June 10, 1952 L. L. OGG 2,599,859

PAPER HOLDER FOR MAKING PHOTOGRAPHIC ENLARGEMENTS

Filed Jan. 19, 1951 2 SHEETS—SHEET 1

Fig. 1.

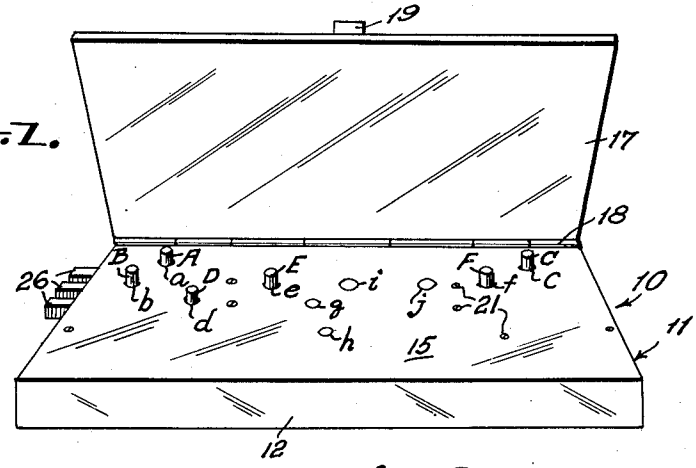
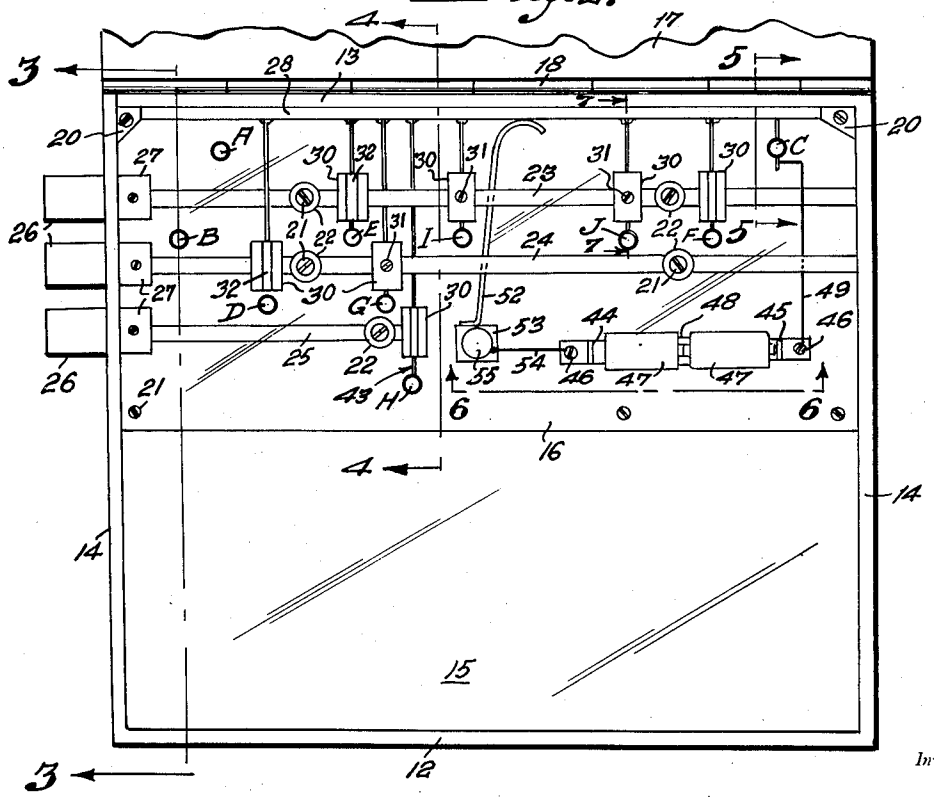


Fig. 2.



Inventor

Leon L. Ogg

By John N. Randolph

Attorney

June 10, 1952 L. L. OGG 2,599,859

PAPER HOLDER FOR MAKING PHOTOGRAPHIC ENLARGEMENTS

Filed Jan. 19, 1951 2 SHEETS—SHEET 2

Fig. 3.

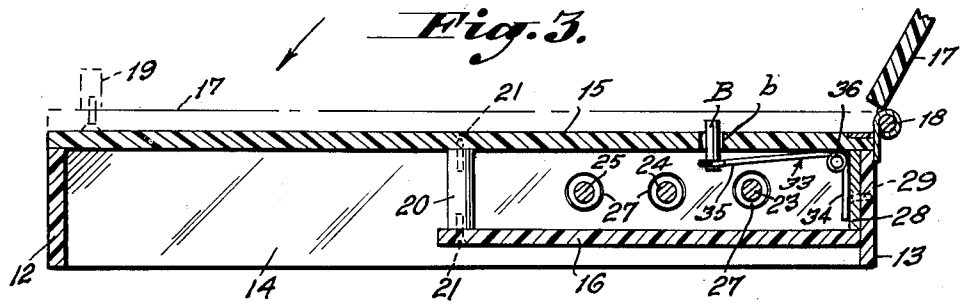


Fig. 4.

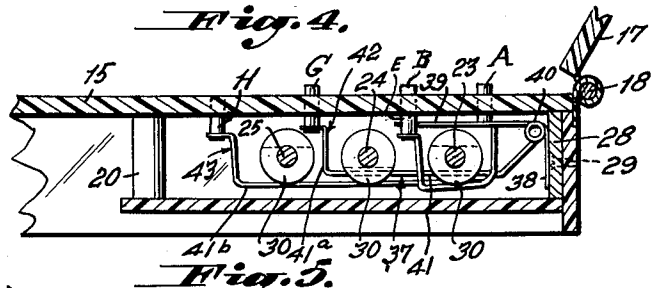


Fig. 5.

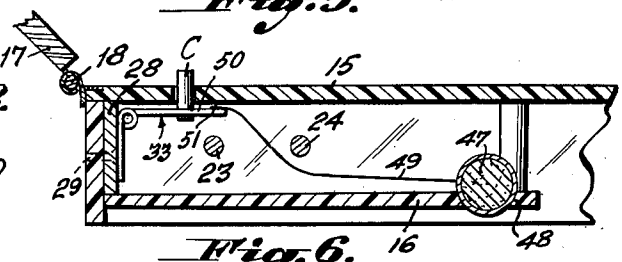


Fig. 8.

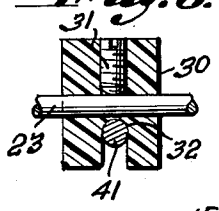


Fig. 6.

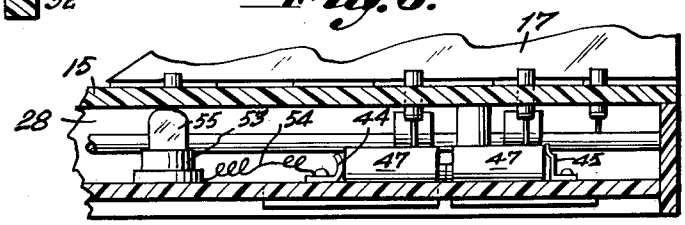
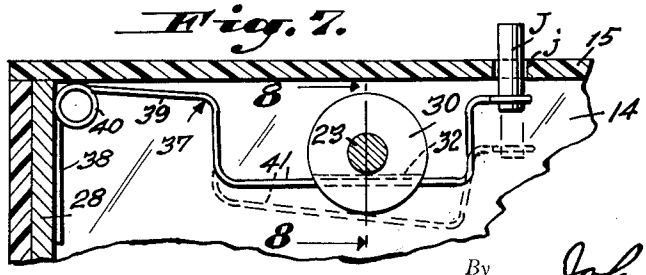


Fig. 7.



Inventor

Leon L. Ogg

By John N. Randolph

Attorney

Patented June 10, 1952

2,599,859

UNITED STATES PATENT OFFICE

2,599,859

PAPER HOLDER FOR MAKING PHOTOGRAPHIC ENLARGEMENTS

Leon L. Ogg, Creston, Iowa, assignor of one-third to John A. Loudon and one-third to Paul A. Luddington, both of Creston, Iowa

Application January 19, 1951, Serial No. 206,804

8 Claims. (Cl. 88—24)

1

This invention relates to a novel construction of holder for photographic paper for use in making photographic enlargements of different sizes and which may be readily adjusted for accommodating and properly positioning photographic paper of different conventional sizes and with the paper always disposed in a centered position so that a print made from a negative will be centered thereon.

Another object of the invention is to provide a photographic paper holder upon which a centered print may be produced without leaving any margins, if desired.

Another object of the invention is to provide a paper holder for the making of photographic enlargements capable of being readily adjusted for accommodating photographic paper of different conventional sizes and by means of which the paper will always be positioned to be clamped in a centered position relatively to the paper holder before the print is produced.

A further object of the invention is to provide a holder having subdued illuminating means by which paper positioning elements of the holder will be illuminated when the holder is in an open position to afford readily visible guides sufficient for use in a dark room for locating a sheet of sensitized paper in proper position on the holder and which illuminating means will be automatically deenergized when a paper clamping portion of the holder is moved to a paper clamping position.

A further object of the invention is to provide a paper holder of relatively simple construction which may be very economically manufactured and sold, which is self-contained and which will be extremely efficient and durable for accomplishing its intended purpose.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, illustrating a presently preferred embodiment thereof, and wherein:

Figure 1 is a perspective view showing the holder in an open position with the parts thereof set for holding a sheet of photographic paper of a particular size and in a centered position upon the holder;

Figure 2 is a plan view of the holder in an open position and with the top wall or paper supporting surface thereof shown removed to disclose the internally disposed parts of the apparatus;

Figures 3, 4 and 5 are enlarged cross sectional views taken substantially along planes as indicated by the lines 3—3, 4—4 and 5—5, respectively, of Figure 2 but showing the top wall or paper supporting surface in position;

2

Figure 6 is an enlarged longitudinal sectional view taken substantially along a plane as indicated by the line 6—6 of Figure 2;

Figure 7 is an enlarged fragmentary vertical sectional view taken substantially along a plane as indicated by the line 7—7 of Figure 2, and

Figure 8 is a fragmentary vertical sectional view taken substantially along a plane as indicated by the line 8—8 of Figure 7.

Referring more specifically to the drawings, the photographic paper holder in its entirety is designated generally 10 and includes a body portion, designated generally 11 including corresponding front and rear walls 12 and 13, respectively, corresponding side walls 14, a top wall 15 and a bottom wall 16. The parts 12, 13, 14 and 15 are suitably secured together and the top and bottom walls 15 and 16 are secured together by supporting posts and bearing posts hereinafter to be described. As seen in Figure 2, the bottom wall 16 extends from the rear wall 13 to a point midway of the front and rear walls and between the side walls 14. Said parts 12 to 16 inclusive are formed preferably of plastic, the walls 12, 13 and 14 being preferably formed of a translucent ruby colored plastic, the top wall 15 being formed of an opaque red plastic. The bottom wall 16 may be formed of a transparent plastic. The holder 10 additionally includes a lid or cover 17 which is hinged along one of its longitudinal edges by a hinge 18 to the upper edge of the rear wall 13 so that the cover 17 may close flush against the top wall 15 or may be swung upwardly to an open position by engaging its handle 19. The cover or lid 17 is of a size to completely cover the top wall 15 when in a closed position and said cover including its handle 19 is formed of a transparent material, preferably plastic.

A plurality of supporting posts 20 are interposed between the top wall 15 and bottom wall 16 and have their ends anchored in abutting engagement therewith by screw fastenings 21 which extend through and are countersunk in the walls 15 and 16 and anchored longitudinally in the ends of the posts 20 for supporting the bottom wall 16 above the level of the lower edges of the walls 12, 13 and 14. A plurality of bearing posts 22 are likewise interposed between the walls 15 and 16 and secured thereto in a like manner by additional fastenings 21; however, certain of the posts 22 are anchored only at their upper ends of the underside of the top wall 15 by their fastenings 21 while other of said bear-

ing posts 22 are additionally anchored by fastenings 21 to the bottom wall 16 to afford a secure connection between the walls 15 and 16.

Three shafts 23, 24 and 25 extend through the space between the walls 15 and 16, the shafts 23 and 24 extending to the side walls 14 as seen in Figure 2. The shaft 25 likewise extends through the same left-hand side wall 14 and to a point intermediate of said side walls. Each of the shafts 23, 24 and 25 is provided with a turning knob 26 which is secured to the other end thereof and which projects outwardly from the left-hand side wall 14. A collar 27 is adjustably secured to each of said shafts and bears against the inner side of said left-hand side wall 14, said collars cooperating with the knobs 26 to prevent sliding movement of the shafts. The shafts 23 and 24 are each journaled in two of the bearing supports 22 and the shaft 25 is journaled adjacent its inner end in a single bearing support 22.

A metal bar 28 of electrical conducting material is secured to and extends along the inner side of the rear wall 13 and is fastened thereto by suitable fastenings 29, as seen in Figures 3 and 5.

Four cam disks 30 are secured to the shaft 23 each by a setscrew 31. Each cam disk 30 is provided with a circumferentially extending groove 32 formed in a portion of its periphery having a substantially flat bed portion, as best illustrated in Figures 7 and 8. Two additional cam disks 30 are secured to the shaft 24 and one cam disk 30 is secured to the shaft 25, as illustrated in Figure 2.

The top wall 15 is provided with ten openings arranged as illustrated in Figure 1 designated *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*, *i* and *j* for accommodating therein locator pins A, B, C, D, E, F, G, H, I and J. Certain of the pins are shown extending upwardly through their complementary openings in Figure 1 while other of the pins are in retracted positions below the top wall 15. However, all of the pins are shown in Figure 2. The locator pins A to J are each supported by a spring, the locator pins A, B and C being supported by corresponding springs 33 which differ from one another only in that the spring 33 of the pin B is longer than the other two springs 33. Each spring 33, as best illustrated in Figures 3 and 5, includes a shorter end 34 which is secured to the bar 28 and a longer end 35 which projects outwardly therefrom beneath the top wall 15 and is yieldably urged upwardly by a coiled intermediate portion 36 of the spring. The terminal of each spring end 35 is secured to its respective pin so that the pins A, B and C are resiliently urged upwardly through their respective openings *a*, *b* and *c*, respectively, to normally remain in extended positions as illustrated in Figure 1 when the lid 17 is in an open position. The pins E, F, I and J are each supported by a corresponding spring 37 each of which has a secured end 38, corresponding to the spring ends 34 and which is suitably secured to the bar 28, a longer end 39 which is disposed beneath the top wall 15 and which is yieldably urged upwardly by a coil 40 corresponding to the coil 36 and the free end of which is secured to its respective pin. The springs 37 differ from the springs 33 only in that said springs 37 are each provided with a downwardly offset portion 41 in the portion 39 thereof which is disposed beneath its respective cam 30 of the shaft 23. The two pins D and G are similarly supported and yieldably urged upwardly by corresponding springs 42 corresponding in construction to the springs 37 and which differ therefrom only in that the downwardly offset portions 41*a* of the springs 42 are longer than the portions 41 of the springs 37 to pass under both of the shafts 23 and 24 and to engage beneath a cam 30 of the shaft 24. A single spring 43, corresponding to the springs 42 except that its downwardly offset portion 41*b* is longer than the portion 41*a* to extend under the shafts 23, 24 and 25 and to engage beneath the cam 30 of the shaft 25. The pin H is yieldably supported and urged upwardly by the spring 43 in the same manner that the pins D and G are urged upwardly by the springs 42.

A pair of spring clamps 44 and 45 are secured by fastenings 46 to the bottom wall 16 and form spring electric contacts between which are disposed one or a pair of dry cell batteries 47 which engage and seat in a slot 48 of the bottom 16. A conductor 49 extends from the spring contact 45 to a stationary contact 50 which is secured to the underside of the top wall 15 and which is normally engaged by a movable contact 51 fixed to the free end of the spring 33 of the pin C so that spring 33 forms a connection between the contact 51 and the conductor strip 28. A resilient electrical conductor strip 52 is fastened at one end thereof to one post of a lamp socket 53 and has a curved opposite free end which yieldably bears against a portion of the strip 28, as best seen in Figure 2. The other post of the socket 53 is connected by a conductor 54 to the other spring contact 45 for completing an electric circuit through the batteries 47 and socket 53 when the contacts 50 and 51 are in engagement for energizing a lamp bulb 55 which is mounted in the socket 53. Each of the locator pins A–J is formed of a translucent material such as plastic so that the elevated pins will be illuminated when the lamp bulb 55 is energized.

From a consideration of Figures 7 and 8 it will be readily apparent that by turning the proper shaft 23, 24, 25 by its knob 26 through an arc of 90° a cam 30 will have a spring portion 41, 41*a* or 41*b* engaging in its groove 32 so that the respective spring 37, 42 or 43 may position its locator pin in a projected position, as illustrated in Figure 7, and may be actuated to retract said locator pin by turning the shaft of said cam disk 30 in either direction through an arc of 90°. For example, if the shaft 30 is turned in either direction through an arc of 90° from its position of Figure 7 the spring portion 41 will be moved from its full line to its dotted line position by the groove 32 moving to an upright position. This will cause the locator pin J to be retracted downwardly through the opening *j* and to below the paper supporting surface of the top wall 15. The cams 30 associated with the springs of the pins E and F have their grooves 32 located opposite to the grooves 32 of the cams 30 associated with the springs of the pins I and J. Accordingly, as illustrated in Figure 2 the pins I and J are in projected positions extending above the top wall 15. By turning the knob 26 and shaft 23 in either direction through an arc of 90° the cams 30 associated with said pins I and J will have their grooves 32 moved to vertical positions so that the pins I and J will then be retracted in the manner as previously described and as illustrated in Figure 7. Likewise, the pins E and F will then still be retained in retracted or lowered positions. However, if the shaft 23 is then turned in the same direction another 90° the grooves 32 of the

cams **30** associated with the pins E and F will then be disposed to open downwardly and so that the pins E and F will be projected upwardly through the top wall **15** by the springs **33** thereof. Similarly, both the pins D and G may be disposed in retracted positions or if the pin G is projected as illustrated in Figure 2 by turning the knob of the shaft **24** through an arc of 90° the pin G will be retracted downwardly while the pin D is retained in a retracted position but a further movement of the shaft **24** in the same direction another 90° will result in the groove **32** of the cam associated with the pin D being disposed to open downwardly so that the pin D will then be projected by its spring **42** through its opening *d*, as illustrated in Figure 1. Similarly, by turning the shaft **25** the cam thereof will either retract the pin H downwardly or allow it to be projected upwardly by its spring **43**.

Assuming that the apparatus **10** is supported beneath a projector, not shown, in a dark room and that it is desired to make 8" x 10" prints, the three shafts **23**, **24** and **25** are turned by their knobs **26** to position all of the cam grooves **32** in upright positions so that the locator pins D–J will all be disposed in lowered positions below the top surface **15**. The lid **17** is then elevated as seen in Figure 1 permitting the pins A, B and C to be projected upwardly above the surface **15** by their springs **33**, as previously described. An 8" x 10" sheet of photographic paper is then placed on the surface **15** with one end abutting the pin B and one longitudinal edge abutting the pins A and C to thereby center the sheet. This may be accomplished in a dark room since when the pin C is elevated the switch **50**, **51** will be closed as previously described to energize the light bulb **55** so that the pins A, B and C will then glow sufficiently to form illuminated guides against which the edges of the paper can be readily positioned. The transparent lid **17** is then returned to its closed position as seen in dotted lines in Figure 3 to thereby displace the pins A, B and C downwardly thus deenergizing the lamp bulb **55** and simultaneously clamping the photographic paper between the surface **15** and lid **17** while the print is being made. The lid **17** is then swung upwardly by its handle **19** and the paper then removed from the surface **15** after which any additional number of prints of the same size may be similarly made on additional 8" x 10" sheets of photographic paper.

If it is desired to make prints of a size 5" x 7", photographic paper this size may be utilized and the knob **26** of the shaft **23** is turned through an arc of 180° from its position of Figure 2 so that it will then be in its position of Figure 1 to permit the pins E and F to be projected by their springs **37**, as previously described, and the knob **26** of the shaft **24** likewise turned through an arc of 180° from its position of Figure 2 to its position of Figure 1 so that the pin D will likewise assume its projected position of Figure 1. One end of the 5" x 7" sheet is then disposed against the pin D and a longitudinal edge thereof is disposed against the pins E and F after which a 5" x 7" print may be made in the same manner as previously described. To produce a 4" x 5" print the shafts **23** and **24** are turned through arcs of 180° to their positions of Figure 2 in which positions the pins D, E and F will be retracted and the pins G, I and J will be released and projected by their supporting springs so that one end of the sheet is disposed against the pin G and one longitudinal edge against the pins I and J, after which the print is produced as previously described. If it is desired to produce a print of 3½" x 5", a sheet of this size is employed and the shaft **24** is turned through an arc of 90° so that both pins D and G will then be held retracted after which the shaft **25** is turned through an arc of 180° from its position of Figure 2 to allow the spring **42** to project the pin H to above the surface **15** so that a sheet resting thereon may then have one end disposed against the pin H and one longitudinal edge against the pins I and J for locating the sheet preparatory to lowering the lid **17**.

It will thus be seen that a photographic paper holder having novel locator means and clamping means has been provided which may be very effectively employed in a dark room for quickly and easily locating photographic paper of different sizes for producing prints and which will insure proper centering of the photographic paper so that the prints will be properly centered thereon and may extend to the edges of the paper since no margins will be necessary, as is commonly required where masks overlie and retain the edges of the photographic paper against the supporting surface.

Various modifications and changes are contemplated and may obviously be resorted to, without departing from the spirit or scope of the invention as hereinafter defined by the appended claims.

I claim as my invention:

1. A paper holder and locator comprising a body portion including an opaque top wall constituting a paper supporting surface provided with a plurality of locator pin receiving openings, a plurality of locator pins disposed in said body portion each arranged for vertical reciprocating movement through a locator pin receiving opening, a spring for supporting each locator pin including an end anchored to a part of the body portion and a free end connected to the locator pin and normally urging the pin upwardly to a projected position with an end of the pin disposed above the paper supporting surface, a flat lid formed of a transparent material hinged along one edge thereof to one edge of the body portion for swinging movement between a closed position against the paper supporting surface and an open position out of engagement therewith, said lid retaining the pins in retracted positions beneath the paper supporting surface when in a closed position and permitting the pins to assume elevated, paper locating projected positions above the paper supporting surface when the lid is raised, said pins being formed of translucent material, a self-contained electrical illuminating means disposed in the body portion beneath the opaque paper supporting surface for illuminating the pins, and a switch interposed in the electric circuit of the illuminating means including a movable contact carried by one of the pin supporting springs for deenergizing the electric circuit when said spring and the pin carried thereby is displaced downwardly by movement of the lid to a closed position and for automatically energizing the circuit when the lid is elevated and said spring moves its pin to a projected position.

2. A paper holder and locator comprising a body portion including an opaque top wall constituting a paper supporting surface provided with a plurality of locator pin receiving openings, a plurality of locator pins disposed in said

body portion each arranged for vertical reciprocating movement through a locator pin receiving opening, a spring for supporting each locator pin including an end anchored to a part of the body portion and a free end connected to the locator pin and normally urging the pin upwardly to a projected position with an end of the pin disposed above the paper supporting surface, a flat lid formed of a transparent material hinged along one edge thereof to one edge of the body portion for swinging movement between a closed position against the paper supporting surface and an open position out of engagement therewith, said lid retaining the pins in retracted positions beneath the paper supporting surface when in a closed position and permitting the pins to assume elevated, paper locating projected positions above the paper supporting surface when the lid is raised, self-contained illuminating means disposed within said body portion including a normally closed switch, and means for opening said switch by movement of the lid to a closed position against the paper supporting surface, said pins being formed of translucent material to be illuminated by said illuminating means when the switch is in a closed position and said locator pins are in projected positions.

3. A paper holder and locator comprising a body portion including an opaque top wall constituting a paper supporting surface provided with a plurality of locator pin receiving openings, a plurality of locator pins disposed in said body portion each arranged for vertical reciprocating movement through a locator pin receiving opening, a spring for supporting each locator pin including an end anchored to a part of the body portion and a free end connected to the locator pin and normally urging the pin upwardly to a projected position with an end of the pin disposed above the paper supporting surface, a flat lid formed of a transparent material hinged along one edge thereof to one edge of the body portion for swinging movement between a closed position against the paper supporting surface and an open position out of engagement therewith, said lid retaining the pins in retracted positions beneath the paper supporting surface when in a closed position and permitting the pins to assume elevated, paper locating projected positions above the paper supporting surface when the lid is raised, certain of said pins being retained in retracted positions solely by the lid and being movable to projected positions above the paper supporting surface when the lid is swung to an open position, said pins being arranged for locating a sheet of maximum size in a centered position on the paper supporting surface, and manually actuated cam means disposed in the body portion for selectively engaging the supporting springs of other of said pins for retaining said supporting springs and the pins carried thereby in retracted positions when the lid is in an elevated position or for releasing said last mentioned springs to permit certain of said last mentioned locator pins to be spring projected upwardly through openings of the supporting surface when the lid is elevated, said last mentioned pins when in projected positions being adapted to center sheets of other sizes on the supporting surface.

4. A paper holder and locator comprising a body portion including an opaque top wall constituting a paper supporting surface provided with a plurality of locator pin receiving openings, a plurality of locator pins disposed in said body

portion each arranged for vertical reciprocating movement through a locator pin receiving opening, a spring for supporting each locator pin including an end anchored to a part of the body portion and a free end connected to the locator pin and normally urging the pin upwardly to a projected position with an end of the pin disposed above the paper supporting surface, a flat lid formed of a transparent material hinged along one edge thereof to one edge of the body portion for swinging movement between a closed position against the paper supporting surface and an open position out of engagement therewith, said lid retaining the pins in retracted positions beneath the paper supporting surface when in a closed position and permitting the pins to assume elevated, paper locating projected positions above the paper supporting surface when the lid is raised, certain of said pins being retained in retracted positions solely by the lid and being movable to projected positions above the paper supporting surface when the lid is swung to an open position, said pins being arranged for locating a sheet of maximum size in a centered position on the paper supporting surface, and manually actuated cam means disposed in the body portion for selectively engaging the supporting springs of other of said pins for retaining said supporting springs and the pins carried thereby in retracted positions when the lid is in an elevated position or for releasing said last mentioned springs to permit certain of said last mentioned locator pins to be spring projected upwardly through openings of the supporting surface when the lid is elevated, said last mentioned pins when in projected positions being adapted to center sheets of other sizes on the supporting surface, self-contained illuminating means disposed within said body portion including a normally closed switch, and means for opening said switch by movement of the lid to a closed position against the paper supporting surface, said pins being formed of translucent material to be illuminated by said illuminating means when the switch is in a closed position and said locator pins are in projected positions.

5. A photographic paper holder and locator comprising a body portion having an opaque top wall forming a paper supporting surface and provided with a plurality of locator pin receiving openings, a plurality of locator pins disposed within said body portion and reciprocally movable through said openings, spring supporting means for said pins yieldably urging said pins upwardly through the openings to projected positions above the paper supporting surface, and manually actuated cam means for selectively engaging the spring supporting means of certain of said pins for releasably retaining said last mentioned pins in retracted positions beneath the supporting surface.

6. An apparatus as in claim 5, and a transparent lid hinged along one edge to the body portion along a complementary edge of said paper supporting surface and disposed in abutting engagement with said paper supporting surface when in a closed position and swingable upwardly therefrom to an open position, said lid displacing and retaining the locator pins in lowered positions beneath the paper supporting surface when in a closed position.

7. An apparatus as in claim 5, and a transparent lid hinged along one edge to the body portion along a complementary edge of said paper supporting surface and disposed in abutting

engagement with said paper supporting surface when in a closed position and swingable upwardly therefrom to an open position, said lid displacing and retaining the locator pins in lowered positions beneath the paper supporting surface when in a closed position, said pins being formed of translucent material, and illuminating means disposed within said body portion for illuminating the pins when the lid is in an open position and including a normally closed switch, and means for opening said switch to deenergize the illuminating means when the lid is moved to a closed position.

8. A paper holder and locator comprising a body portion including an opaque top wall constituting a paper supporting surface provided with a plurality of locator pin receiving openings, a plurality of locator pins disposed in said body portion each arranged for vertical reciprocating movement through a locator pin receiving opening, a spring for supporting each locator pin including an end anchored to a part of the body portion and a free end connected to the locator pin and normally urging the pin upwardly to a projected position with an end of the pin disposed above the paper supporting surface, a flat lid formed of a transparent material hinged along one edge thereof to one edge of the body portion for swinging movement between a closed position against the paper supporting surface and an open position out of engagement therewith, said lid retaining the pins in retracted positions beneath the paper supporting surface when in a closed position and permitting the pins to assume elevated, paper locating projected positions above the paper supporting surface when the lid is raised, said pins being formed of translucent material, and illuminating means disposed in the body portion beneath the opaque paper supporting surface for illuminating said pins.

LEON L. OGG.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,236,197	Moore	Mar. 25, 1941