No. 841,813. PATENTED JAN. 22, 1907.

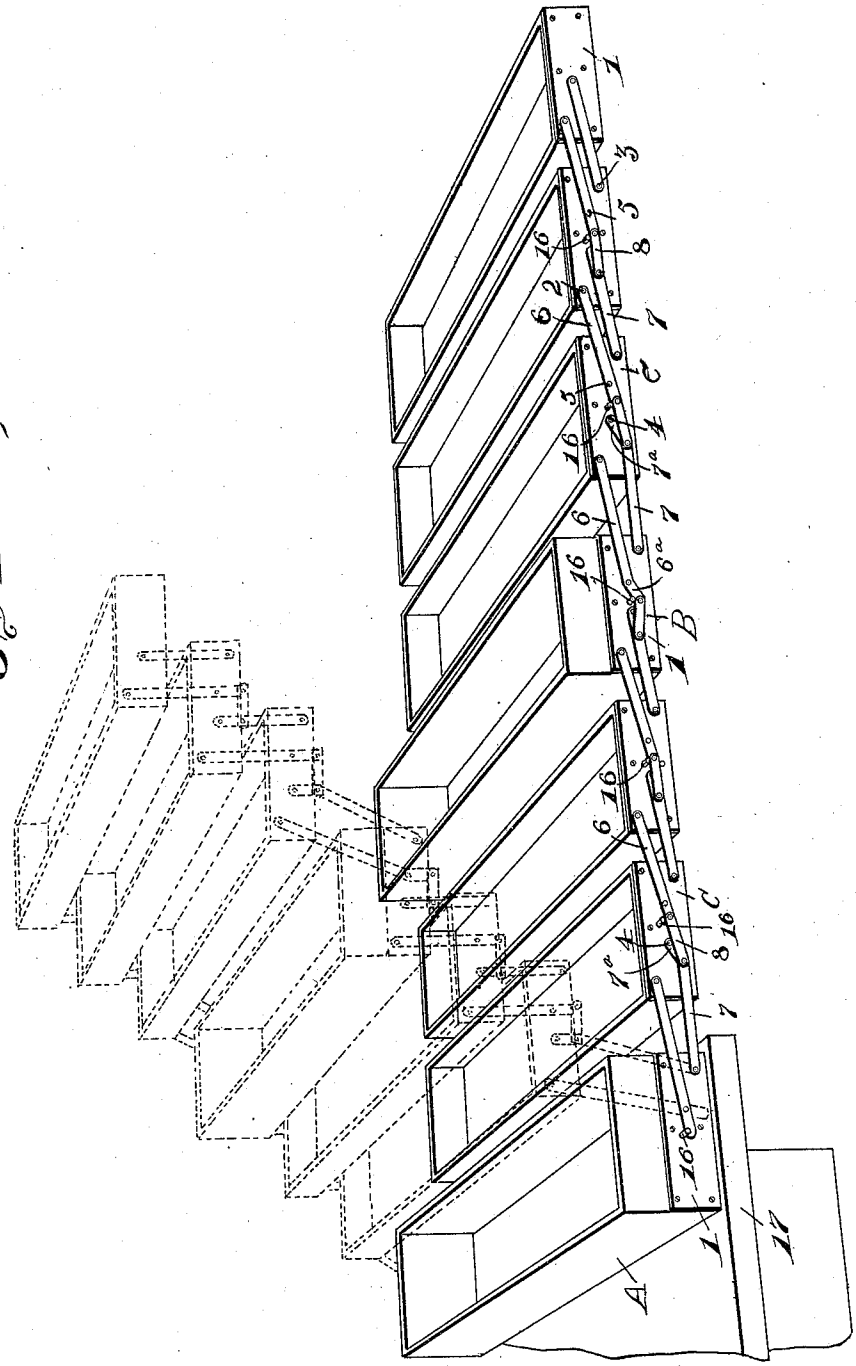
L. W. PLUMMER.

DISPLAY DEVICE.

APPLICATION FILED MAR. 31, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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H. C. Shepard.

Lloyd W. Plummer, INVENTOR

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2 SHEETS—SHEET 2.

Fig. 2.

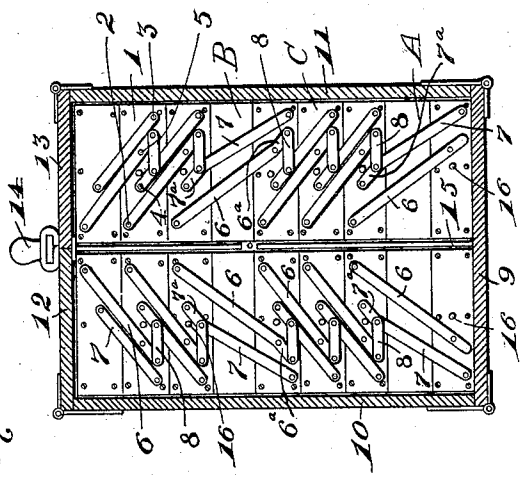
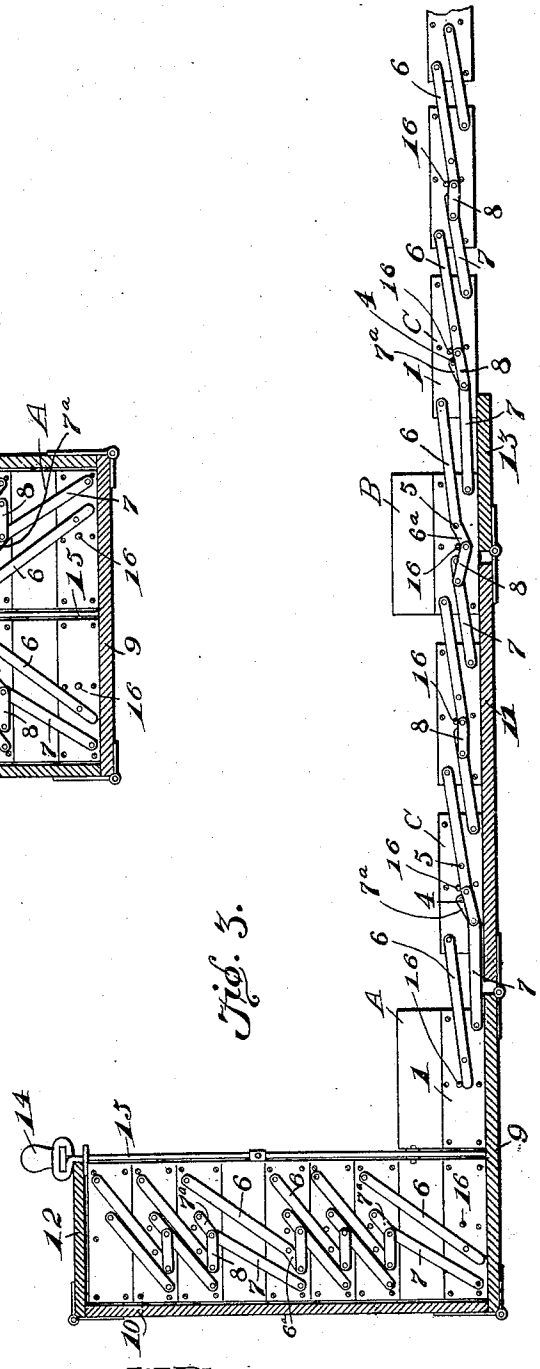


Fig. 3.



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UNITED STATES PATENT OFFICE.

LLOYD W. PLUMMER, OF BLOOMINGTON, ILLINOIS.

DISPLAY DEVICE.

No. 841,813. Specification of Letters Patent. Patented Jan. 22, 1907.

Application filed March 31, 1906. Serial No. 309,183.

To all whom it may concern:

Be it known that I, LLOYD W. PLUMMER, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented a new and useful Display Device, of which the following is a specification.

This invention relates to display devices, and has for its object to provide a novel assemblage of trays whereby a series of trays may be folded one upon another so as to form closures for the successive trays and to enable the unfolding of the series of trays by manipulating the uppermost tray only so as to bring the entire series into a position for convenient access to the contents thereof.

The invention consists primarily in a novel form of lazy-tong connection between the successive trays so as to transfer motion from one tray to another, and thereby enable the convenient unfolding and folding of the series of trays.

Another object of the invention is to have the lazy-tong connection self-supporting when extended, whereby the lowermost tray may be secured upon a table or other support and the successive trays projected beyond the support in displaying position without requiring any additional supports.

It is proposed to adapt the present series of trays for use in connection with a display-case, although the trays may be used independently of a case wherever such an arrangement may be desirable.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a series of trays assembled in accordance with the present invention and shown in displaying position, an intermediate position of the trays being indicated by dotted lines. Fig. 2 is a view of two sets of trays assembled in folded relation within a display-case, the case being broken away to show the trays. Fig. 3 is a similar view showing one side of the case open and one set of trays unfolded into displaying position.

Like characters of reference designate corresponding parts in all of the figures of the drawings.

While any number of trays may be assembled in accordance with the present invention, I have shown seven trays in the accompanying drawings, two of the trays (designated A and B) being deeper than the other trays C. Although I contemplate connecting the lazy-tong device directly to the ends of the trays, I prefer to provide each tray with a metallic plate 1, suitably secured to the outer face of each end thereof. Upon each plate of each intermediate tray pivot pins or studs 2 and 3 are provided adjacent diagonally opposite corners of the plate, and between these studs are two other studs 4 and 5, which are alined from front to back of the tray and are disposed substantially midway between the studs 2 and 3.

Each tray is provided with a link or tong member 6, pivotally hung from the stud or pin 2, and another link or tong member 7 hung from the stud 4 with its lower end pivotally connected to the stud 3 of the next-below tray. The link 6 is pivoted intermediate of its ends to the stud 5 of the next-below tray, and the lower extremity of the link 6 is pivotally connected to an intermediate portion of the next-below link or tong member 7 by means of a link 8, which normally maintains a substantially horizontal position.

When the series of trays are of corresponding depths, the corresponding link or tong members are of uniform lengths; but where a deeper tray occurs, the links 6 and 7 must of course be somewhat longer, and the lower end of the link 6 is provided with a deflected portion 6^a and is pivoted to the stud 5 of the deeper tray at the point of deflection between the tong members 6 and 6^a, and one end of the link 8 is pivoted to the lower end of the deflected portion 6^a, the opposite end of the link 8 being pivoted to an intermediate portion of the next-below link or tong member 7 of the shallower tray immediately below. The upper end of the next-above link 7 of the deep tray is provided with a deflected portion 7^a, which has its upper end pivoted to the stud 4 of the shallower tray immediately above the deeper tray, and one end of the link 8 is pivoted to the tong member 7 at the point of deflection between the tong members 7 and 7^a, the opposite end of the link 8 being pivoted to the lower end of the next-above link or tong

member 6. The foregoing-stated deflections of the links 6 and 7 are necessary to preserve a regular length for the link 8 and to insure a uniform movement of the trays throughout a series of trays.

In one application of the present invention it is proposed to inclose two sets of trays in a case made up of a base 9, opposite sides 10 and 11 hinged to the base, and top sections 12 and 13 hinged to the respective sides, there being a suitable handle 14 connected to the base by means of a rod 15, any suitable form of lock and latches being employed to connect the top sections. Upon opening one side of the adjacent top section of the case, as illustrated in Fig. 3 of the drawings, the adjacent set of trays may be unfolded so as to lie in a substantially horizontal plane to display the contents thereof, and the other set of trays may likewise be extended to display its contents. In extending and folding the series of trays the entire series is controlled by the manipulation of the uppermost tray, whereby the series may be conveniently unfolded and folded without handling the individual trays.

It is proposed to have the trays self-supporting when moved to displaying position, and this is accomplished by providing each end of each tray with a shoulder or projection 16, disposed between and slightly above the pivot-studs 4 and 5 and in the upward path of the lower end of the adjacent link 6, whereby the joints are prevented from rising above the horizontal, and the entire series of trays will be supported from the base-tray A, the latter of course being rigidly secured in any suitable manner to an appropriate base, such as the bottom of a case, as in Figs. 2 and 3, or to a table-top or counter 17, as in Fig. 1.

Having thus described the invention, what is claimed is—

1. A display device including a series of superimposed trays one of which is deeper than the other, a lazy-tong connection between the series of trays said lazy-tong connection having deflected portions adjacent said deep tray, and a stop carried by each tray for engagement with an adjacent portion of the lazy-tong connection to limit the movement thereof and render the same self-supporting.

2. A display device comprising superimposed trays one of which is deeper than the others, links pivotally depending from the front portion of each end of each tray and pivoted intermediate of its ends to the next-below tray, another link pivotally depending from each tray in rear of the first-mentioned link and terminally pivoted to the next-below tray part of said links having deflected portions, and a substantially horizontal link connecting the lowermost end of the first-mentioned link of each tray with an intermediate portion of the second-mentioned link of the next-below tray.

3. A display device comprising a series of superimposed trays one of which is deeper than the others, a link pivotally depending from the front portion of each end of each tray and pivoted intermediate of its ends upon the next-below tray, another link pivotally depending from each tray and pivotally connected to the next-below tray, and a substantially horizontal link pivotally connecting the lower end of the first-mentioned link with an intermediate portion of the second-mentioned link of the next-below tray, the lower portion of the first-mentioned link which is connected to the deep tray being deflected into substantial parallelism with the next-below second-mentioned link, and the upper portion of the second-mentioned link of the deep tray being deflected into substantial parallelism with the next-above first-mentioned link.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LLOYD W. PLUMMER.

Witnesses:

CARL E. BEHR,

L. B. RHOADS.