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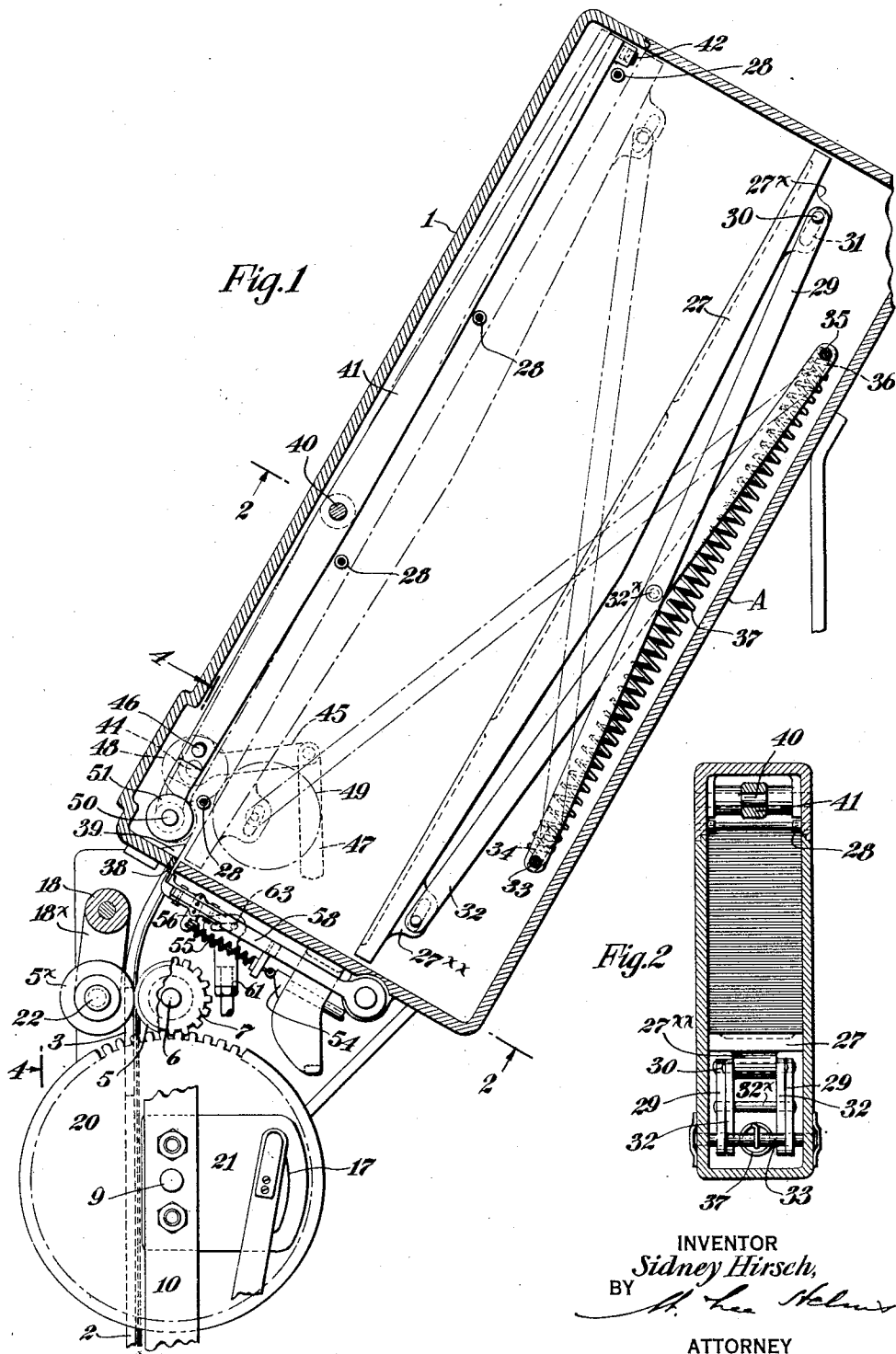
S. HIRSCH

1,775,643

FILM STRIP FEEDING MEANS FOR CAMERAS

Filed Dec. 22, 1927

3 Sheets-Sheet 1



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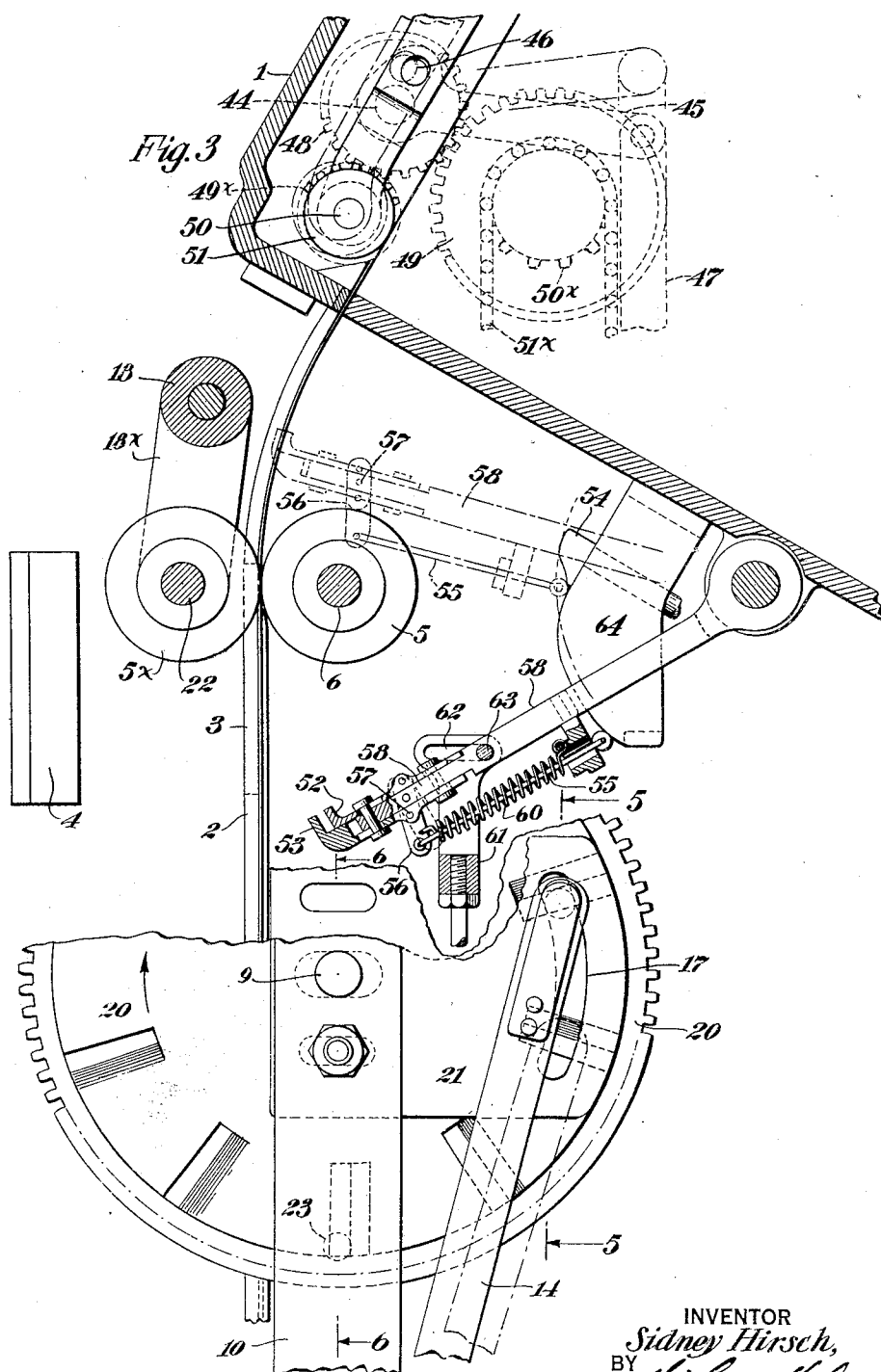
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FILM STRIP FEEDING MEANS FOR CAMERAS

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3 Sheets-Sheet 2



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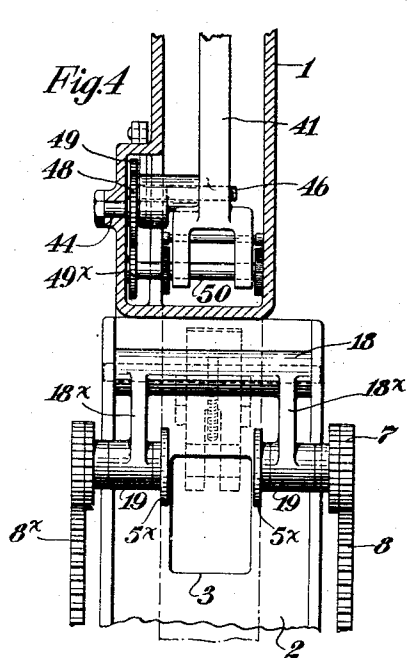
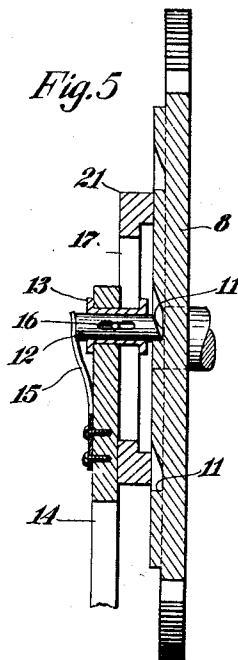
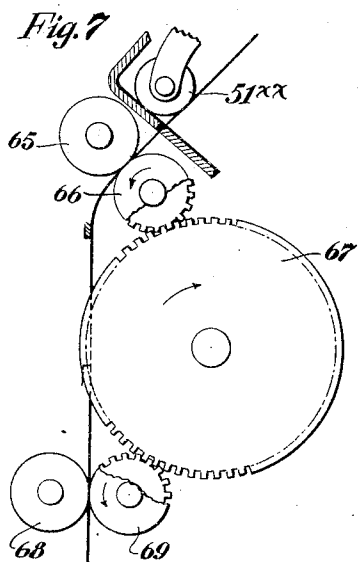
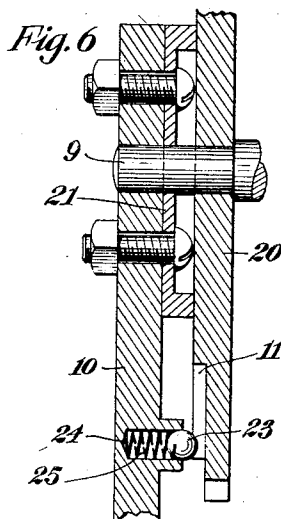
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FILM STRIP FEEDING MEANS FOR CAMERAS

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3 Sheets-Sheet 3



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FILM-STRIP-FEEDING MEANS FOR CAMERAS

Application filed December 22, 1927. Serial No. 241,796.

The object of the present invention is to provide feeding means for separating a strip of sensitized material from a stack, and feeding the same through step by step motion before the lens of a camera. The invention provides means whereby a film-pack may be employed in automatic portraiture cameras of a type in which a plurality of portraits are automatically produced upon a strip of sensitized material such as paper.

The invention will be described with reference to the accompanying drawings in which—

Figure 1 is a side elevation of an embodiment of the invention, showing the strip-box in section;

Figure 2 is a transverse section on the line 2—2, Figure 1;

Figure 3 is an enlarged sectional side elevation of the construction shown in Figure 1, the lower portion only of the strip box being shown, and the strip pull-lever being shown by dotted lines in position toward the end of an active stroke and in full lines at its final released position;

Figure 4 is a front sectional elevation on the line 4—4, Figure 1;

Figure 5 is a vertical section on the line 5—5, Figure 3, showing the intermittent feed actuator mechanism;

Figure 6 is a vertical section on the line 6—6, and

Figure 7 is a view of a modified form of strip actuator mechanism.

In the drawings, A indicates a rectangular casing having a removable cover 1 and intended to hold strips of sensitized material placed side by side in "pack" form, the strips extending lengthwise of the container. Below the casing is a frame work supporting a substantially vertical front plate 2 having an aperture 3 for the passage of the image to the sensitized strip.

In Figure 3 I have diagrammatically shown the position of the lens mounting at 4. It will be seen that immediately above the image opening 3 there are provided opposed strip feeding rolls 5, 5*. Rolls are intermittently driven for that purpose. The shaft 6 carries a pinion 7 in mesh with the

gear wheel 8. Gear wheel 8 is mounted on a shaft 9 supported by a vertical frame member 10. The wheel is provided with teeth 11 for engagement by a stud-pawl 12 supported for endwise movement in a bushing 13 held by pawl lever 14, the lever carrying a leaf-spring 15 for holding the stud-pawl in yielding engagement with the wheel. The stud-pawl may be longitudinally slotted to receive a pin 16 held by the bushing so as to hold it in place.

Lever 14 may be reciprocated from a crank or eccentric as will be understood without further explanation. In its reciprocation the lever carries stud-pawl 12 upwardly a distance slightly beyond that between two teeth and downwardly a corresponding distance. The effective action of the stud-pawl is through engagement with the lower horizontal face of each tooth 11 and that face extends for a considerably greater length than the diameter of the stud-pawl. The pawl follows an arcuate path being guided by an arcuate slot 17 in a plate 21, which plate can be adjusted to carry the arcuate slot toward and from the periphery of the gear wheel 20. In this manner the effective length of each intermittent movement of gear wheel 20 may be adjusted, it being obvious that if the stud-pawl 12 is moved toward the periphery of the gear wheel and is given an effective movement equivalent to the distance between the teeth at that point, a relatively greater movement will be imparted to the gear wheel than before.

Gear wheel 20 imparts intermittent motions to pinion 7 which, through its connection with shaft 6, gives an intermittent motion to two spaced rubber rolls, one of which is shown at 5, Figure 1, one of the rolls being on shaft 6, and the co-axial roll being on a separate stub shaft suitably supported. Opposite rolls 5 are spaced rolls 5* which are carried, respectively, by a shaft 22, Figure 1, and a co-axial spaced stub shaft, both shafts being carried by a hanger comprising the sleeve 18, arms 18* and shaft carrying bosses 19, Figure 4. Any suitable means may be provided for pressing the hanger inwardly so as to carry the rolls 5* normally into con-

tact with the rolls 5. It will be seen that the arrangement provides a yielding pressure upon the margins of a strip which may be brought between the rolls and that through the intermittent actuation the strip will be fed by intermittent movements downwardly across the aperture 3 for the passage of the image to the strip. The shaft carrying the roll companion to 5 Figure 5, and co-axial therewith, may be driven by a gear 8* similar to 8, the shaft having a pinion (not shown) in mesh with gear 8*. The frame member opposite gear wheel 20 is provided with a pocket 25 (Figure 6) to receive a ball 23 spring-pressed by spring 24 and adapted to engage a wall of each tooth 11 and thus hold the gear wheel against movement during the upward or idle reciprocations of pawl lever 14.

20 The strip holding box A is adapted to receive a "pack" of sensitized strips which are arranged with the emulsion faces toward cover 1, the rearmost strip being engaged by a pressure plate 27 which is spring-pressed forwardly so as to carry the foremost strip against contact studs 28. To this end link 29 carries a pin 30 entering a slot 31 formed in lug 27* of the pressure plate and link 32 has a similar connection with lug 27** of the pressure plate at the opposite end thereof. The two links are pivoted together at 32* and link 29 carries a pin 33 entering a slot 34 formed in casing A. Link 32 carries a stud 35 entering a slot 36 formed in casing A. A coiled spring 37 engaging the rear end of each link tends to move them to the dotted line position, Figure 1, carrying the pressure plate forwardly toward the studs 28, so that the foremost strip lies exactly in register with a slot 38 formed in the bottom wall of the casing A. Above slot 38 may be formed a stop 39 to cooperate with studs 28 in holding the foremost strip in register with the slot.

45 Pivoted within the casing at 40 is a lever 41 having at its top end a rubber or other yielding contact member 42. Pivoted on a side wall of the casing at 44 is a lever 45 having an eccentric connection 46 with lever 41. A link 47 leads down to a timed actuating member. Mounted on shaft 44 is a pinion 48 in mesh with a gear 49 driven by means of a sprocket 50* and chain 51. Pinion 48 is in mesh with a pinion 49* on a shaft 50 which carries a yielding-surfaced feed roll 51. Chain 51* may be continuously actuated so as to continuously drive feed roll 51. Inasmuch as feed roll 51 is carried by lever 41, it partakes of the movements of the latter. Upon actuation of link 47, lever 45 is given an operative movement to swing the lever so as to carry feed roll 51 in one of two directions. A downward movement of link 47 brings the feed roll into engagement with the foremost sensitized strip and feed

roll 51 is maintained in contact with the strip until its end is fed through opening 38 and between the jaws of a gripper, the jaw members being indicated at 52 and 53.

When the end of the strip enters the jaw members, a reverse movement is given to link 47 and lever 41 is rocked to carry feed roll 51 away from the strip and to carry contact member 42 firmly into engagement with the succeeding strip and the film "pack" as a whole, clamping the "pack" between said contact member 42 and the pressure plate 27. At this instant a cam member 54 is moved rearwardly by suitable mechanism and retracts from a rod 55 connected to a lever 56, fulcrumed at 57 upon a supporting bar 58 for the jaw members. Lever 56 is pivoted to jaw member 53 at 57 and to jaw member 52 at 58 (Figure 3), and a spring 60 acts upon rod 55 to normally hold the jaw members 52, 53 together in gripping relationship. Thus the retraction of cam member 54 closes the jaws upon the end of the strip.

When the jaws are closed upon the end of the strip in the manner thus described, a link 61 having its slotted end 62 connected to pivoted gripper bar 58 by pin 63 is actuated by any suitable member to swing the gripper members downwardly, carrying with them the strip and pulling the same between the feed rolls 5, 5*. A cam member 64 at this point acts upon gripper rod 55 to release the gripper jaws and the gripper continues its movement until it reaches the position shown in full lines, Figure 3, remaining in that position until the entire strip has been fed across the path of the lens by the feed rolls 5, 5* and passes out of the path of the gripper, whereupon the gripper is restored to its initial position, as shown in full lines, Figure 1.

In Figure 7 I have shown a modification in which the gripper is eliminated and driven feed roll 51** passes the sensitized strip directly into engagement with the feed rolls 65, 66 which are given intermittent movements by gear 67, also driven intermittently, and which drives supplemental feed rolls 68, 69 for continuing the movement of the strip after it has passed beyond the range of rolls 65, 66.

This is one of several modifications which might be made in the device without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent being as follows:—

1. In devices of the character described, a casing adapted to hold a plurality of sensitized strips and means for ejecting the strips from said casing comprising a gripper member having a movable jaw, the member being pivoted, means for moving the jaw into engagement with a strip, means for thereafter swinging the gripper toward an image path, and means for subsequently retracting the jaw from the strip so as to release the latter.

2. In devices of the character described, a casing formed with a discharge aperture, contact devices in line with an edge of said aperture, pressure members for carrying a "pack" of sensitized strips into engagement with said contact members and for exerting a pressure thereupon, means acting upon the foremost strip to move the end of the same out of said opening, a gripper member having a movable jaw adapted to grip said ejected end of the strip, means for imparting a movement to the gripper member whereby the strip is carried into engagement with members adapted to carry the strip across an image path.

3. A device constructed in accordance with claim 2 in combination with means acting upon the gripper jaw to release the same from the strip after the gripper member has moved to a predetermined position.

In testimony whereof, I have signed my name to this specification.

SIDNEY HIRSCH.