

Oct. 14, 1958

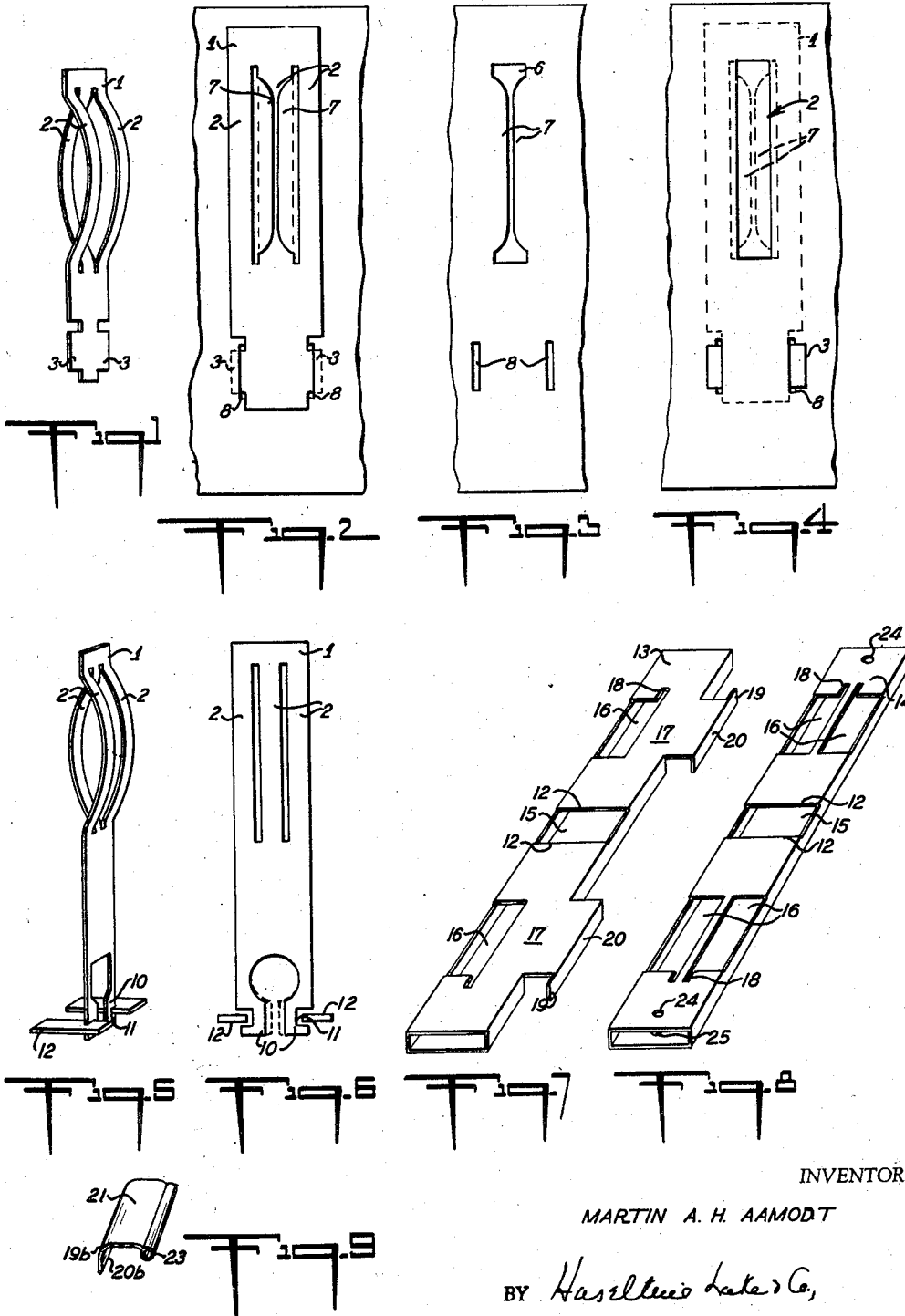
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CARD DIVIDING ELEMENTS IN CARD FILING DRAWER

Filed May 20, 1950

2 Sheets-Sheet 1



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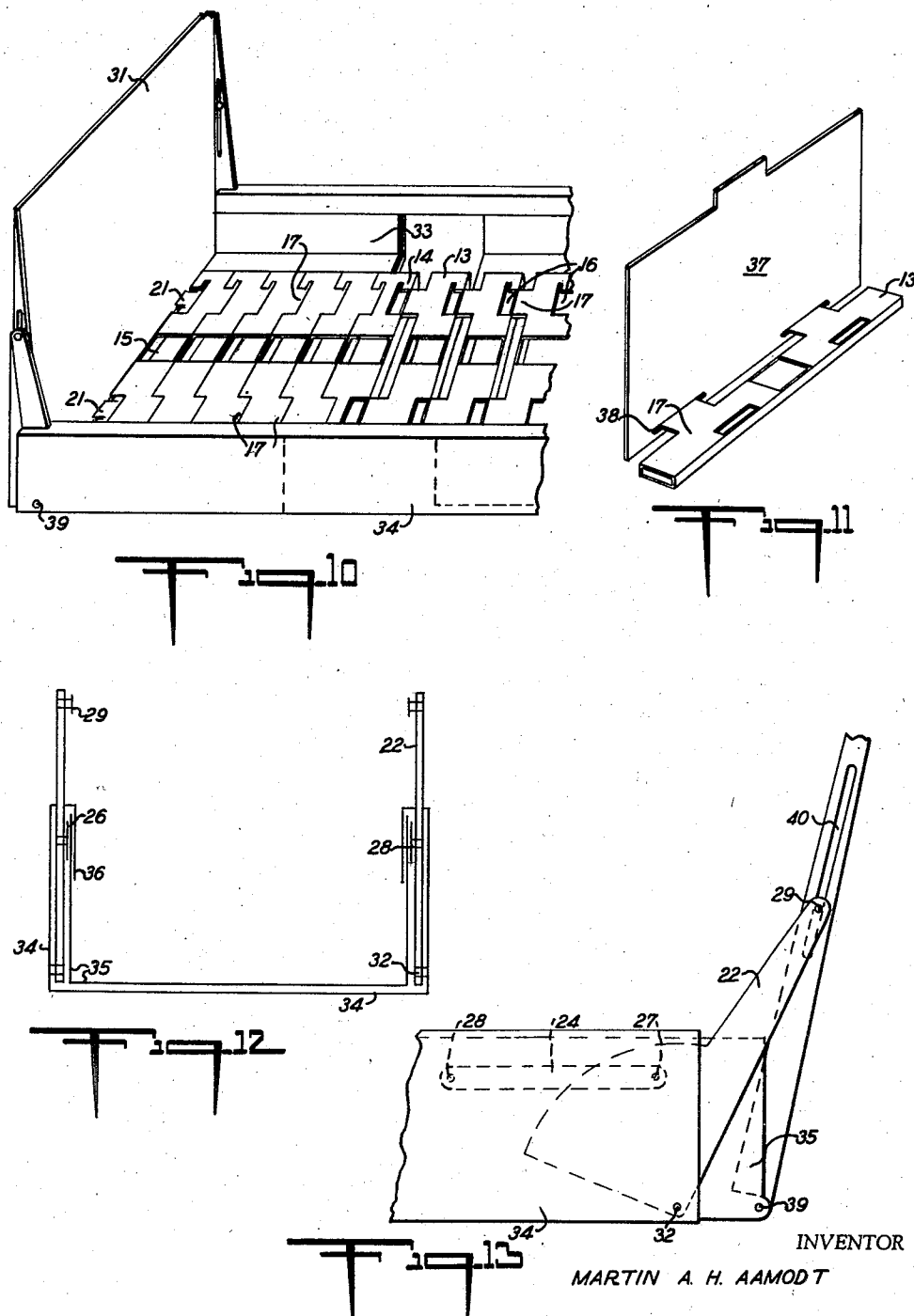
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CARD DIVIDING ELEMENTS IN CARD FILING DRAWER

Martin August Hansen Aamodt, Oslo, Norway

Application May 20, 1950, Serial No. 163,126

Claims priority, application Sweden May 21, 1949

1 Claim. (Cl. 129—16.7)

The invention relates to card indexing and filing devices.

Card index systems known from Norwegian Patents Nos. 54,960, 60,442, 64,236, 70,618, 71,701 and 74,290, which among other things, have for their object to facilitate visibility, reduce space requirements and simplify operations by means of specific mechanical arrangements.

The present invention has for an object to provide improved cooperating parts and assemblies for filing systems of the described character with a view of better utilizing the principle advantages inherent in practice in such systems.

Another object of the present invention is to provide card-dividing or separating means in a file drawer assembly of the described character which may conveniently and from above be placed or relocated between selected file cards without requiring the removal of, or other interference with, the latter.

Another object resides in providing card-dividing means which are adapted to spread apart the successive filed-cards when the file-drawer is longitudinally expanded and yet compress to substantially single thicknesses when the file cards are compacted to thereby take up as little of the file-drawer space as is possible.

Another object resides in providing card-dividing means adapted to spread apart the filed cards when the file-drawer is expanded and formed so that there are no loose ends thereon to interfere with the insertion or removal of the filed cards therebetween.

Still another object resides in providing a file-drawer assembly having outwardly swingable end walls and an expansible bottom and frame which are connected together in a manner to expand the bottom and frame longitudinally when said end walls are swung outwardly, and provided with partition walls carried by said expansible bottom for longitudinal and swingable displacement relative to the latter and card-dividing means interposed between the partition walls for separating the individual filed cards, the card-dividing means being compressed flat, when the bottom and frame of the file-drawer are contracted, and expanding automatically to move the filed cards apart, when the drawer bottom and frame are expanded.

According to an embodiment of the present invention the card-dividing elements are stamped out of ultra thin spring steel strips in such a manner that they each include circumferentially closed-in, oppositely curving or bowed spring portions joined together at their ends and suitable attachment means which in one form of the invention provide for removable attachment of the elements to corresponding slits in control cards while maintaining single thicknesses of material, and in another form of the invention, which eliminates such control cards, provide for the removable mounting of the elements directly into suitable corresponding attachment guides in the bottom elements of the associated drawers or card holders. Said spring portions expanding in op-

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positely directed curves from the flat single plane of material and said attachment means lying in said flat plane of material thus provide for attachment and detachment of the card-dividing elements without giving rise to hampering thickening of the elements or of the control cards, which may also be single sheeted.

The invention is illustrated on the accompanying drawing where Fig. 1 shows a perspective view of one of the card-dividing elements.

Fig. 2 is a fragmentary rear elevational view of a control card having a card-dividing element visibly attached to the card.

Fig. 3 is a fragmentary elevational view showing a control card having stamped-out slits to receive the attachment means of the dividing elements.

Fig. 4 is a fragmentary front elevational view of a control card with the attachment means of a dividing element visible, while the elements, located on the rear side, are indicated by dotted lines.

Fig. 5 is a perspective view of a card-dividing element, similar to that of Fig. 1, but constructed according to another embodiment of the invention and having attachment means thereon intended to be dismountably located in the carrying surface or bottom of the filing-drawer, independently of any control cards.

Fig. 6 shows the card-dividing element of Fig. 5 as seen from the end of the drawer, and where the dismountability of the attachment means is indicated by dotted lines making it clear that the two grippers (legs) can be separated from the guiding member by being pressed together.

Fig. 7 is a perspective view of a bottom element, channel-shaped and having projections and recesses intended for being interconnected with the respective recesses and projections of adjacent bottom elements of the same construction, and showing an opening for the inserting of the card-dividing elements.

Fig. 8 is a perspective view of an auxiliary element intended for being fastened to the bottom at the middle of the drawer, for connection to the bottom elements of Fig. 7 disposed at either side thereof.

Fig. 9 is a perspective view of a connecting section intended for connecting the bottom elements at the opposite ends of the drawer to the pivots mounting of the outwardly swingable end-walls to the so-called inner envelopes or drawer-halver which are slideable toward and away from each other in the assembly of Figs. 10 to 13.

Fig. 10 is a perspective view of a portion of an assembly of bottom elements (with the card-dividing elements, cards, and partition plates between sections removed) and shown embodied in a file-drawer constructed according to the present invention.

Fig. 11 is a perspective view of a displaceable partition plate for insertion between sections, shown swingably and displaceably mounted on projections of one of the bottom elements of Fig. 7.

Figure 12 is a diagrammatic vertical cross section of one form of my invention.

Fig. 13 is a fragmentary side elevational view of the drawer assembly of Fig. 12, showing in greater detail the joint connection between one end wall and the slidable side walls of the drawer.

Referring to the drawing in detail, and initially to Figs. 1 to 4 thereof, a card-dividing element, there shown and indicated by the numeral 1, is made of an ultra thin spring strip in which are stamped out three oppositely bowed card-dividing spring elements 2 in the shape of curved strips which are connected together at their opposite ends, and in such manner that the dividing springs, when contracted, will lie in one plane to occupy a space

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no greater than that required by a single thickness of the material. In the lower section of the dividing elements are provided two oppositely directed tabs 3 serving as releasable fastening means, in connection with slits provided in control cards (Fig. 3), and which, guided by the central one of the spring elements 2, are dismountably attached to the controlling-card as shown in Figures 2 and 4.

Numeral 6 indicates a stamped-out groove or slot provided in the central card and having two tongues 7 extending toward each other (Fig. 3) so that the slot 6 is narrow at the center and relatively wide at its opposite ends. Below the groove 6 are stamped out two parallel slits 8. Inserting of the dividing element is made in such a way that the spring element 2 located in the middle, is pressed into the groove 6, and held therein by the tongues 7, while the tabs 3 are sprung together and slipped into the slits 8, whereby the dividing element will be releasably mounted flat on the card without bending or folding, and with the spring elements 2 yieldably projecting away from the opposite sides of the card, as shown in Figures 2 and 4.

This special design of the spring- and attachment devices of the card-dividing element from a single piece of material having a uniformly small thickness avoids the occurrence of relatively thick structures between successive file cards, requiring unnecessarily large space, because the card-dividing elements, as will appear from the drawing, will each be located in a single plane when the cards are tightly packed.

The card-dividing or separating element according to Figs. 5 and 6 provides for directly and removably mounting the same in the carrying surface, or file-drawer bottom without the use of a control card, and is intended to be employed in cases where such cards are not required, and therefore may be omitted and thereby obtain the advantage of having a correspondingly greater number of entry cards. For that reason the band or strip of spring material is, on the lower part thereof, stamped out in the form of two legs 10 having notches 11 at their outer edges for receiving a plate edge, as indicated by 12, in a manner to loosely hold the card-dividing element to the supporting plate while the spring elements 2 are the same as those shown in Fig. 1. It is the object of this type of card-dividing element in certain cases to be able to increase the number of the cards carrying filed or indexed information at the expense of the elimination of control-cards, in cases where these cards are not absolutely necessary for the operation of the filing system. In this connection it is of vital importance that the dividing elements can be inserted or taken out from above, without interference from the set of file cards. Such inserting and dismounting of the element of Figs. 5 and 6 may be achieved by pressing together the legs 10, whereby the notches 11 are disengaged from the plate edge 12 (Fig. 6).

The expandable carrying surface constituting the bottom of the file drawer is formed by a series of elements 13 (Fig. 7) in connection with the element 14 (Fig. 8). Each element 13 is channel-shaped and is formed with projections 17 extending from one side and recesses 16 at the opposite side thereof. Each projection 17 has a downwardly extending flange 20 along its outer edge dimensioned to extend loosely into the related recess 16 of an adjacent bottom element 13. In order to lock the flange 20 of one element 13 within the recess 16 of the adjacent element 13, each recess is provided with an enlargement or notch 18 at one end adapted to receive a tab 19 at an end of the flange 20 during assembly of the parts. After the flanges 20 of the projections on one bottom element have been inserted into the recesses 16 of the adjacent bottom element, with the tabs 19 passing through the notches 18 and then disposed under the top plate 12, the tabs 19 are bent to prevent removal through the notches 18 and thereby lock the bottom ele-

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ments to each other. While the several bottom elements are locked together, the recesses 16 are of sufficient width to permit the flanges 20 to slide therein for relative movement of the elements 13 toward and away from each other.

The bottom element 14, shown in Fig. 8 is secured to the base plate in the middle of the drawer (Fig. 10), by means of rivets indicated at 25 which pass through holes 24 at the opposite ends thereof. Being a centrally located element, the element 14 needs no projections, and is formed, instead, with recesses 16 on either side similar to those described in connection with the element 13. Thus, as shown in Fig. 10, the elements 13 may be connected to each other in two groups arranged in front and in back of the central or fixed element 14, and the elements 13 adjacent the latter are connected to the fixed element by engagement of their flanges 20 within the recesses 16 of the fixed element. Elements 13 as well as element 14 are in their central parts provided with recesses or openings 15 for receiving and guiding the dividing elements, shown in Figs. 5 and 6, along the plate edges 12.

In Fig. 10 is shown part of the bottom assembly in a file-drawer with the file cards, card-dividing elements and partition plates between the sections removed, the elements 13 at the right of the fixed element 14 in Fig. 10 being shown in an expanded position and the elements 13 at left of the fixed element being shown in a contracted position.

The file drawer includes outwardly swingable end walls 31 which are swingably mounted on pivots or hinge pins 39 carried by the side walls 33 of U-shaped channel members 35 constituting drawer halves and slidable toward and away from each other within the outer drawer structure 34.

The outer drawer structure 34 (Fig. 12) is also in the form of a U-shaped channel member and has the sides thereof reverted inwardly and downwardly, as at 36, to extend over and encompass the side walls 33 of the drawer-halves 35.

The end ones of the bottom elements 13 are each connected to the hinge pin 39 at the adjacent end of the file drawer so that the bottom will expand and contract in response to the movements of the two drawer-halves 35 away from and toward each other, respectively. Such connection to the hinge pins 39 is preferably achieved by links 21, one of which is shown in Fig. 9. The link 21 is in the form of a flat plate, rolled at one end to provide a barrel 23 for receiving the related hinge pin 39 and having a flange 20b at the other end formed a tab 19b at one side for locked reception within the recess 16 of the end bottom element.

Fig. 13 shows the actuating connection between the end wall 31 at one end of the file drawer and the adjacent slidable drawer-half 35. A connection rod or link 24 is connected with a bell-crank or lever 22 at 27 and with the slideable side-walls 33 at 28. The end-wall 31 swingably supported at 39 has a slot 40 formed therein, and one of the arms of the bell-crank 22 is furnished with a pin 29 which slides in the slot 40. The bell-crank 22 is pivoted on the outer drawer 34, as at 32, so that when the end wall 31 is swung outwardly, the related slidable drawer-half is drawn out of the outer drawer 34 and away from the other drawer half. By reason of the connection between the pin 39 and the elements 13 provided by the links 21, such movement of the drawer-halves 35 will, as previously indicated affect the expansion of the various bottom elements and the opposite will be true when the end wall 31 is returned to a vertical position.

Fig. 11 illustrates the manner in which separating partitions, such as those employed for separating various sections of the filed matter, may be mounted. The partition 37, there shown, is provided with transverse slots 38 located near the bottom edge thereof to receive the

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projections 17 of one of the bottom elements so that the partition may swing and move longitudinally on said projections to facilitate access to the filed material.

In setting up the filing drawer embodying the present invention, partitions 37 may be mounted in the drawer as described above to separate the various units or departments of the filed material which may be carried on file cards or in file envelopes. Dividing elements, which may be of the form shown in Figs. 1 to 4, or of the form of Figs. 5 and 6, are inserted between the successive file cards or envelopes. When the file-drawer is longitudinally contracted, the oppositely bowed spring portions 2 of the dividing elements are urged into the same flat plane so that the minimum amount of drawer space is then occupied by the dividing elements. When the drawer is expanded longitudinally, by outward swinging of the end walls 31, the bowed spring portions 2 of the dividing elements separate the successive file cards or elements so that the latter may be viewed conveniently from above. Since the bowed spring portions 2 of each dividing element are connected together at their opposite ends, there are no loose or projecting ends to interfere with the insertion or removal of the file cards or envelopes.

I claim:

In a filing drawer; the combination of upstanding card dividing elements fitting into said drawer for interposition between successive filed cards in the latter and each including laterally spaced apart, unitary strip-shaped spring portions which are oppositely bowed and means connecting together the adjacent ends of said strip shaped spring portions to prevent said ends from getting caught on the filed cards, and means carrying each of said card dividing elements for movably mounting the latter in the drawer, each of said card dividing elements including three parallel and laterally spaced apart strip-shaped spring portions, the center one of said spring portions being bowed in one direction and the other two of said spring portions being bowed in the opposite direction, and wherein said carrying means includes a resilient por-

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tion extending downwardly from the lower joined together ends of said spring portions and having laterally extending tabs thereon, and a control card for each card dividing element formed to fit into the drawer and having a narrow central slot extending vertically with horizontal enlargements at its opposite ends, said center spring portion extending through said horizontal enlargements of said narrow central slot and being disposed on one side of said control card while said other two spring portions are disposed on the opposite side of said control card, said control card further having a pair of laterally spaced apart slots below said central slot and positioned to receive said laterally extending tabs when said downwardly extending resilient portion is laterally bowed so that the coaction of said central spring portion and said tabs with said central slot and said laterally spaced slots, respectively, serves to hold each card dividing element on the related control card.

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