(No Model.) 2 Sheets—Sheet 1.

E. S. MILLER.

PHOTOGRAPH EXHIBITOR.

No. 394,498. Patented Dec. 11, 1888.

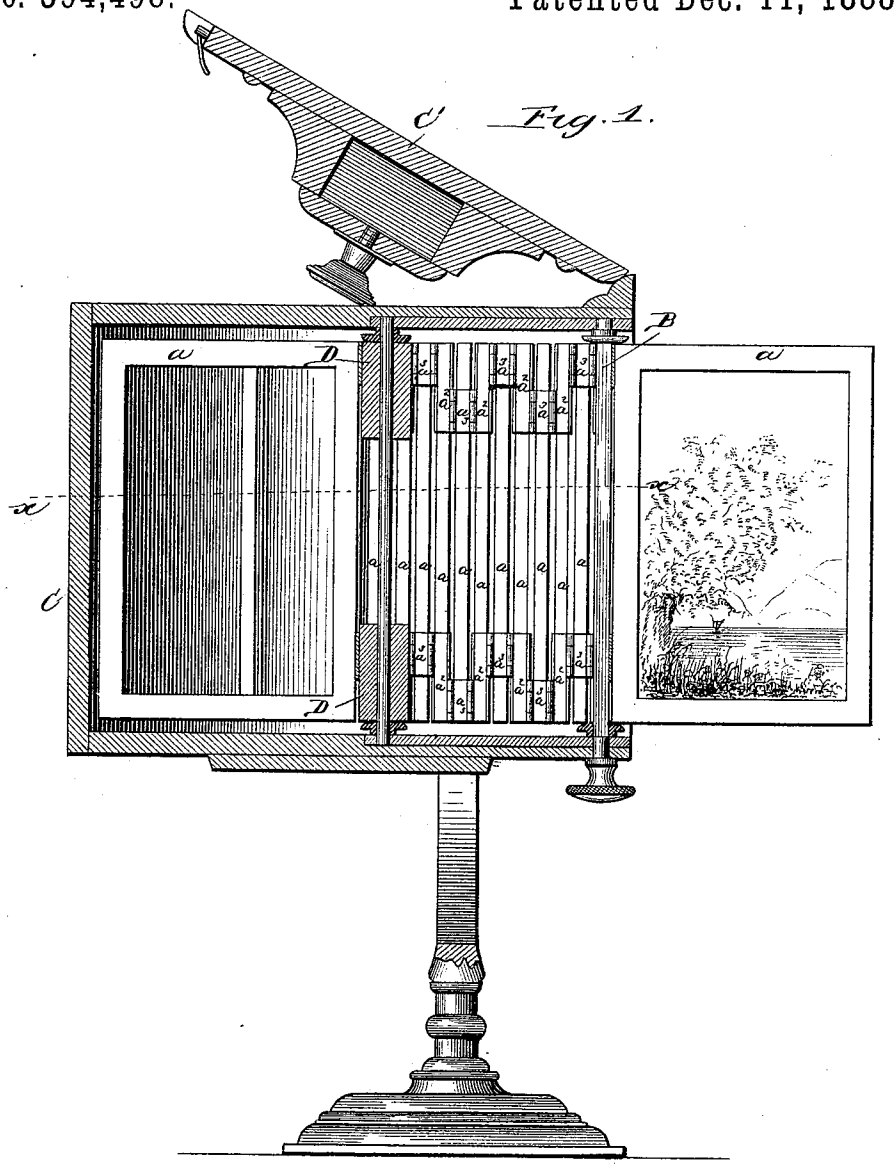


Fig. 1.

Witnesses
P. Fossiter.
L. L. Page.

Inventor.
Edward S. Miller.
By Chas. G. Page
Atty.

N. PETERS. Photo-Lithographer. Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

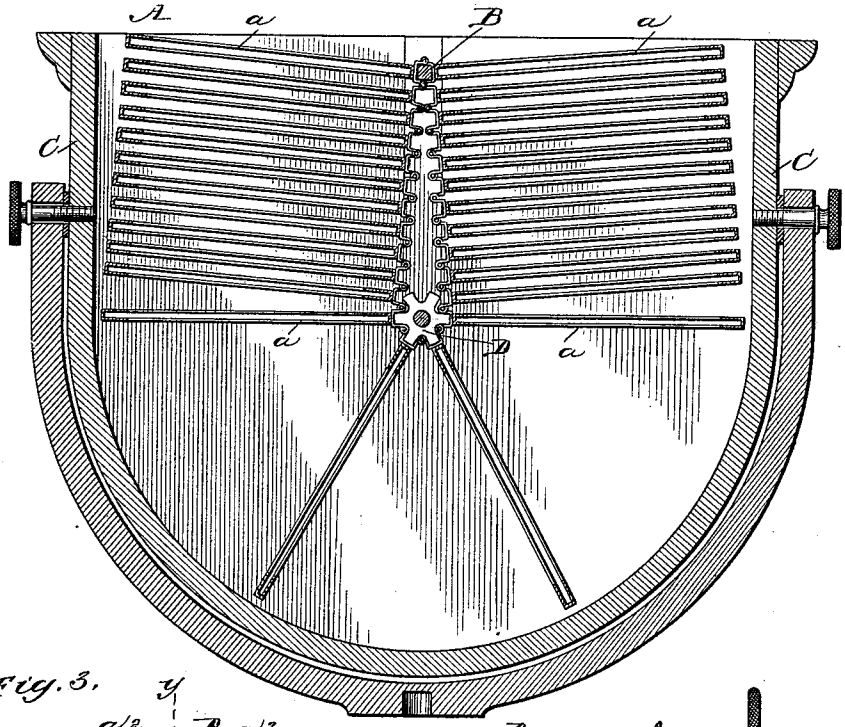
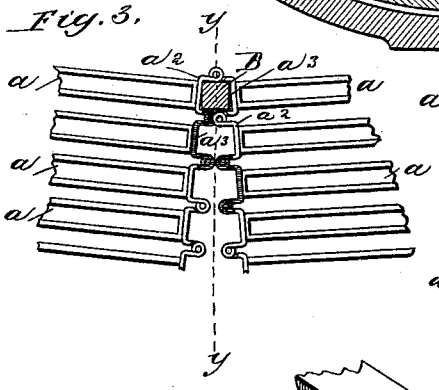


Fig. 3.



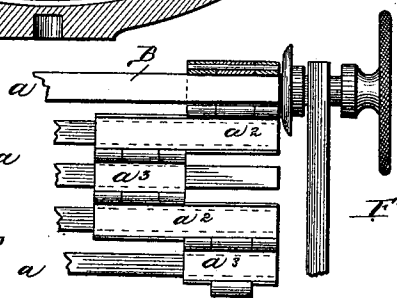
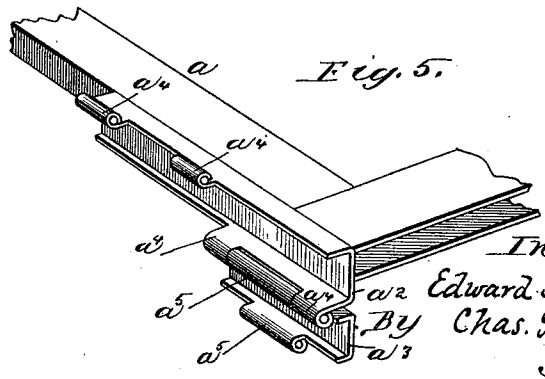


Fig. 4.

Fig. 5.



Witnesses.
L. L. Page.

Inventor
Edward S. Miller.
By Chas. G. Page.
Atty.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

EDWARD S. MILLER, OF CHICAGO, ILLINOIS.

PHOTOGRAPH-EXHIBITOR.

SPECIFICATION forming part of Letters Patent No. 394,498, dated December 11, 1888.

Application filed April 18, 1888. Serial No. 271,057. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. MILLER, a subject of the Queen of Great Britain, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Photograph-Exhibitors, of which the following is a specification.

This invention relates to picture-exhibitors of the kind in which a set or series of holders for cards, photographs, or other like pictures are arranged within a casing and means provided whereby such holders may be successively brought into position to permit an inspection of the cards, pictures, or photographs. As a means for bringing the holders successively into position for the inspection of the pictures, said holders have been attached to an endless flexible belt arranged to pass around rollers, so that by rotating one of such belt-carrying rollers the consequent travel of the belt might bring the holders, with their respectively-allotted pictures, successively into position for display.

In constructing an apparatus of such character the attachment of the holders to an endless flexible belt in a durable, economical, and otherwise proper manner is a matter of considerable difficulty, and, in fact, experience has shown that under the frequent usage to which the apparatus is subjected the connections between the holders and the belt often give way, and frequently the belt becomes torn to an extent to render the apparatus inoperative. These objectionable features are particularly noticeable in photograph-exhibitors in which one edge of each holder is attached to the endless belt and the holders set closely together, so as to provide one belt with a large number of photograph-carrying frames or holders.

An object of my invention is to dispense with the endless flexible belt and to provide an endless series of flexibly-connected picture or photograph holders, which said endless series can be supported upon rolls and caused to travel so as to bring the holders successively into position for inspection. It is also desirable in an apparatus of the foregoing character that provision should be made whereby when a holder is brought to the point of inspection it may be separated from the balance of the holders, so that the photograph or photographs it carries may be readily and conveniently viewed. In Patent No. 172,328 this is attained by the provision of a polygonal belt-roller having each one of its sides corresponding in width to the width of the edge of any one of the holders or to such strip as may provide a connection between the edge of the holder and a flexible belt, in which way, by arranging the holders with reference to the polygonal roll so that during operation the attached edges of the holder will successively match the sides of the roll, the separation of any one holder from the remaining holders can be effected at the point of inspection.

A further object of my invention is to improve upon such construction and connect the holders in a flexible series in a way whereby, while the endless belt can be dispensed with, any one of the holders can be made to separate from the rest of the holders at the point of inspection.

A further object of my invention is to provide an endless series of flexibly-connected holders, which, while permitting any one of the holders to be separated from the rest of the holders at the point of inspection, will also permit all of the holders at times during the operation of the apparatus to be brought within the compass of the inclosing-case without necessitating a continuance of the operation until a gap in the series has been reached, as will be hereinafter more fully explained.

A further object of my invention is to provide certain improved details of construction serving to promote the serviceability and general efficiency of picture or photograph exhibitors.

To the attainment of the foregoing and other useful ends my invention consists in matters hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 represents a section taken on a vertical plane centrally through a picture or photograph exhibitor embodying the principles of my invention, one of the picture or photograph holders being projected into position to separate it from the remaining holders and place such view or views as it may carry in posi-

tion for convenient inspection. Fig. 2 represents a section taken through the casing on a plane indicated by line x x, Fig. 1, with all of the holders, however, back within the casing. Fig. 3 is a detail representing, on a somewhat larger scale, portions of the open-end edges of certain of the holders that are in the immediate vicinity of shaft B, which latter is shown in cross-section. Fig. 4 represents, mainly, portions of the inner or back edges of certain of the holders and is in the nature of a section on line y y, Fig. 3. Fig. 5 represents in perspective a corner portion of one of the holders with one channel-plate secured thereto and connected by a hinge-joint with another channel-plate that is to be secured to the next succeeding holder, which in said view is omitted.

In said drawings, A denotes as a whole a set of leaves or holders which may be adapted in any suitable way for the reception of pictures or other like matters. The holders a are linked or jointed together at their inner or back edges, so as to flexibly connect them in endless series. This endless series of holders is arranged to travel over or about one or more rotary rolls or shafts in the manner of an endless chain or link belt, whereby the holders can be successively brought to the locality whereat it is desired to permit an inspection of the pictures.

The rotary shaft B, about which the endless series of holders is arranged to pass, is made polygonal in cross-section, the preferred form being square. Each holder is provided along its inner or back edge with a longitudinally-arranged groove or channel adapted to receive a suitable portion of the shaft or roll B, as best illustrated in Figs. 2 and 3, wherein the shaft is shown engaging in the channels of two oppositely-hanging holders. By this arrangement the rotation of the shaft will cause an advancement or travel on the part of the endless series of holders, which are so linked together that the shaft in parting with one holder will engage another. Said arrangement also permits any one of the holders to be separated from the immediately preceding and the immediately succeeding holders, so that while such preceding and succeeding holders may hang or lie in substantially one and the same plane, as in Figs. 2 and 3, the intermediate holder may be projected at right angles to such plane, as illustrated in Fig. 1, thereby permitting a picture at either or both of its sides to be readily inspected. A further feature involved in this arrangement is that at any time during the travel of the endless series of holders any two adjacent holders may by a partial turn of the shaft be thrown apart to such extent as to bring them into a plane substantially parallel with the opening of the box or casing—for example, as in Fig. 2—in which way the holders can at any time be all brought within the casing, it being observed that where the holders were attached to an endless belt as heretofore, it became necessary to revolve the shaft until a gap in the series was reached, in order to avoid leaving one of the holders projecting out from the casing. This will be readily understood from the following: At any time during the travel of the endless series of holders the shaft can be turned to bring it into engagement with the channels a' of two oppositely-hanging holders, as in Figs. 2 and 3, at which juncture all of the holders will be confined within the body of the casing. In this way, where the box or casing is provided with a lid or cover—such, for example, as the cover C′—no obstruction will be presented to the closing of such cover; but whether the casing be provided with such lid or with a glass top the holders can at any time be all brought within the body of the casing.

The channels a' may for the broader purposes of this invention be formed either in or upon the back edges of the holders, the result being in either case the provision of channels whereof the sides are formed by parallel flanges either integral with or made separately from and secured to the holders.

As a further feature of improvement, however, I prefer providing said channels by securing flanged or channel plates to the backs of the holders, since such plates can be quickly and economically struck up and easily and permanently secured to the holders by soldering, riveting, or other suitable fastening devices, it being observed that where the holders consist of sheet-metal frames the channel-plates can be rigidly and permanently secured to the holders by soldering or, if desired, by riveting or the like. The provision of these channel-plates also serves to afford an extremely simple and desirable means whereby pintle-bearings for the pintles of hinge-connections between the holders can be provided. This is particularly illustrated in Fig. 5, wherein the flanges of a channel-plate, a^2, are at certain points widened and their widened portions simply bent to provide pintle-bearings a^4, while the flanges of the channel-plate a^3 are at suitable points widened and their widened portions bent to provide pintle-bearings a^5. With such arrangement it will also be observed that the pintle-bearings also constitute sides of the channels.

As a further feature of improvement, the hinges are arranged to alternate in position, so that where a bend occurs in the series, as in Fig. 1, in which such "bend," as it may be termed, is due to the passing of the series of holders around the shaft B, the holders engaged by the shaft can be more conveniently brought into substantially one and the same plane, it being understood that by arranging the hinges so as to alternate in point of position along the holders there will be no interference between opposing pintle-bearings adjacent to said bend or turn. To such end the pintle-bearings a^4 at one side of each plate a^2 can be arranged at or toward one end of the plate, while the pintle-bearings a^4 at its opposite

side can be arranged at or toward its opposite end. With this arrangement of pintle-bearings a^4 upon one holder the pintle-bearings a^5 of each plate a^3 can be arranged directly opposite one another. As a matter of course each holder could be provided with a channel or channel-plate extending the entire length of its back edge; but for sake of economy and lightness each holder can be provided with two channel-plates, one toward each end of the holder.

The alternate position of the hinges will be readily understood by reference to Fig. 1, wherein the relative disposition of the channel-plates a^2 and a^3 is indicated. In this connection it will be observed that while the hinges themselves constitute certain portions of the channels, said hinges could obviously be made to solely provide the back edges of the holders with channels, although the addition of the flanges along the plates is preferred, in order that a more effective engagement of the shaft B with the holders may be insured.

The roll or shaft B is by preference the one to which the power is applied, and in such case the roll D may be an idler, although power could obviously be applied to either or both rolls.

The roll D could be made square; but I find better results can be attained by making it somewhat larger than the roll B and providing it with a set of longitudinal ribs adapted to match and engage the channels of the holders, as in Fig. 2, such arrangement serving to permit a more free action on the part of the endless series of holders. While the ribs of roll D could extend from end to end thereof, such is not necessary, since it could be composed of two short roll-lengths formed with or rigid upon a spindle.

For the purposes of this invention the form or construction of the inclosing-casing is not material, and, while I have selected the extremely desirable construction and arrangement of casing described in Letters Patent No. 379,522, either the construction described in Letters Patent No. 172,328 could be employed or any other form or construction and arrangement of box or casing used.

What I claim as my invention is—

1. The combination, substantially as hereinbefore set forth, of a set of picture-holders hinged together in endless series and each provided along its back edge with a horizontally-arranged channel and a rotary shaft provided with a polygonal portion adapted and arranged for engaging in said channels along the back edges of the picture-holders, for the purpose described.

2. The combination, substantially as hereinbefore set forth, with a set of picture-holders hinged together in endless series, of the hinge-joints by which said frames are connected together, consisting of pintle-bearings upon the back edges of the picture-holders and pintles by which interlocking pintle-bearings of different picture-holders are coupled together.

3. The combination, substantially as hereinbefore set forth, with a set of picture-holders connected together in endless series, of plates held upon the back edges of the picture-holders and provided with flanged portions bent to form pintle-bearings, and pintles by which the pintle-bearings on different picture-holders are coupled together.

4. The combination, substantially as hereinbefore set forth, with a set of picture-holders connected together in endless series, of plates secured to the back edges of the picture-holders and bent to provide channels having pintle-bearings at opposite sides of the channels, the pintle-bearings of the several picture-holders being connected together by pintles, for the purpose described.

5. The combination, substantially as hereinbefore set forth, with the endless series of hinge-connected picture-holders, of the plates a^2 and a^3, respectively attached to the back edges of alternate picture-holders and provided with pintle-bearings a^4 and a^5, arranged to alternate in position along the series of picture-holders, substantially in the manner and for the purpose set forth.

EDWARD S. MILLER.

Witnesses:
CHAS. G. PAGE,
L. L. PAGE.