May 24, 1938. F. I. SMITH 2,118,239

FILING CASE

Filed Feb. 5, 1936

Fig. 1.

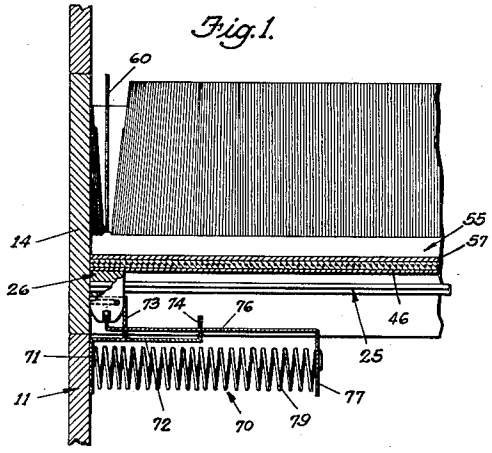


Fig. 2.

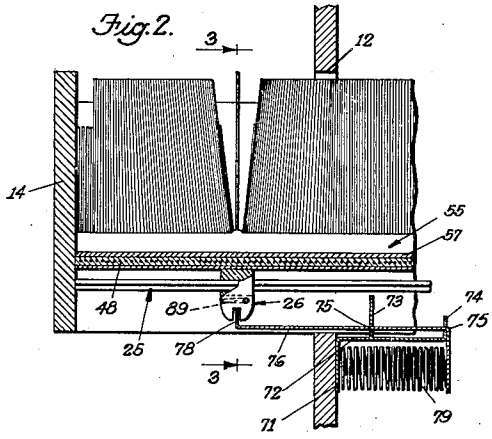


Fig. 3.

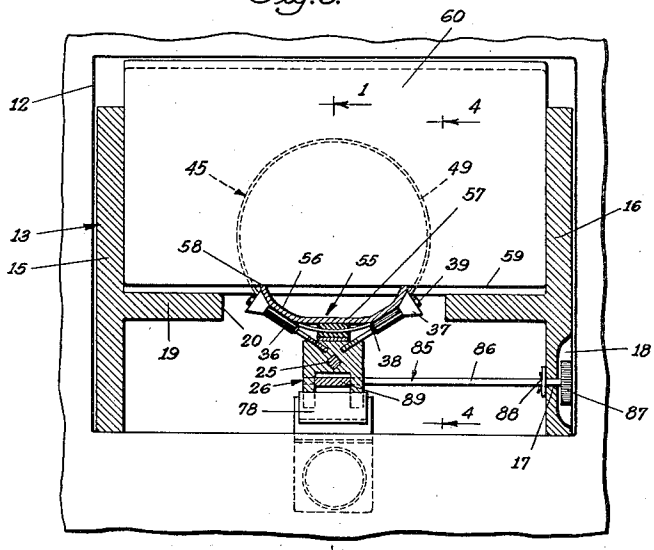


Fig. 5.

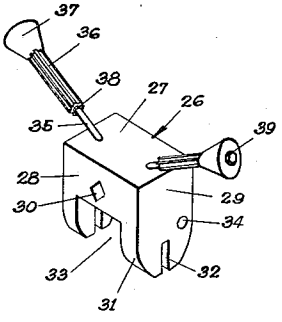
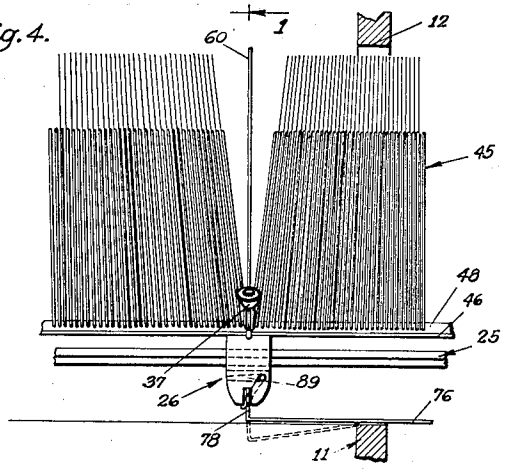


Fig. 4.



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Patented May 24, 1938

2,118,239

UNITED STATES PATENT OFFICE

2,118,239

FILING CASE

Floyd I. Smith, Los Angeles, Calif.

Application February 5, 1936, Serial No. 62,441

16 Claims. (Cl. 129—16)

My invention relates to a device for filing and developing a movement in cards or the like in a card filing drawer, cabinet, etc.

In various card filing devices such as card indexes of different types, it is customary to have a series of cards filed edgewise in a drawer, that is, the cards resting on their lower edges and the stack of cards is substantially vertical. In examining the cards it is customary for a person to tilt or space the cards apart, thus forming a so-called reveal, whereby the matter written on the cards may be more readily examined without removing the cards from the drawer. However, in many of such types of filing cabinets, it is customary to have the cards loose so that they can be removed.

In this type of filing cabinet, an object and feature of my invention is a device incorporated with the cabinet and drawer, which, when the drawer is opened, automatically inclines adjacent cards forming a reveal, and develops this movement from the front end of the drawer towards the rear end. Hence it is not necessary to finger or thumb the cards in order to have the writing clearly visible on each card in succession.

Another object and feature of my invention is at the time the cards are tilted or spaced to form a reveal, one or more of the cards is slightly raised or elevated above the other cards, thus directing attention to such card and facilitating reading the written matter thereon, and also the ready removal of the desired card.

Another object and feature of my invention is to incorporate the reveal forming and lift for the cards so that such device may be operated manually if the drawer is removed from the cabinet, thus without fingering the cards the moving reveal may be developed from substantially one end of a stack of cards to another.

Another feature of my invention as regards the reveal forming device in a cabinet is in utilizing a resiliently connected spacing device which, as the drawer is opened, causes the reveal to be formed at a particular location in front of the cabinet, this being so that the reveal will always be at a convenient distance in front of the front face of the cabinet.

More specifically, an object and feature of my invention is supporting the pack of cards on an elongated flexible strip of material. This strip is actuated to be distorted or partly elevated by devices connected to a carriage or slidable block which moves longitudinally on a guide track located in the drawer or below the strip supporting the cards. As this strip is flexed upwardly it develops a tilting movement of the cards forming a reveal and lifting the cards and passing from one side to the other of the reveal.

Another object and feature of my invention relates to forming a positive spacing device for the cards so that the individual cards are each a definite distance apart and yet separable one from the other within the pack. This spacing device is actuated by movement of the carriage block on the guide to discharge the flexible member and thereby develop the movement of the cards in forming the reveal and lifting the cards at the reveal. A more detailed object and feature of my invention in regard to the spacing device is forming this of a helically coiled wire, preferably a wire having considerable resilient properties and in which the individual cards may be placed between adjacent convolutions of the spacing wire.

My invention is illustrated in connection with the accompanying drawing, in which;

Fig. 1 is a longitudinal section through a cabinet and drawer with my invention installed therein, taken on the section line 1—1 of Fig. 3 in the direction of the arrows, certain portions, however, being shown in elevation, Fig. 1 illustrating the drawer in the cabinet.

Fig. 2 is a view similar to Fig. 1 with the drawer partly pulled out of the cabinet.

Fig. 3 is a transverse vertical section on the line 3—3 of Fig. 2 in the direction of the arrows.

Fig. 4 is a longitudinal section on the line 4—4 of Fig. 3 in the direction of the arrows. This illustrates the card moving device in elevation.

Fig. 5 is a perspective view of the slidable carriage block with the pinions and cones for exposing the reveal and elevating cards.

In my construction the front wall of a cabinet is illustrated by the numeral 11, this having an opening 12 in which there is a slidable drawer designated by the assembly numeral 13. The drawer has a front end 14, the rear end may be of the same construction, and is provided with opposite sides 15 and 16, the side 16 however having a longitudinal slot 17 and a longitudinal wide groove 18 in the side. The bottom 19 of the drawer has a wide longitudinal open space 20, thus the side portions of the bottom may be regarded as two opposite shelves extending longitudinally of the sides of the cabinet. In my invention I employ a longitudinal guide track or rail 25. This is illustrated as of square cross section with a diagonal vertical. This rodlike track is secured in the front and rear ends of the drawer in any suitable manner. Slidably mount-

ed on the track I employ a carrier block 26 (note particularly Fig. 5). This block is illustrated as having a flat top 27, front and rear parallel faces 28, vertical side faces 29, a square perforation 30 to fit the track 25. Each lower part of the front and rear face 28 has a downwardly and inwardly curved cam surface 31, this being in the form of a bevel, to deflect a detent hereinunder described. A transverse kerf 32 is for the reception of a portion of the detent, a longitudinal notch 33 is for the reception of the tongue of a key hereinafter described, this key operating through a transverse perforation 34.

The moving operating devices for the coil of wire and the cards utilize two axle rods 35 extending upwardly and outwardly on a slope from the top face of the block and on each rod is mounted a rotatable pinion 36 with an integral enlarged cone head 37. The pinion and cone head is held in place by means of a collar 38 on the axle rod and a nut 39 on the end of the rod.

The coil spring assembly designated by the numeral 45 employs a metal strip 46 which extends longitudinally of and is secured at the ends to the drawer, riding over the top flat surface of the block 26. Cemented or vulcanized to this metal strip there is a resilient rubber strip 48 and molded in the rubber strip are the spaced convolutions 49 of the helically coiled wire. These convolutions which are slightly tiltable, pass through the rubber strip from side to side, as illustrated in the cross section of Fig. 3. A transversely flexible band 55 may be made of rubber with a fabric reinforcing or felt molded to shape, this being somewhat concave on its upper surface 56 and convex on its lower surface. This band may be vulcanized to or rest on the strip 48 at the center portion 57, the side edges 58 being thus flexed upwardly above the bottom center 57 to engage the lower edge 59 of each of the cards, an individual card being designated by the numeral 60. The cards normally rest with their lower edge 59 on the upper surface on the bottom 19 of the drawer, the weight of the cards being sufficient to flex the band 55 downwardly at its opposite edges so that normally the edges 58 of the band are on a level with the upper surface 19 of the bottom of the drawer.

The detent assembly designated by the numeral 70 employs a base plate 71 secured to the inside of the cabinet front wall 11 below the opening 12. This has a horizontal strip 72 with an intermediate vertical projection 73 and an end projection 74. Each of these has a perforation 75 through which slides the detent resilient strip 76. This has its inner end bent downwardly, as indicated at 77, and the trigger end 78 bent upwardly to engage in the kerf 32 of the carrier block 26. A tension coil spring 79 is connected respectively to the base 71 and to the downturned end 77 of the detent, the spring being under tension to pull these two devices together into the relationship shown in Fig. 2.

The latching and unlatching key assembly 85 employs a key stem 86 which extends through the slot 17 in the side wall 16 of the cabinet and has a head 87 fitting in the wide groove 18. A washer and cotter pin 88 retains the key stem in place in the slot, the stem extends through the perforation 34 of the carrier block, being thus pivoted therein and having a tongue 89 which is designed to fit in the longitudinal notch 33 of the carrier block. This tongue of the key is normally horizontal, as shown in Figs. 1 and 2, above the upper edge of the detent trigger 78, but this detent end may be pressed downwardly by rotating the knob 87 and thus depressing the detent end 78 until it is dislodged from the kerf 32, such construction entirely disengaging the carrier block from the detent and its spring assembly 70. However, the detent may be automatically engaged in the kerf of the carriage by returning the tongue of the key to its horizontal position and sliding the carrier block longitudinally by means of the knob 87 and the stem 86 sliding in the slot 17 so that the upper edge of the trigger 78 engages the beveled cam surface 31, and thus causes the trigger end of the detent to travel downwardly and then spring upwardly into the kerf 32.

The manner of operation and functioning of my invention is substantially as follows:

Presuming the cabinet drawer is closed, that is, thrust inwardly in the cabinet its full distance, the trigger 78 of the detent 76 is thus engaged in the kerf 32 of the carrier block 26, this block being mounted for travelling on the rod 25. In this position the spring 79 is extended. Then, when the cabinet drawer is pulled outwardly, as shown in Fig. 2, the spring contracts, as shown in Fig. 2, and thus causes the carrier block 26 to be extended outwardly beyond the front of the cabinet.

In the action of the drawer and the cards therein moving longitudinally in reference to the carrier as the drawer is moved out of the cabinet, the assembly of the metal strip 46 and the rubber strip 48, which may be cemented thereto if desired or left separate, together with the helically coiled wire which has the lower portion of each turn embedded in the rubber strip, moves outwardly above the carrier block 26. The flexible band 55 is confined inside of the turns or loops of the coil 45 and as above mentioned, may be either secured at the bottom center portion 57 to the rubber strip 48 or may be merely resting thereon.

The pinions 36 rotatably mounted on the carrier block 26 engage the loops or turns of the coiled spring wire, having the spaced turns 49, thus these turns act somewhat as a rack, causing the rotation of the pinions 36, the cone shaped portions 37 formed integral with the pinions engage the upper outside portion of the flexible strip 55, preferably closely contiguous to the upper edges 58 but contacting this strip on its convex side and along the opposite edges. This causes an inward flexing of the marginal portions of the flexible band 55, as indicated in Fig. 3, thus slightly lifting each card 60 in its turn.

The action of the pinions 36 and the cones 37 in passing over each of the turns or loops of the wire between each card is to cause the loops to be spread apart at the top, thus spreading two adjacent cards apart in a V-shaped manner, as shown in Figs. 1, 2 and 4, and thus developing a reveal of the cards. Thus at any particular moment, even when the drawer is being pulled out with a steady motion, the successive springs are flipped at their upper portion from the rear towards the front portion of the drawer, and thus move each card as each card is located between two adjacent loops of the spring. At the same time, as the band 55 is flexed upwardly at its marginal edges the cards undergoing this transfer at the reveal are slightly elevated, as shown in Figs. 1, 2, 3 and 4. This facilitates the reading of the material on the card as well as calling the operator's attention to such card.

When the drawer is pulled outwardly its com-

plete distance, on account of the carrier block being limited in its outward movement by the compressed spring 79, this block is positioned slightly forward of the front wall 11 of the cabinet. When the carrier block 26 comes to the limit of its movement on opening the drawer and when the drawer is completely filled with cards, a reveal may be formed by grasping the button 87 or reaching underneath the drawer to engage the carrier block 26 by hand and move the block towards the inner end of the drawer. This causes an extension of the spring 79. If desired, the detent may be disengaged from the carrier block and the carrier block thus moved manually to the inner end of the drawer without so extending the spring. However, it is the usual practice to have a card supporting follower block or the like in the rear of the drawer so that the cards are spaced from the inner wall of the drawer, in which case all of the cards would be operated by the pinions and the cones 36 and 37.

If it is desired to remove the drawer from the cabinet for inspection on a desk or the like, the key 85 may be manipulated by turning the knob 87 in order to depress the tongue 89 of the key. This disengages the trigger end 78 of the detent 76 from the kerf 32 of the carrier block. Thereafter the drawer may be completely pulled out of the cabinet. When the drawer is thus placed on a desk, table or the like, the carrier block 26 may be moved longitudinally of the drawer by engaging the knob 87 and moving this longitudinally in the wide groove 18. As the stem 86 passes freely through a long slot 17 the key is thus used to move the carrier block longitudinally and thus cause a rotation of the pinions 36 and the operation of the cone ends 37 with the pinions to tilt the loops or turns of the coiled wire and thus form the reveal between adjacent cards.

In inserting the drawer again in the cabinet, the tongue of the key is brought to its horizontal position, as shown in Figs. 1 and 2, and thrusting the drawer inwardly causes the trigger end 78 of the detent 76 to ride on the cam surface 31 of the carrier block and snap into the kerf 32, thus again engaging the detent and the carrier block.

A characteristic of the device with the wire coil 45 having its individual convolutions vulcanized in the rubber strip 48 is that at this vulcanized portion the wires can tilt slightly and thus allow adjacent convolutions to tilt or space apart. When the carrier block 26 with the assembly shown in Fig. 5 is moved longitudinally relative to the drawer the pinion 36 has a more or less loose engagement with the convolutions of the wire coil but as each cone end 37 passes a particular convolution, this convolution is slightly squeezed together, thus this end cone portion in its operation has a contact with the wires. It also causes two adjacent convolutions to be spaced apart or tilted, thus operating to give a reveal between two adjacent cards. In addition the pinion part 36 and the cone part 37 operate against the under surface of the strip or band 55 as this strip can sag somewhat downwardly at the portions not engaged by the pinion 36 with the integral coned end 37. This sagging allows the band 55 to spread laterally so that normally the cards are supported on their lower edges on the longitudinal shelf 19 of the drawer. Hence both the pinion 36 and the coned end 37 function to distort or bend upwardly the portion of the strip or band 55 engaged by these elements.

Various changes may be made in the details of construction without departing from the spirit or scope of my invention as defined by the appended claims.

I claim:

1. In a filing cabinet, a card holding drawer, a flexible band extending longitudinally in the lower part of the drawer and adapted to engage the lower edges of all of the cards which may be mounted in the drawer, said cards being substantially upright, a carrier device movable longitudinally of the drawer below said flexible band and having means to engage the band and to flex the band upwardly where in contact therewith, the upward flexing of the band being adapted to raise each card in succession above the adjacent cards.

2. In a filing cabinet as claimed in claim 1, an interconnecting means for attaching the carrier device to a stationary part of the cabinet, the drawer being fitted in the cabinet for sliding outwardly whereby in the outward sliding movement of the drawer the carrier device is operated longitudinally of the drawer.

3. In a filing cabinet as claimed in claim 1, the carrier device being in the form of a block, a track on the drawer to guide said block, a detent operatively connected to a fixed part of the cabinet and having means to engage the block whereby on opening the drawer the block slides longitudinally thereof.

4. In a filing case, a cabinet having a drawer opening, a drawer slidable therein, said drawer having a bottom with a longitudinal opening, a flexible band extending longitudinally in the opening and adapted to engage the lower edges of cards mounted in the drawer, such cards being supported on the bottom of the drawer, a track having a carrier block to move longitudinally of the drawer, a flexing means on the block engaging said band whereby the band is flexed upwardly thereby elevating each card in succession as the block is moved.

5. In a filing case as claimed in claim 4, said band being concave in cross section on its upper surface and having marginal edges to engage the cards, the flexing means on the carrier block comprising devices connected to the block and engaging the band adjacent its outer marginal edges to flex such edges upwardly.

6. In a filing case as claimed in claim 4, a detent resiliently connected to a portion of the cabinet adjacent the drawer opening and having a portion of the detent adapted to extend through the opening, the detent having a trigger end with means on the block to inter-engage therewith whereby on opening of the drawer the carrier block is automatically moved longitudinally of the drawer.

7. In a filing case as claimed in claim 4, a helically coiled wire, means operatively connecting said wire to the flexible band whereby such band is located in the interior of the coil of the wire, each card being adapted for mounting in the drawer between the turns of the wire.

8. In a filing case, a drawer, a helically coiled wire, means for securing the lower portion of the coil in the bottom of the drawer whereby the turns of the coil extend upwardly in the drawer whereby individual cards may be placed between adjacent turns of the coiled wire, a flexible band mounted in the coil and adapted to engage the lower edges of all cards, a carrier block slidably mounted on guide means in the lower part of the drawer, a flexing means operatively mounted on the block and engaged by the convolutions of the wire to flex said band to thereby slightly raise

each card in succession and to form a reveal between adjacent cards.

9. In a filing case as claimed in claim 8, the flexing means comprising pinion gears each adapted to engage the wires of the coil, and cone structures rotatable therewith to engage the marginal edges of said band.

10. In a filing case as claimed in claim 8, the carrier block having a kerf, a key having a key stem and a tongue, the drawer having a longitudinal slot in one side, the key stem slidable in the slot having a knob thereon, said tongue being adapted to displace a trigger end of a detent from the kerf, such detent being connected to the case.

11. In a filing case, a card holding drawer, a resilient strip extending longitudinally thereof, a coiled wire having the lower portion of each turn secured to said strip for slight tilting movement, the turns of the wire being adapted to form spacers between adjacent cards with the lower edges of the cards resting on the bottom of the drawer, a flexible band extending longitudinally of the drawer and positioned within the wire coil, a stiff metal strip connected to the bottom of the resilient strip, a carrier block mounted on a guide to move longitudinally of the drawer and to slidably contact the metal strip, and flexing means mounted on the block interengaging with the turns of the wire and contacting the flexible band to flex such band during longitudinal movement of the block.

12. In a filing case, a drawer having cards therein resting on edge, a flexible device extending longitudinally of the drawer with a supporting part in a position to engage the lower edges of all cards, and a flexing means movable longitudinally of the drawer to engage and flex upwardly the flexible device to raise each card in succession.

13. In a filing case, a drawer having shelves for cards to rest thereon on their lower edges, a flexible strip extending longitudinally of the drawer between the shelves and having means to contact all cards, a movable carrier device operating longitudinally of the drawer and having means engaging said flexible strip and flexing the strip upwardly at the part in contact with said carrier means, the upward flexing of the strip being adapted to raise each card in succession.

14. In a filing case, a drawer, a resilient strip extending longitudinally of the drawer adjacent the bottom, a helically coiled wire having the lower portions of each turn of the wire secured to said strip for tilting movement, the major portion of the turns extending above the bottom of the drawer and each turn adapted to form a separator for cards inserted between the turns of the wire, a carrier block longitudinally slidably mounted on a guide in the lower part of the drawer, devices secured to the block and engaging the various turns of the wire when the block is moved longitudinally of the drawer, said devices giving a movement to the turns with which they contact to thereby develop a tilting movement of adjacent turns pivoting at the place of attachment of each coil to said resilient strip and produce a reveal of adjacent cards.

15. In a filing case as claimed in claim 14, a flexible band positioned inside of the coil and extending longitudinally thereof, said band being adapted to engage the lower edges of all of the cards, said devices secured to the block each having a pinion to engage the wire, and an additional structure comprising flexing means to engage and flex the band.

16. In a filing cabinet having a drawer opening, a drawer for cards slidable therein, a guide track in said drawer having a carrier block mounted thereon with a kerf, a detent in the form of a resilient strip having an upturned trigger end engaging said kerf, a coiled spring having one end connected to the detent and the other end connected to the inside of the cabinet below the drawer, a flexible band extending lengthwise of the drawer adapted to engage the lower edges of cards in the drawer, and a flexing means mounted on the block to engage said band, said block and band having relative movement when the drawer is moved in and out of said opening.

FLOYD I. SMITH.