

June 30, 1953

T. H. KRUEGER

2,644,151

DRY MOUNTING PRESS WITH TIMING SIGNALS

Filed July 29, 1948

3 Sheets-Sheet 1

Fig. 1.

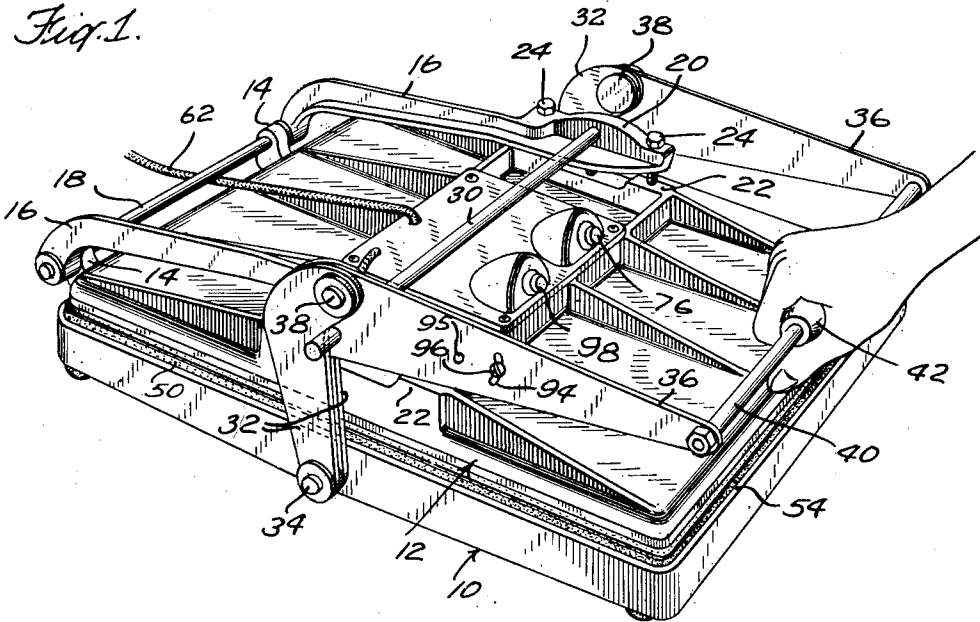
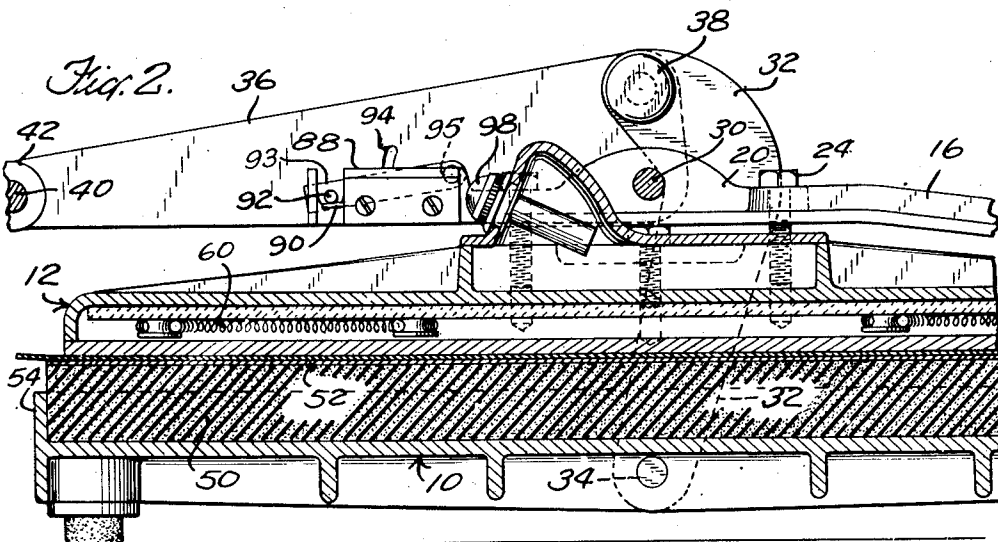


Fig. 2.



Inventor
THEODORE H. KRUEGER

By
Moses, Nolte, Cawst Berry
Attorneys

June 30, 1953

T. H. KRUEGER

2,644,151

DRY MOUNTING PRESS WITH TIMING SIGNALS

Filed July 29, 1948

3 Sheets-Sheet 2

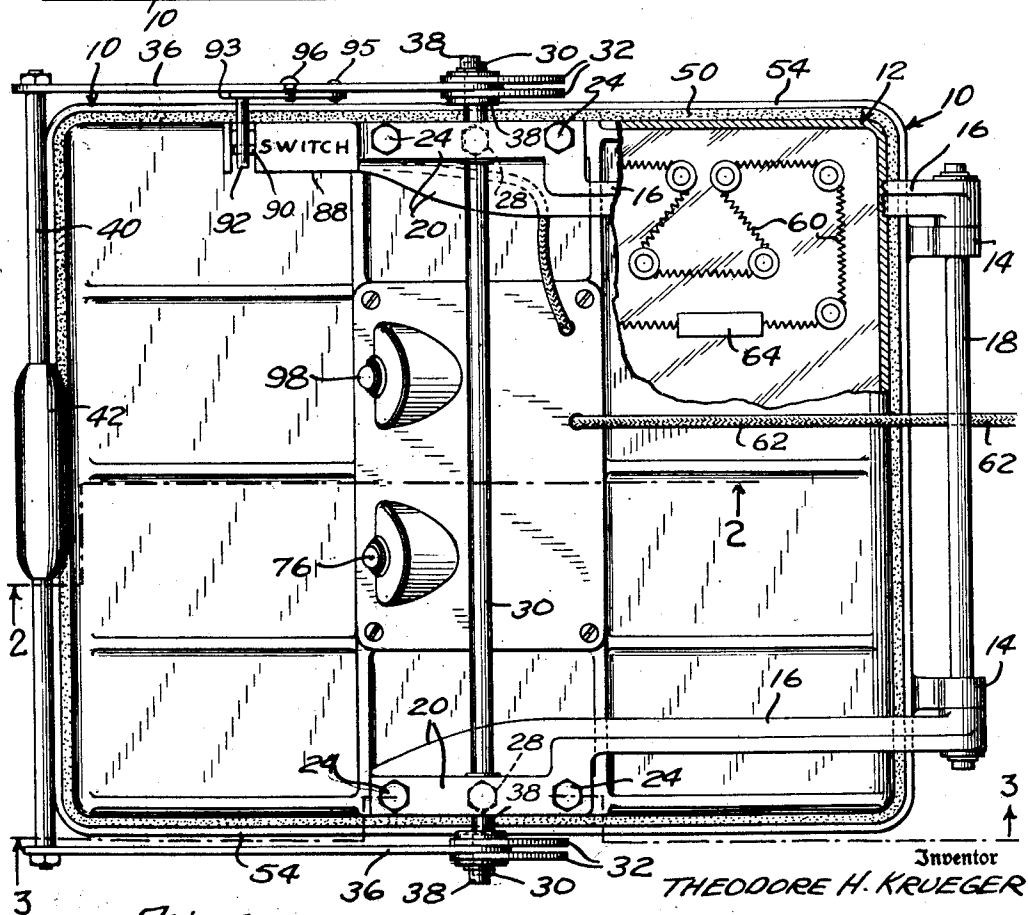
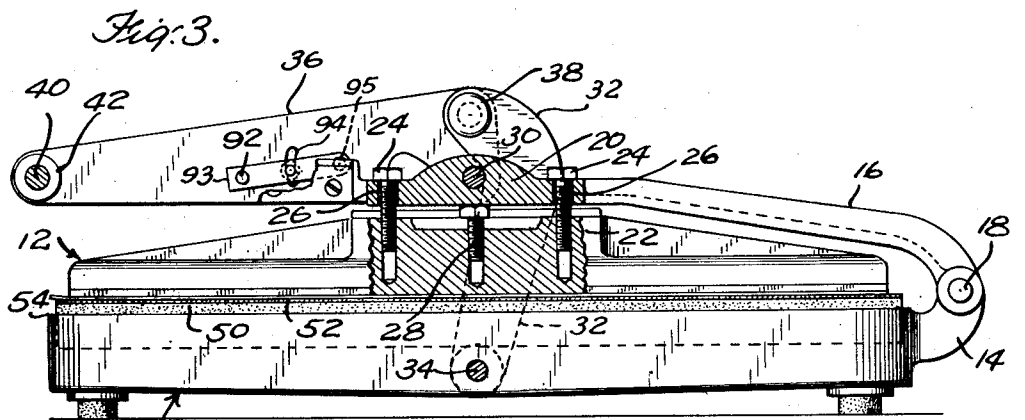
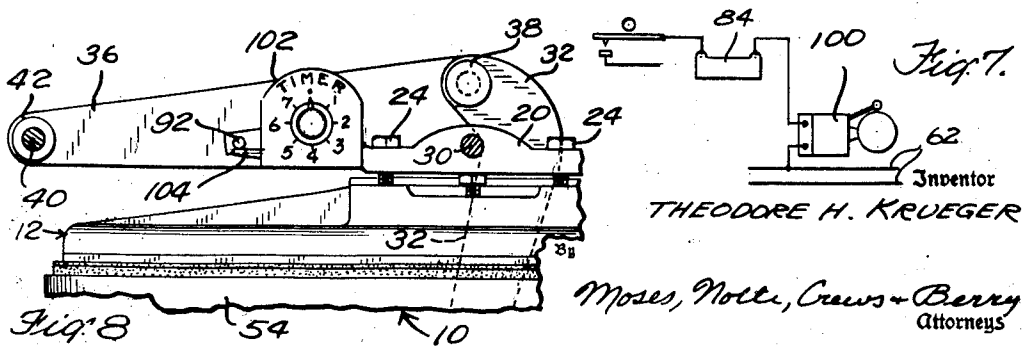
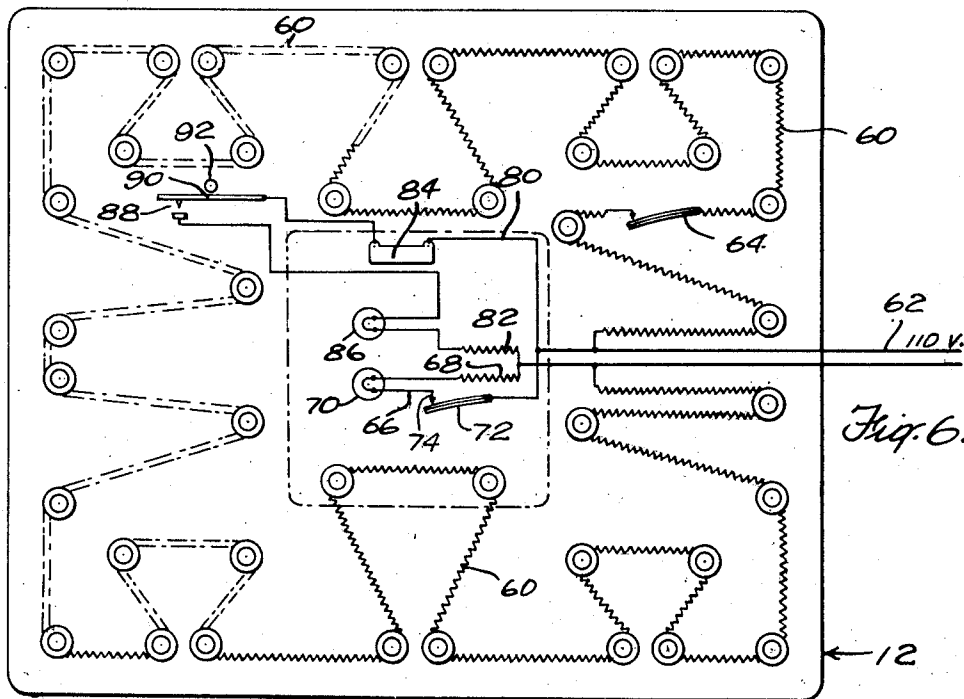
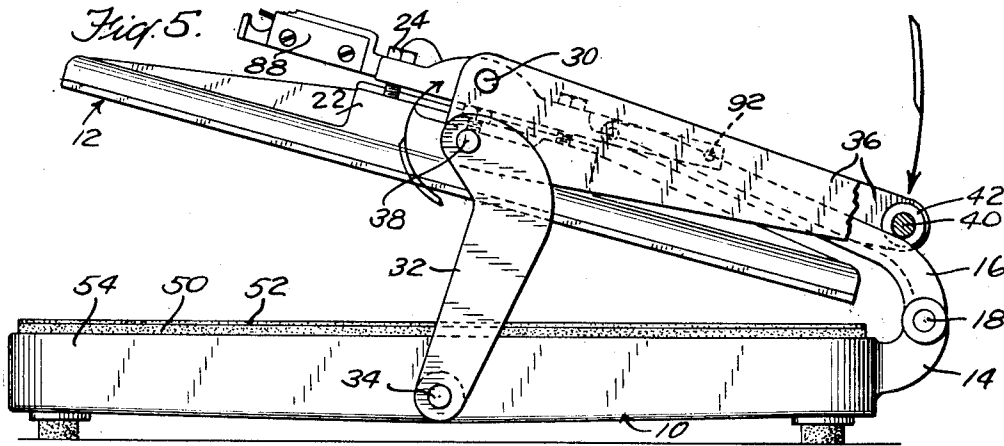


Fig. 4.

Moses, Nolte, Crows & Berry
Attorneys

2,644,151

3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

2,644,151

DRY MOUNTING PRESS WITH TIMING SIGNALS

Theodore H. Krueger, Stratford, Conn., assignor to Seal Incorporated, a corporation of Connecticut

Application July 29, 1948, Serial No. 41,378

6 Claims. (Cl. 340-227)

1

This invention relates to mounting presses, and particularly to the type of presses commonly called dry mounting presses which are used for the mounting of photographic prints and the like by means of a heat sealing adhesive. Such as adhesive may conveniently be applied in the form of a heat sealing mounting tissue which is placed between the print and the mounting card or sheet, heat and pressure being applied by the press.

If satisfactory results in the mounting of photographs are to be secured by the use of dry mounting presses, it is important that the right amount of heat be supplied, and that it be supplied for the correct period of time. If the press is not hot enough or if the heat is not applied long enough satisfactory adhesion will not be secured. If heat is applied for too long a period of time the adhesive will be softened too much and partly absorbed into the mount, so that satisfactory permanent adhesion is not secured. It is also important for satisfactory results that the pressure be applied uniformly over the entire surface of the print.

It is an object of the present invention to provide a press of the character referred to having a simple and effective means for timing the period of operation of the press.

It is another object of the invention to provide this press with a signalling means for indicating when the press has reached the proper temperature for effective use.

It is a further object of the invention to provide a press construction which is very simple to operate and inexpensive to build.

Other objects and advantages of the invention will appear in the course of the following description of a preferred embodiment of the invention chosen to illustrate the principles thereof.

In the accompanying drawings

Fig. 1 is a perspective view of a press embodying the invention;

Fig. 2 is a longitudinal vertical sectional view of the press taken on line 2-2 of Fig. 4;

Fig. 3 is a side elevation of the press, parts being shown in section on line 3-3 of Fig. 4;

Fig. 4 is a top plan view of the press with portions of the platen broken away;

Fig. 5 is a side elevation of the press in open position with a part broken away;

Fig. 6 is a wiring diagram showing the electrical connections;

Fig. 7 is a partial wiring diagram similar to Fig. 6 showing a modified form of timing signal.

2

Fig. 8 is a side elevation of a part of a press showing a mechanical timer applied thereto.

The invention claimed in this case relates particularly to the improvements disclosed embodying means for insuring application of a proper amount of heat to the material being pressed. More particularly it relates to the means for determining that the elements of the press are at the proper temperature and to signalling means by which the application of heat for the correct length of time is ascertained. The invention is illustrated in connection with a press embodying numerous novel features of mechanical construction, but such features are not claimed herein as they form the subject matter of a divisional application, Serial No. 180,734, filed August 22, 1950.

Referring to the drawings in detail, the press comprises a bed 10 and a platen 12 which for convenience are preferably hinged together as for example by a hinge construction comprising ears 14 on the bed, and hinge arms 16 pivoted to the ears 14 by a shaft 18 and connected to the platen 12 at opposite ends of a transverse axis extending substantially across the center thereof. In the construction shown, the arms 16 are provided with heads 20, heads 20 being connected to bosses 22 near the side edges of the platen by means of cap screws 24. These cap screws 24 pass freely through unthreaded holes 26 in the heads 20 so that some play is permitted to the platen enabling it to level itself properly when pressed against the bed. A third cap screw 28 is provided at each side of the platen screwing into the boss 22 and having its head bearing against the under side of the head 20 on the adjacent arm 16. The construction permits the platen to be adjusted vertically by screwing or unscrewing the screws 28 and correspondingly loosening or screwing up the screws 24.

The heads 20 carry a cross bar 30, the ends of which project laterally. This cross bar crosses the platen at or near its center line and constitutes the actual means for transmitting pressure to the platen when the press is closed. Such pressure is applied by means of hook shaped toggle links 32, a pair of which are preferably provided at each side of the bed, pivoted thereto by pivot pins 34, and by a pair of toggle levers 36, one at each side of the bed, such toggle levers being pivoted to the ends of the toggle links 32 by pivot pins 38. The toggle levers 36 have holes therein which fit over the projecting ends of the cross bar 30. The free ends of the toggle levers 36 are connected by cross bar 40 provided with a hand grip

42. The proportions of the toggle members and relative location of the centers are such that when the toggle levers are swung forward to pressing position, as shown in Figs. 1, 2, 3 and 4, the line joining the axis of pivots 38 and pivots 34 lies to the left of the axis of shaft 30, so that the press is locked closed. When the toggle levers are swung to a rearward position as shown in Fig. 5, the press is open and the line joining the pivots 38 and 34 again passes to the left of the axis of shaft 30 so that the press will stand in open position.

In the construction described, it will be seen that the hinge arms 16 merely carry the platen whether in its open or closed position as they swing around the hinge shaft 18. The actual closing pressure forcing the platen against the bed is not transmitted through the hinge shaft 18, but is applied directly by the toggle mechanism to the cross bar 30 at the center of the platen. This tends to equalize the pressure on the platen and also relieves the hinge shaft 18 of strain so that a very light hinge construction can be utilized.

The bottom face of the platen is preferably a smooth, hard surface. The bed of the press is preferably provided with a deeply resilient surface to cooperate with the face of the platen so as to insure an even distribution of pressure over the print and mount which are placed between the platen and the bed. In the preferred construction of bed illustrated, the latter is provided with a thick body 50 of resilient material, preferably sponge rubber, upon the upper surface of which is preferably secured a layer of felt 52. The bed 10 may conveniently be formed with a marginal flange 54 so as to provide a recess or box-like formation to receive the sponge rubber body 50. The sponge rubber body projects sufficiently above the top edge of the flange 54 to provide for full resilient action.

The platen is provided with electrical heating means of a suitable character, such as the usual resistance coils 60, supplied from the flexible cable 62. The resistance circuit is provided with an automatic thermostatic control element 64 of usual construction which maintains the platen at the desired approximate constant temperature once the current is turned on.

In order to warn the operator not to use the press until it has reached the necessary temperature a "go-ahead" signal is provided. The construction shown comprises shunt circuit 66 connected with the main electrical circuit and containing a resistance 68, a lamp or other signal element 70, and a thermostatic switch 72 which is located in proximity to the heated face of the platen so that its temperature will correspond to that of such heated face. After the main circuit has been turned on and the current passed through the heating coils for a sufficient length of time, the thermostatic switch 72 will become heated to a point where it will close the switch contacts 74, thus closing the circuit through the lamp 70 and causing the latter to light up. As soon as this light lights up it indicates to the operator that the platen has reached the temperature at which prints can be properly mounted. If for any reason the temperature of the platen falls below the safe operating temperature, then the light 70 will go out, warning the operator not to use the press. The light is preferably provided with a distinctively colored lens 76 which is usually green to indicate a safe operating condition.

A very important feature of the invention com-

prises the provision of a timing signal by which the operator can tell just how long to keep the press closed in order to secure the optimum results. The timing indicator may be visual, or audible, or electrically or mechanically operated. In the preferred arrangement shown in Fig. 6, an electric timing circuit 80 is provided which is a shunt circuit connected with the main source of current supply and includes a resistance 82, a blinker tube 84 or other electrical device so constructed as to open and close the circuit at regular timed intervals, a blinker light or other indicator 86 and a switch 88 so constructed as to be closed whenever the platen is pressed down upon the bed of the press. The switch 88 is shown as a microswitch having a contact arm 90 so arranged as to be engaged by a contact pin 92 mounted on one of the toggle levers 36, means being preferably provided by which the position of the pin may be adjusted so as to bring about closing of the switch at the instant when the toggle lever is swung into a position to lock the platen in down position. As illustrated the pin 92 is carried by an arm 93 pivoted at 95 on one of the toggle levers 36. A clamping screw 96 carried by the arm 93 and passing through a slot 94 in the toggle lever permits adjustment of the arm. The blinker light 86 may be provided with a suitably colored lens 98, which may, for example, be red. The blinker tube or device 84 is arranged to open and close the circuit at regular intervals of, for example, one second duration. As soon as the toggle levers are swung to close the press the blinker light 86 will start to flash and all that the operator has to do is to count the number of flashes. When the proper number of flashes has been observed the press is opened and the mounting job is complete. With a good mounting tissue, three or four seconds are ordinarily sufficient.

Instead of using the blinker light to give a visual signal, means for giving an audible signal might be used, such for example as a bell 100 included in the circuit, as indicated in Fig. 7.

Any other suitable means for giving a timing signal may be employed, such for example as the mechanical timer 102, as shown diagrammatically in Fig. 8, this being mounted on the head 20 and having an actuating arm 104 to be engaged by the pin 92 on the toggle lever when the press is closed. The mechanical timer may be of any suitable construction such as a clock or escapement mechanism.

All of the electrical controls above described are preferably enclosed in a box or chamber 110 on the top of the platen. Such a chamber may be covered by a removable plate 112. By taking this off access may be had to the signal lamps, circuits and other connections.

While I have illustrated and described in detail certain preferred forms of my invention, it is to be understood that changes may be made therein and the invention embodied in other structures. I do not, therefore, desire to limit myself to the specific construction illustrated, but intend to cover my invention broadly in whatever form its principles may be utilized.

I claim:

1. A photographic mounting press comprising a bed and platen movable into and out of contact with said bed, said platen containing: an electrical heating unit, means for automatically regulating the temperature of said unit, an electrical circuit associated with said unit having a signal element and a switch, said switch being so mounted and constructed as to be responsive

to the temperature of said platen so as to close the circuit through said signal element when the temperature of the platen reaches a predetermined minimum, a second electric circuit associated with said platen and containing a signal, a flasher arranged to open and close the circuit at timed intervals and a mechanically actuated switch, and switch closing means for said mechanical switch, said switch and switch closing means being mounted on relatively movable parts of the press and being so constructed and arranged that when the press is closed the switch is closed and when the press is opened the switch is opened.

2. A photographic mounting press comprising a bed and a platen and electrical heating means for at least one of said elements, a temperature operated indicator for indicating when the temperature of the electrically heated part of the press is at or above a predetermined minimum, said indicator comprising an electric circuit containing an indicator light and a switch associated with the heating element of the press responsive to the temperature thereof, a second electric circuit containing a signal light located in a position to be observed simultaneously with the first named indicator light, a flasher arranged to open and close said second circuit at timed intervals, a mechanically actuated switch in said circuit, and means for closing said mechanically actuated switch when the press is closed, and for opening said switch when the press is opened.

3. A photographic mounting press comprising a bed and a platen movably mounted above the same, an electrical heating element in said platen, a temperature operated indicator mounted on said platen and comprising a circuit having a temperature responsive element located in the platen in a position to respond to the temperature of the platen and including a signal light mounted on top of the platen, a second indicator light mounted on top of the platen adjacent to said first indicator light and an electric circuit for said second indicator light, said second electric circuit including a mechanically actuated switch having means for closing the switch when the press is closed, and for opening said switch when the press is opened, said second circuit also containing an electrical flasher element responsive to a flow of current therethrough following closing of said mechanically actuated switch to automatically break and close said circuit at timed intervals so long as said mechanically actuated switch remains closed.

4. A photographic mounting press comprising a bed and platen movable into and out of contact with said bed, said platen containing an electrical heating unit, electrical lead wires leading to said unit, and two shunt circuits connected with said lead wires, one of said shunt circuits containing a signal lamp and a thermostatic switch, said switch being so mounted and constructed as to be responsive to the temperature of said platen so as to close said shunt circuit and illuminate said signal lamp when the temperature of the platen reaches a predetermined minimum, said second shunt circuit containing a signal lamp, a flasher arranged to open and close the circuit at timed intervals and a mechanically actuated switch, and switch closing means for said mechanically actuated switch, said switch and switch closing means being mounted on relatively movable parts of the press

and being so constructed and arranged that when the press is closed the switch is closed, and when the press is opened the switch is opened.

5. A photographic mounting press comprising a bed and platen movable into and out of contact with said bed, said platen containing an electrical heating unit, electrical lead wires leading to said unit, and two shunt circuits connected with said lead wires, one of said shunt circuits containing a signal lamp and a thermostatic switch, said switch being so mounted and constructed as to be responsive to the temperature of said platen so as to close said shunt circuit and illuminate said signal lamp when the temperature of the platen reaches a predetermined minimum, said second shunt circuit containing a signal lamp, a flasher arranged to open and close the circuit at timed intervals and a mechanically actuated switch, said switch being mounted on said platen, toggle means connecting said bed and platen, and a switch actuating member mounted on a part of said toggle means for engaging said mechanical switch to actuate the same when said toggle means are in platen closing position.

6. A photographic mounting press comprising a bed and platen movably mounted above the same, an electrical heating element in said platen, a casing mounted on top of the platen, a movable cover on said casing, an electrical lead cable passing through an opening through said cover into said casing and connected to said electrical heating element in the platen, a pair of shunt circuits connected to said lead cable and comprising conductors in said casing, one of said shunt circuits including a signal lamp mounted on said cover, and a thermostatic switch, said switch being so mounted and constructed as to be responsive to the temperature of said platen so as to close the circuit through said signal lamp when the temperature of the platen reaches a predetermined minimum, the second shunt circuit containing a signal lamp mounted on said cover, a flasher tube mounted in said casing arranged to open and close the circuit at timed intervals and a mechanically actuated switch, and switch closing means for said mechanical switch, said switch and switch closing means being mounted on relatively movable parts of the press and being so constructed and arranged that when the press is closed the switch is closed, and when the press is opened the switch is opened.

THEODORE H. KRUEGER.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,002,887	Walter	Sept. 12, 1911
1,474,342	Anderson	Nov. 20, 1923
1,754,204	Green	Apr. 8, 1930
2,208,432	Samuels	July 16, 1940
2,264,710	Parr	Dec. 2, 1941
2,282,286	Otnow	May 5, 1942
2,307,344	Zottu	Jan. 5, 1943
2,404,165	Carver	July 16, 1946
2,420,887	Lane	May 20, 1947
2,433,124	Johnson	Dec. 23, 1947

FOREIGN PATENTS

Number	Country	Date
384,527	Great Britain	Dec. 8, 1932