

April 1, 1952

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2,591,519

FILM REGISTERING AND MOUNTING DEVICE

Filed Oct. 7, 1948

2 SHEETS—SHEET 1

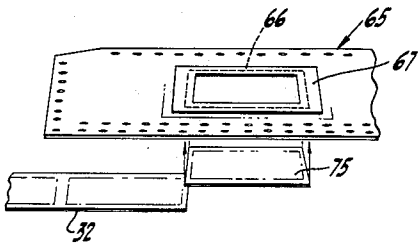
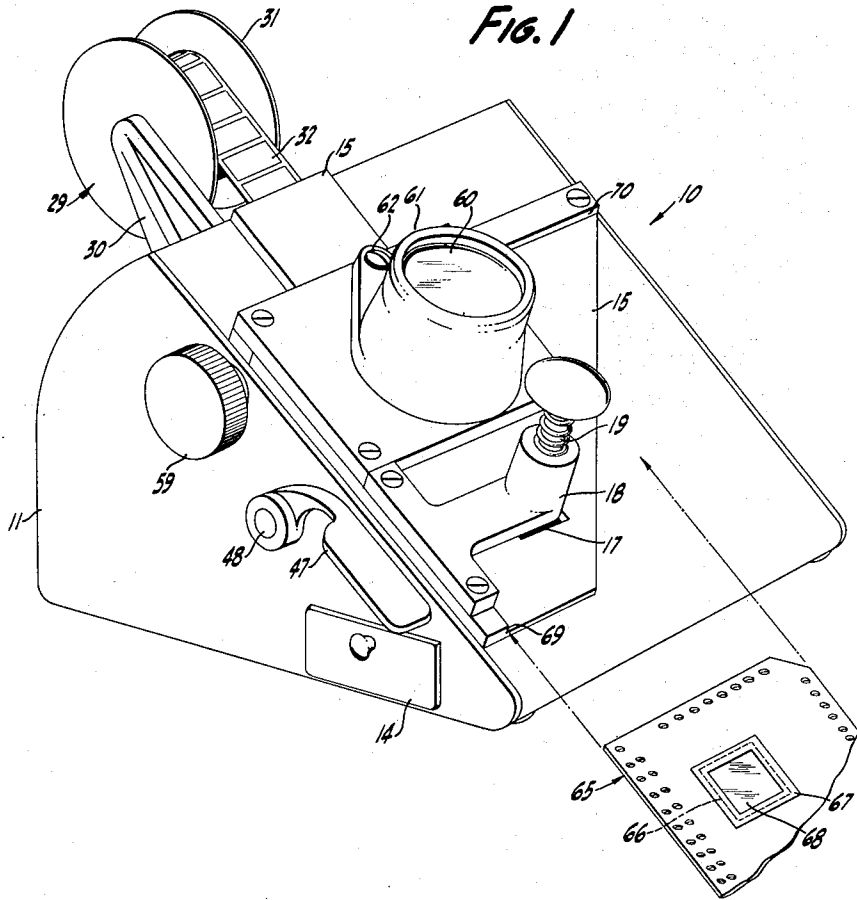


FIG. 4

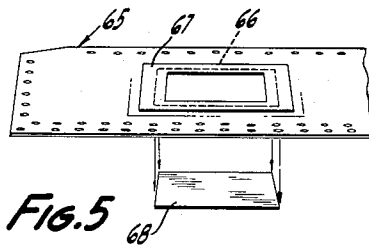


FIG. 5

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2 SHEETS—SHEET 2

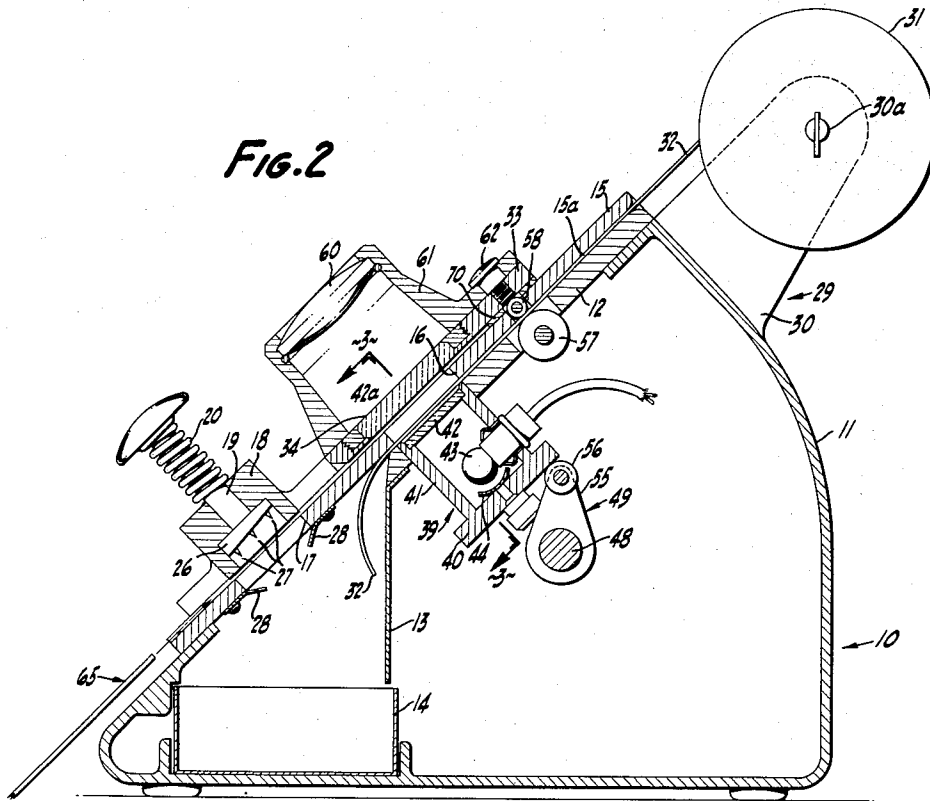


FIG. 2

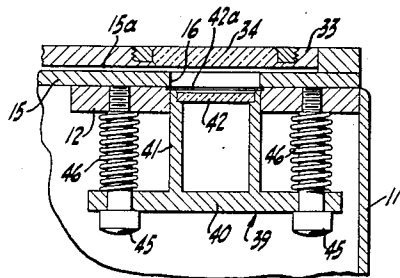


FIG. 3

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# UNITED STATES PATENT OFFICE

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## FILM REGISTERING AND MOUNTING DEVICE

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8 Claims. (Cl. 216—22)

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This invention relates to a film spotting machine. More particularly, it relates to a machine for registering and mounting a frame of a microfilm exposure in a die cut opening in a record or statistical card or the like.

Machines have been provided for the purpose of spotting microfilm exposures over die cut windows or openings on record cards, statistical cards and the like, and for severing individual exposures and affixing them to such cards in registry with the openings or windows formed therein. Cards of the character described may be of any design, and they may be intended to serve any particular purpose. Thus, marginally punched cards of the type known as "Keysort" may be used. Such cards may be die cut in their body portion to provide a square or rectangular window or opening, with the object of framing a microfilm exposure in each such window, such exposure bearing a record pertinent to its card. The card may be marginally notched or otherwise perforated to code it for classification purposes.

Such machines as have been designed for this purpose heretofore are disadvantageous because of their complexity, high cost, difficulty of manipulation and likelihood of getting out of repair.

It is an object of the present invention to provide a machine of the character described which is of simpler design and lower cost.

It is a further object of the invention to provide a machine of the character described, which is simple of design, easily fabricated, easily manipulated and capable of rapid operation.

These and other objects of the invention will be apparent from the ensuing description and the appended claims.

One form which the invention may assume is exemplified in the following description and illustrated by way of example in the accompanying drawings in which:

Fig. 1 is a perspective view of the machine of the invention.

Fig. 2 is a vertical section through the machine.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a plan view of a card having a die cut opening formed therein.

Fig. 5 is a plan view of a similar card with a microfilm exposure affixed to the card.

Referring now to the drawings, and more particularly to Figs. 1 and 2, the machine, generally

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designated as 10, comprises a housing 11 of generally right triangular vertical cross section. Affixed to or integral with the upper and rearward end of the housing, and extending downwardly and forwardly therefrom, is a guide plate 12 which is tapered at its forward end, as shown. An apron 13 is provided at the forward end of the guide plate 12, such apron extending downwardly approximately to the level of a hopper 14 disposed within the bottom of the housing 11.

A female die plate 15 is also provided, such plate being disposed parallel to the guide plate 12 and spaced somewhat therefrom to provide a guide throat 15a. As illustrated, the female die plate 15 extends forwardly and downwardly nearly to the bottom of the housing 11, and it is provided at about its mid portion with a rectangular die opening 16 and forwardly and downwardly therefrom with another opening 17. Above the opening 17 and reciprocable within a bracket 18 secured to the housing, is disposed a knockout plunger 19, which is urged upwardly by means of a coil spring 20 and which is provided with a flat base 25 from which project prongs 27. Strippers 28 are secured to the undersurface of the die plate 15 below the opening 17.

At the rear of the housing 11 and near its top is provided a roll support generally designated as 29 and comprising a bracket 30 and a rotatable shaft 30a, which supports a roll 31 of film 32. As shown, the film 32 is threaded through the feed throat 15a for a purpose explained hereinafter.

A male die generally designated as 39 is also provided, such die being disposed within the housing 11 underneath and in alignment with the female die opening 16. The male die 39 comprises a flat base 40 and a hollow, rectangular body portion 41 adapted to reciprocate within the die opening 16 and having a close fit therewith. In its upper portion the hollow body 41 is provided with a ground glass plate 42 which is flush with and forms a part of the face 42a of the die 39. As illustrated, a lamp 43 and a reflector 44 are disposed within the hollow body 41 directly under the ground glass plate 42. The die 39 is supported by and is reciprocable on studs 45 which are threaded into the guide plate 12, and coil springs 46 operate to urge the male die 39 downwardly against the heads of the studs 45. An operating lever 47 is provided, being fixed to an operating shaft 48 to which a cam 49 is secured. The cam 49 is provided with a rise 55

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and a roller 56. It will be seen that, upon depressing the operating lever 47, the operating shaft 48 and the cam 49 are rotated counterclockwise as viewed in Fig. 2. Such rotation is limited to an angle of about 30° and to a position not quite perpendicular to the base 40 by any suitable stop means (not shown). Thus, it will be seen that by depression of the operating lever 47, the male die 39 is forced upwardly through the die opening 16 in the female die 15, and that on release of the lever 47 the springs 46 will operate to return the die 39 and the cam 49 to their rest positions as shown in Fig. 2.

Feed rollers 57 and 58 are also provided, the roller 57 being actuated by a twirler knob 59 and the roller 58 being driven by the roller 57. Also, a magnifying glass 60 is provided, such glass being secured to a housing 61 which is pivotally supported upon the pressure plate 33 by means of a pivot screw 62. It will thus be seen that the magnifying glass 60 may be swung into or out of viewing position in alignment with the die opening 16.

In operation the device functions as follows. A roll 31 of microfilm having, of course, the desired exposures thereon, is mounted upon the roll support 29, and the film 32 is threaded through the feed throat 15a and feed rolls 57 and 58. Threading of the film is aided by the twirler knob 59.

A card such as the marginally perforated "Keysort" card generally designated as 65 (see Fig. 4) is next provided. Such card is provided with a rectangular, die cut opening or window 66, and a border 67 of cellulose acetate or other suitable material is provided, such border being affixed to the card by any suitable pressure sensitive adhesive. As will be seen, the border 67 extends inwardly from the edges of the window 66, and the thus exposed surface of the border is provided with a pressure sensitive adhesive to which a glassine protective cover 68 is affixed.

The card 65 is placed face down on the female die plate 15 with its side edge against the guide 69, as shown in Fig. 2, and it is pushed upwardly until the window 66 is framed in the opening 17. The plunger 19 is then depressed, causing the prongs 27 to impale the glassine cover 68 and detach the cover from the card, carrying it downwardly through the opening 17 into the housing 11. The plunger 19 is then released and will, of course, be returned to its uppermost position by the coil spring 20. If the detached glassine cover 68 exhibits any tendency to adhere to the prongs 27, it will be stripped therefrom by means of the strippers 28 and caused to fall into the hopper 14, which may be removed from time to time and emptied.

The card 65 is next pushed upwardly, with its side edge still in abutment with the guide 69, until its top edge abuts the guide 70. The opening 66 in the card will then be precisely framed in the die opening 16. Meanwhile, the lamp 43 will have been turned on, thus providing a lighted background for viewing purposes. The twirler knob 59 will then be rotated forwardly to frame the first exposure in the card opening 66. The operator will meanwhile be viewing the card and exposure through the plate glass 34 and will know when the opening 66 and the exposure are in precise alignment. The operating lever 47 will then be depressed, thus causing the male die 39 to be thrust upwardly through the die opening 16. This will cut the exposure and will press the severed exposure tightly against the

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border 67 on the card 65, to which it will adhere by reason of the pressure-sensitive adhesive. Cuttings resulting from this movement of the die 39 will fall downwardly into the hopper 14, being guided thereinto by the apron 13. On release of the operating lever 47, it will, of course, return to its original position, as explained, thus causing retraction of the die 39 to its rest position in readiness for cutting and affixing the next exposure to the next card.

As explained, should it be desired for any reason to read the insignia on the exposure, as for example to insure that the exposure is affixed to the proper card, the magnifying glass 60 may be swung into operative position in alignment with the plate glass 34, and by this means the exposure may be read.

The final product is shown in Fig. 4, wherein it will be seen that an exposure 75 is affixed to the card 65.

It will thus be seen that a machine has been provided which is simple in design, semi-automatic in operation, easily manipulated, and unlikely to become out of repair. Such machine accomplishes several operations. Thus, it removes the glassine protective covers from cards of the character described. It also rapidly feeds film to the cutting dies, and rapidly registers each individual exposure with a card in precise alignment with the cutting dies, and it rapidly and accurately cuts each exposure and mounts it on a card in the proper position.

While I have shown the preferred form of my invention, it is to be understood that various changes may be made in its construction by those skilled in the art without departing from the spirit of the invention as defined in the appended claims.

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

1. A device of the character described, comprising a first pressure member having a transparent pressure surface, a source of illumination, a second pressure member having a translucent pressure surface disposed between said transparent surface and source of illumination, and means for moving one of said pressure members into and out of contact with the other.

2. A device of the character described, comprising a first pressure member having a transparent pressure surface, a second pressure member, illuminating means associated with said second pressure member, said second pressure member having a translucent pressure surface disposed between said illuminating means and transparent pressure surface, and means for moving one of said pressure members toward and away from the other member.

3. A device of the character described, comprising a pressure plate having a transparent portion, a movable pressure member including illuminating means and a translucent pressure surface disposed between said illuminating means and pressure plate, and means for moving said movable pressure member toward and away from said pressure plate.

4. A cutting and mounting device of the character described, comprising a female die having a die opening, a male die disposed on one side of said female die, illuminating means associated with said male die, said male die having a translucent die face disposed between said illuminating means and die opening and aligned with said die opening, a transparent pressure member disposed on the opposite side of said female die,

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and means for moving said male die through said die opening against said pressure member.

5. A cutting and mounting device of the character described, comprising a fixed female die having a die opening, a male die disposed on one side of said female die, illuminating means associated with said male die, said male die having a translucent die face disposed between said illuminating means and die opening and aligned with said die opening, a transparent pressure member disposed on the opposite side of said female die, manually operable means for moving said male die through said die opening against said pressure member, and automatic means for retracting said male die.

6. A cutting and mounting device of the character described, comprising a female die plate having a die opening formed therein, a pressure plate including a transparent glass portion disposed on one side of said die plate and in alignment with said die opening, a male die disposed on the opposite side of said die plate and in alignment with said die opening, said male die being provided with illuminating means and having a translucent die face in alignment with said die opening, and means for moving said male die upwardly through said die opening and against said pressure plate.

7. A device for cutting, registering and mounting microfilm exposures on cards of the character described, comprising a female die having a die opening, a transparent pressure plate disposed on one side of said female die in registry with said die opening, a complementary male die disposed on the opposite side of said female die and having illuminating means and a translucent die face in registry with said die opening, said translucent face being disposed between

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said die opening and illuminating means, means for feeding film between said die opening and die face, and means for moving said male die upwardly through said die opening against said pressure plate.

8. A device for cutting, registering and mounting microfilm exposures on cards of the character described, comprising a female die having a die opening, a transparent pressure plate disposed on one side of said female die in registry with said die opening, a complementary male die disposed on the opposite side of said female die and having illuminating means and a translucent die face in registry with said die opening, said translucent face being disposed between said die opening and illuminating means, means for feeding film between said die opening and die face, and means for moving said male die upwardly through said die opening against said pressure plate, said means comprising a lever, a cam operatively connected to said lever and rotatable thereby and bearing against said male die, and resilient means for returning said male die and cam to rest positions spaced from said die opening.

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