Jan. 18, 1944. E. L. ZWICKEL 2,339,447

FILING EQUIPMENT

Filed Sept. 18, 1941

Fig. 1

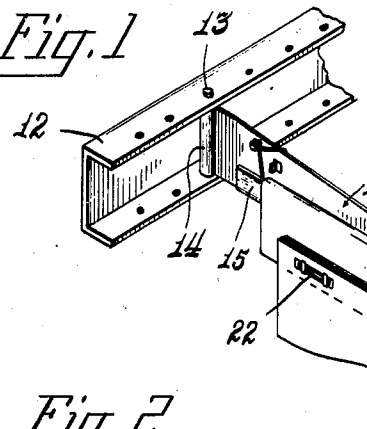



Fig. 3.

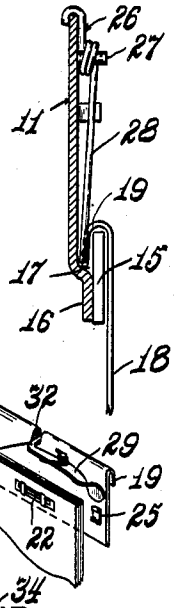



Fig. 2.

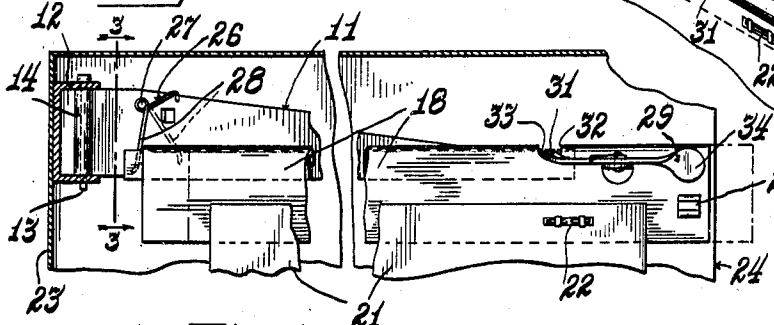



Fig. 5.

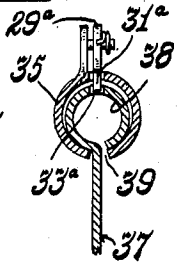



Fig. 4.

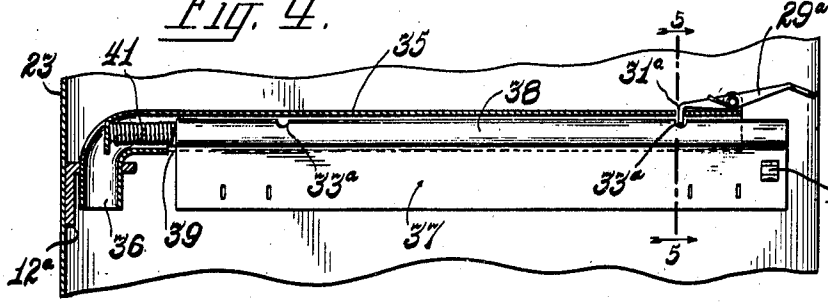
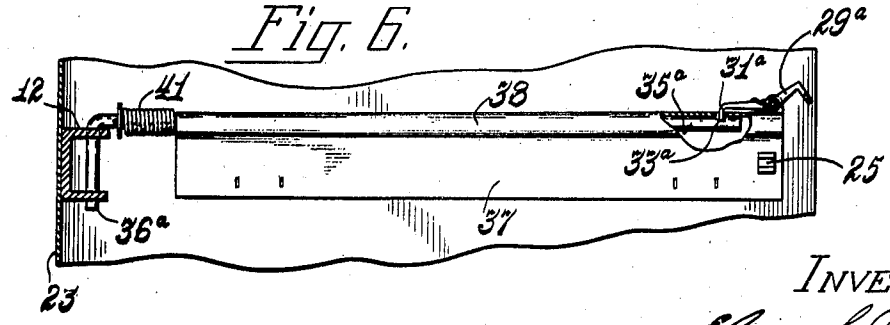



Fig. 6.




INVENTOR

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2,339,447

# UNITED STATES PATENT OFFICE

2,339,447

## FILING EQUIPMENT

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Application September 18, 1941, Serial No. 411,293

5 Claims. (Cl. 211—48)

The invention relates to improvements in filing and display equipment and particularly to filing units of the hanger type embodying slidable sheet suspension members and manually releasable means to effect their being positively repositioned to facilitate removal of said members.

Large sheets, such as drawings and the like, when filed are not always readily accessible or conveniently displayed. One known method of filing or displaying sheets efficiently is to suspend the sheets along one edge from members removably carried on hanger arms mounted within a cabinet or on a rack. However, economy of space necessitates that the arms be arranged close together and as a result access to and manual engagement of any one or more suspension members selected for withdrawal frequently is inconvenient. The present invention is concerned primarily with overcoming the difficulties usually encountered in locating, grasping and withdrawing a selected suspension member and to this end manually actuated automatically functioning means is incorporated in the structure to effect selective projection of the suspension members.

It is, therefore, an object of the invention to provide hanger arms and associated suspension members with novel means to effect partial disassociation of such parts.

Another object is to provide a hanger arm of the type mounted for pivotal movement in a substantial horizontal plane with means to automatically eject partially a suspension member carried thereon.

Another object is to provide a device of the character referred to which is inexpensive to manufacture and install, positive in operation and highly efficient in use.

The foregoing and such other objects of the invention as will more fully appear hereinafter as the description proceeds, will be more readily understood from a perusal of the following description, in which reference is made to the accompanying drawing; wherein:

Fig. 1 is a perspective view of a hanger arm and suspension member embodying features of the invention.

Fig. 2 is a fragmentary side elevational view of the device of Fig. 1 showing it mounted within a cabinet.

Fig. 3 is a vertical sectional view taken substantially on line 3—3 of Fig. 2.

Fig. 4 is a view similar to Fig. 2 showing another embodiment of the invention.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4.

Fig. 6 is a view similar to Fig. 4 illustrating another modified form of construction.

A preferred type of hanger arm and mounting is best illustrated in Figs. 1 to 3, inclusive. In that disclosure a hanger arm 11 is pivotally supported at one end in a channel member 12 having aligned openings in the flanges thereof each to receive a pin 13. The pin passes through a bearing portion 14 at one end of the hanger arm 11. The arm illustrated may be formed from a substantially flat strip of material, preferably sheet metal, having a co-extensive track 15 welded or otherwise secured to an offset lower edge portion 16 of the arm 11. This construction, best illustrated in Fig. 3, positions the upper margin of the track 15 away from the face of the hanger arm 11 so as to define an upwardly opening longitudinal channel or elongated recess 17.

A sheet suspension member 18 may be formed of any suitable material, preferably sheet metal, having its upper margin 19 folded rearwardly and then downwardly to define a longitudinal channel on its rear face to slidably engage over the track 15 whereby it may be readily telescoped on or drawn off from the hanger arm. When thus mounted the downturned margin 19 substantially occupies the entire area of the hanger arm channel 17.

The sheet suspension member 18 is adapted to have sheets 21 suspended therefrom. Consequently, the sheets preferably have spaced apertures adjacent their upper edges to be threaded over bendable tongues of separable fastener elements 22 carried on the sheet attaching portion of the member, which, for the purpose of this disclosure, may be of any specific construction. Obviously, other known types of fastening devices may be used in association with the suspension member without interfering with or altering the construction and operation of the device. In use, a plurality of hanger arms 11 are spaced closely together in the channel 12 and said channel frequently is carried on the inside face of one wall of a cabinet 23 (Fig. 2) so that when the suspension members 18 are mounted thereon their forward ends are disposed well inside the plane of the open front side 24 of the cabinet to facilitate door closing.

Under favorable circumstances, selection of any suspension member for withdrawal from the cabinet may be ascertained by swinging the various hanger arms horizontally so as to suf-

ficiently expose the index tab 25 carried on the forward end of each member 18. However, the suspension members frequently carry a full capacity of sheets thus decreasing the clear space between arms and reducing the degree of horizontal swinging. In that event reading of the index tabs is difficult. Further, the lack of proper light within the cabinet may increase the difficulty. Finally after a particular filing unit is located, withdrawal of its suspension member and contents from the cabinet often is exceedingly difficult because of the frictional drag of the interhooking slidable connection between the member and its arm. This normal resistance frequently offered to easy withdrawal of a suspension member often causes the operator to grasp the sheets 21 to assist withdrawal with consequent tearing, mutilation or soiling of the sheets. Accordingly, novel means is embodied in the structure of the hanger arms and suspension members to facilitate initial selective ejection of any one or more of the suspension members.

To this end, resilient ejection means in the form of a tension spring 26 is carried preferably adjacent the rear or mounted end of each arm 11 by a stud or pin 27 riveted or otherwise secured thereto. As best shown in Fig. 3, one leaf 28 of the spring 26 extends downwardly into the upwardly opening arm channel 17 for normal engagement by the downturned margin 19 of the suspension member 18 when the latter is moved rearwardly along the track 15. This engagement of the spring 26 by the suspension member retains the spring 26 under constant tension. Unless suitably held, the spring tends to eject the suspension member partially off the forward end of the track 15 into a position extending partially beyond the open front side of the cabinet 23. Inadvertent ejection of the suspension member is prevented by providing a suitable spring controlled latch 29 adjacent the forward end of the suspension member above the sheets 21.

As shown, the latch includes a dog portion 31 which lies within a recess or cut-out 32 in the folded top edge of the suspension member. The forward or free end of the track 15 is provided with a notch 33 which is engaged by the dog 31 as soon as the suspension member is properly telescoped into place. To effect release and the desired partial ejection of the suspension member, the finger portion 34 of the latch 29 is depressed sufficiently to withdraw the dog 31 from the notch 33 whereupon the spring 26 immediately comes into play and forcibly ejects the suspension member a short distance through the open front side of the cabinet. Accordingly, the index tab 25 on the partially ejected suspension member can be viewed without difficulty and if complete removal of the suspension member is desired the user can easily grasp the suspension member with both hands if necessary.

In the embodiment of the invention illustrated in Figs. 4 and 5, the tubular hanger arm 35 illustrated has one end 36 turned down for engagement in the apertured flange of a mounting support 12*a* whereby said arm is pivotally mounted for movement in a horizontal plane. The suspension member 37 is substantially like the suspension member 18 previously described except that in this instance it may have its upper margin rolled over sufficiently to define a substantially tubular portion 38 to be telescoped into the tubular hanger arm 35 from its free end. The sheet attaching portion of the suspension member depends through a slot 39 extending inwardly longitudinally from the free end of the hanger arm so that sheets may be attached in the manner previously described.

A coil spring 41, mounted within the tubular hanger arm 35, is compressed upon complete insertion of the slidable suspension member 37 to normally urge said member outwardly of the cabinet in a manner and for the purposes previously described. The suspension member is, in this instance, retained within the hanger arm against the action of spring 41 by means of a spring controlled latch 29*a* carried on the forward end of the hanger arm in such manner as to dispose its downwardly extending dog portion 31*a* into its interior for engagement with a recess or notch 33*a* in the rolled margin 38 of the suspension member. Obviously a notch 33*a* may be provided adjacent each end of the suspension member so that either end of said member may be inserted into the hanger arm.

The structure illustrated in Fig. 6 is substantially like that shown in Fig. 4, except that here the hanger arm 35*a* consists of a rod having a downturned end portion 36*a* pivotally mounted in the support 12. The suspension member 37 is constructed substantially like that shown in Fig. 4 and is telescoped over the free end of the rod 35*a*. The spring controlled latch 29*a* is carried by the suspension member 37 and is arranged to have its dog 31*a* engage a notch 33*a* in the hanger arm whereupon a spring 41 carried on said rod is held compressed between the member and a washer or shoulder adjacent to arm mounting.

Although exemplary embodiments of the invention have been illustrated in the accompanying drawing and described in detail in the foregoing specification, it is to be understood that the disclosures and descriptions are illustrative and not restrictive and that the invention may embody a variety of modifications in detail structure without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. In a filing unit, a hanger arm having means at one end to provide a pivotal support therefor, a track co-extensive with said arm, a sheet suspension member having means on one edge telescopically slidable along said track inwardly from its free end, said member depending below said track, a manually operable latch on the member normally co-acting with said track to retain the member in place thereon, and a spring on said arm tensioned by the retained member to urge the member toward the free end of the arm upon release of said latch.

2. In a filing unit, a hanger arm having means at one end to provide a pivotal support therefor, a track co-extensive with said arm, a sheet suspension member telescopically slidable along said track inwardly from its free end, a latch on the member to releasably co-act with a notch in said track to retain the member in place thereon, and a spring on said arm having a leg portion extending into the path of the member whereby said spring is tensioned by the retained member to urge said member toward the free end of the arm upon release of said latch.

3. In a filing unit, a hanger arm mounted at one end for pivotal movement in a horizontal plane, a sheet suspension member telescopically slidable along said hanger arm inwardly from its free end, said member having its sheet attaching portion depending below the arm, a manually releasable latch on the member to co-act with the arm to retain the member in place irrespec-

tive of the pivotal position of said arm, and a spring on said arm tensioned by the retained member to urge the member toward the free end of the arm upon release of said latch means.

4. In a filing unit, a hanger arm having a downturned end engageable in a support to provide a pivotal mounting therefor, a sheet suspension member telescopically slidable along said arm inwardly from its free end, manually releasable means on the member to co-act with a recess at the free end of the arm to retain the member in place thereon, and a spring on said arm tensioned by the retained member to urge the member toward the free end of the arm upon release of said means.

5. In a filing unit, a hanger arm having mounting means at one end for pivotal movement in a horizontal plane, a sheet suspension member, a tubular portion coextensive with one longitudinal edge of said member telescopically slidable along said arm inwardly from its free end, a latch on said member, means on the arm engageable by the latch to retain the member in place thereon, and a spring arranged to be tensioned by the retained member to urge the member toward the free end of the arm upon release of said latch.

ELMER L. ZWICKEL.