slot 67' in the cam member 55.

While the arcuate slots 67 and 67' in each of the cam members 49 and 55 respectively are of the same length, they have different angular relationships in each of the cam members relative to the effective cam surfaces thereof as will be observed by a comparison of Figs. 5 and 6. Because of this pin-and-slot connection between the three cam members—49, 55, and 64—opposite ends of each of the arcuate slots 67 and 67' in the first two cam members will determine the angle of movement and/or position of the third cam member 64 and, hence, the angular position of the effective cam surface 65 thereof relative to the adjusted positions of the effective cam surfaces 52 and 52' of the first two cam members. Accordingly, as soon as the cam member 49 is adjusted to feed a length of paper over 6", the opposite ends of arcuate slots 67 and 67' and the two cam members 49 and 55 will locate and confine the ends of the pin 66 on the third cam member 64 in a position such that the effective cam surface 65 thereof spans the gap between the adjacent ends of the cam surfaces on cam members 49 and 55. On the other hand, when the composite cam is adjusted for any feed of 6", or less, the combined effective surfaces 52 and 52' of cam members 49 and 55 respectively will be capable of holding the pawl out of engagement with the ratchet for the desired length of time,

and the arcuate slots 67 and 67' will combine to confine the movement of the third cam member 64 so that its effective surface 65 cannot extend beyond the opposite ends of the effective surfaces 52 and 52' of cam members 49 and 55. Such a condition of adjustment is shown in Fig. 4 where the composite cam is adjusted for a feed of $3\frac{1}{4}$ ".

In the specific embodiment of the present invention disclosed, the paper feed is obtained with less than one complete rotation of the measuring feed roll 17. Accordingly, in order to obtain the $6\frac{1}{2}$ " feed, it is necessary that the effective circumference of the feed roll 17 be slightly greater than $6\frac{1}{2}$ ". It will be readily understood by those skilled in the art, however, that by connecting the ratchet 42 to the feed roll 17 through a suitable gearing, rather than directly as shown, then the feed roll could be rotated more than portions of one revolution for the desired feed of web. Such a change would be of no particular advantage in the present instance where the maximum feed desired is $6\frac{1}{2}$ " but might be desirable in arrangements requiring longer feeds which would require a feed roll of excessive size.

Inasmuch as all photographic print sizes are standardized in the trade at multiples of $\frac{1}{4}$ ", the disclosed arrangement is particularly adapted to photographic printers. The ratchet is so designed that the angle from one tooth to the next corresponds to exactly $\frac{1}{4}$ " paper length on the periphery of the measuring feed roll 17 and the feed is controlled by masking off a certain number of ratchet teeth corresponding to the number of quarters-of-inches in print length. My use of the ratchet and pawl and extending masking cam is such as to give a positive stop at the end of the paper advance and this is important because of the accuracy of $\pm\frac{1}{64}$ inch required. This drive has been found to be very accurate and quite insensitive to variations in paper tensions.

Another important feature of the present adjustable web-feeding mechanism is that it uses a plurality of parts identical with those used in the friction hold-back for the supply spindle and the friction over-running drive for the take-up roll. In fact, if the composite cam and pawl are left out of the drive for the feed roll and the ratchet is connected to the take-up spindle, this identical drive can be used for the take-up spindle. Furthermore, if the same parts are omitted and the sprocket is fixed against rotation, the drive can be used as a friction hold-back for the supply spindle.

Although I have shown and described certain specific embodiments of my invention, I am aware that many modifications thereof are possible. My invention, therefore, is not intended to be restricted to the precise details of construction shown and described, but is intended to cover all modifications coming within the scope of the appended claims.

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

1. An adjustable web-feeding mechanism comprising a measuring feed roll adapted to engage a web to feed measured lengths of the same past a given point; a continually rotating drive member; a driven member connected to said measuring feed roll for driving the same; a friction clutch connecting said driving and driven members together at all times; a stop movable to and from a normal operative position, wherein it is

in positive engagement with said driven member and holds it against rotation, means for optionally moving said stop from its operative position to free said driven member; and a cam member movable with said feed roll for engaging and holding said stop in its inoperative position immediately upon, and for a given part of, a rotation of said measuring feed roll after it is optionally moved to its inoperative position, said cam member being adjustable in length to vary the portion of a rotation of said measuring roll it will hold said stop in its inoperative position before it allows it to drop back to its operative position.

2. A web-feeding mechanism comprising a measuring feed roll adapted to engage a web to feed measured lengths of the same past a given point; a continually rotating drive member; a driven disc connected to said measuring feed roll for driving the same and having a plurality of ratchet teeth around its periphery; a friction clutch connecting said driving member and driven disc together at all times; a pivoted pawl movable to and from a normal operative position, wherein it engages the ratchet teeth of said driven disc to hold said disc against rotation; means for optionally raising said pawl to an inoperative position, wherein it is disengaged from said ratchet teeth; a masking cam movable with said ratchet and including a portion adapted to be engaged by said pawl immediately upon its being moved to its inoperative position and adapted to hold said pawl in its inoperative position for a given portion of the revolution of said measuring feed roll; and a driving connection between said masking cam and ratchet allowing the masking cam to move relative to the ratchet during the time said ratchet is stationary in order to recycle itself while the measuring feed roll is stationary.

3. A web-feeding mechanism according to claim 2 in which said masking cam is connected to said driving member by a friction clutch and is adapted to be held against rotation in a start position by said pawl when it is moved to its operative position relative to said ratchet.

4. A web-feeding mechanism for intermittently feeding measured lengths of a web past a given point and comprising a measuring feed roll adapted to engage the web to be fed; a driving shaft for said roll; a disc-type driving member rotatably mounted on said shaft; means for continually rotating said driving member; a ratchet toothed disc fixed to said shaft in face-to-face relation with one side of said driving disc; a disc of friction material between said driving disc and ratchet toothed disc providing a friction drive between the two discs; a pawl movable to and from an operative position wherein it engages the ratchet teeth to hold said driven disc and measuring feed roll against rotation; a disc-type masking cam rotatable relative to said shaft and in face-to-face relation with the other face of said driving disc and including a masking portion adapted to be engaged by said pawl when moved to its inoperative position for holding the pawl out of engagement with said ratchet teeth for a given portion of a single rotation of said ratchet-toothed disc; a second disc of friction material between said masking cam and driving disc providing a friction drive between the two; said pawl when in its operative position adapted to engage a stop on said masking cam to hold it in a start position with the leading edge of the masking portion thereof adjacent said pawl; and

means for optionally momentarily moving said pawl to its inoperative position, wherein it releases both said ratchet-toothed disc and said masking cam simultaneously, said cam adapted to hold said pawl in its inoperative position for a given portion of a revolution of said ratchet-toothed disc after which it allows said pawl to return to its operative position to stop said ratchet-toothed disc while the masking cam recycles itself to its start position during the time the measuring feed roll is held stationary.

5. An adjustable web-feeding mechanism comprising a measuring feed roll adapted to engage a web to feed measured lengths of the same past a given point; a continually rotating drive member; a driven disc connected to said measuring feed roll for driving the same and having a plurality of ratchet teeth around its periphery; a friction clutch connecting said driving member and driven disc together at all times; a pivoted pawl movable to and from a normal operative position, wherein it engages one of the ratchet teeth of said driven disc to hold said disc against rotation; means for optionally moving said pawl from its operative position to release said driven disc; means for engaging said pawl immediately it is optionally moved to its inoperative position and for holding it in said inoperative position during a given portion of a revolution of said driven disc; said last-mentioned means including an adjustable masking cam rotatably mounted adjacent said driven disc so that the effective cam surface thereof will be engaged by said pawl when moved to its inoperative position and hold the pawl in said position depending upon its effective length; means for adjusting the effective length of said cam to vary the amount of feed of said measuring feed roll; a friction drive between said masking cam and said drive member, and a stop on said cam adjacent the leading edge of the effective surface thereof adapted to be engaged by said pawl when it is in its operative position, whereby said cam is adapted to recycle itself to its start position independently of said driven disc during the time said driven disc and measuring roll are stationary.

6. An adjustable web-feeding mechanism according to claim 5 in which said masking cam comprises two like cams in face-to-face relation, a friction drive between one of said cams and said drive member, and means for positively connecting said second cam to said first cam in different positions of relative rotation so that the effective cam surface of one will serve to extend the effective cam surface of the other.

7. An adjustable web-feeding mechanism according to claim 5 in which said masking cam comprises two like cams in face-to-face relation and each having an effective cam surface less than 180° in length; a friction drive between one of said cams and said drive member; releasable latching means for positively connecting said two cams together in different positions of relative rotation; a third cam having an effective cam surface of such arcuate length as to span the space left between effective surfaces of said first two cams when they are adjusted relative to one another to introduce such a span; said third cam connected to each of said first two cams so that its effective cam surface will be caused to span any space left between the effective surfaces of said first two cams due to a relative rotative adjustment of the cams.

8. An adjustable web-feeding mechanism according to claim 5 in which said masking cam comprises two like cams in face-to-face relation and each having an effective cam surface less than 180° in length; a friction drive between one of said cams and said drive member; releasable latching means for positively connecting said two cams together in different positions of relative rotation; a third cam having an effective cam surface of such arcuate length as to span the space left between effective surfaces of said first two cams when they are adjusted relative to one another to introduce such a span; a double-ended pin extending through and fixed to said third cam, opposite ends of said pin extending into an arcuate slot provided in each of said first two cams, whereby when one of said first two cams is adjusted relative to the other by an amount such as to cause a span between the ends of the effective cam surfaces thereof the third cam is moved so that its effective surface closes said span and the effective surfaces of the three cams combine to form one effective cam surface.

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