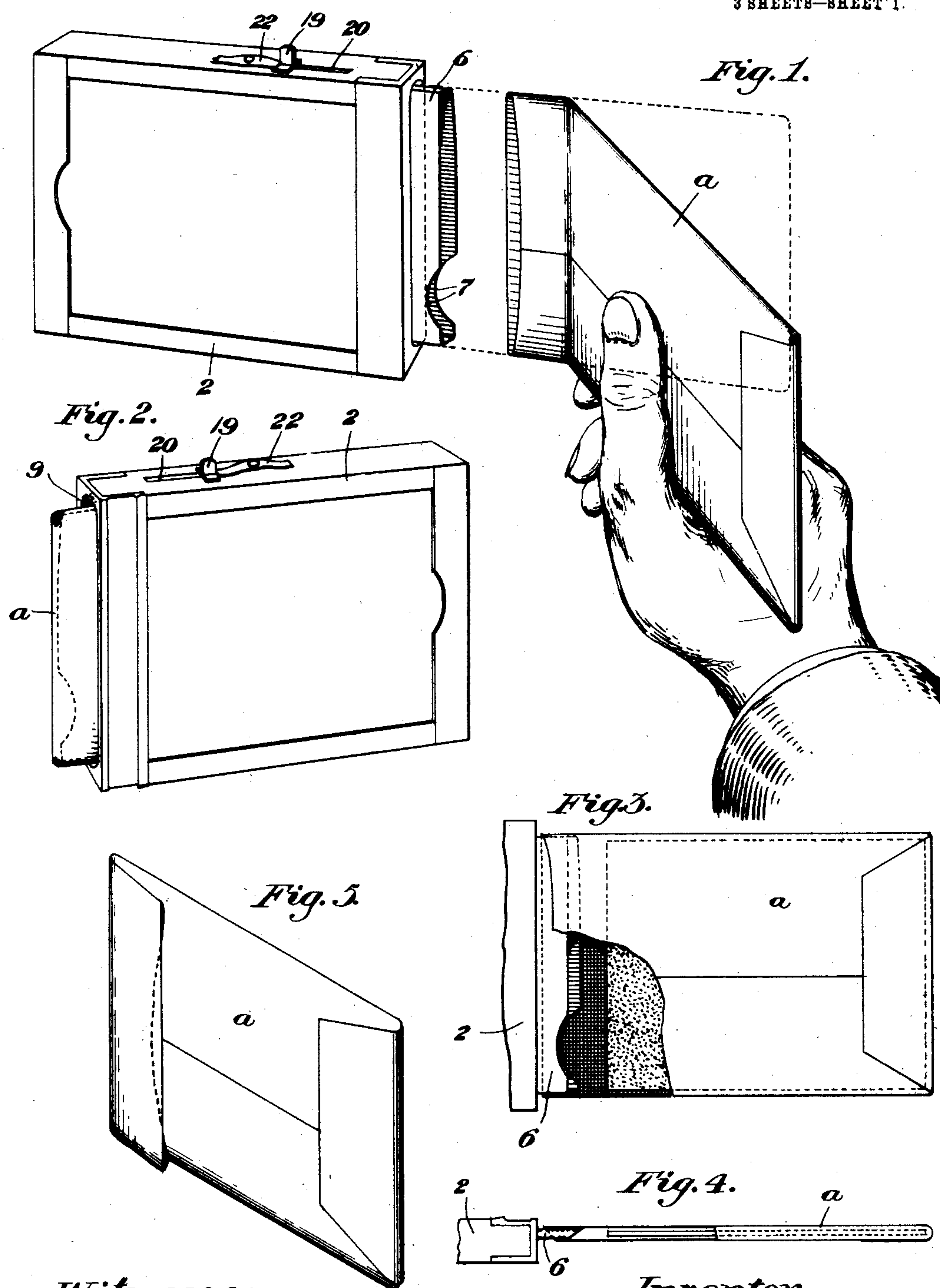


J. D. LYON.
PHOTOGRAPHIC PLATE HOLDER.

APPLICATION FILED JULY 16, 1904.

3 SHEETS—SHEET 1.

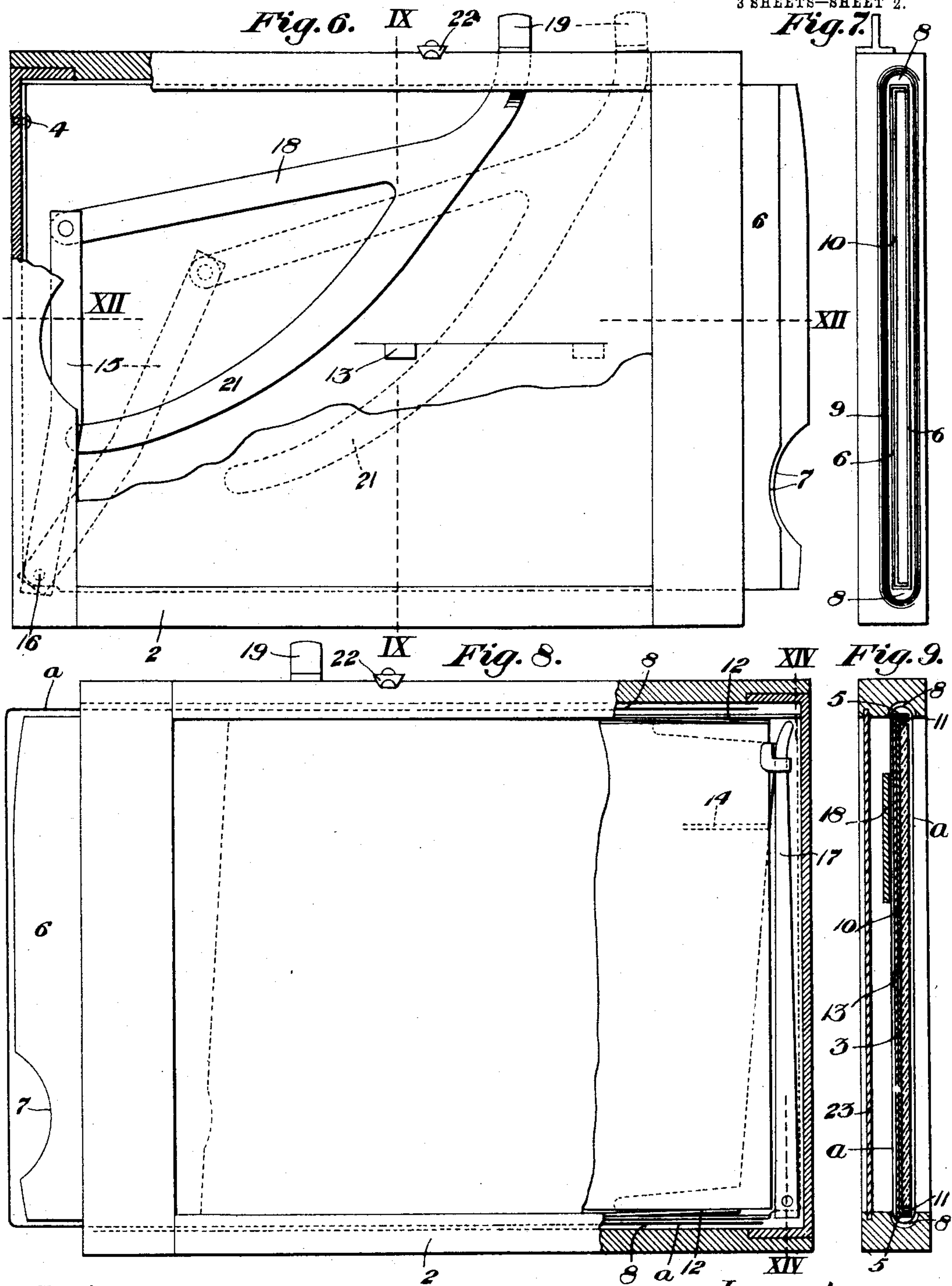


Witnesses:
Geo. W. MacKenzie Jr.
Chas. S. R. R. R.

Inventor:
Jesse D. Lyon
by C. M. Clarke
his attorney

J. D. LYON.
PHOTOGRAPHIC PLATE HOLDER.
APPLICATION FILED JULY 16, 1904.

3 SHEETS—SHEET 2.



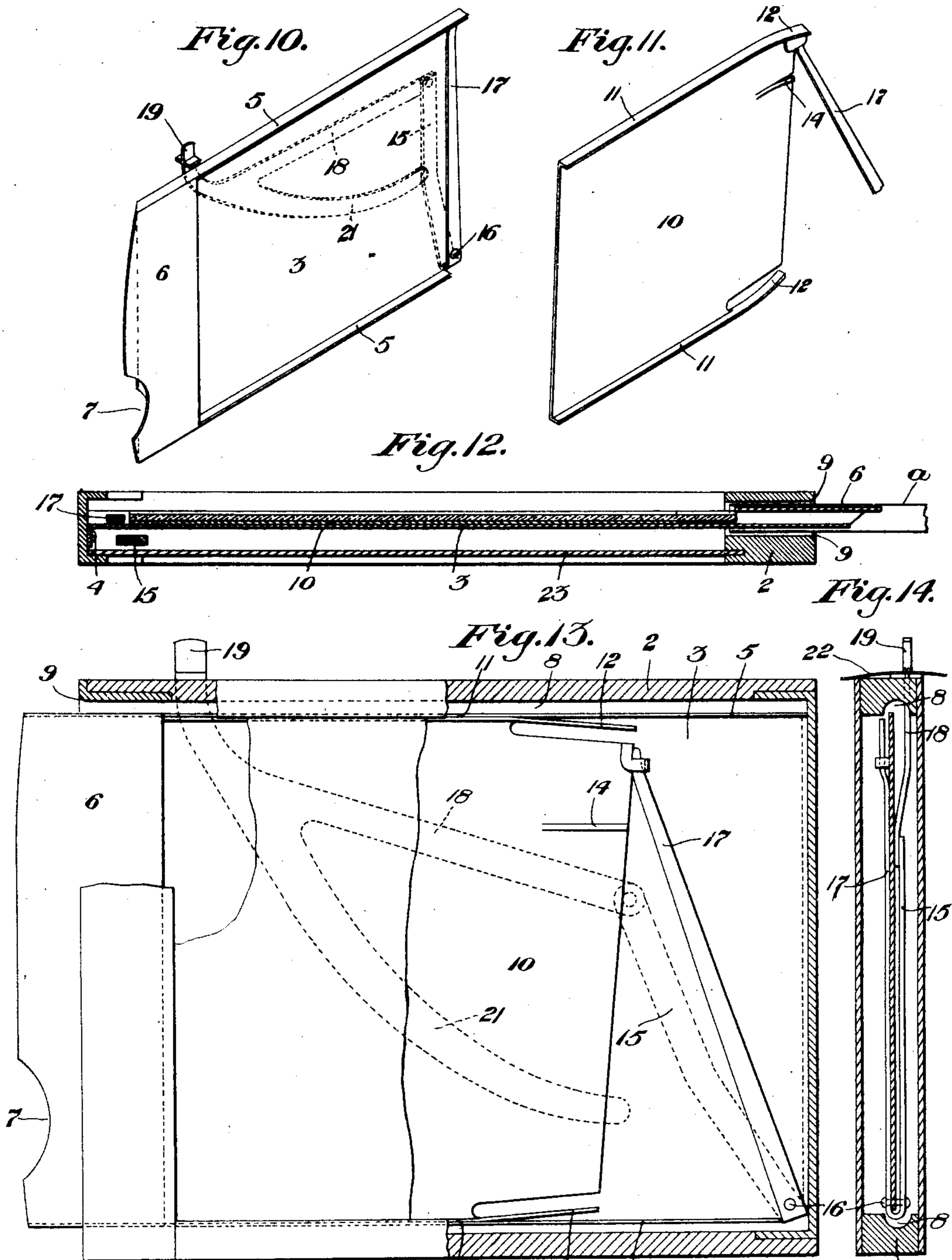
Witnesses:
Geo. W. MacKenzie Jr.
Chas. S. Popley

Inventor:
Jesse D. Lyon
by C. M. Clarke
his attorney

J. D. LYON.
PHOTOGRAPHIC PLATE HOLDER.

APPLICATION FILED JULY 16, 1904.

3 SHEETS—SHEET 3.



Witnesses:

Geo. W. MacKenzie Jr.
Chas. S. Pyley

Inventor:

Jesse D. Lyon
by O. M. Clarke
his attorney

UNITED STATES PATENT OFFICE.

JESSE D. LYON, OF PITTSBURG, PENNSYLVANIA.

PHOTOGRAPHIC-PLATE HOLDER.

SPECIFICATION forming part of Letters Patent No. 791,922, dated June 6, 1905.

Application filed July 16, 1904. Serial No. 216,806.

To all whom it may concern:

Be it known that I, JESSE D. LYON, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Photographic-Plate Holders, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of my invention, showing the manner of introducing the plate-envelop upon the end coping of the receiving-shell. Fig. 2 is a similar view of the device from the other side, the plate and envelop having been inserted. Fig. 3 is a partial face view showing the end of the holder, the end of the envelop having been inserted over the end coping of the receiving-shell, the envelop having been straightened out ready for insertion. Fig. 4 is a plan view of Fig. 3. Fig. 5 is a perspective view of the plate-containing envelop with the open end turned over. Fig. 6 is a full-size face view of the plate-holder for a four-by-five plate, partly broken away. Fig. 7 is a front end view. Fig. 8 is a view similar to Fig. 6 from the opposite side. Fig. 9 is a vertical sectional view on the line IX IX of Fig. 6. Fig. 10 is a perspective detail view of the receiving-shell. Fig. 11 is a similar view of the sliding plate-shifter. Fig. 12 is a horizontal sectional view on the line XII XII of Fig. 6. Fig. 13 is a view similar to Fig. 8, showing the plate-shifter projected forward into the position for engaging the plate to withdraw it from, or after having reinserted it into, the envelop. Fig. 14 is a vertical sectional view on the line XIV XIV.

My invention relates to the art of photography; and it consists of a plate-holder adapted for insertion in a camera in the usual manner and while in the camera to receive a plate and its inclosing light-proof envelop, with means for positively grasping the plate while still in the envelop, shifting it partially through said envelop toward its open end to position for exposure, retaining the plate while the envelop is withdrawn in the manner of a slide for exposure, and for replacing

the plate in the envelop prior to removal from the holder after exposure with the surrounding envelop.

The invention also refers to the plate-envelop and its coöperation with the holder and its parts.

The device is designed for the purpose of obviating the necessity of employing more than one plate-holder and is adapted to receive and expose in the camera any number of plates successively, the plates being inclosed each in its respective envelop, to which they are returned singly after exposure and in which they are then retained and protected from the light until developed. By this means a large number of plates may be packed or carried in a comparatively small compass, either before or after exposure, securely protected from the light and are capable of insertion in the holder, exposure in the camera, and removal from the holder in daylight or other actinic light.

Referring now to the drawings, 2 is the frame of the holder, made of any suitable material, rectangular in form and conforming in dimensions to the usual commercial plate-holder, according to the size of the plate to be used, and adapted for insertion in any standard camera in the customary way.

Within the holder is a receiving-shell 3, of thin sheet metal, secured to the back end of the holder in any suitable manner, as by rivets 4, provided with narrow flanges or lips at opposite sides entirely open at the front for the full area of exposure, as shown in Fig. 10, and terminating in a receiving front portion 6, extending outwardly beyond the end of the holder, as clearly shown. Recesses 7 are provided in such projecting front portion to facilitate grasping the plate by the thumb and finger when replaced in the envelop to withdraw it and the envelop after exposure.

The receiving-shell is rigidly secured at the back of the holder, as stated, and for its full length is thus held without contact with the sides, top, or bottom thereof, a surrounding space 8 for the edges of the envelop at top and bottom being provided by grooving the interior of the holder, as shown, or in any other suitable manner, while sufficient clear-

ance for the front and back walls of the envelop is provided throughout, as shown in Fig. 9. The insertion end of the holder is flared, as shown at 9, to facilitate introduction of the front flap of the envelop within the body portion of the holder and around the terminal of the receiving-shell, as clearly shown in Fig. 7.

10 is a plate-shifter, also of thin sheel metal or other suitable material, slidingly mounted in the interior of the receiving-shell, open at the front, and preferably provided with plate-receiving flanges or lips 11 11 at top and bottom terminating in resilient inwardly-pressing plate clamping or gripping terminals 12 12, adapted to engage the edges of the plate with sufficient pressure to shift it back and forward with relation to its envelop.

Other devices not necessarily employing springs, but adapted to engage and hold the plate positively, so that it may be shifted by the actuating mechanism, may be substituted for the spring-terminals, and I do not desire to be limited to them specifically.

Any other construction adapted to receive the plate in the interior and the envelop on its outside and provided with means by which the plate is positively grasped and shifted, generally in the manner described, are also contemplated as within the scope of the invention.

The plate-shifter is, as stated, slidingly mounted within the receiver and is preferably connected therewith by any suitable device, as a lip 13, passing through a longitudinal slot in the plate back of the receiver, through which it slides without permitting entrance of the light. The plate-shifter is also provided with any suitable device for the purpose of bracing the side of the envelop outwardly away from contact with it and preventing catching against the shifting-lever, as a resilient tongue 14 or any other suitable device. While I have found these two last elements to be an advantage in practice, they do not form essential portions of the invention and may be eliminated, if desired.

For the purpose of actuating the shifter a lever 15 is pivotally mounted at 16 in any suitable bearings—as, for instance, the plate back of the receiver—which lever is turned around and extended upwardly on the other side or is connected with a shifting-arm 17 on the other side, as clearly shown in Figs. 8 and 13. Lever 15 is connected with a shifting-arm 18, terminating in a button or finger-piece 19, extending outwardly through a slot 20 in the upper edge of the holder, as clearly shown, and by which the lever 15, and consequently shifting-arm 17, may be actuated to assume the positions shown by the full and dotted lines, respectively, on Fig. 6.

Arm 18 is preferably provided with an integral attached spring-lip extension 21, extending backwardly, adapted to press against

the outside of the envelop and to prevent its engagement with the movable lever 15, which thus freely slides over the end of the envelop. The holder is provided with any suitable limiting device, as a pivoted shifting stop 22, which may be thrown into the position shown in Figs. 1 and 2 to arrest the shifting-lever before it has reached the limit of its backward travel, or into the inoperative position, (shown in Figs. 6 and 8,) allowing the lever to be shifted clear back. The object of such a limiting device is to prevent the entering edge of the plate being thrown beyond the range of plate-removing devices present in certain forms of plate-developing apparatus with which this invention is adapted to cooperate. Ordinarily the plate-holder is provided with the usual light-proof back 23, although such a back is not absolutely necessary if the plate of the receiving-shell is solid throughout. This shell may, however, as suggested, be of any form and may with advantage be merely a skeleton framework adapted to provide a bearing for the plate-shifter and to intervene between the envelop and the plate when these are inserted into the holder, so as to cause the plate to pass inwardly into the range of the holding devices of the shifter.

While the invention thus described forms a portion of the plate-holder, it is obvious that the plate-holder as such may be entirely eliminated and that the usual reversible or other form of back of the ordinary camera may be especially designed so as to embody the receiving-shell and plate-shifter with its actuating mechanism, so as to perform the functions of receiving the plate and its envelop, removing the plate, permitting withdrawal of the envelop, and reinsertion of the plate thereinto in the same manner as has been described.

The operation of the invention will be readily understood from the foregoing description. The plate and its envelop are held in the hand, as indicated in Fig. 1, until the partially-bent over end flap is inserted upon the receiving-coping of the shell, after which the envelop and plate are turned into alinement therewith, as indicated in dotted lines as shown in Figs. 3 and 4, whereupon the plate is inserted into the receiving-shell, and the further steps of the operation are carried out in the manner set forth. After exposure and return of the plate to the envelop the front flap is again bent over, entirely excluding the light, when the plate may be thus packed or carried, alone or with others, in a comparatively small space. A further advantage of using plates in this manner is that each individual plate is thus separated from all of the others and may be readily identified by marking upon the envelop, thus facilitating future selection, &c.

I am aware that it is not new generally to inclose photographic plates within light-proof envelops and that plates so inclosed have been

loaded into holders by gravity apart from the camera and inserted in the camera while in the holder and then removed, with the holder, from the camera and replaced in the envelop also by gravity. I am not aware, however, of any prior devices by which a protected plate may be inserted and removed into and from the holder while still in the camera by positive means independent of gravity.

Various changes and modifications may be made by the skilled mechanic in the design, proportions, or various details of the invention, and it may be variously modified to suit preëxisting conditions; but all such changes and variations are to be considered as within the scope of the following claims.

What I claim is—

1. A plate-exposing device consisting of a holder having a receiving-shell, a plate-shifter mounted in the holder, and means for actuating the shifter, substantially as set forth.

2. A plate-exposing device consisting of a holder having a receiving-shell, a plate-shifter mounted in the holder provided with means for positively engaging the plate, and means for actuating the shifter, substantially as set forth.

3. A plate-exposing device consisting of a receiving-shell, a plate-shifter slidingly mounted therein provided with spring extremities adapted to engage the plate, and means for actuating the shifter, substantially as set forth.

4. A plate-exposing device consisting of a holder having a rigidly-mounted receiving-shell, a plate-shifter slidingly mounted in the holder provided with fingers adapted to positively engage the plate, and means for actuating the shifter, substantially as set forth.

5. In combination with an exposing-plate-holder frame, a receiving-shell for the plate rigidly mounted within the plate-holder at one end with a surrounding clearance-space, a plate-shifter slidingly mounted within the shell provided with means for engaging and gripping the plate, and means for actuating the shifter from the exterior of the holder, substantially as set forth.

6. In combination with a plate-holder frame, a receiving-shell for the plate rigidly mounted within the plate-holder at one end with a surrounding clearance-space, a plate-shifter slidingly mounted within the shell provided with means for engaging and gripping the plate, and a pivotally-mounted shifting-lever provided with an actuating-arm extending through the plate-holder frame, substantially as set forth.

7. In combination with a plate-holder frame, a receiving-shell for the plate rigidly mounted within the plate-holder at one end with a surrounding clearance-space, a plate-shifter slidingly mounted within the shell provided with means for engaging and gripping the plate, and a pivotally-mounted shifting-lever provided with an actuating-arm extending through the

plate-holder frame, with fending devices adapted to operate on each side of the shell, substantially as set forth.

8. A plate-exposing device adapted for operation with an envelop-surrounded plate, consisting of a stationary frame adapted to receive the plate in its interior and the envelop upon its exterior, with a portion adapted to engage and hold the plate, substantially as set forth.

9. A plate-exposing device adapted for operation with an envelop-surrounded plate, consisting of a stationary frame adapted to receive the plate in its interior and the envelop upon its exterior, with a relatively movable portion adapted to engage and hold the plate, substantially as set forth.

10. A plate-exposing device adapted for operation with an envelop-surrounded plate, consisting of a stationary frame adapted to receive the plate in its interior and the envelop upon its exterior, with a relatively movable portion provided with spring devices adapted to engage the plate and shift it with relation to the envelop, substantially as set forth.

11. A plate-exposing device adapted for operation with an envelop-surrounded plate, consisting of a stationary frame adapted to receive the plate in its interior and the envelop upon its exterior, with a relatively movable portion provided with spring devices adapted to engage the plate and shift it with relation to the envelop, with actuating means therefor, substantially as set forth.

12. In combination with a photographic plate and an inclosing envelop; a receiver for the plate adapted to intervene between the plate and the envelop, with means for grasping and shifting the plate, substantially as set forth.

13. In combination with a photographic plate and an inclosing envelop; a receiver for the plate adapted to intervene between the plate and the envelop when the plate is inserted, and a movable plate-shifter mounted in the receiver and adapted to engage and shift the plate with relation to its envelop, substantially as set forth.

14. In a plate-exposing device adapted for operation with an envelop-surrounded plate, the combination of a plate-receiver having a portion adapted to intervene between the plate and the envelop, a plate-shifter provided with gripping-fingers, and means for actuating the shifter, substantially as set forth.

15. In a plate-exposing device adapted for operation with an envelop-surrounded plate, the combination of a plate-receiver having a portion adapted to intervene between the plate and the envelop, a plate-shifter provided with gripping-fingers, and means for actuating the shifter, with means for preventing interference of the envelop, substantially as set forth.

16. A plate-exposing device comprising in combination a holder provided with plate-re-

ceiving mechanism adapted to intervene between the plate and a surrounding envelop, and a movable plate-shifter mounted in the holder, substantially as set forth.

- 5 17. A plate-exposing device comprising in combination a holder adapted to receive an envelop-surrounded plate, and a plate-grip-
ping device adapted to cooperate with the
10 the plate and permit the withdrawal and re-

turn of the envelop, while at the same time protecting the plate from light, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JESSE D. LYON.

Witnesses:

JAS. J. McAFEE,
C. M. CLARKE.