Dec. 11, 1934. F. L. G. STRAUBEL 1,983,575

COMPRESSOR CONSTRUCTION FOR FILING DRAWERS

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Fig. 2

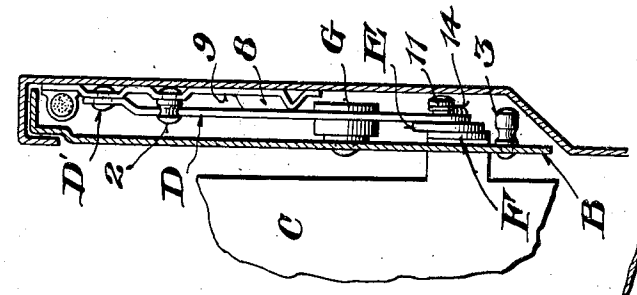


Fig. 3.

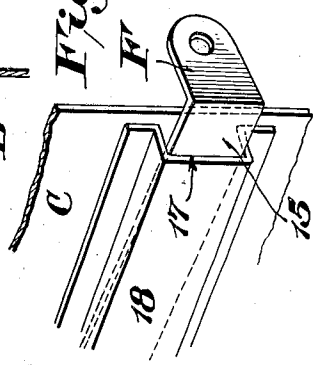
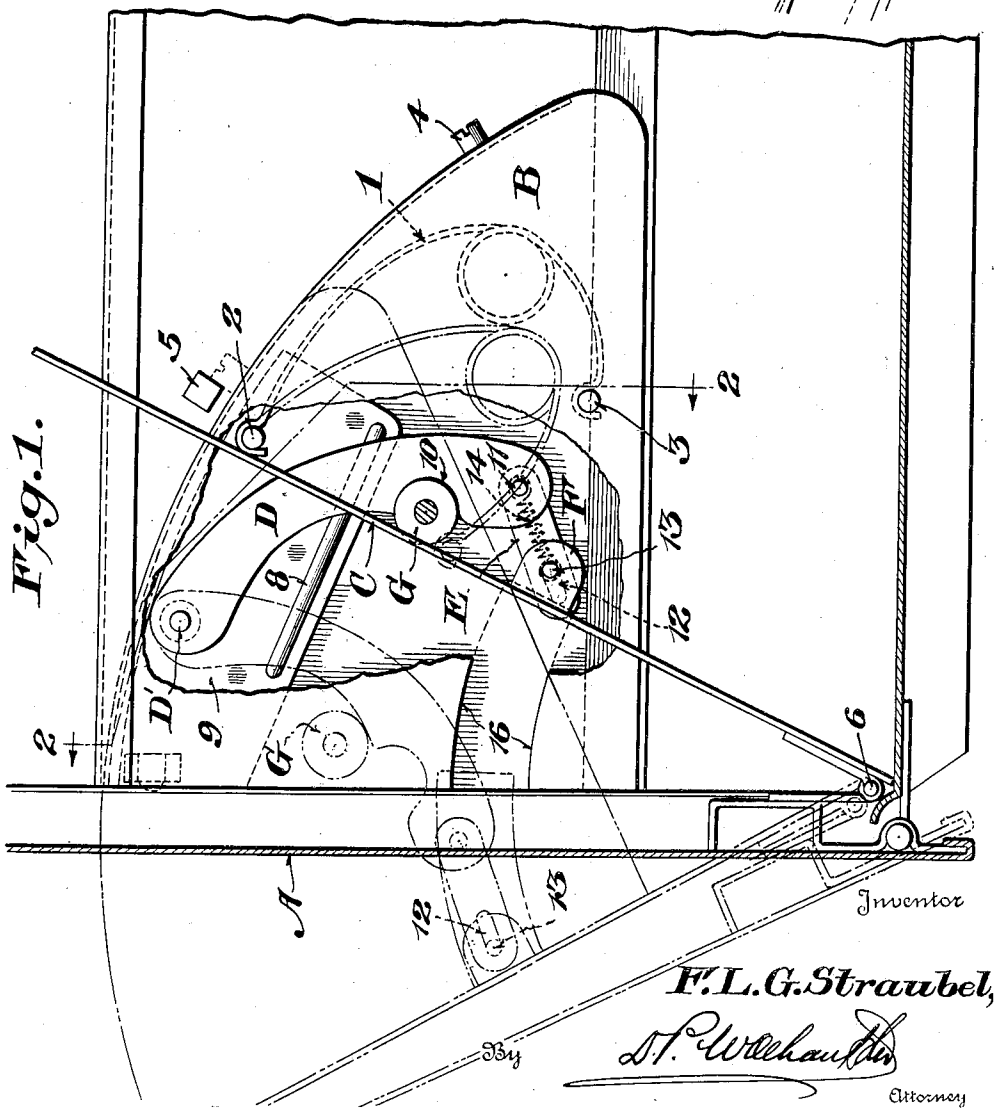


Fig. 1.



Inventor

F. L. G. Straubel,

By D. P. Wilkinson

Attorney

Dec. 11, 1934. F. L. G. STRAUBEL 1,983,575

COMPRESSOR CONSTRUCTION FOR FILING DRAWERS

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Fig. 5.

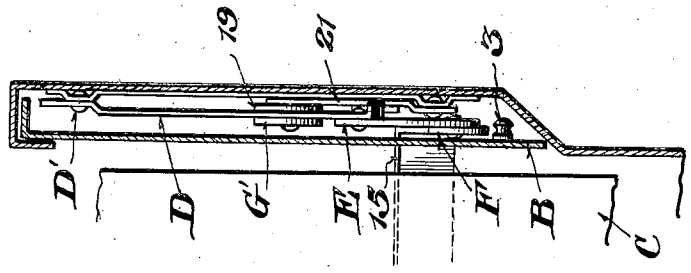
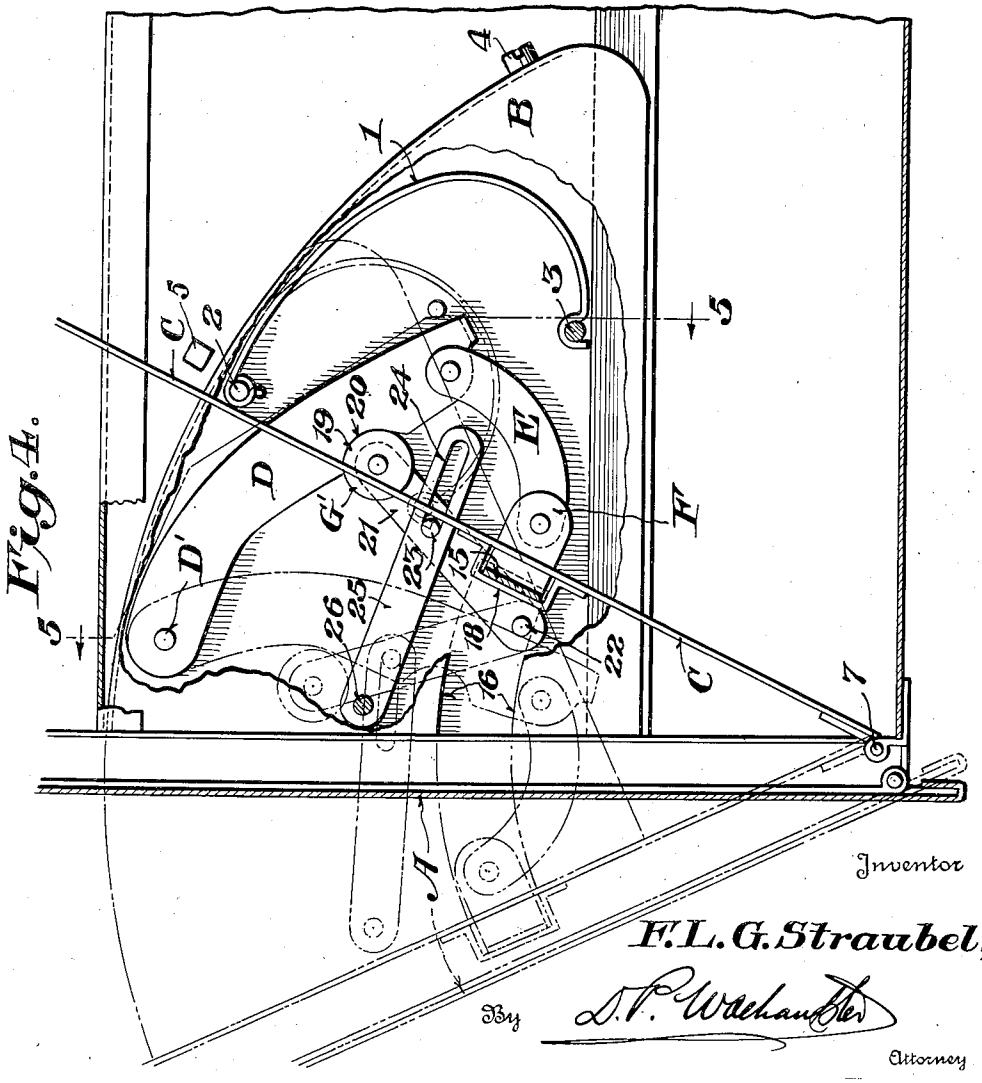


Fig. 4.



Inventor

F. L. G. Straubel,

By D. P. Wachauble

Attorney

Dec. 11, 1934. F. L. G. STRAUBEL 1,983,575

COMPRESSOR CONSTRUCTION FOR FILING DRAWERS

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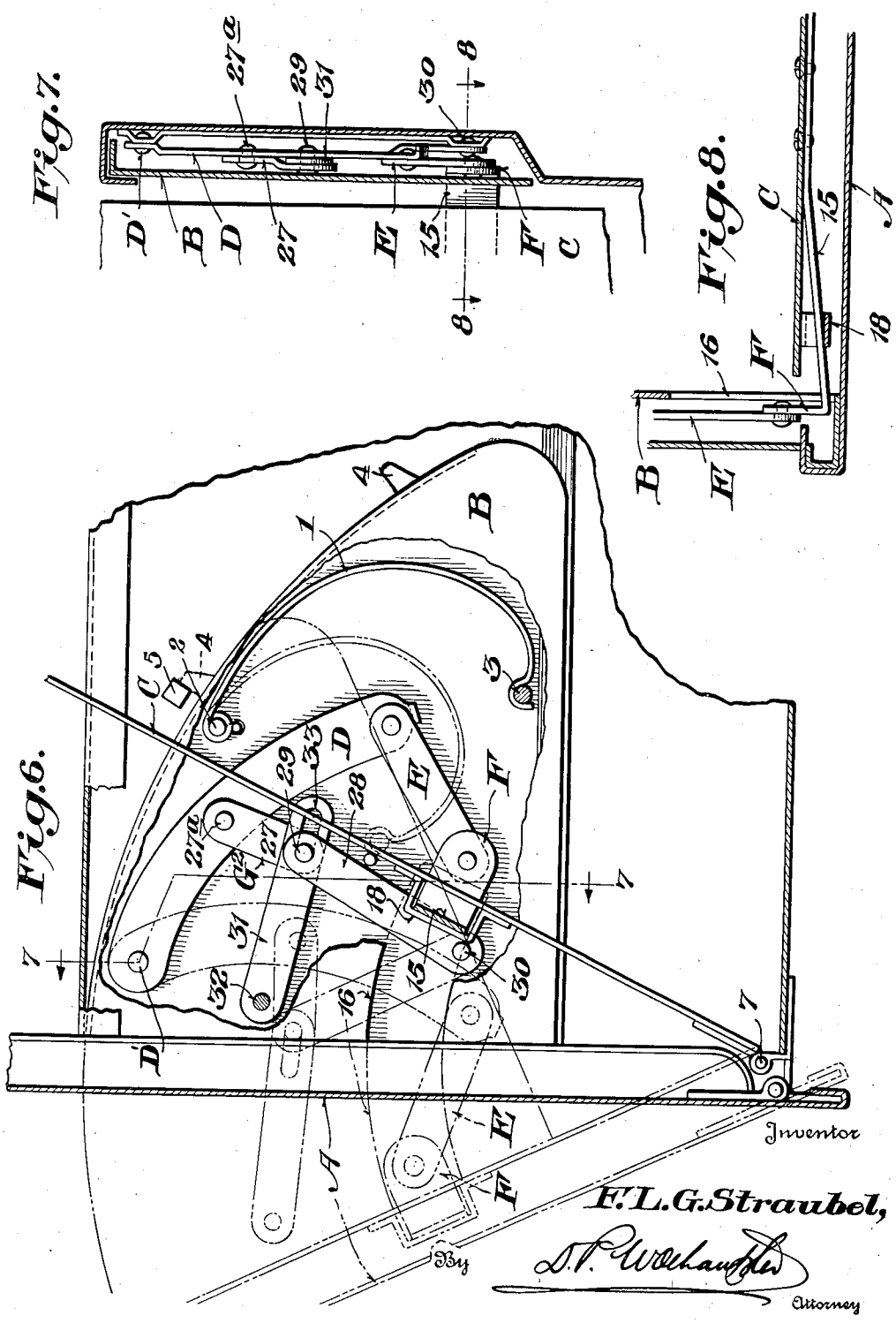

Inventor

F. L. G. Straubel,

By D. P. Wolhaupter

Attorney

Dec. 11, 1934. F. L. G. STRAUBEL 1,983,575

COMPRESSOR CONSTRUCTION FOR FILING DRAWERS

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Fig. 10.

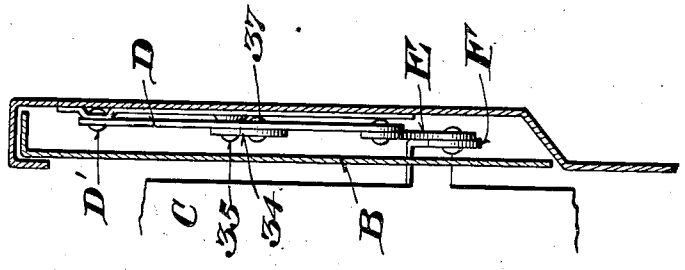
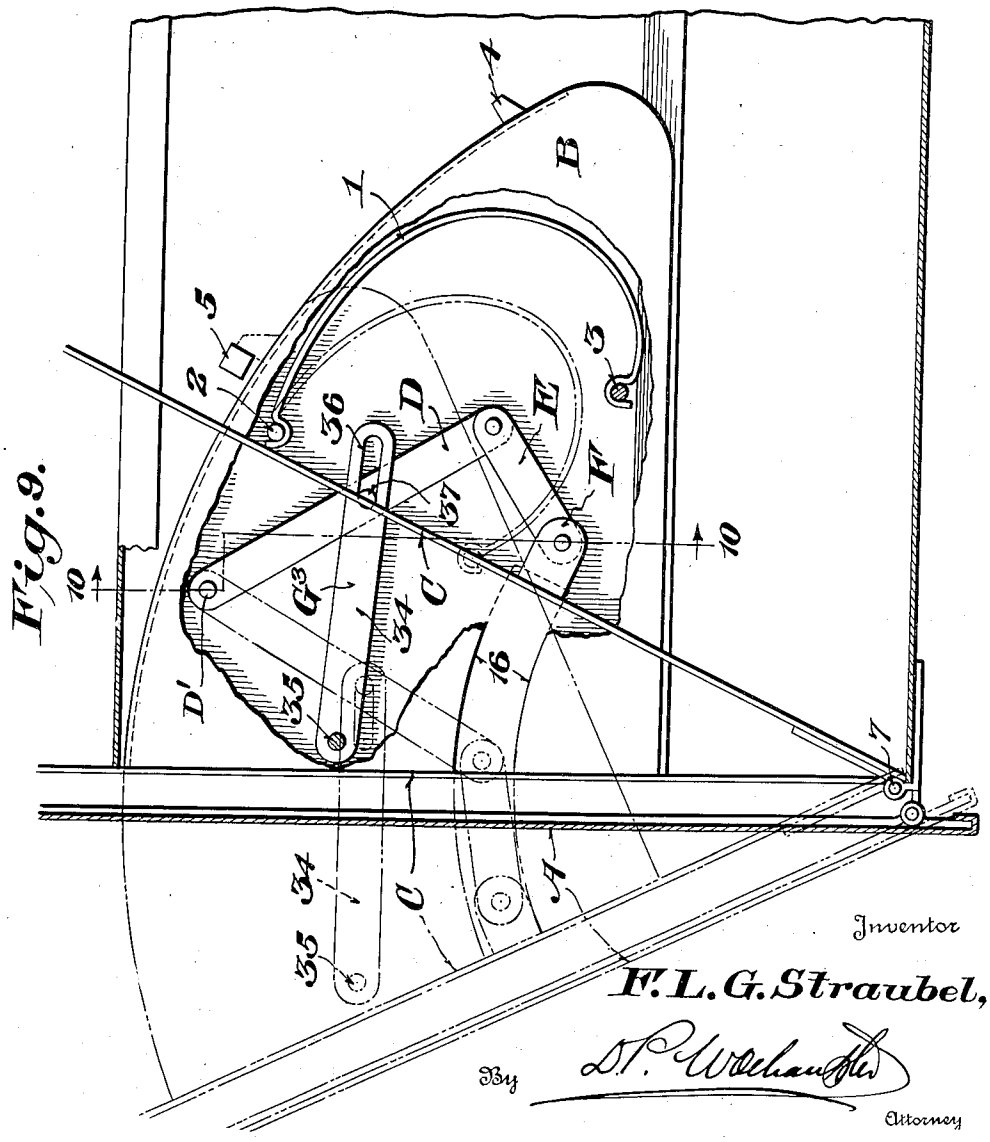


Fig. 9.



Inventor

F. L. G. Straubel,

By D. P. Wickham Jr.

Attorney

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COMPRESSOR CONSTRUCTION FOR FILING DRAWERS

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Fig. 12.

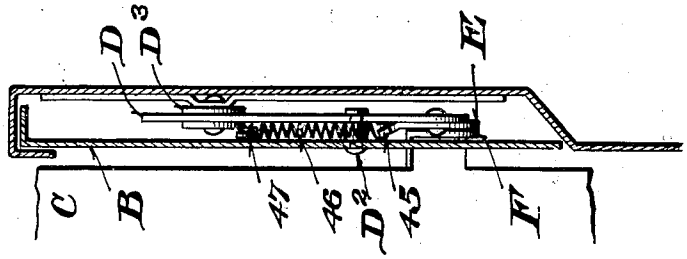
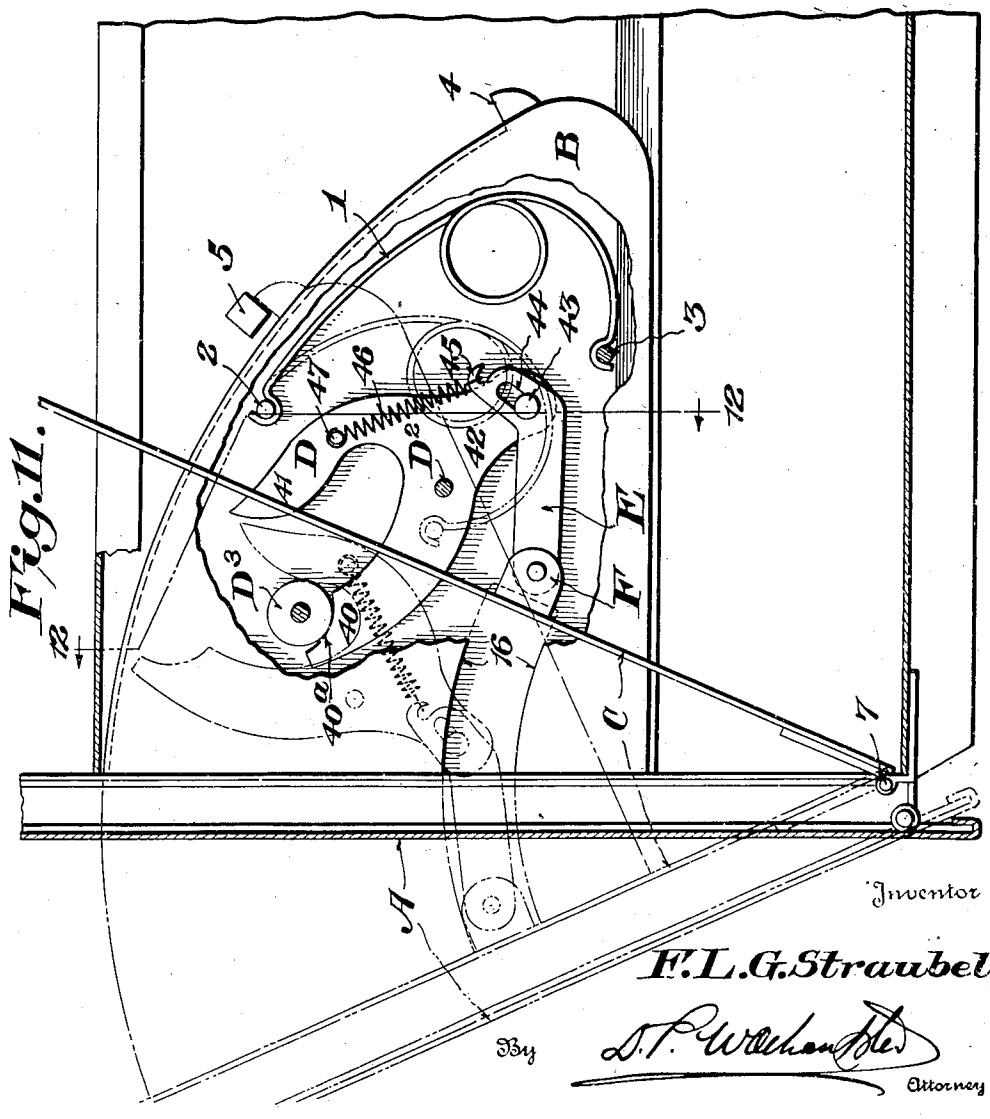


Fig. 11.



Inventor

F. L. G. Straubel,

By D. P. Wachenfeld

Attorney

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COMPRESSOR CONSTRUCTION FOR FILING DRAWERS

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Fig. 14.

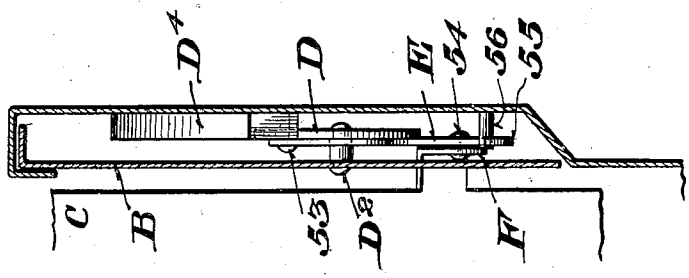
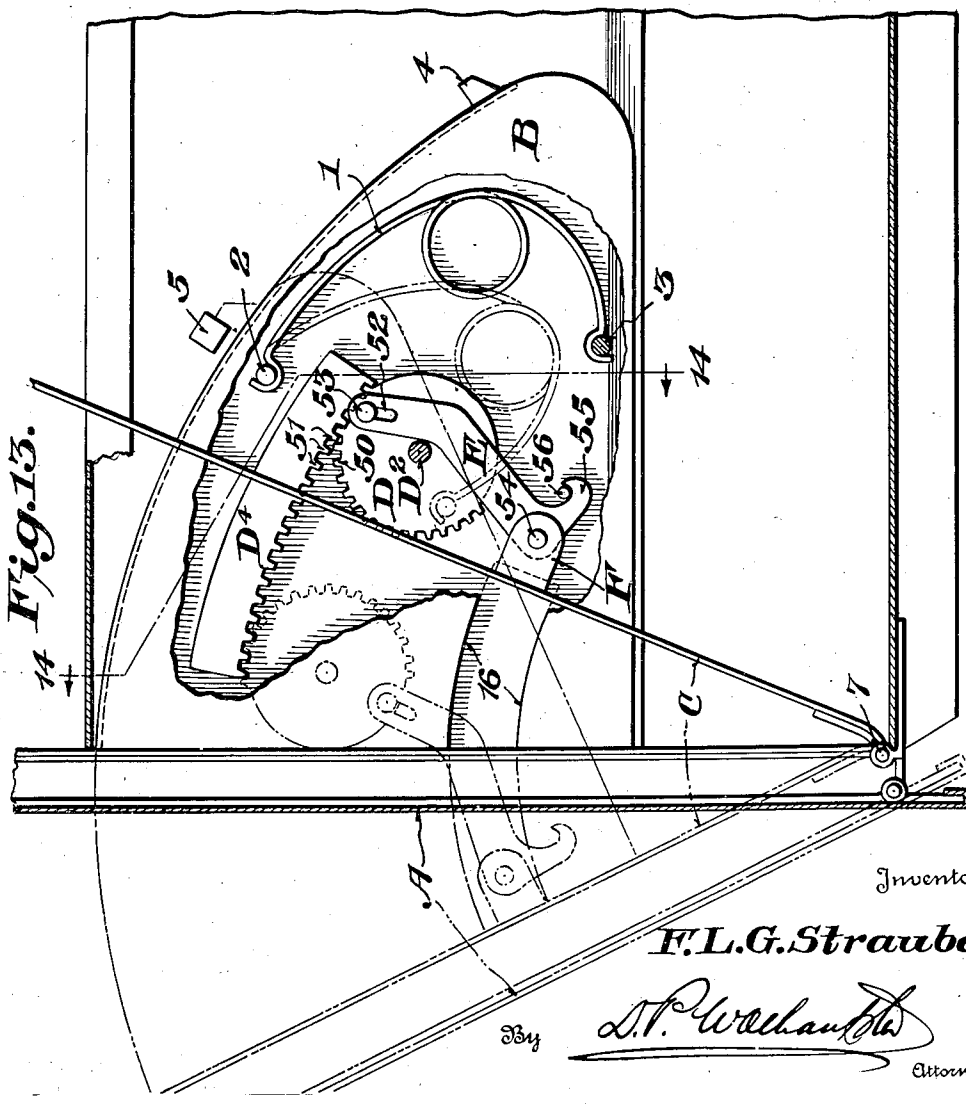


Fig. 13.



Inventor

F. L. G. Straubel,

By D. P. Wallace & Co

Attorney

Patented Dec. 11, 1934 1,983,575

UNITED STATES PATENT OFFICE

1,983,575

COMPRESSOR CONSTRUCTION FOR FILING DRAWERS

Frederick L. G. Straubel, Green Bay, Wis., assignor of one-eighth to O. C. Straubel, Green Bay, Wis., and two-eighths to C. W. Straubel, Youngstown, Ohio

Application August 14, 1933, Serial No. 685,109

16 Claims. (Cl. 129—26)

This invention relates to filing drawers, and more particularly to an improvement in compressor devices therefor having the capacity to hold the drawer contents firmly positioned against the follower.

One of the objects of the invention is to provide novel operating and control means for the compressor which permits of greater flexibility of the compressor when the tilting drawer front is closed, thereby more effectually to compress the drawer contents, while at the same time maintaining the tilting front in its closed position against pressure of the drawer contents.

Another object of the invention is to provide novel means for connecting a side wall of the drawer and the compressor and which operates in conjunction with a side wing or equivalent member carried by the tilting front. This means is preferably a toggle construction and may assume various forms, as will be apparent from the illustrations given in the accompanying drawings, but in each instance, it effectively performs the intended function of maintaining the tilting front closed when the compressor is in operative position, and to throw the compressor to an inoperative position against the inside face of the tilting front when the latter is opened to afford unobstructed access to the drawer contents.

A further object of the invention is to provide a compressor construction which operates positively and noiselessly with the tilting drawer front.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the invention consists in the novel features of construction, combination and arrangement of parts, hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:—

Figure 1 is a vertical sectional view of a portion of a drawer showing the present improvements partly in elevation and in section.

Figure 2 is a vertical cross sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a detail perspective view of a modified form of the spring which constitutes compressor flexing means.

Figure 4 is a vertical sectional view of a drawer illustrating a modified form of toggle arrangement for operating the compressor.

Figure 5 is a detail vertical sectional view taken on the line 5—5 of Figure 4.

Figure 6 is a vertical sectional view of a portion of a drawer construction illustrating a further modified form of compressor operating means.

Figure 7 is a vertical sectional view taken on the line 7—7 of Figure 6.

Figure 8 is a horizontal sectional view taken on the line of 8—8 of Figure 7.

Figure 9 is a vertical sectional view of a drawer construction illustrating a further modified form of compressor operating means.

Figure 10 is a vertical sectional view taken on the line 10—10 of Figure 9.

Figure 11 is a vertical sectional view of a drawer construction showing an additional modification of the compressor and the compressor operating means.

Figure 12 is a vertical sectional view taken on the line 12—12 of Figure 11.

Figure 13 is also a vertical sectional view of a filing drawer illustrating a modified form of compressor operating means.

Figure 14 is a vertical sectional view taken on the line 14—14 of Figure 13.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

In the several embodiments of the invention shown in the drawings the filing drawer proper is provided with a tilting front designated generally as A, the same being hinged at its lower edge to the drawer bottom to permit of a tilting backward and forward movement. The sides of the tilting front A are provided with the rearwardly extending wings B which are tensioned by the springs designated generally as 1 and connected at one end to a post 2 on the side of the drawer while the other end is connected to a post or lug 3 on the wing. The springs 1 may be of the loop formation shown in Figures 1, 11 and 13, or on the other hand they may be of the bowed formation shown in Figures 4, 6 and 9. The wings B are limited in their outward movement by the engagement of the abutment 4 on the wing with the abutment 5 on the side wall of the drawer.

The foregoing features are common to all forms of the invention and are identified by similar reference characters. Likewise, in every instance, in all forms of the invention the compressor is designated as C. In Figure 1 the compressor is hingedly connected as indicated at 6 to the inside of the tilting front A. In all other forms of the invention, however, the compressor C is pivotally connected to the drawer bottom as indicated at 7.

Although the compressor actuating mechanism and wing are shown only at one side of the drawer, similar mechanism may be placed, if desired, at the other side of the drawer to engage the opposite end of the compressor.

In all forms of the invention the compressor C is connected with a side wall of the drawer by a control unit or toggle joint designated generally as D—E, the part D performing generally the function of a cam and the part E serving as a link to connect the cam and the compressor. In the type of construction shown in Figures 1, 4, 6 and 9 the cam D is pivotally connected to a pin, abutment or other part fixed on a side wall of the drawer as indicated at D'. However, in the form of construction shown in Figures 11 and 13, the cam is pivotally connected to the wing B as indicated at D^2 in each figure, and has an operating engagement with abutments D^3 (Fig. 11) or D^4 (Fig. 13) carried by the side wall of the drawer. In Figure 11 the abutment D^3 is in the form of a roller whose axis is secured to the side wall of the drawer and in Figure 13 the abutment D^4 is in the form of a rack.

In all embodiments, however, the cam D, in whatever form, has an operative engagement with a fixed drawer part, that is, a fixed member carried by a side wall of the drawer. Also, in all types of construction, that is, in all modifications, the link E which forms a part of the toggle joint D—E connects the cam D with the compressor ear F.

Another feature of construction common to Figures 1 to 10 inclusive is the wing controlled means G, G', G^2, and G^3 which serve to lock the cam of the toggle D—E in position when the tilting front is closed. In Figure 1 the wing carried means is a roller. In Figures 4, 6 and 9 the wing carried means is in the form of links or links and rollers which will be described more in detail in connection with the specific description of each of the forms of construction set forth.

Referring specifically to the construction shown in Figures 1, 2 and 3, the cam D of the toggle means D—E has a guiding engagement with a rib 8 on a guide plate 9 welded or otherwise secured to the drawer side to assist the cam D in its movement. The said cam is also notched as at 10 to receive the wing carried roller G when the tilting front is in closed position, thereby serving to hold the tilting front closed against pressure from within the drawer by the drawer contents due to the fact that when the wing B is in the full line position shown in Figure 1, the wing carried roller G will exert an inward pull on the cam D, thereby tending to draw the tilting front inwardly through the medium of the link E and compressor C. The link E is pivotally connected to the free end of the cam D as indicated at 11 and is also provided with a slot 12 to receive the pin 13 of the compressor ear F which operates in the slot 16 of the wing. A retractile spring 14 connects the pins 11 and 13 for the purpose of drawing the compressor leaf C inwardly toward the drawer contents. On the other hand this spring will also permit the compressor leaf to move outwardly when the tilting front is closed due to the pressure of the drawer contents; thus placing the retractile spring in tension.

In other words the spring 14 permits the compressor leaf C to yield under pressure when the front is closed and, at the same time, causes the compressor to push against the drawer contents at all times to keep filing material properly positioned in the drawer.

When the tilting front A is closed, all of the parts may assume the position shown in Figure 1. However, if the pressure of the drawer contents is sufficiently great against the compressor leaf, the spring 14 may be expanded. Also, the tilting front is locked in its closed position due to the engagement of the wing carried means G with the cam D of the toggle. When it is desired to open the drawer, the tilting front is pulled outwardly. As the wing B moves with the tilting front, it will carry with it the roller G which is caused to move out of the notch 10 in the cam D, thereby releasing the compressor C and permitting it to follow the outward movement of the tilting front under its own weight after the lug 3 on the wing has kicked the cam D which is connected to compressor C to throw the cam forwardly a sufficient distance to also move the compressor forwardly of a perpendicular line intersecting its axis.

Another means for yieldingly or flexibly mounting the compressor leaf is shown in Fig. 3. In this form of construction the spring 14 may be dispensed with and instead the compressor ear F may be formed at the end of a spring strip 15 carried by the rear face of the compressor leaf. As will be observed from Figures 3, 4, 6 and 8, the said spring strip is longitudinally bowed so its central portion rests against the inner face of the compressor leaf C while the outer end thereof adjacent the ear F rests against the edge 17 of an abutment member 18 carried by the rear of the compressor plate. When the tilting front A is closed, and the compressor is in the full line position shown in Figure 4, the said compressor may move or yield forwardly or outwardly under the influence of the pressure of the drawer contents without forcing the tilting front open, due to the fact that the compressor plate may flex or yield a distance corresponding to the spacing of the ends 15 of the strip from the rear face of the compressor plate C.

Referring further to Figure 4 and also to Figure 5, it will be observed that the toggle D—E which constitutes the operating means for the compressor C is connected as at D' to a side wall of the drawer and to the compressor ear F. The only essential change in the construction shown in Figures 4 and 5 from that shown in Figures 1–3 is that the wing controlled means G' consists of a roller 19 adapted to engage in the notch 20 of the cam D, the said roller being carried by an arm 21 pivoted as at 22 to a side wall of the drawer. The said arm 21 is provided with a laterally offset pin or stud 23 adapted to move in the slot 24 of a link 25 pivotally carried as at 26 by the side wing B of the tilting front. When the tilting front is closed, the arm 21 and the link 25 will assume the position shown in full lines in Figure 4, and the roller 19 will be engaged in the notch 20 of the cam D. On the other hand, when the tilting front is opened the link 25 will move with the wings B for the distance that the offset stud 23 rides in the slot 24 while the compressor C remains in its full line position. When the stud 23 reaches the end of the slot 24, the link 25 will pull the arm 21 forwardly and release the roller 19 from the notch 20. The compressor C can then move forwardly toward the front A under pressure of the drawer contents, and when it is moved forwardly of a line perpendicular to its axis, it will fall by gravity against the inside face of the tilting front. When the tilting front is closed, the compressor will, of course, move with it but there will be an idle movement between the

link 25 and arm 21 until the stud 23 reaches the outer end of the slot. When the tilted front is closed as shown in Figure 4, it will be apparent that the toggle means D—E is held firmly in the full line position shown, and it will of course be understood that the compressor C may yield under pressure of the drawer contents to the extent permitted by the flexibility of the spring 15 which carries the ear F that connects with the link E.

Figures 6 and 7 again retain the essential features of the invention previously outlined but change the character of the wing controlled means designated generally as G^2. In this instance the means G^2 consists of a second toggle comprising the links 27 and 28, the former being pivotally connected as at 27*a* with the cam D and pivotally joined by the stud 29 to the link 28, the latter in turn being pivotally connected at its lower end by the pivot 30 with a side wall of the drawer. For the purpose of manipulating the toggle 27—28, there is provided a link 31 pivotally connected as indicated at 32 to the wing B of the tilting front. The link 31 is slotted as shown at 33 to receive the stud 29 which connects links 27 and 28. When the tilting front A is closed, the link 31 maintains the toggle in the full line position shown in Figure 6. On the other hand, when the tilting front is opened, the movement of the wing B with the tilting front will break the toggle joint 27—28, as shown, by dotted lines, and pull the cam D also to the dotted line position, the cam D in turn forcing the compressor C to move with the tilting front through the medium of the link E which connects the cam with the resilient ear F of the compressor.

The construction shown in Figures 9 and 10 is similar to that shown in Figures 6 and 7, except that the wing controlled means, designated generally as G^3 merely comprises a link 34 pivotally connected as at 35 to the wing B and provided at its end opposite the pivot 35 with a slot 36 for receiving a stud 37 on the cam D. When the parts are in closed position as shown in the full line position of Figure 9, the link 34 will press inwardly on the main toggle device D—E. On the other hand, when the tilting front is pulled open, the link 34 will move with the wing B carried by the front, and when the stud 37 reaches the end of the slot 36, the toggle D—E will be moved and thus move the compressor C, as indicated in dotted lines in Figure 9. The arrangement shown in Figure 9 is substantially the same as that shown in Figure 6, except that the second toggle device 27—28 of the latter figure is omitted and the pressure of the drawer contents against the compressor does not retain the tilting front in closed position.

Figures 11 and 12 of the drawings illustrate a a construction wherein all of the essential characteristics of the invention are maintained. The toggle means D—E is carried by the wing B so as to move therewith, but, nevertheless, it maintains the feature in common with other constructions shown in the drawings, that the cam D has an operative engagement with a fixed drawer carried part D^3, preferably in the form of a roller. Referring specifically to the characteristics of the cam D and link E, which make up the toggle D—E, it will be observed that the cam D comprises a body having an opening or slot providing the spaced arms 40 and 41 adapted for alternate engagement with the fixed drawer carried part D^3. The body of the cam D is provided with a tail portion 42 carrying a pivot stud 43 adapted to ride in the slot 44 of the angularly disposed arm of the link E which connects the cam D with the ear F of the compressor C. The link E is provided with a hook 45 for receiving a spring 46 which is hung on a pin 47 carried by the arm 41 of the cam. The purpose of this spring is to place the compressor plate C under tension whereby it may yield under pressure of the drawer contents. That is to say, the link E will slide with respect to pivot stud 43 when pressure is placed on the compressor due to spring 45. If the pressure is sufficiently great, the compressor may pull the link as far as the limit of the slot 44 in the link will permit, due to the fact that sufficient movement of the compressor plate will move the link to unseat it from the end of the slot in which it rests as shown by the full line position in Figure 11. When the tilting front is moved to open position, the toggle D—E will move with the wing until the arm 41 strikes the drawer carried projection D^3 whereupon the cam will be shifted with a snap movement to throw the compressor back toward the outwardly tilted front A. When the tilting front is closed the arm 40 by engaging projection D^3 will cause the cam D to move about its pivot D^2 and when the tilted front is advanced to its fully closed position, the seat or notch 40*a* at the upper inner edge of the arm 40 will engage beneath the roller D^3, thereby to force the toggle D—E in position to hold the compressor yieldingly against the contents of the drawer.

Figures 13 and 14 illustrate a construction wherein the tilting front A carrying the wing B having the slot 16, carries therewith the cam D as indicated at D^2. In this instance the cam D is in the form of a disk provided over a portion of its periphery with teeth 50 adapted to engage with the teeth 51 of the rack D^4 carried by one of the side walls of the drawer. In this modification, as in the others, the unit D—E is completed by the angular link E, the same being provided at one end with a slot 52 engaging with a stud 53 carried by the cam D. The end of the link E opposite the stud 53 is pivotally connected as at 54 with the ear F of the compressor C, and is also provided with a hook 55 adapted to engage with a stop pin or abutment 56 mounted on the side wall of the drawer. The purpose of the hook 55 and pin 56 is to hold the link E in the full line position shown in Figure 13 when the tilting front A is closed so that the pressure of the drawer contents against the compressor C will not tend to force the tilting front open. When the tilting fron A is manually opened it will be apparent that the teeth 50 of the cam D will engage with the teeth 51 of the rack D^4 which will, in turn, impart movement through the link E to the compressor C. The preliminary movement of the cam D over the rack 51 will rock the link E sufficiently, because of the connections described, to release the hook 55 from the pin 56.

From the foregoing it will be apparent that in all forms of the invention the tilting front A provided with a wing or wings B having the slot 16, is adapted to control the compressor C through the medium of suitable toggle means D—E which is operatively connected with the compressor through connections exposed by the slot 16 of the wing.

While the various embodiments of the invention have been shown and described somewhat in detail it will, of course, be understood that changes in the form, proportion and minor details of construction may be resorted to without

departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. In a filing drawer, a tilting front, a wing carried by the latter and having an arcuate slot, a pivoted compressor, and compressor actuating means arranged between the wing and the side wall of the drawer adjacent thereto, said means operatively engaging with a fixed part on the side wall of the drawer and also engaging with the compressor through said arcuate slot.

2. In a filing drawer, a tilting front, a wing carried by the latter and having an opening, a pivoted compressor, and a compressor actuating toggle arranged between the wing and the side wall of the drawer adjacent thereto, one member of said toggle having an operative engagement with the side wall of the drawer and the other member of the toggle having an operative engagement with the compressor through said opening.

3. In a filing drawer, a tilting front, a compressor pivotally mounted adjacent the lower edge thereof, wings on the tilting front, means for tensioning the wings, and toggle means for controlling the operation of the compressor, said toggle means including a part carried by the drawer side wall and a pair of members pivotally connected at their inner ends and having their outer ends respectively engaging with the said part carried by the drawer side wall and with the compressor.

4. In a filing drawer, a tilting front, a compressor pivotally mounted adjacent the lower edge thereof, wings on the tilting front, said wings each provided with an opening, means for tensioning the wings, and toggle means for controlling the operation of the compressor, said toggle means including a part carried by the drawer side wall and a pair of members pivotally connected at their inner ends and located between a wing and a drawer side wall, one of said members engaging with the said part carried by the drawer side wall, and the other of said members connected through a wing slot with the compressor.

5. In a filing drawer, a tilting front, a wing carried by the latter and having an opening, a pivoted compressor member having a part exposed through said opening in the wing, a fixed member carried by a side wall of the drawer, and toggle means engaging respectively with the said fixed member carried by the side wall of the drawer and with the part of the compressor exposed through the opening in the wing for actuating the compressor upon movement of the tilting front.

6. In a filing drawer a tilting front, a wing carried by the latter and having an opening, a pivoted compressor member having a portion exposed through said opening in the wing, a fixed member carried by a side wall of the drawer, toggle means respectively engaging with said fixed member carried by the drawer side wall and the part of the compressor exposed through the opening in the wing, and wing controlled means operatively engaging one of the members of the toggle.

7. In a drawer contents compressor device, a tilting front, a wing carried by the latter and having an opening, a pivoted compressor member having a portion exposed through said opening in the wing, a fixed member carried by a side wall of the drawer, toggle means respectively engaging with said fixed member carried by the drawer and the part of the compressor exposed through the opening in the wing, and means carried by the wing to hold the toggle against movement when the tilting front is closed due to pressure of the drawer contents against the compressor.

8. In a drawer contents compressor device, a tilting front, a wing carried by said tilting front and having an opening, a pivoted compressor member, a yielding ear carried by the compressor member and exposed at said opening in the wing, a fixed member carried by a drawer side wall, toggle means comprising pivotally connected members, one of which is connected to said fixed member on a drawer side wall and the other of which is connected to said resilient ear on the compressor, and means carried by the wing and operatively connected to the medial portion of said member of the toggle which is connected to the fixed member carried by a side wall of the drawer.

9. In a filing drawer, a tilting front, a wing carried by the latter and having an opening, a pivoted compressor member, a yieldingly mounted ear carried by the compressor and exposed at said opening in the wing, a fixed member carried by the drawer side wall, toggle means including a pivotally connected cam and link arranged between the wing and the side wall of the drawer, said cam being pivotally connected with the fixed member on the drawer side wall and said link being pivotally connected with the yielding ear on the compressor.

10. In a filing drawer, a tilting front, a wing carried by said tilting front and having an opening, a pivoted compressor member having a part exposed at said opening in the wing, a fixed member carried by a side wall of the drawer, a pivotally connected cam and link, said cam engaging with said fixed part on the drawer side wall, and said link engaging with the part of the compressor exposed at said opening in the wing, and means carried by the wing and adapted to engage with the medial portion of the cam when the toggle is in its closed position to assist in holding the tilting front closed against pressure exerted by the drawer contents on the compressor member.

11. In a filing drawer, a tilting front, a wing carried by the tilting front and having an opening, a pivoted compressor member having a part exposed at said opening, a fixed member carried by a side wall of the drawer, toggle means arranged between said wing and the adjacent side wall of the drawer, said toggle means comprising a cam and a link pivotally connected and said cam being pivotally connected with the fixed member on the side wall of the drawer and the link being connected with the part of the compressor exposed at said opening, and means carried by and movable with said wing for engagement with the cam of the toggle when the tilting front is closed to press the said cam of the toggle inwardly of the drawer.

12. In a filing drawer, a tilting front, a wing carried by the tilting front and having an opening, a pivoted compressor member having a part exposed at said opening, a fixed member carried by a side wall of the drawer, toggle means arranged between said wing and the adjacent side wall of the drawer, said toggle means comprising a cam and a link pivotally connected and said cam being pivotally connected with the fixed member on the side wall of the drawer and the link being connected with the part of the compressor exposed at said opening, and a link carried by the wing and operatively connected with

the medial portion of the cam to press the latter inwardly of the drawer when the tilting front is closed.

13. In a filing drawer, a tilting front, a wing carried by the tilting front and having an opening, a pivoted compressor member having a part exposed at said opening, a fixed member carried by a side wall of the drawer, toggle means arranged between said wing and the adjacent side wall of the drawer, said toggle means comprising a cam and a link pivotally connected and said cam being pivotally connected with the fixed member on the side wall of the drawer and the link being connected with the part of the compressor exposed at said opening, a pair of members connected by a pivot and respectively connected at the ends opposite the pivot with the medial portion of the cam and with the side wall of the drawer, and a link pivotally carried by the wing and provided with a slot for receiving the pivot connecting said members.

14. In a filing drawer, a tilting front, a wing having an opening carried by the latter, a pivoted compressor member having a portion exposed at the opening in the wing, a fixed member carried by the side wall of the drawer, toggle means located between the wing and the side wall of the drawer and comprising a cam pivotally mounted on said fixed member and operatively connected with a link joined with the compressor at the part exposed through the opening, said cam of the toggle being provided with a notch, and a member controlled by the wing and adapted for engagement with said notch of the cam when the tilting front is in its closed position.

15. In a filing drawer, a tilting front, a wing having an opening carried by the latter, a pivoted compressor member having a portion exposed at the opening in the wing, a fixed member carried by the side wall of the drawer, toggle means located between the wing and the side wall of the drawer and comprising a cam pivotally mounted on said fixed member and operatively connected with a link joined with the compressor at the part exposed through the opening, said cam of the toggle being provided with a notch, and a member carried by the wing and adapted for engagement with said notch of the cam when the tilting front is in its closed position.

16. In a filing drawer, a tilting front, a wing carried by the latter and having an opening, a pivoted compressor having a part exposed at the opening, a fixed member carried by the side wall of the drawer adjacent the wing, and toggle means for operating the compressor, said toggle means comprising a cam carried by the wing and operatively engaged with said fixed part of the drawer, and a link pivotally connected with the cam and also pivotally connected with the part of the compressor exposed through said opening in the wing.

FREDERICK L. G. STRAUBEL.