

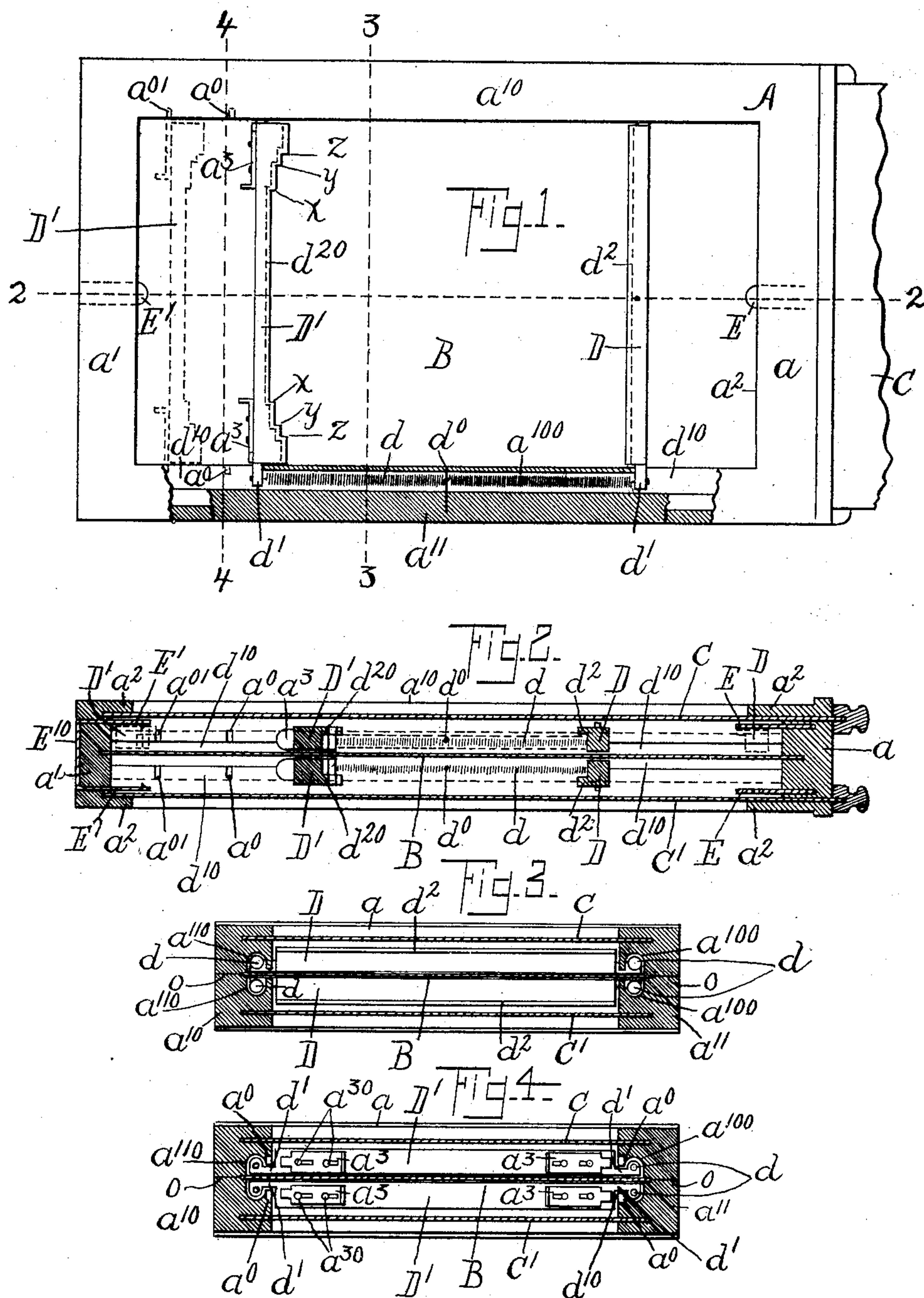
No. 665,960.

Patented Jan. 15, 1901.

H. L. FRENCH.
PLATE HOLDER.

(Application filed Oct. 29, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

HARLEY L. FRENCH, OF ROCHESTER, NEW YORK, ASSIGNOR TO EDWARD C. WARNICA, OF SAME PLACE.

PLATE-HOLDER.

SPECIFICATION forming part of Letters Patent No. 665,960, dated January 15, 1901.

Application filed October 29, 1900. Serial No. 34,789. (No model.)

To all whom it may concern:

Be it known that I, HARLEY L. FRENCH, a citizen of the United States, and a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Plate-Holders, of which the following is a specification.

This invention relates to plate-holders; and its object is to produce a compact plate-holder adapted to hold and to center photographic plates of different sizes.

The invention consists in the devices and constructions hereinafter described and claimed.

In the drawings, Figure 1 is a face view of a plate-holder embodying this invention, parts being removed to show interior construction. Fig. 2 is a cross-section on the line 2 2 of Fig. 1. Fig. 3 is a cross-section on the line 3 3 of Fig. 1. Fig. 4 is a cross-section on the line 4 4 of Fig. 1.

The development of photographic cameras both for professional and amateur uses has resulted in requiring the production of plate-holders substantially uniform in size of the outer frame and of the surface capable of exposure by withdrawing the usual slide. This invention is adapted to be embodied in such plate-holders without changing the dimensions of the frame and without reducing the surface capable of being exposed and at the same time to provide means whereby sensitive plates of different sizes may be properly held and may be automatically centered in the plate-holder.

In the drawings, A is the usual rectangular frame, in the present instance shown as that of a double or reversible plate-holder. This frame has the usual fixed septum B and the usual slides C C'. The end pieces $a a'$ of the frame A are so recessed that the plate-holding bars D D' may be drawn into said recesses. The ledges a^2 upon said end pieces $a a'$ form these recesses. In the side pieces $a^{10} a^{11}$ are cut longitudinal internal grooves $a^{100} a^{110}$, adjacent to the septum B or the middle of said end pieces $a^{10} a^{11}$, and in said grooves are set coiled springs $d d'$. These coiled springs at their middle points are fastened to the middle of the side pieces $a^{10} a^{11}$ by any suitable means, such as the pins or nails d^0 . The plate-re-

taining bars D D' extend across the exposure-surface within the frame A and lie adjacent to the septum B. The ends of the bars are cut down, as shown in Fig. 4, so that thin extensions d' of the bar D (see Fig. 4) can extend through slots d^{10} in the inner faces of the side pieces a^{10} and a^{11} and into the grooves a^{100} and a^{110} , in which the springs d are set. On one side of the plate-holder the ends of the springs are fastened to the extensions d' of the bar D and on the other side the ends of the springs are fastened to the extensions d' of the bar D'. The slots d^{10} are long enough to permit the bars D and D' to be moved from their extreme inward positions, as shown in Fig. 1, to a position in which said bars are in the recesses in the end pieces $a a'$ of the frame, as shown in the dotted lines in Fig. 2, in which latter case the springs will be extended to their utmost. Catches E E' at each end of the frame are adapted to engage the bars D D' when in their extreme positions in said recesses and to retain said bars therein until released by the operator.

One of the bars D has a straight face and a projecting ledge d^2 , (see Fig. 2,) under which the edge of the plate is set. The other bar D' has a stepped face and a projecting ledge d^{20} , stepped correspondingly to the face. The steps in the face of the bar D' are of such width (see Fig. 1) as to fit the edges of plates of the standard sizes employed by photographers—such, for instance, as in Fig. 1—the face between the points $x x$ may fit the edge of a three and one-half by three and one-half plate, the steps between the points $y y$ may fit the edge of a four by five plate, the steps between the points $z z$ may fit the edge of a five by seven plate, while the full width of the bars and of the plate-holder is adapted to fit a six by eight plate.

On account of the even pressure of the two halves of the spring d , the plate will be properly centered. There is also provided, if desired, a series of notches $a^0 a^{0'}$ in the inner faces of the side pieces $a^{10} a^{11}$ and upon one of the bars, such as D', are catches a^3 , adapted to engage in said notches $a^0 a^{0'}$, whereby the bar may be held in the exact position adapted to center a plate of particular size accurately in the plate-holder. Both bars

may be provided with these catches and suitable notches may be made in the frame therefor. The form of catch shown in Figs. 1 and 4 is a sliding catch that is slotted and is held to the bar D by means or rivets or screws a^{30} , extending through the slots and into the bar D', the slots being of suitable length to permit the proper movement of the catch to enter and to be withdrawn from the notches a^0 and $a^{0'}$.

The operation of the device is as follows: If it is desired to use a plate of the maximum size—say six by eight—the bars D and D' are pulled into the recesses under the ledges a^2 until the catch E engages and holds the bar D and the catch E' engages and holds the bar D'. The edge of the six by eight plate is now fitted under the ledge d^2 of the bar D and the plate is dropped in position, which brings its other edge closely adjacent to the most projecting portion of the edge of the bar D'. Upon releasing said bar by disengaging the catch E' said bar is moved by its spring, so as to engage the edge of the plate by its overhanging ledge and to hold it in position in the plate-holder. If it is desired to insert a plate of one of the smaller sizes—say a three and one-half by three and one-half—both bars are released and stand in the position shown by full lines in Fig. 1. One edge of the plate is first placed under the ledge of the bar D', extending between the points x x , and is then laid upon the septum B, the bar D having been previously withdrawn and being then allowed to return to place, whereby its projecting ledge d^2 extends over the other edges of the plate. The plate will now be held in the center of the plate-holder by means of the springs d . If, however, it is desired to hold the plate more firmly than by means of the springs alone, the catches a^3 are set in their proper notches. These operations for the loading of the plate-holder are of course performed in a dark room as usual, and the slides C and C' are put in place.

It is clear that a plate-holder embodying this invention may either be double, as shown in the drawings, or may be single. The cavities for the springs may either be bored through the ends of the side pieces a^{11} and a^{10} or else the side pieces may be split on the line o , and the cavities for the springs may be cut in them by an ordinary planing or molding process.

A novel way of applying the catches E and E' in the double plate-holder is to make both of them at one end of a single piece of spring metal, as shown in Fig. 2 at E¹⁰. The said single strip of metal is bent at right angles at two points, so as to produce a middle portion and two end springs of equal length. Slots are made in the end pieces a' , and the spring ends are inserted through these slots, and then the middle portion of the spring-piece is fastened in any suitable way to the end piece a' .

It is further clear that the bars D D' may

be set lengthwise of the plate-holder, in which case the springs d are set in the end pieces thereof.

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What I claim is—

1. In a plate-holder, a rectangular frame, a pair of spring-operated plate-retaining bars extending across from one side of said frame to the other and having means for retaining photographic plates, and two pairs of extensible springs one pair on each side of the frame, the ends of each spring being attached to said frame and to the end of one of said bars.

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2. In a plate-holder, a rectangular frame, a pair of spring-operated plate-retaining bars extending across from one side of said frame to the other and having overhanging ledges for retaining photographic plates and extensible springs, each fastened at its middle point to said frame and at its ends to the ends of said bars.

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3. In a plate-holder, a rectangular frame, a pair of spring-operated plate-retaining bars extending across from one side of said frame to the other and having overhanging ledges for retaining photographic plates and pairs of extensible springs, lying in grooves in the sides of the frame, the ends of each pair of springs being attached to said frame and to the ends of one of said bars.

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4. In a plate-holder, a rectangular frame, a pair of spring-operated plate-retaining bars extending across from one side of said frame to the other and having overhanging ledges for retaining photographic plates, and extensible springs lying in grooves in the sides of the frame, each spring being fastened at its middle point to said frame and at its ends to said bars.

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5. In a plate-holder, a rectangular frame, a pair of spring-operated plate-retaining bars extending across from one side of said frame to the other and ends extending through slots into the sides of said frame and having means for retaining photographic plates and extensible springs lying in grooves in the sides of said frame, each spring being fastened at its middle point to said frame and at its ends to the ends of said bars.

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6. In a plate-holder, a rectangular frame, a pair of spring-operated plate-retaining bars extending across from one side of said frame to the other and having means for retaining photographic plates, and two pairs of extensible springs one pair on each side of the frame, the ends of each spring being attached to said frame and to the end of one of said bars, one of said bars having stepped ledges for fitting and centering photographic plates of different widths.

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7. In a plate-holder, a rectangular frame, a pair of spring-operated plate-retaining bars extending across from one side of said frame to the other and having overhanging ledges for retaining photographic plates and extensible springs, each fastened at its middle point to said frame and at its ends to the ends of said bars, the ledges of one of said bars be-

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ing stepped for fitting and centering photographic plates of different widths.

8. In a plate-holder, a rectangular frame, a pair of spring-operated plate-retaining bars extending across from one side of said frame to the other and having overhanging ledges for retaining photographic plates and pairs of extensible springs, lying in grooves in the sides of the frame, the ends of each pair of springs being attached to said frame and to the ends of one of said bars, the ledges of one of said bars being stepped for fitting and centering photographic plates of different widths.

9. In a plate-holder, a rectangular frame, a pair of spring-operated plate-retaining bars extending across from one side of said frame to the other and having overhanging ledges for retaining photographic plates, and extensible springs lying in grooves in the sides of the frame, each spring being fastened at its

middle point to said frame and at its ends to said bars, the ledges of one of said bars being stepped for fitting and centering photographic plates of different widths.

10. In a plate-holder, a rectangular frame, a pair of spring-operated plate-retaining bars extending across from one side of said frame to the other and extending through slots into the sides of said frame and having means for retaining photographic plates and extensible springs lying in grooves in the sides of said frame, each spring being fastened at its middle point to said frame and at its ends to the ends of said bars, one of said bars having stepped ledges for fitting and centering photographic plates of different widths.

HARLEY L. FRENCH.

Witnesses:

C. M. PERKINS,
F. BISSELL.