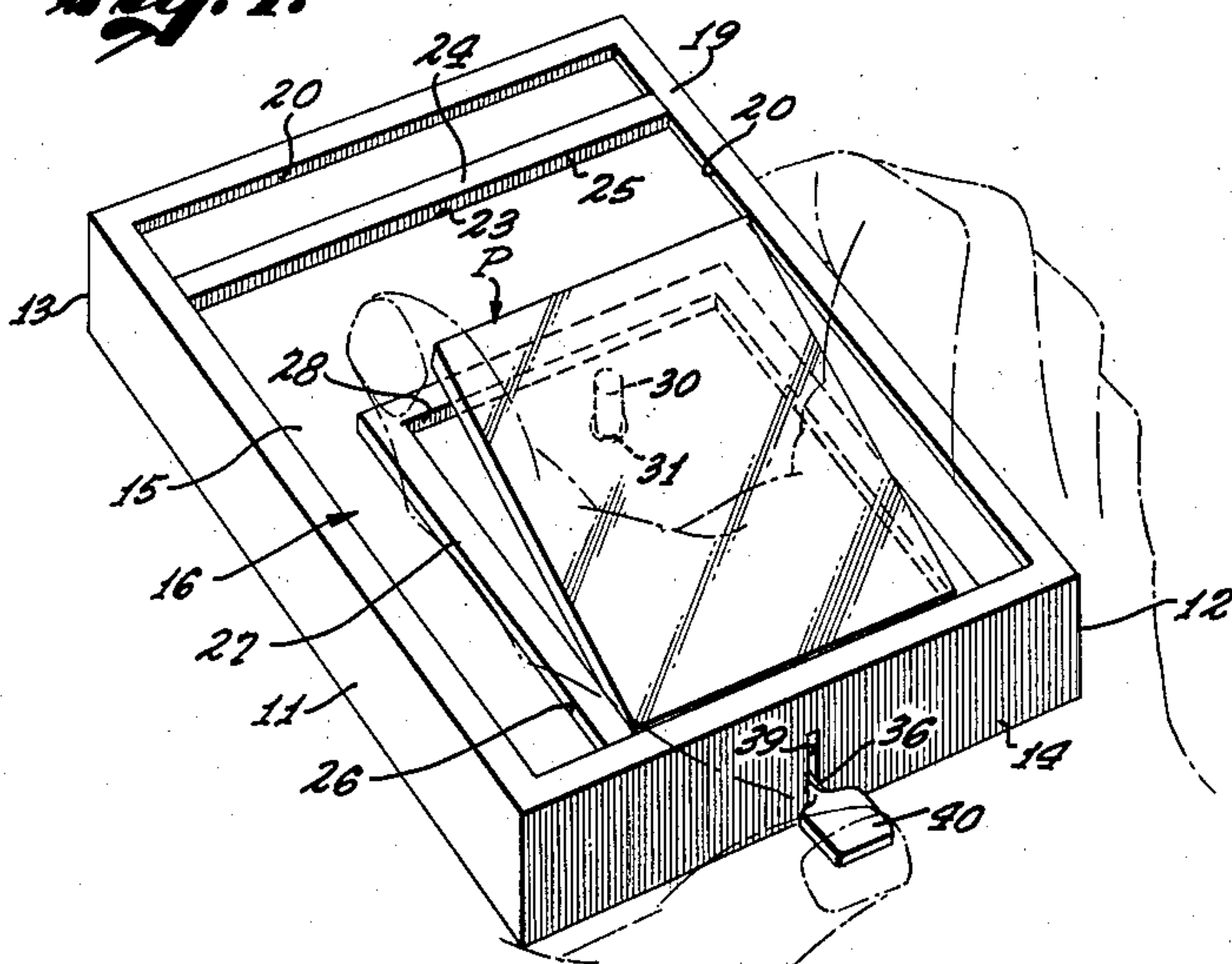


Sept. 2, 1958

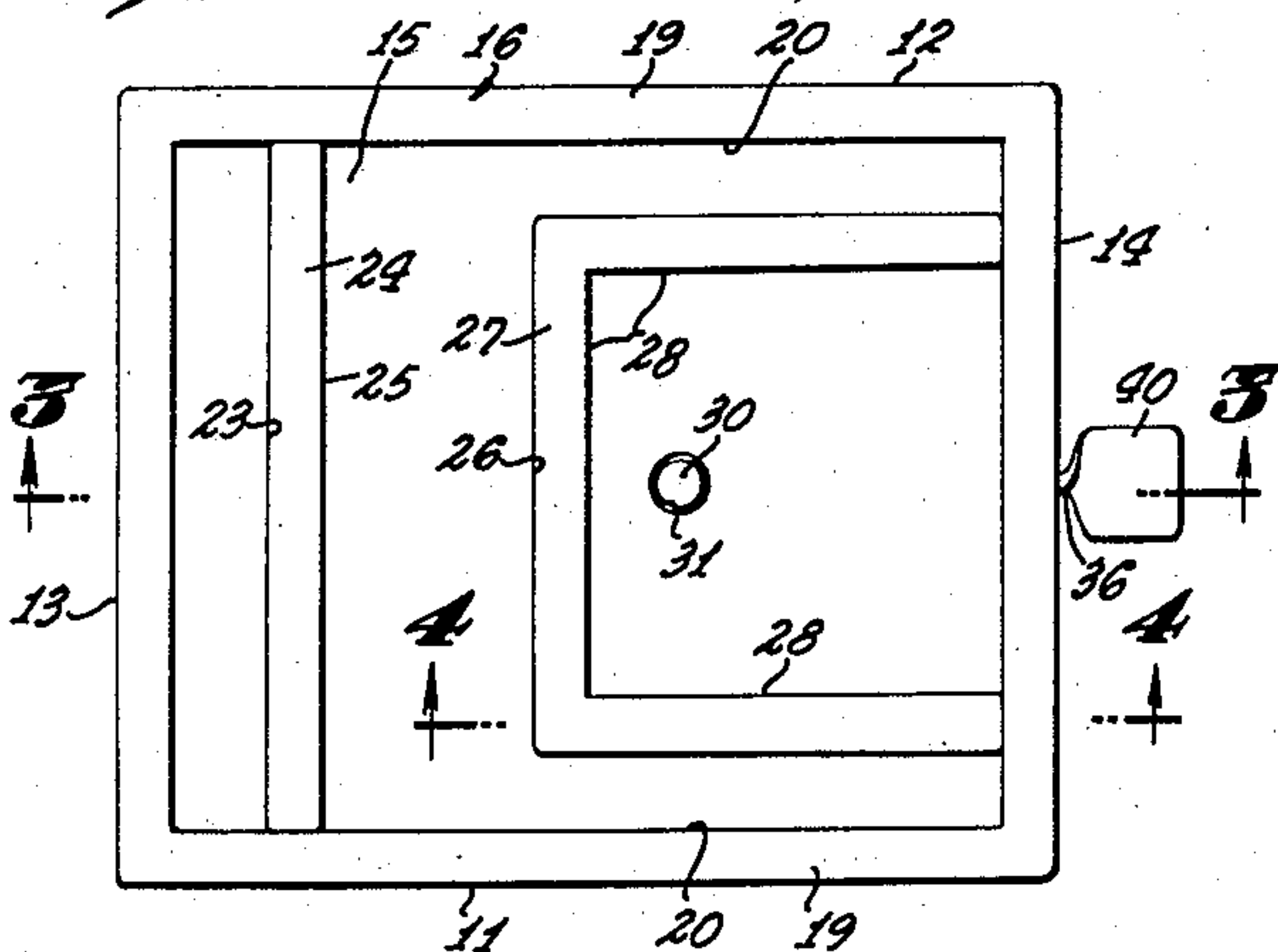
R. H. LYNAM  
 HOLDER TO FACILITATE CLEANING GLASS  
 PLATES FOR PHOTOGRAPHIC SLIDES  
 Filed May 17, 1954

2,849,744

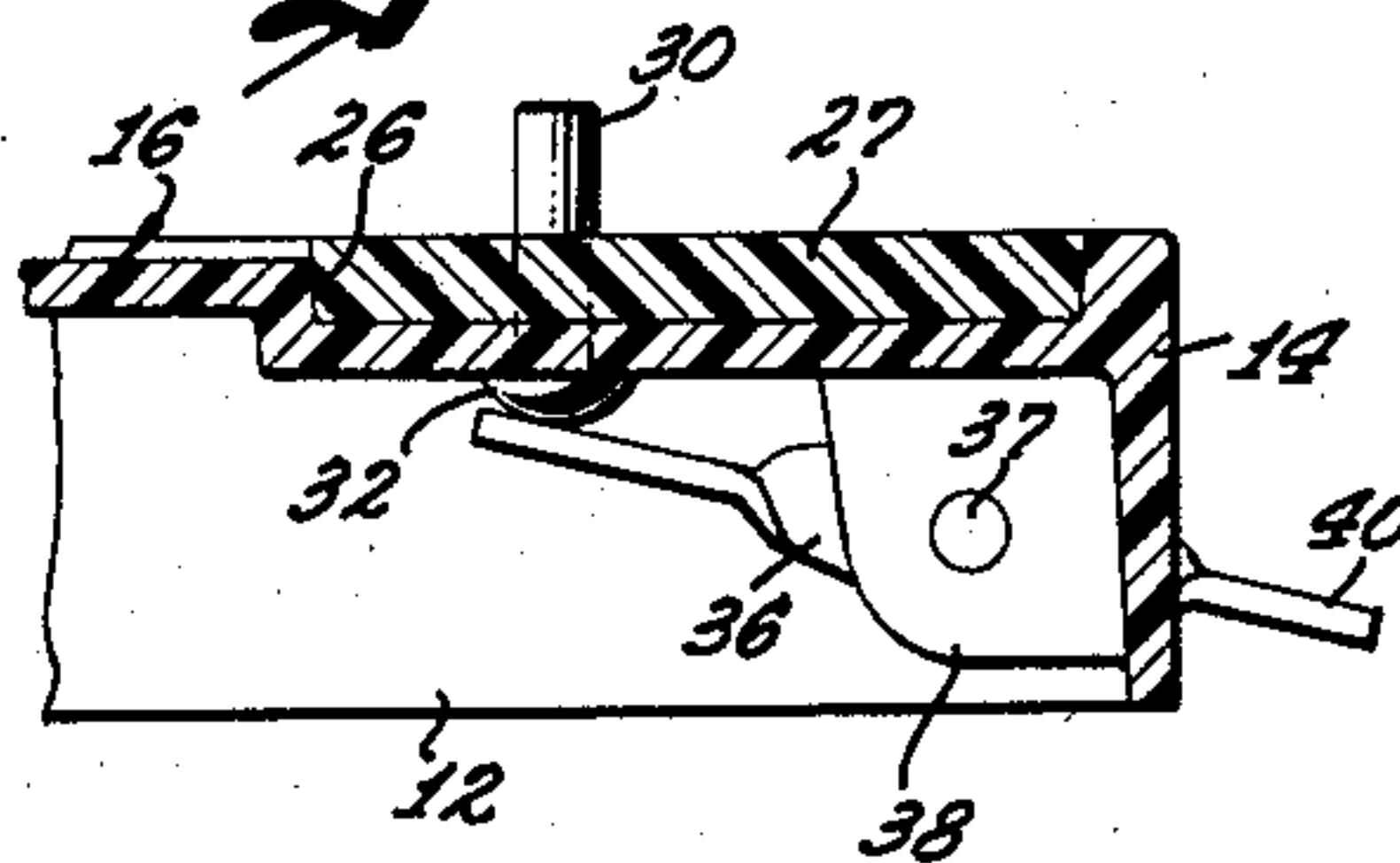
*Fig. 1.*



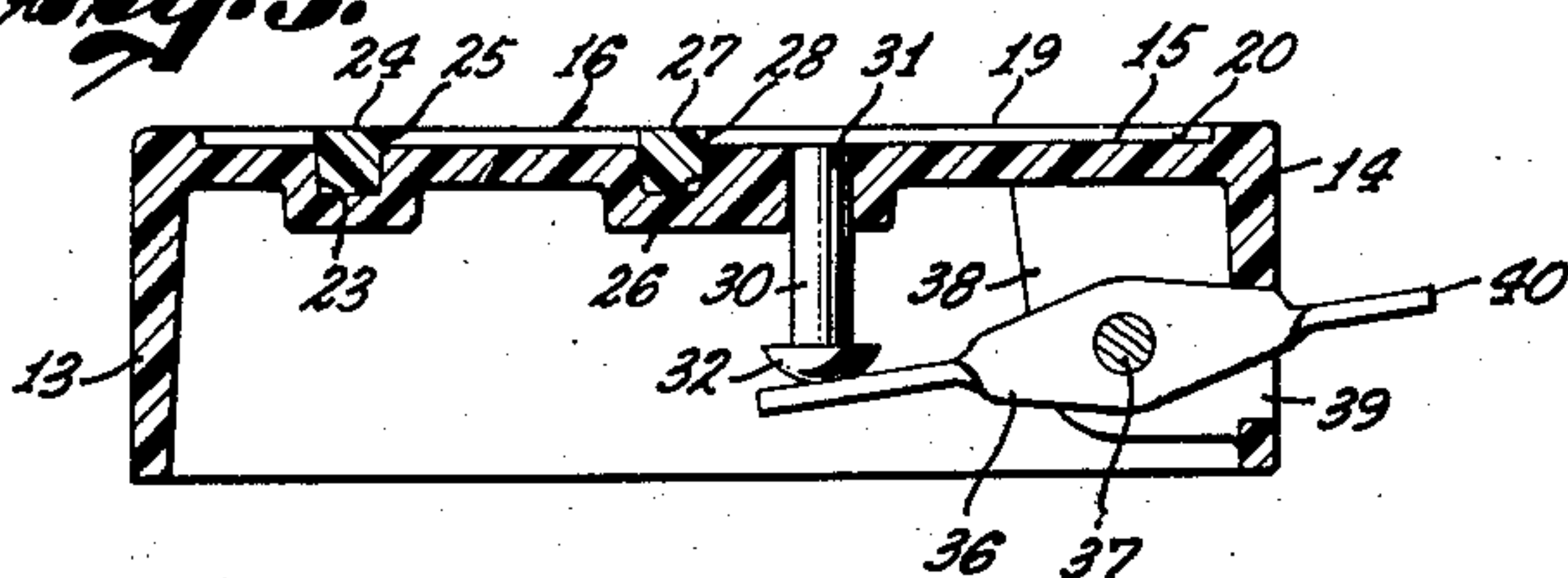
*Fig. 2.*



*Fig. 4.*



*Fig. 3.*



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## HOLDER TO FACILITATE CLEANING GLASS PLATES FOR PHOTOGRAPHIC SLIDES

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3 Claims. (Cl. 15—268)

This invention relates to devices pertaining to the assembling of photographic slides and is directed to a device to serve as an aid for facilitating the cleaning of glass plates in preparation for using such plates to make photographic slides.

It is desirable to clean glass plates for slides thoroughly to be sure of the removal of smudges and foreign matter that might interfere with light transmission through the finished slides. The cleaning operation involves manually rubbing the two faces of each plate vigorously to remove foreign matter and to remove all traces of the cleaning fluid. Since the glass plates are relatively small, the usual procedure in the absence of any specialized cleaning aid is simply to hold a plate by the fingers of one hand while the other hand is used for the cleaning and drying operations. Such a wholly manual procedure is objectionable for a number of reasons.

One objection is that it is necessary to hold the glass plates firmly and the required hand pressure against the narrow glass edges is a cause of physical discomfort. There is also the possibility of a glass plate fracturing into pieces having exceedingly sharp edges to cause injury to the hand. The holding pressure alone that is applied to the edges of a glass plate can cause such breakage, but usually breakage is the result of additional pressure applied to the central areas of the plate in the rubbing operation.

A further disadvantage of such a hand-cleaning procedure is that great care is required to complete the procedure with a glass plate that is entirely free of finger prints and smudges. One face of a glass plate can be cleaned and polished without great trouble, but it is difficult to handle the plate for cleaning the second face without inadvertently contaminating the first face. A still further disadvantage of cleaning glass plates entirely by hand without benefit of any mechanical aids whatsoever is that it is a relatively slow time-consuming procedure that becomes burdensome even when only a few plates are processed.

The present invention is directed to a device that facilitates and simplifies the cleaning procedure by serving as means to hold a glass plate for the cleaning operations. It is an important feature of the invention that it not only eliminate the necessity for holding the glass plate by hand during the rubbing operation, but also makes it convenient to handle the glass plates entirely by their edges during and after the cleaning process. Thus, the invention makes it a simple matter to complete the procedure with both of the two faces of the glass plate entirely free from smudges.

The invention includes a suitable base structure to serve as a holder for supporting a glass plate from below with one of the faces of the plate uppermost for cleaning. The base structure has a surface to support the plate in this position and has shoulders to confine the plate by its edges against lateral movement of the plate on the support surface.

Manually operable means carried by the base struc-

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ture is movable upward through the plane of the support surface to lift or tilt a glass plate from its confined position on the support surface to a second elevated position with two opposite side edges of the plate sufficiently above the confining shoulders to permit the plate to be grasped by its edges for removal from the device. In the preferred practice of the invention, a lever inside the base structure has an outer exposed handle portion and is adapted to shift a lift pin upward against the under face of the confined glass plate.

While the base structure may, if desired, be either temporarily or permanently anchored mechanically against movement, it is preferably sufficiently small and light in construction to serve as a compact portable device that may be held against movement with one hand while cleaning operations are performed with the other hand. With the base structure resting on a table, for example, the user places a glass plate in position, holds the base structure steady with one hand and cleans the exposed face of the plate with the other hand. The user then actuates the manually operable means to lift the plate sufficiently to expose its edges and grasps the plate by its opposite edges for the purpose of reversing the plate on the base structure to place the second face uppermost. The user then cleans the second face and again actuates the manually operable means to lift the plate so that the completely cleaned plate may be grasped by its opposite edges for removal from the device.

A further feature of the preferred embodiment of the invention is that it is adaptable for cleaning glass plates of different sizes. For this purpose, the base structure has upwardly extending shoulders corresponding to a relatively large rectangle to engage and confine the edges of a relatively large glass plate. Within the area of this rectangle is removable shoulder means conforming to a smaller rectangle to confine a smaller glass plate. Finally, within the area of the smaller rectangle is removable shoulder means corresponding to a still smaller rectangle to confine a still smaller glass plate on the base structure. The manually operable means for lifting the glass plate from the base structure is effective within the area of the third smallest rectangle and therefore is within the area of all three of the rectangles to act on any one of the three sizes of glass plates.

The features and advantages of the invention may be readily understood from the following detailed description considered with the accompanying drawing.

In the drawing, which is to be regarded as merely illustrative:

Figure 1 is a perspective view of a selected embodiment of the invention;

Figure 2 is a plan view of the embodiment;

Figure 3 is a longitudinal section taken as indicated by the line 3—3 of Figure 2, showing the manually operable means in its normal ineffective position; and

Figure 4 is a fragmentary longitudinal section, taken as indicated by the line 4—4 of Figure 2, showing the manually operable means in its second or effective position.

The device of the present invention includes a base structure which, as shown in the drawing, may comprise a box-like body molded of suitable plastic material. This base structure, which is open at the bottom, has two side walls 11 and 12, a rear wall 13, a front wall 14, and a top wall 15, which top wall provides a support surface, generally designated by numeral 16, for the glass plates that are to be cleaned. A rectangular rim portion 19 of the base structure provides upstanding shoulders 20 extending around the periphery of the support surface 16. Thus, the rim 19 constitutes shoulder means defining a rectangular area on the support surface 16 within which a relatively large glass plate may be confined for a clean-



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ing operation. The rectangle defined by the rim shoulders 20 may be, for example, approximately  $3\frac{1}{4}$  inches by 4 inches to correspond to a standard glass plate of that size used for relatively large slides.

The top wall 15 of the base structure 10 may be provided with a transverse groove 23 to removably seat a second shoulder means in the form of a rib 24. The rib 24 provides an upstanding shoulder 25 which co-operates with the rim shoulders 20 to form a second rectangle on the support surface 16 within the area of the larger rectangle. This second rectangle is approximately  $3\frac{1}{4}$  inches by  $3\frac{1}{4}$  inches for the confinement of a glass plate of that size for use in making slides for  $2\frac{1}{4} \times 2\frac{1}{4}$  inch transparencies.

Within the area of this second  $3\frac{1}{4}$  by  $3\frac{1}{4}$  inch rectangle, the top wall 15 of the base structure has an angular groove 26 to removably seat an angular rib 27. The upstanding shoulders 28 of the angular rib 27 co-operate with the one rim shoulder 20 to define a third rectangle 2 inches by 2 inches within the area of the  $3\frac{1}{4}$  inch by  $3\frac{1}{4}$  inch rectangle. This third rectangle corresponds to the size of glass plates used for making slides with 35 mm. transparencies.

In this embodiment of the invention, it is contemplated that suitable means will be provided within the area of the 2 inch by 2 inch rectangle to lift glass plates on the top support surface of the base structure. In the present embodiment of the invention, as best shown in Figures 3 and 4, the lifting means may comprise an upright pin 30 that is slidably mounted in a vertical bore 31 in the top wall 15 of the base structure. The bottom end of the pin 30 has a head 32 that serves as a stop to limit the upward lifting movement of the pin. When the pin 30 is shifted upward from the position shown in Figure 3 to the position shown in Figure 4, the upper end of the pin passes through the plane of the support surface 16 to lift a glass plate from the support surface. Since the lifting pin 30 is within the area of the 2 inch by 2 inch rectangle and therefore within the area of the two larger rectangles also, it is apparent that the lift pin 30 will act on a glass plate of any one of the three sizes.

Any suitable manually operable means may be provided to cause the desired upward shift of the lift pin 30. In the present embodiment of the invention, a lever 36 is mounted by a pivot pin 37 on an inner integral wing 38 of the base structure. The lever 36, which may be made of sheet metal, extends through a slot 39 in the front wall 14 of the base structure and is formed with an external handle portion 40. The inner end of the lever 36 extends under the lift pin 30 so that downward finger pressure on the handle portion 40 of the lever will cause the lift pin to be moved upward. Normally, the lever 36 is at an ineffective limit position against the upper end of the slot 39 as shown in Figure 3, to hold the lift pin 30 in a down position with the upper end of the lift pin just below the plane of the support surface 16.

The manner in which the described device serves its purpose may be readily understood from the foregoing description. To clean a 2 inch by 2 inch glass plate designated P in Figure 1, for example, the angular rib 27 will be seated in the angular groove 26, and the glass plate P that is to be cleaned will be dropped onto the support surface of the base structure in position to be confined by the angular rib 26. The operator then uses one hand to clean the upper exposed face of the glass plate, the other hand being used to hold the base structure steady.

When the exposed surface of the glass plate has been thoroughly cleaned and polished, the user applies finger pressure to the handle portion 40 of the lever 36 in the manner shown in Figure 1 to cause upward movement of the lift pin 30. As a consequence, the lift pin 30 lifts one end of the glass plate P above the level of the angular rib 27 to permit the user to grasp the plate

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by its opposite edges. The user then releases the handle portion 40 of the lever and handling the glass plate only by its edges, replaces the glass plate on the support surface 16 of the base structure with the second face of the plate uppermost. The user then cleans the second face in the same manner as the first face, and again depresses the handle portion 40 of the lever to lift the plate P upward from the support surface for removal from the base structure.

It is apparent that the device makes it extremely easy for the user to clean and polish both sides of a glass plate without handling the plate in any manner except by grasping the edges of the plate. Thus, it is a simple matter to clean a batch of glass plates rapidly without smudging the clean surfaces.

To clean glass plates of the intermediate size, the angular rib 27 is removed from the angular groove 26, and the rib 24 is seated in the transverse groove 23 to receive the  $3\frac{1}{4}$  inch by  $3\frac{1}{4}$  inch plate. On the other hand if a plate of the largest size is to be cleaned, the straight rib 24 will be removed from the groove 23 to permit the larger plate to be confined by the upstanding shoulders 20 of the rectangular rim 19. Thus, the device will handle glass plates of three different sizes and the lift pin 30 will act on plates of all three sizes in the same manner.

My description in specific detail of a selected embodiment of the invention by way of example and to illustrate two principles involved, will suggest various changes, substitutions and other departures from my disclosure that properly lie within the spirit and scope of the appended claims.

I claim:

1. A device of the character described to facilitate the cleaning of the faces of transparent plates of different sizes in preparation for assembling photographic slides, said device having: a base structure having a wall portion providing a surface for facewisely receiving and supporting a plate with one of the faces of the plate uppermost for cleaning; a first means on said base structure for engagement with the edges of a relatively large plate on said support surface to confine the relatively large plate against movement; a second means movable into and out of an effective position within the area defined by said first means for engagement with the side edges of a relatively small plate on said support surface to confine the small plate against lateral movement; and manually operable means within the area defined by said second confining means movable from a normal retracted position below said support surface to an effective position extending above said support surface to lift either a relatively small plate out of engagement with said first confining means or a relatively large plate out of engagement with said second confining means to permit the plate to be grasped by its side edges for removal from the base structure.

2. A device as set forth in claim 1 in which said base structure has a third means for engagement with the side edges of a still larger plate on said support surface; and in which said first confining means is movable out of its effective position to permit such a still larger plate to rest on said support surface.

3. A holder to facilitate the cleaning of the two faces of a rectangular transparent plate in preparation for use of the plate for a slide, said holder comprising: a hollow structure small enough to be held in the hand and presenting an upwardly facing planar surface on its upper side for facewisely receiving and supporting a plate to be cleaned in a position where the full area of the plate is freely accessible for a manual rubbing operation; means cooperative with said surface to form therewith a receptacle of a depth substantially equal to the thickness of a plate to be frictionally cleaned and having wall means positioned to engage all four edges of the plate to confine the plate against lateral movement in any direction



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in response to rubbing friction; a member normally positioned in the hollow portion of said structure below said surface for movement upward through the plane of said surface to lift the plate from the surface to a position exposing the side edges of the plate to be grasped by its side edges for removal from the base structure; and an actuating lever fulcrumed in the hollow portion of said structure below said surface to lift said member, said actuating lever extending through the wall of the hollow

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structure with an end portion of the lever outside of the hollow structure for operation by downward finger pressure to lift the side member upward through said plane.

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