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MAGAZINE PLATE HOLDER AND FILM-PACK THEREFOR.

APPLICATION FILED JULY 13, 1910.

1,066,955. Patented July 8, 1913.

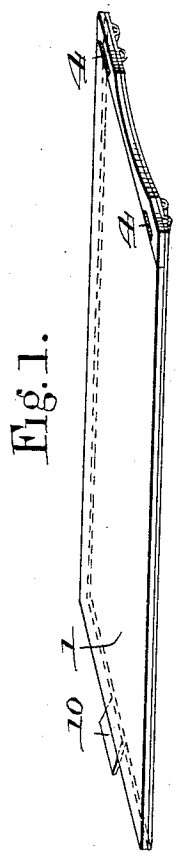


Fig. 1.

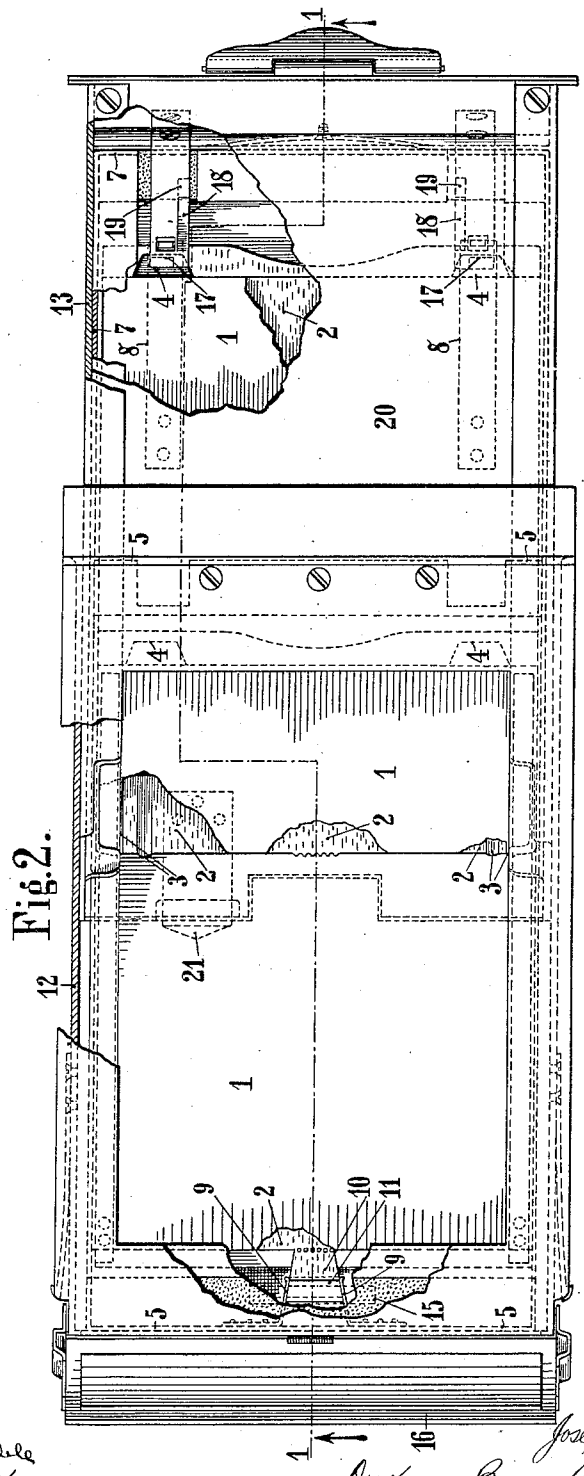


Fig. 2.

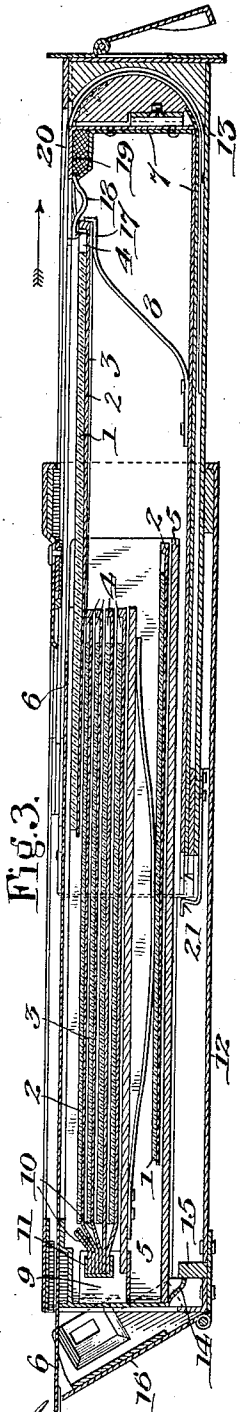


Fig. 3.

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MAGAZINE PLATE-HOLDER AND FILM-PACK THEREFOR.

1,066,955. Specification of Letters Patent. Patented July 8, 1913.

Application filed July 12, 1910. Serial No. 571,635.

To all whom it may concern:

Be it known that I, JOSEPH SCHMUCK, a citizen of the German Empire, and resident of Steglitz, near Berlin, Germany, have invented certain new and useful Improvements in Magazine Plate-Holders and Film-Packs Therefor.

The invention relates to apparatus for changing light-sensitive element united in packages with light-proof under sheets or intermediate sheets. The changing is effected in a dark-slide provided with a change box into which the package is removably inserted, and at each withdrawal of the change box from the slide catches provided on the change box, withdraw the uppermost element of the pack, which is then pushed in at the bottom when the box is re-inserted into the package-container.

The object of the invention is to secure reliable action and easy manipulation of the apparatus. These purposes are primarily realized by adapting the package to the dark slide, namely by providing the top of the package with a shutting slide, which in the closed position, lies against the catches of the change-box when the package is inserted into the slide, so that the catches are unable to prevent the withdrawal of the package from the slide, but immediately engage the uppermost element as soon as the shutting slide is pulled out.

The shutting slide may be provided in a simple manner with a reliable guide, occupying small space, by forming the package of two parts, slidable one into the other, with the slide sliding between them, so that it does not require a special guide.

The reliability of the changing depends on the element being securely engaged by the catches and being held by them during the entire withdrawing movement, and also on the provision of suitable means for disengaging the element from the catches. Reliable engagement is secured by providing one of the slidable parts of the package, which is moved by the change box of the slide during the changing process, with springs which press against the upper side of package, *i. e.* against the side carrying the shutting slide and during the withdrawal of an element push the end of same engaged by the catches against the latter. The ends of the layer-carriers engaged by the catches are only disengaged by the locking-spring, when the change-box and the package part engaged with it are pushed in again.

In order to insure release of the ends of the layer-carriers engaged by the catches, the latter are provided with soft guides for the ends of the layer-carriers, said guides tending to bend the latter downward and disengage them from the catches as soon as the locking springs relax.

The reliability of operation is further increased by a special form of light-proof under sheets or intermediate sheets between the layer-carriers. These are provided at their longitudinal sides with outwardly pressed ribs or bosses or the like the effect of which is that each under sheet or intermediate sheet rubs the coated side of the next layer-carrier only with these ribs or bosses, which may be arranged so far to the side, that they only touch a strip of the layer which is of no account with regard to the exposure. The provision of similar lateral ribs, bosses or the like may with advantage be adopted with packages other than those here specially dealt with.

One form of construction of the invention is illustrated in the annexed drawings.

Figure 1 is a longitudinal section of the new changing apparatus on line 1—1 of Fig. 2, one element being shown partly withdrawn. Fig. 2 is a plan view of the apparatus shown in Fig. 1, and Fig. 3 shows a single element and its under-sheet in perspective.

The layer-carriers of the package are marked 1. These elements are firmly united with light proof intermediate sheets 2. Each element with its intermediate sheet 2 forming a light-sensitive element. Each intermediate sheet 2 is provided with extensions contacting with the coated sides of the adjacent element. On the drawing the extensions are shown in the form of longitudinal ribs 3 pressed out of the under sheets. In practice the extensions 3 are preferably arranged so close to the longitudinal edges of the under sheets, that they are covered by the lateral guides of the elements in the packing box, and leave no traces on the sensitized surfaces to be exposed; for the sake of clearness in the drawing the size of ribs 3 and their distance from the edges of the

elements is shown exaggerated. As illustrated on the drawing the light proof under sheet of each element is thickened at one end projecting beyond the element and this part is provided with catch openings 4 which do not completely penetrate the thickened end of the light-proof sheet. These catch openings serve for engaging the element during the changing-operations. The elements are arranged in a box 5 which can be made light-tight at one of its broader sides by means of a slide 6. The box 5 slides in a part 7 which forms a withdrawable slide and is also adapted to close the box 5 on one of the narrower sides, so that it serves as a closure for the box. The slide 6 is guided between the relatively slidable parts 5, 7 of the package, no special guide for the slide being necessary. The shutting drawer 7 has fixed to its bottom locking springs 8, the free ends of which are directed toward the exposure-aperture of the package, which is closable by the slide 6. A holding device in the package, consisting of springs 9, serves to retain the elements. The light-proof under sheets of the latter have at the ends opposite the catch-openings dove-tail shaped lugs 10, perforated at the junction with the under sheets and held together by means of a metal shoe 11 which can be inserted between the springs 9 of the packing box. The purpose of this arrangement is to prevent the engagement of an adjacent element by friction; when an element is gripped, the pull exerted is sufficient to tear off the perforated lug of said element, but the friction between the gripped element and the adjacent element is not capable of tearing off the lug of the latter, so that unintentioned withdrawal of elements is avoided.

Obviously other holding devices than that shown in the drawing, may be used without departing from the spirit of the invention, in order to prevent elements of the package from being pulled out unintentionally.

The package is arranged in a dark slide 12 with change box or drawer 13. A projection 14 of the package engages an abutment 15 on the dark slide and holds the package or its box 5 in the slide during the changing process. 16 is a cover of the dark slide, which closes the opening through which the package is inserted into the dark slide. 17 are catches fixed to the drawer 13. 18 are elastic guides on the catches, for the elements, the ends 19 of which rest loosely on the surface of the catches. 20 is a shutter of the drawer, slidable within a guide 20^a from the front to the back side around a curved guiding piece 20^b and fixed with one end 20^c at the upper side of the dark slide 12, which, on withdrawal of the latter, automatically closes the wider side which serves as exposure aperture.

A catch spring 21 fixed to the bottom of the change drawer serves to secure the latter in operative position within the slidable shutter 7 of the package.

The operation of the apparatus is as follows;—When the elements in the package are to be successively exposed the package is placed in the dark slide 12, the cover 16 being opened for this purpose. When introducing the package into the dark slide the catch spring 21 automatically engages the bottom of the drawer shutter 7 of the casing, and the projection, 14 of the package engages behind the abutment 15 of the dark slide. After insertion of the box the slide 6 is withdrawn and the shutter 16 is closed. By withdrawal of the slide 6 the uppermost element is uncovered so that exposure can take place; simultaneously, the catches 17 are released and enabled to enter the catch-openings 4 of the elements. After the exposure the drawer 13 is withdrawn, taking with it part 7 of the package held within drawer 13 by spring 21 and pulling out the uppermost element by the catches 17 engaging the catch openings 4 of this sensitive element. The holder 9 for the perforated lugs of the light-proof under sheets prevents unintentional engagement of unexposed layer-carriers. As soon as the drawer 7 of the package is drawn out a certain distance, the lock springs 8 are enabled to move with their disengaged ends toward the exposure aperture and toward the under face of the element engaged by the catches, so that they press the element against the catches and cause the latter to securely hold the element when it is no longer supported by the other elements of the pack. During the withdrawal of the change drawer, the shutter 20 slides over the exposure aperture, so that the permanent light proof closure of the system is always preserved. As soon as the exposed element is entirely drawn out, the end which is not held by the catches 17 falls down, so that on re-introducing the change drawer and shutter slide of the package, the said element is pushed in below the pack in the container. The disengagement of the element from the catches is assisted by the elastic guides 18 which depress the end of the element engaged by the catches when the element is disengaged from the springs 8. The guides 18 are brought into operation by the shifting movement of the element toward said guides when the change-drawer 13 is pushed back into the dark slide 12. The changing process may then be repeated in the same manner. When all the elements have been exposed and the cover 16 is opened, the slide 6 is pushed in again, so that it lies below the hooks of the catches 17 of the change-drawer. The catch spring 21 is then disengaged from the bottom of the drawer 7, the user to this end inserting his hand through the end opening

controlled by cover 16 and manually freeing spring 21 from the bottom of the drawer 7, and the package is drawn out of the dark slide in the same manner as when it was introduced. The removal of the package from the dark slide, and the insertion thereof may be performed by day-light.

What I claim is:—

1. A package of light-sensitive elements comprising a receptacle having an exposing opening and a shutter slide for said opening, a plurality of elements contained therein, the elements provided with catch openings at one end and with light proof intermediate sheets, said receptacle consisting of two parts slidable one into the other one of said parts provided with springs adapted to press the catch opening end of an element during withdrawal from the receptacle toward the side of said receptacle containing the exposing opening.

2. A package of light-sensitive elements comprising a receptacle having an exposing opening and consisting of two parts slidable one into the other, a shutter slide for said exposing opening guided between said two parts sliding one into the other, a plurality of elements contained in said receptacle provided with catch openings and with light proof intermediate sheets, one of the receptacles forming parts provided with springs adapted to press the catch opening end of one of said elements during withdrawal from the receptacle toward the side of said receptacle containing the exposing opening.

3. A package of light-sensitive elements comprising a receptacle having an exposing opening and a shutter for same, a plurality of elements, each provided on one side with a light proof interposition or under sheet, and each having on its other side a light-sensitive surface, each said under sheet provided near its longitudinal edges with projections contacting with the light-sensitive-surface of the next adjacent element.

4. A package of light-sensitive elements comprising a receptacle having an exposing opening and a shutter for same, a plurality of elements, each provided on one side with a light proof interposition or under sheet, and each having on its other side a light-sensitive surface, each said under sheet provided near its longitudinal edges with projections contacting with the light-sensitive-surface of the next adjacent element, said receptacle consisting of two parts, one slidable into the other.

5. A package of light-sensitive elements comprising a receptacle having an exposing opening and a shutter for same, a plurality of elements each having a light-sensitive surface on one side, said elements provided with light proof interposition or under sheets, the under sheets provided with projections at their longitudinal sides contacting with the adjacent light-sensitive layer sides, said receptacle consisting of two parts one slidable into the other, and one of same provided with springs adapted to press the catch opening end of one of said elements during withdrawal from the receptacle toward the side of said receptacle containing the exposing opening.

6. A package of light-sensitive elements comprising a receptacle having an exposing opening and a shutter for same, a plurality of elements, each provided with catch openings at one end, and each provided on one side with a light-proof interposition or under sheet and on the other side with a light-sensitive surface, the under sheets each provided near its longitudinal edges with projections contacting with the light-sensitive side of the next adjacent element.

7. A package of light-sensitive elements comprising a receptacle having an exposing opening and a shutter for same, a plurality of elements, each provided with catch openings at one end, and each provided on one side with a light-proof interposition or under sheet and on the other side with a light-sensitive surface, the under sheets each provided near its longitudinal edges with projections contacting with the light-sensitive side of the next adjacent element, said receptacle consisting of two parts, one slidable within the other.

8. A package of light-sensitive elements comprising a receptacle having an exposing opening and a shutter for same, a plurality of elements each having a light-sensitive surface on one side, said elements provided with catch openings at one end and with light proof interposition or under sheets, the under sheets provided with projections at their longitudinal sides contacting with the adjacent light-sensitive layer sides, said receptacle consisting of two parts one slidable into the other and one of same provided with springs adapted to press the catch opening end of one of said elements during withdrawal from the receptacle toward the side of said receptacle containing the exposing opening.

9. A package of light-sensitive elements comprising a receptacle having an exposing opening and a shutter for same, a plurality of elements provided with light proof interposition or under sheets, the under sheets being thickened at one end, the thickened portions projecting beyond the elements and provided with catch openings which do not entirely penetrate the thickened portions of the under sheets.

10. A package of light-sensitive elements comprising a receptacle having an exposing opening and a shutter for same, a plurality of elements provided with light proof interposition or under sheets, catch openings within said elements of the package, the

under sheets provided at the end opposite the catch openings with easily detachable lugs, and a holder within said receptacle adapted to firmly hold said lugs.

11. A package of light-sensitive elements comprising a receptacle having an exposing opening and a shutter for same, a plurality of elements provided with light proof interposition or under sheets, catch openings within said elements of the package, the under sheets provided at the end opposite the catch openings with easily detachable lugs, a shoe engaging the detachable lugs of the several elements of the package and a holder within said receptacle adapted to engage said lug assembling shoe.

12. The combination of a dark-slide having an exposing opening and provided with a change-drawer provided with catches at one end, a package of light-sensitive layer-carriers inserted therein, the elements provided with catch openings and a slide adapted to form a separating wall between the catch openings of the elements and the catches of the change-drawer when in closed position.

13. The combination of a dark-slide having an exposing opening and provided with a change-drawer provided with catches at one end and with elastic guide pieces, a package of light-sensitive elements inserted therein, the elements provided with catch openings and a slide adapted to form a separating wall between the catch openings of the elements and the catches of the change-drawer when in closed position, the said guide pieces of the change-drawer adapted to coöperate with the elements when caught by said catches on re-inserting the change-drawer into the dark-slide and to secure disengagement of same from the catches.

14. The combination of a dark-slide having an exposing opening and provided with a change-drawer provided with catches at one end, a package of light-sensitive elements provided with catch openings inserted therein, said package provided with a shutter slide adapted to form a top cover for the package and to prevent access to the catch openings and to hold the catches of the change-drawer out of engagement with the catch openings of the elements when in closed position.

15. The combination of a dark-slide having an exposing opening and provided with a change-drawer provided with catches at one end, a casing consisting of two parts one slidable into the other and inserted therein and containing a package of light-sensitive elements provided with catch openings, and a slide adapted to form a separating wall between the catch openings of the elements and the catches of the change-drawer when in closed position, the change-drawer adapted to be coupled with one of the parts of the package containing casing and its catches adapted to enter the catch openings of the uppermost element of the package on opening the separating slide.

16. The combination of a dark-slide having an exposing opening and provided with a change-drawer provided with catches at one end, a casing consisting of two parts one slidable into the other and inserted therein and containing a package of light-sensitive elements provided with catch openings, a slide adapted to form a separating wall between the catch openings of the elements and the catches of the change-drawer when in closed position, the change-drawer adapted to be coupled with one of the parts of the package containing casing and its catches adapted to enter the catch openings of the uppermost element of the package on opening the separating slide, the part of the casing adapted to be coupled with the change-slide provided with springs adapted to press the catch opening end of the elements during withdrawal from the receptacle against the upper side of the pile of sensitive elements.

17. The combination of a dark-slide having an exposing opening and provided with a change-drawer provided with catches at one end and with elastic guide pieces, a casing consisting of two parts one slidable into the other and inserted therein and containing a package of light-sensitive elements provided with catch openings, a slide adapted to form a separating wall between the catch openings of the elements and the catches of the change-drawer when in closed position, the change-drawer adapted to be coupled with one of the parts of the package containing casing and its catches adapted to enter the catch openings of the uppermost elements of the package on opening the separating slide, the part of the casing adapted to be coupled with the change-slide provided with springs adapted to press the catch opening end of the element during withdrawal from the receptacle against the upper side, the said elastic guide pieces of the change-drawer adapted to coöperate with the elements when caught by the change-drawer catches on pushing back the change-drawer into the dark-slide and to secure disengagement of same from the catches.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOSEPH SCHMUCK.

Witnesses:
HENRY HASPER,
WOLDEMAR HAUPT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."