M. MEYERSON.

TOOL BOX.

APPLICATION FILED FEB. 11, 1918.

1,414,826.

Patented May 2, 1922.

3 SHEETS—SHEET 1

Fig. 1.

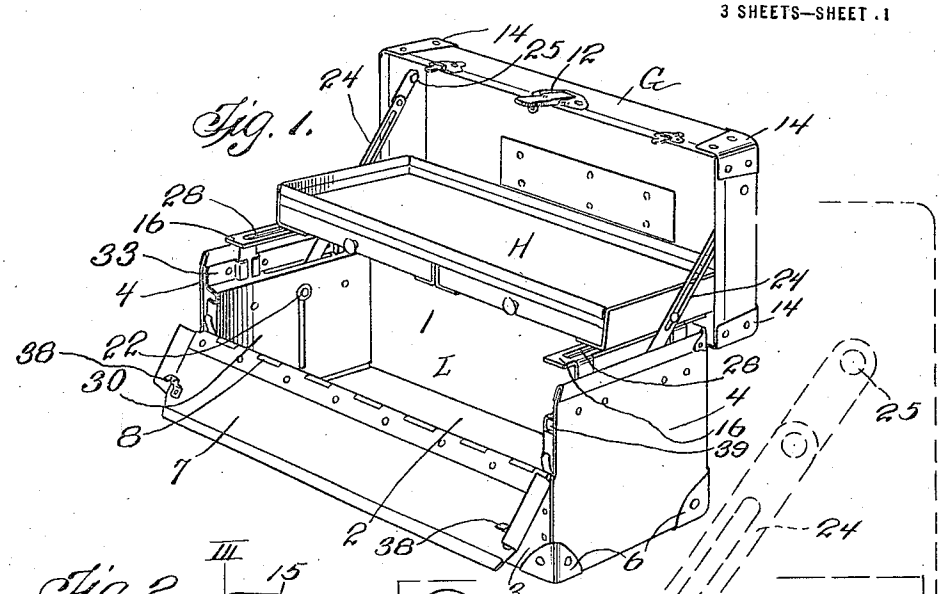
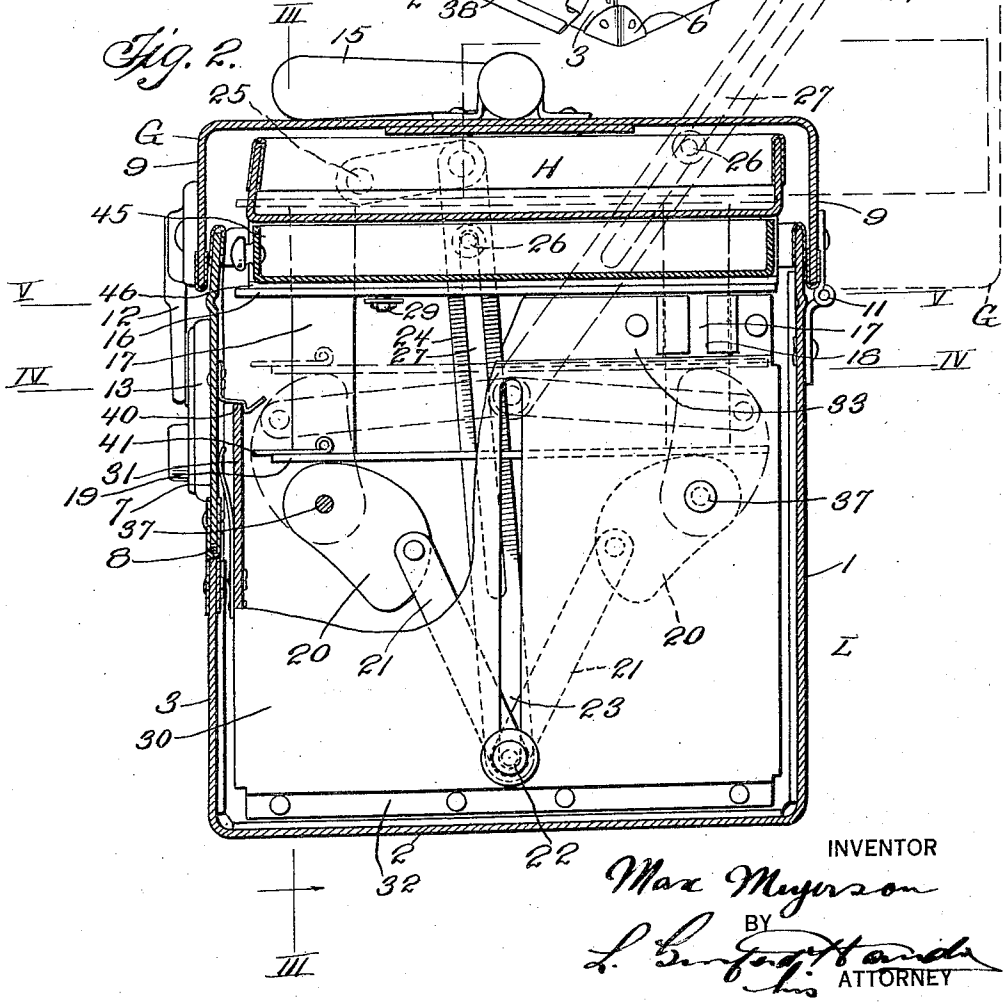


Fig. 2.



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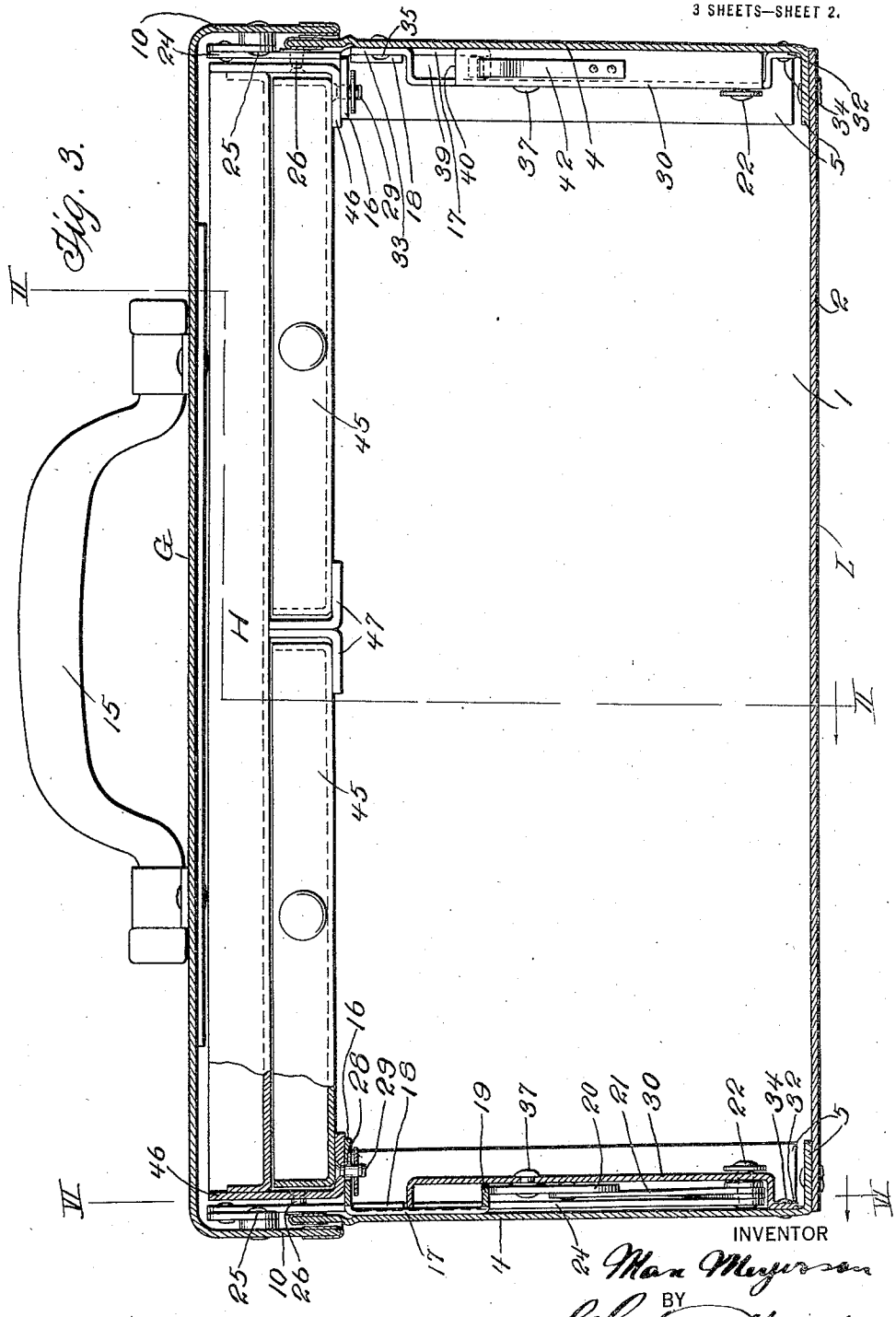
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3 SHEETS—SHEET 2.

Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 6.

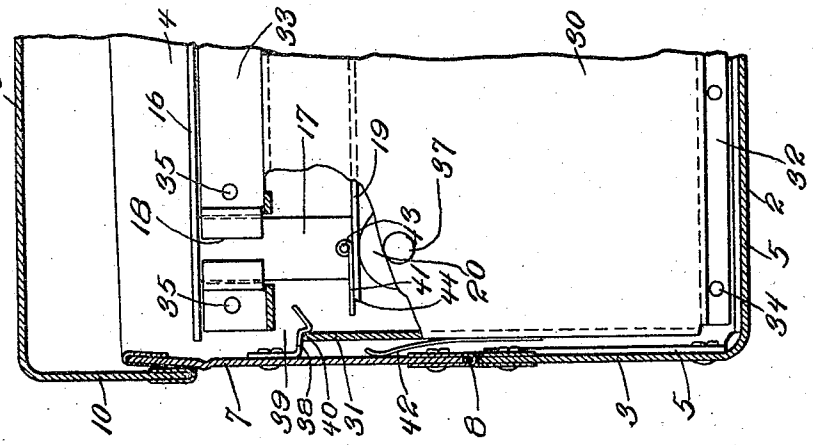


Fig. 5

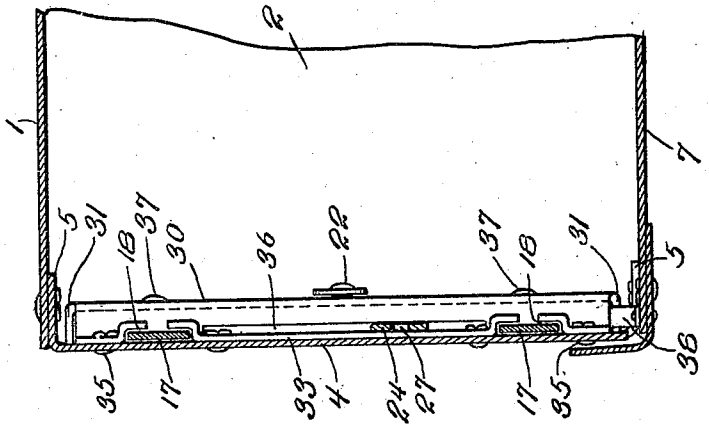
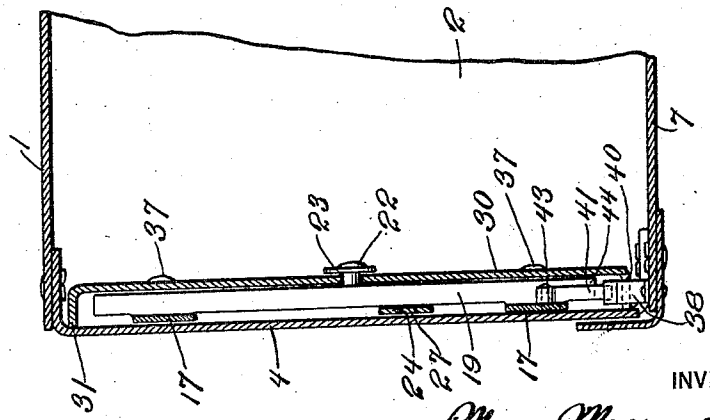


Fig. 4.



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UNITED STATES PATENT OFFICE.

MAX MEYERSON, OF NEW YORK, N. Y.

TOOL BOX.

1,414,826. Specification of Letters Patent. Patented May 2, 1922.

Application filed February 11, 1918. Serial No. 216,663.

To all whom it may concern:

Be it known that I, MAX MEYERSON, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in a Tool Box, of which the following is a specification.

This invention relates to an improvement in tool boxes.

An object of the invention is to provide a simple and efficient tool box which may be made of such material as sheet fibre or the like, and which will be strong and substantial.

A further object is to provide a tool box which is compact and yet which is of such construction that free access may be readily had to all of the compartments thereof.

A further object is to provide a tool box in which certain parts are made to automatically re-arrange themselves as a result of opening the lid of the box so as thus to give more convenient access to the compartments.

A further object is to provide a tool box having a hinged cover and having a tray therein so connected with the cover as to be lifted and displaced by movement of the cover into open position.

A further object is to provide simple and efficient co-operative mechanism between the cover and the tray for effecting movement of the tray.

A further object is to provide a door for giving access into one of the compartments of the box and to provide means to retain the door closed and to insure opening of the door when the cover is opened.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles, constituting the invention, and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings which are to be taken as a part of this specification, and in which I have shown merely a preferred form of embodiment of the invention:—

Figure 1 is a perspective view of a tool box constructed in accordance with the provisions of this invention.

Figure 2 is an enlarged vertical transverse sectional view taken substantially upon the plane of line II of Fig. 3, the box being shown closed in full lines and parts being represented by dotted lines as in open position.

Figure 3 is a transverse sectional view taken substantially upon the plane of line III of Fig. 2.

Figure 4 is a horizontal sectional view taken substantially upon the plane of line IV of Fig. 2.

Figure 5 is a view similar to that shown in Fig. 4 but being taken upon the plane of line V of Fig. 2, and

Figure 6 is a detail sectional view taken substantially upon the plane of line VI of Fig. 3.

Referring to the drawings for describing in detail the structure which is illustrated therein the reference character L indicates the main body of the box. This is preferably made up of a single sheet of fibre or the like bent to form a back wall 1, a bottom wall 2 and a front wall 3. Separate pieces of material are connected to form the end walls 4, said end walls having flanges, as 5, formed thereon being bent inwardly and being riveted to the end portions of the back, bottom and front walls. Suitable metallic corner braces 6 are provided for receiving wear and to cooperate with the flanges for strengthening the structure. A very stiff, strong, substantial body is thus provided.

The front wall 3 terminates below the upper edge of the end walls 4 and is completed by a separately formed door 7 which is hinged to the wall 3, as at 8, so that said door may swing freely into open and closed positions.

The cover, as G, is preferably formed of a single sheet of material having front and back flanges 9 and end flanges 10 bent downwardly therefrom adapted to telescope slightly over the upper edges of the walls of the body part L. The cover is hinged to the rear wall 1 of the body, as at 11, and suitable latches or other fastening devices 12 are provided upon the front flange 9 for cooperating with parts 13 carried by the door 7 to lock both said door and cover closed.

Metallic pieces, as 14, may be provided for strengthening the corners or other parts of the cover as may be desired. At the corn-

ers these pieces 14 serve to connect the adjacent ends of the flanges and thus materially strengthen the cover.

A handle 15 may be provided upon the cover by which to carry the device.

Within the box is arranged a tray or the like indicated by the reference character H. This tray is of such size as to fit easily within the upper portion of the body L and is supported at its opposite ends upon a pair of brackets 16. The brackets 16 are movable and are connected with the cover in such manner that when the cover is opened the brackets are caused to become elevated and to thus lift the tray out of the body so as to provide more convenient access into the space within the body beneath the tray. The two brackets 16 and their operating mechanism are identical so that a description of one will suffice for both:

Depending from the bracket 16 is a pair of slide rods 17 which are vertically slidable within guide-ways 18. A horizontal plate 19 is fixed to the lower ends of the rods 17 and beneath this plate is provided a pair of cams 20, one adjacent each of the rods 17. Operating links 21 extend downwardly from the cams and are pivotally connected together by a pivot pin 22 which is vertically slidable within a slot 23. A connecting link 24 extends from the pin 22 into pivotal engagement with the cover, as at 25. These parts are so proportioned that whenever the cover is swung upwardly the link 24 will lift the links 21 and thereby swing the cams 20 so as to cause them to press the plate 19, and consequently the brackets 16, upwardly, as from the full line to the dotted line position of Fig. 2. A pin 26 carried by the tray engages within a slot 27 formed in the link 24 so that as said link swings backwardly toward the hinge 11 the tray will be simultaneously moved backwardly along the brackets 16. Any suitable guide means may be provided for guiding the tray along the bracket and for retaining the tray in position. As an example of such a means the bracket 16 is shown as provided with a slot 28 within which slides a pin 29 projecting downwardly from the tray. The pin is headed at its lower end so as to prevent the tray from being lifted away.

Protecting means is provided for the parts of the above described mechanism which are likely to be injured. The protecting means shown is in the form of a housing made up of a plate 30 having front and back flanges 31, a bottom flange 32, and a top flange 33. Any or all of these flanges serve for attaching the housing to the inner surface of the adjacent end wall of the body, as for instance at 34 and 35. The top flange 33 is preferably bent to provide the guide-ways 18 for the slide rods 17. The top flange is also apertured as at 36 for free movement of the link 24. The plate 30 also provides a convenient medium in which to form the slot 23 and upon which to mount the pivot pins 37 upon which the cams 20 are pivoted. Thus the housing constitutes a base upon which all of the moving parts of the device may be mounted so that said housing and movable parts may be handled as an entity preparatory to assembling them within the box.

Also, when assembled, the housing transforms the end walls of the box into a double wall structure with a narrow compartment between the walls in which the operating parts are concealed and thoroughly protected.

The means for insuring closed position of the door 7 until the cover G has been raised is best indicated in Fig. 6 where it will be seen that the door is provided with a spring latch 38 which, when the door is swung closed, projects through an opening 39 in the front flange 31 of the housing, and snaps over a ledge, as 40, of said flange. The only means for dis-engaging the latch from the ledge is a lifter 41 carried by the adjacent end of the plate 19. When the cover is closed the plate 19, with the lifter 41 stands below the latch 38 so that when the cover is swung open the lifter ascends and strikes the latch causing it to be lifted from the ledge 40, whereupon a spring, as 42, forces the door to drop.

In closing the box, the door 7 is first closed so that the latch 38 engages over the ledge 40. The cover is then closed causing the lifter to move again to position below the latch ready for subsequent operation. In order to facilitate downward movement of the lifter without interfering with the latch the lifter is preferably pivotally mounted, as at 43, so that its operating end is free to swing upwardly when passing the latch. A portion, as 44, of the plate 19, however, is disposed to prevent downward swinging when the plate moves upwardly toward the latch.

Of course there may be two latches 38, and cooperative parts, one at each end of the box or not as desired.

While this box is particularly designed to be constructed from light sheet material such as sheet card-board or fibre, it will nevertheless be understood that any other material may be used if desired. Exposed edge portions may be suitably re-enforced and protected by binding pieces 48 wherever necessary.

It will be seen from the dotted line position in Fig. 2, that when the cams 20 are in their upper position the weight imposed thereon by the plate 19 is at a point substantially directly above the pivots 37. In this way a positive and substantial support is provided for the tray and the weight of

the tray and its contents will have no tendency to rotate the cams and permit the tray to fall.

Although the tray H may be of simple pan-like shape, yet obviously it may take other forms if desired, for instance it may be provided with partitioned compartments or with separate drawers or the like as 45. Likewise the tray may be constructed in any desired manner, although preferably it is provided with sheet metal angles as 46 at its opposite ends for re-enforcing purposes and for carrying the pins 29, as well as for providing a desirable surface for sliding upon the brackets 16. Similar angles as 47 may be provided intermediate the length of the tray so as to cooperate with the end angles for providing a suitable guide-way for a pair of drawers.

As many changes could be made in this construction without departing from the scope of the invention as defined in the following claims, it is intended that all matter contained in the above description or shown in the accompanying drawings, shall be interpreted as illustrative only and not in a limiting sense.

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

1. A tool box comprising a body portion and a displaceable cover therefor, the body portion having a drop front door, retaining means to retain the door closed, a displaceable tray within the box, and separate means whereby to displace the tray and to release said retaining means by displacement of the cover.

2. A tool box comprising a body portion and a displaceable cover therefor, the body portion having a drop front door, retaining means to retain the door closed, a displaceable tray within the box, connections between the tray and the cover whereby to displace the tray by displacement of the cover, and a part included in said connections also to release said retaining means by displacement of the cover.

3. A tool box comprising a body portion, a displaceable cover therefor, a tray within the box, a bracket upon which the tray is supported, guide means whereby the bracket is mounted to slide vertically within the box, a cam device for sliding said bracket, and link mechanism extending between the cover and the cam device by which to operate the cam device by displacement of the cover.

4. A tool box comprising a body portion, a displaceable cover therefor, a tray within the box, a movable bracket upon which the tray is supported, means operable to move the bracket, connections between the cover and said last mentioned means whereby to operate said last mentioned means by displacement of the cover, and means also to move the tray relative to the bracket by displacement of the cover.

5. A tool box comprising a body portion having a drop front door, retaining means for holding the door closed, a separate displaceable member within the body portion, means to displace said member, and means whereby displacement of said member will release said retaining means.

6. A tool box comprising a body portion and a displaceable cover therefor, a displaceable member within the box, mechanism also within the box whereby displacement of the cover will displace said member, and a support for said mechanism by means of which said mechanism may be handled as an entity and by means of which said mechanism may be attached in position within the box.

7. A tool box comprising a body portion and a displaceable cover therefor, the body portion having a door giving entrance thereto, retaining means to retain the door closed, a tray within the box, means whereby opening movement of the cover will displace the tray, and means whereby displacement of the tray will release said retaining means.

8. A tool box comprising a body portion, a displaceable cover therefor, a displaceable member within the box, a cam operable to displace said member, and connections between the cover and the cam whereby displacement of the cover will move the cam from one position to another to cause the cam to lift and support the weight of the displaceable member.

9. A tool box comprising a body portion, a displaceable cover therefor, a displaceable member within the box, a cam rotatably mounted within the box operable to displace said member, and connections between the cover and the cam whereby displacement of the cover will rotate the cam from one position to another to cause the cam to lift and support the weight of the displaceable member.

10. A tool box comprising a body portion, a displaceable cover therefor, a tray within the box, a bracket upon which the tray is supported, guide means whereby the bracket is mounted to slide vertically within the box, a plurality of cams for sliding said bracket, and connections between the cover and said cams whereby displacement of the cover will move the cams from one position to another to cause the cams to lift and support the bracket.

11. A tool box comprising a body portion, a displaceable cover therefor, a tray within the box, a bracket upon which the tray is supported, guide means whereby the bracket is mounted to slide vertically within the box, a plurality of cams for sliding said bracket, and connections between the cover and said cams whereby displacement of the cover will move the cams from one position to another

to cause the cams to lift and support the bracket, said connections comprising means to lock said cams in bracket supporting position while the cover is open.

12. A tool box comprising a body portion, a displaceable cover therefor, a tray within the box, a bracket upon which the tray is supported, guide means whereby the bracket is mounted to slide vertically within the box, a plurality of cams rotatably mounted within the box operable to slide said bracket, and connections between the cover and the cams whereby displacement of the cover will rotate the cams from one position to another to cause the cams to lift and support the weight of the bracket, said connections comprising means to retain said cams in bracket supporting position when said cover is open.

13. A tool box comprising a body portion and a displaceable cover therefor, the body portion having a door giving entrance thereto, retaining means to retain the door closed, spring means constantly urging the door open, a tray within the box, means whereby opening movement of the cover will displace the tray, and means whereby displacement of the tray will release said retaining means and thereby permit said spring means to move the door open.

In testimony whereof I affix my signature in the presence of two witnesses.

MAX MEYERSON.

Witnesses:
L. GESSFORD HANDY.
MAY SCHULZ.