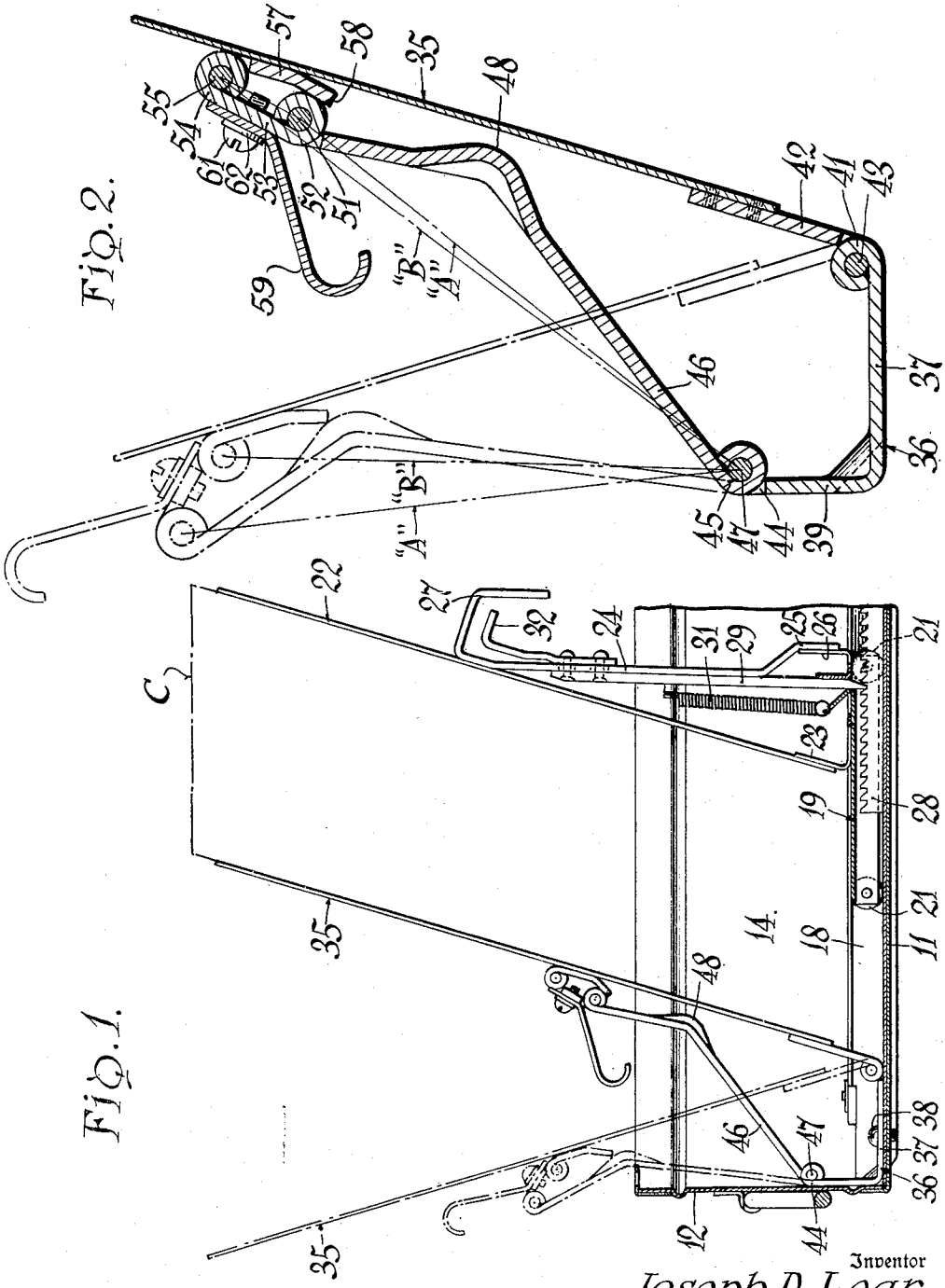
Feb. 2, 1954 J. D. LEAR 2,667,876

TILTABLE COMPRESSOR PLATE FOR POSTING TRAYS

Filed Oct. 29, 1951 2 Sheets-Sheet 1



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TILTABLE COMPRESSOR PLATE FOR POSTING TRAYS

Filed Oct. 29, 1951 2 Sheets-Sheet 2

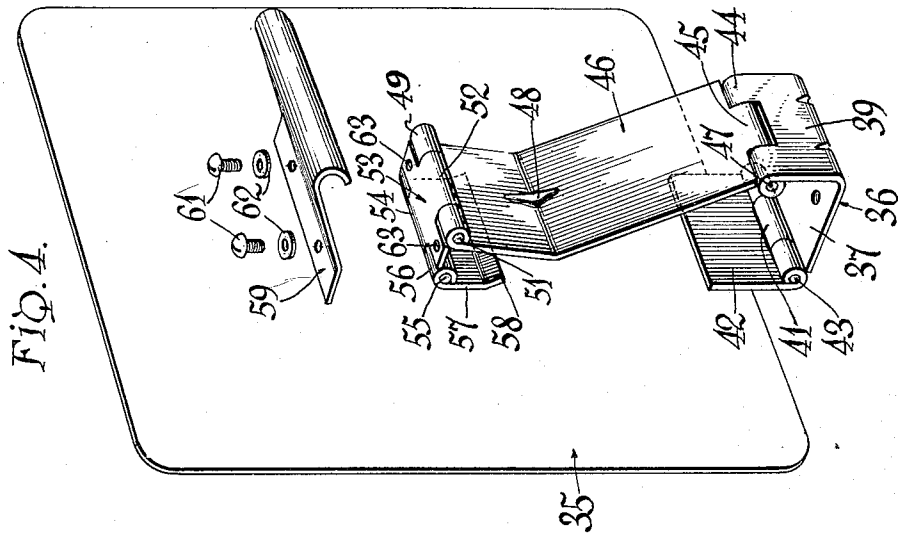

FIG. 4.

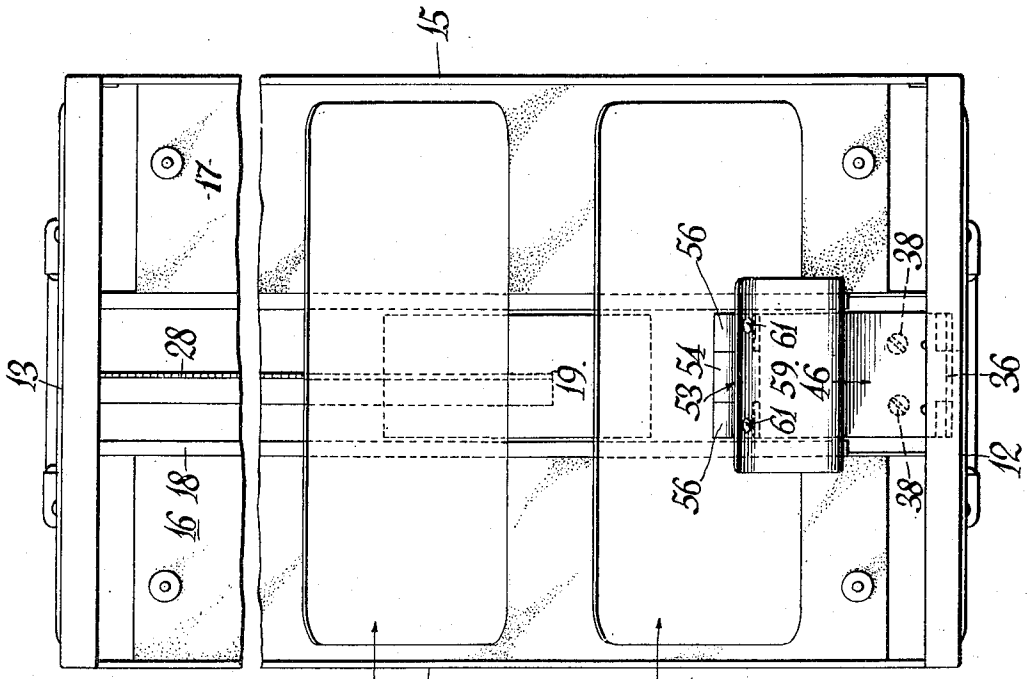

FIG. 3.

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TILTABLE COMPRESSOR PLATE FOR POSTING TRAYS

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Application October 29, 1951, Serial No. 253,732

2 Claims. (Cl. 129—26)

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This invention relates to filing trays of the type employed to hold removable sheets, such as are used in conjunction with machine posting of accounts and records. More particularly, the invention deals with mechanism by means of which one or both of the compressor or follower plates may be swung between card compressing and released or working positions.

Among the objects of the invention are the provision of a mounting linkage for a compressor plate, so organized that the plate may be readily manipulated to tilt it away from the cards when the tray is in use, and to return it in tight compressive engagement when the posting operations have been completed; to provide in such linkage movements on each side of a "dead center" position so that the tray will be firmly retained in either of its extreme positions without recourse to complicated construction; to provide a mounting which is retained in the tray without connection to the side or end walls; and to provide a mounting which shall be simple, durable, and inexpensive.

Other objects, and the advantages of the invention, will be apparent from the following description of a preferred embodiment, illustrated in the accompanying drawing, wherein:

Fig. 1 is a fragmentary section through a posting tray, showing the plates mounted therein by means of the present improvements;

Fig. 2 is an enlarged section through the front plate and mounting, showing the compressive position in full lines, and the released position in broken lines;

Fig. 3 is a fragmentary plan of the tray; and

Fig. 4 is an exploded perspective of the front plate and mounting therefor.

The tray shown in Figs. 1 and 3 comprises a rectilinear bottom plate 11, front and rear end walls 12 and 13, and side walls 14 and 15. Spaced inverted channels 16 and 17 extend lengthwise of the tray bottom, and between them is an inwardly flanged channel member 18, forming a guide for a carriage 19, having wheels 21 engaging in the channel, and upon which is mounted a longitudinally adjustable rear follower plate 22. The construction as thus far described is presented in greater detail in my copending application, Serial No. 220,156, filed April 10, 1951, for "Posting Tray," to which reference may be made.

The plate 22 is connected to the carriage 19 by an angle piece 23 secured along the lower edge of the plate, and by a vertical column 24 having an offset lower end 25 secured to an upstanding flange 26 on the carriage. The upper end of the column 24 is fixedly connected to the plate 22 at about its center, and the end of the column is bent outwardly to provide a finger grip 27. It will be noted that the angle piece 23 is bent to an acute angle, so that the plate 22 is constantly tilted toward the rear wall 13.

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Means similar to those described in detail in my above noted copending application are provided for adjusting the plate 22 longitudinally, to accommodate card stacks of varying thicknesses. Such means, as herein shown, comprises a rack bar 28 mounted in the channel 18, and a pawl 29 which is slidably mounted on the column 24, and whose lower end passes through a slot in the carriage 19 to engage the teeth of the rack. A spring 31 extends between the pawl 29 and a lug on the carriage 19 to urge the pawl into engagement, and a finger piece 32 on the upper end of the pawl permits the user to disengage the pawl, so that the carriage 19 and plate 22 may be moved to the desired position.

The front compressor plate 35 is mounted for pivotal movement on the bottom of the tray by two elements of a compound hinge. These include a right angled fixed leaf 36 having one section 37 secured to the bottom 11 by screws 38, and another section 39 abutting the front wall 12, but preferably not screwed or otherwise secured thereto. This is because it is desired to transmit substantially all stresses and working loads imposed on the plate 35 to the tray bottom, which frequently is less susceptible of warpage or distortion than the upright walls. The inner end of the leaf section 37 is formed with a knuckle 41 which is interlocked with the knuckle of a leaf 42 by a pin 43. The end of the leaf 42 is welded or otherwise secured to the bottom of the plate 35, thereby mounting the plate for swinging movement toward and away from the plate 22.

The end of the leaf section 39 is formed with a knuckle 44 which is interlocked with the lower knuckle 45 of a somewhat flexible hinge leaf 46 by a pin 47. The leaf 46 is longer than the other elements of the compound hinge, and it is bent transversely and inwardly approximately two-thirds of the distance from its lower end, at which region it may also be formed with a strengthening bead 48, if desired. The upper end of the leaf 46 is formed with a knuckle 49 which is connected by a pin 51 to one knuckle 52 of a leaf 53. The opposite end of the leaf 53 is formed with a knuckle 54 which is connected by a pin 55 to the knuckle 56 of a hinge

leaf 57, which is welded to the plate 35, and which has its end 58 bent outwardly. A bent finger grip 59 is secured to the outer face of the leaf 53 by means of screws 61, which pass through washers 62 to enter tapped holes 63 in the leaf 53.

As shown in full lines in Figs. 1 and 2, the compressor plate 35 is inclined toward the rear of the file, and is in substantial parallelism to the back follower plate 22. This is the closed position, and it will be understood that the space between the plates is filled with cards C, which are retained under compressive force. In this position, the angle between the leaves 36 and 42 is obtuse, the leaf 53 has been collapsed into substantial parallelism with and against the upper plate leaf 57, with the knuckles 49 and 52 bearing against the outwardly protruding end 58, which serves as a limit stop. It will further be seen that the long leaf 46 is below the lines of centers A and B for substantially its entire length. Hence, the reactive force of the compressed card stack tends to rotate the leaf 46 in a clockwise direction, which can only flex the leaf 46 toward the plate 35, and thereby increase the locking action.

When the finger grip 59 is pulled upwardly, the leaf 53 attached thereto may rotate in a clockwise direction about the pin 55, thereby swinging the leaves 53 and 46 away from the plate. The center line A between pins 47 and 51, which initially was within and below the center line B between pins 47 and 55, is therefore quickly swept above and outside of center line B, thus breaking the locking action, and enabling the user to tilt the plate 35 backward, and away from the card stack, to the broken line position. It will be noted that the end 58 of the leaf 57 is of such length as to abut the bead 48, thereby again providing a limit stop and support for the plate 35.

After the posting operations are completed, the user adjusts the rear follower plate 22 to a suitable location, and swings the compressor plate 35 toward the cards. As the center lines A and B approach each other, a slight pressure on the grip 59 suffices to cause the A center line to pass through the dead center or B line, thereby again locking the plate 35. It will be understood, of course, that the bend formed in the leaf 46, coupled with the inherent resilience of the metal, enables the leaf 46 to flex slightly, so that the desired actions can readily and easily be effected without straining the parts.

The plate 35 and the compound hinge structure may be assembled as a unit and readily inserted in the tray, thus simplifying manufacturing and service operations. The hinge elements and plate form a closed articulated polygon, which is locked in the closed position, but which may be quickly and easily released when it is desired to open the file. While the invention has been described with reference to one preferred embodiment, it will be understood that various modifications may be made without departure from its principles. It is accordingly intended that the invention should be accorded a scope commensurate with that expressed in the following claims.

I claim:

1. A compressor plate assembly for a posting tray comprising a substantially planar compressor plate, a first fixed hinge leaf having knuckles at its ends, a pivotal connection between the lower portion of the plate and one of the knuckles of said fixed leaf, said first fixed leaf having a portion adapted to be positioned horizontally on a tray bottom and secured thereto, a second fixed leaf secured to the plate above the lower portion thereof, a first rotatable leaf formed with knuckles at its ends, one of which is pivotally connected to said second fixed leaf at the upper end of said second fixed leaf, and a second relatively long and flexible rotatable leaf formed with a knuckle at one end pivotally connected to the other knuckle of the first rotatable leaf, said second rotatable leaf at its opposite end being pivotally connected to the other knuckle of the first fixed leaf in spaced relation to the plate, said leaves being of such lengths with respect to each other that the center of the connection between the two rotatable leaves is closer to the plate than a straight line drawn between the pivotal connections between the said opposite end of the second rotatable leaf and the second fixed leaf when said center of connection and the rotatable leaves are swung their maximum extent toward the plate, and said second fixed leaf and first rotatable leaf having lengths and overall thicknesses with respect to each other that said second fixed leaf and the interconnected knuckles of the rotatable leaves abut each other when the leaves are so swung, thereby to provide an inner limit stop.

2. A compressor plate assembly as set forth in claim 1, wherein the second rotatable leaf is bent and formed with a portion between its end protruding toward the plate, said portion being located along the length of said second rotatable leaf to abut the second fixed leaf when the rotatable leaves are swung outwardly their maximum distance, thereby to provide an outer limit stop.

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