W. L. DEMING.

PROJECTOGRAPHOSCOPE.

APPLICATION FILED MAR. 15, 1915.

1,218,749. Patented Mar. 13, 1917.

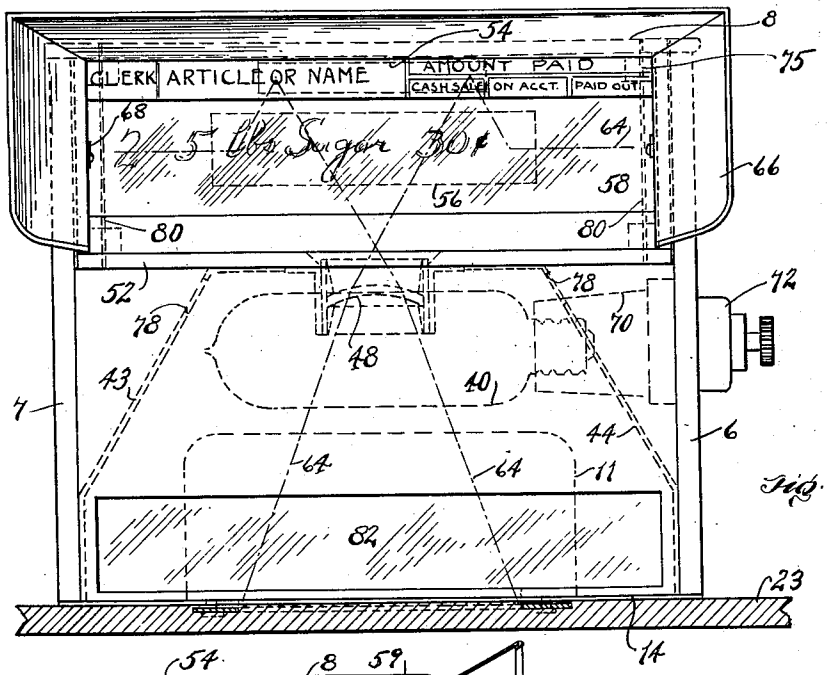


Fig. 1

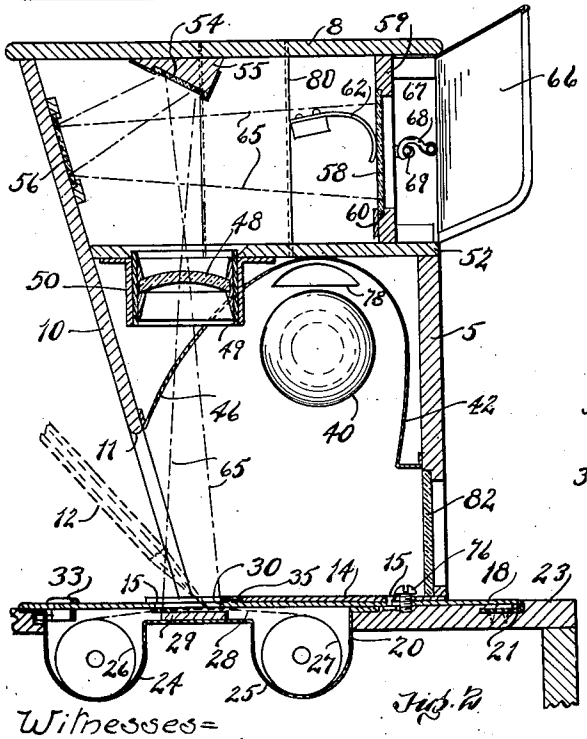


Fig. 2

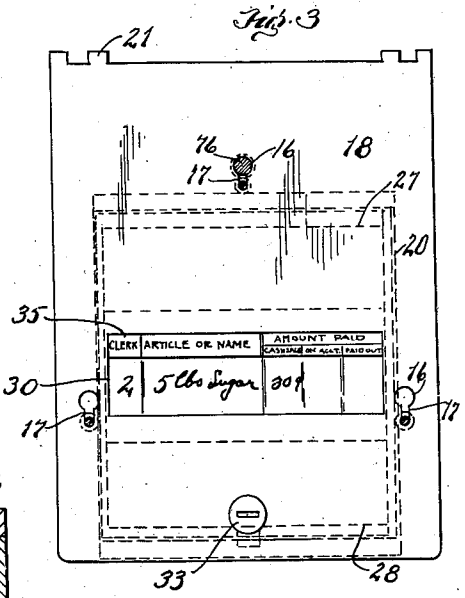


Fig. 3

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UNITED STATES PATENT OFFICE.

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PROJECTOGRAPHOSCOPE.

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To all whom it may concern:

Be it known that I, WILLIAM L. DEMING, a citizen of the United States, residing at Salem, in the county of Columbiana and State of Ohio, have invented a certain new and useful Improvement in Projectographoscopes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The general object of this invention is to provide a device for automatically displaying on a screen, an image projected from an illuminated surface, at a distance from the screen. A more specific object is to so arrange such a device that it may be used in connection with an instrument for recording sales, of a type wherein the transaction is noted in writing on a suitable record strip, and when so used, my device automatically displays on the screen, where it may be seen by a customer, the item as it is written on the record strip. Another object is to so arrange the device that it may be very simple, compact and cheaply manufactured. Still another object is to render the projecting apparatus efficient, so that the image may be well illuminated and attractive. Other advantageous features of my invention will become apparent in the following specification and the essential characteristics are hereinafter set forth in the claims.

In the drawings, Figure 1 is a front side elevation of my device; Fig. 2 is a vertical transverse section through the same; Fig. 3 is a plan of the record strip cover showing the opening for writing and the means for attaching the projecting device thereto.

Referring to the drawings by reference numerals, the projecting device is preferably inclosed in a box having a front wall 5, side walls 6 and 7 and a top 8, the rear of the device being closed by the wall 10, which preferably slopes forwardly toward the bottom and has an opening 11 through which the record strip is visible and through which the pencil may be projected for writing on the strip, as indicated in dotted lines at 12. The casing described is shown as mounted on a flat metal plate 14, carrying downwardly projecting pins 15 having enlarged heads adapted to enter the enlarged portions 16 of slots 17 into which the shank of the pins may be slid, the heads engaging the under side of a plate 18, in which these slots are made to secure the casing thereto. The plate 18 forms the cover for a record strip receptacle 20, the cover shown as hinged at 21 to a board 23, which may form the cover for a cash drawer or may be the usual store counter, or any suitable support.

My device is well adapted for use with cash receptacles and recorders of the general type shown, described and claimed in my prior Patent No. 1,051,200, granted January 21, 1913, and may be used to accomplish the general purpose of the projecting device shown and described in my prior patent on an autographic register, No. 1,131,917, filed March 28th, 1913, issued March 16th, 1915. In the first-mentioned Patent (1,051,200), is shown a record strip in a receptacle entirely inclosing it except for a writing opening. In the drawings in the present application, is shown such a record strip, the casing having two laterally extending trough-shaped portions 24 and 25, each adapted to receive the rolls 26 and 27 of the strip, the intermediate portion 28 being drawn over a support 29 beneath the writing opening 30 in the plate 18. Suitable means such as shown in my last mentioned patent, for example, may be used for advancing the strip after recording an item. To prevent tampering with the strip, I prefer to lock the cover 18 in its down position by means of a lock indicated at 33.

The plate 14 is preferably cut away adjacent the writing opening 30, to allow access to the strip and also to receive a plate 35, having thereon legends and spaced markings to indicate the portions of the strip to be written on for certain parts of the item, for example; "Clerk, article or name"; "Amount paid," under which are other divisions— "Cash sale," "On account," "Paid out." It is obvious that this may be varied for a particular use.

The projecting apparatus for reproducing the item on the screen as it is written, will now be described. Mounted within the casing substantially midway between the side walls, is a suitable electric lamp 40, covered by a reflector 42 extending around the lamp and secured to the walls 5 and 10 at the sides and having end portions 43 and 44 (indicated in dotted lines in Fig. 1), extending to the bottom plate 14, to provide the greatest amount of reflecting surface possible.

The reflector is preferably so shaped that the greatest possible amount of light may be reflected directly onto the record strip.

Adjacent the lamp is made a suitable opening through the reflector, as indicated at 46, and above this opening is a lens 48 shown as carried in a sleeve 49, preferably slidably mounted in a sleeve 50 secured to a horizontal partition 52 of the casing. The lens is preferably of a size to admit as much light as is compatible with the construction, and the image on the record strip is projected through the lens, reversed once and received on a mirror 54, shown as mounted on a block 55 carried by the top piece and set at an angle suitable for reflecting the image to a second mirror 56. This second mirror is somewhat larger than the mirror 54 and is adapted to project the image forwardly to a suitable screen 58, carried in a portion 59 of the front wall and having an opening opposite the screen through which the image may be seen. The screen may be of any suitable semi-opaque substance having a surface such as ground glass, thin fabric, tracing cloth or the like. In the drawings, this screen is shown as a rectangular piece of glass, the front side of which may be ground and the lower edge of which rests in a groove 60, the glass being held in position by springs 62 mounted on the side walls and curved so that the glass may be removed by pressing inwardly the upper edge and sliding the glass upwardly around the springs.

The paths of the rays from the writing to the image seen on the screen, are indicated in Figs. 1 and 2 in dot and dash lines, 64, in Fig. 1 being the lines indicating the direction of the rays from the ends of the writing space upwardly through the lens to the mirror 54, back to the mirror 56 and then forwardly to the screen. 65 in Fig. 2 indicates the rays coming from the edges of the writing strip and projected by the same means to the screen.

To prevent the reflection sometimes caused by strong extraneous light striking the screen and obscuring the image, I prefer to provide a flaring rectangular hood 66 having inwardly turned flanges 67, fitting between the side walls and underneath the side of the casing, and abutting the wall member 59, which is preferably set inwardly from the wall 5. This hood may be secured in position by hooks 68 pivoted on each side member of the hood and engaging pins 69 in the sides of the casing.

It is obvious that the wires for the lamp 40 may be led to its socket 70, shown as mounted on the side wall 6, in any suitable manner, and if the projecting device is mounted on the cover for my cash drawer, as shown in my patent referred to, a suitable switch mechanism may be used for automatically lighting the lamp as the cover is raised. In the drawings, I have shown a switch member 72 on the side member adjacent the socket 70, for manually controlling the lamp.

It will be noted that I have shown a title plate 75 similar to the plate 35 above this screen 58, correspondingly spaced and marked, as indicated, and made on a larger scale to correspond to the enlarged image projected to the screen. If desired, a narrow window 82 may be provided in the lower portion of the front wall 5, extending transversely across the same to allow the actual writing and the record strip to be seen by a person in front of the casing. This window is preferably of colored or darkened glass, so that light from the illuminated surface below the lamp will not materially detract from the image projected onto the display screen.

The casing for the record strip is accessible and may be reached most conveniently by unlocking the lock 33 and swinging the plate upwardly, carrying with it the projecting device, which is constructed of light material.

If desired, the projecting device may be entirely removed to use the record strip separately, by removing the screw 76, threaded through the plate 14 and through the enlarged portion 16 of one of the slots 17 and serving, when in position, to prevent the projecting device being slid forwardly along the cover. After removing this screw, the device may be slid forwardly, bringing the heads of the downwardly projecting pins 15 beneath the enlarged portions of their slots, through which these heads may pass, allowing the projecting device to be raised free from the cover.

As the lamp 40 is preferably of as high wattage as may be conveniently used, it necessarily heats the interior of the casing to a considerable degree when burned continuously. Accordingly I prefer to provide openings 78, through the end portions 43 and 44 of the reflector around the lamp, communicating with the space outside of the reflector and allowing a passage of air from around the lamp to this space. From this space the air may pass upwardly through flues 80, comprising rectangular tubes extending from the partition 52 upwardly through the top 8 of the casing and preferably mounted adjacent the sides 6 and 7 so that they will not interfere with the projection of the image. This allows for the circulation of air, materially cooling the interior of the casing and thereby preventing excessive heating of the parts when the lamp is left burning for a considerable length of time.

It will be seen from the foregoing description that I have provided a simple projecting device which may be adapted for

many uses and which may be a practical, novel and interesting means for notifying the customer of the amount of his purchase, when it is used in connection with a sales recording device. It is obvious, however, that by merely changing the proportions of the device that it may be used for many other purposes.

Having thus described my invention, what I claim is:

1. The combination, with means for inclosing and supporting a record strip having a comparatively small writing opening, of means for illuminating the strip at the writing opening, a display screen, a lens, and means for supporting the same spaced from the strip at the side which receives the writing, said lens being adapted to reverse the image on the strip and project it to the screen.

2. The combination, with means for supporting a record strip and exposing a portion of the same for writing, of a casing above the exposed writing portion, a lamp in said casing, a lens, and a display screen, said lens and display screen being adapted to reverse and display the writing as it is made on the record strip.

3. The combination, with a casing, of means for supporting a record strip at the lower portion of the casing and having an opening exposing a portion of the strip, said casing having an opening to admit the hand to allow for writing on the record strip, a lamp and reflector for illuminating the strip at the writing opening, a lens above the writing opening, a mirror adapted to receive the image passing through the lens, a second mirror to which the image is reflected from the first, and a screen opposite the last named mirror and visible from the side opposite the writing opening for displaying writing on the record strip.

4. The combination, with means for supporting and inclosing a record strip and having a writing opening, of a casing above said support having an opening to permit writing on the strip, a lamp, a reflector so arranged that substantially all portions thereof may direct light onto the strip at the opening, and means including a lens for projecting the image onto said screen, said screen being mounted at the side of the casing opposite the writing opening and near the upper portion thereof, and a window adjacent the lower portion of the casing and below the reflector and through which the actual writing on the record strip may be seen.

5. The combination, with means for supporting a record strip and exposing a portion of the same for writing, of a casing above said support having an opening to permit writing on the strip, a lamp, a reflector directing light onto the strip, means including a lens for projecting the image onto said screen, said screen being mounted at the side of the casing opposite writing on the strip and near the upper portion of the casing, a window adjacent the lower portion of the casing and below the reflector through which the actual writing on the record strip may be seen, and a flaring hood extending outwardly from the casing to exclude extraneous light from the screen.

6. The combination, with means for inclosing and supporting a record strip having an opening to allow writing on the strip, of a casing mounted above said support having front and rear walls and an opening in the rear wall to allow for writing on the strip, a lamp within the casing, a reflector curved around said lamp for directing light onto the strip, a lens for receiving rays of light passing upwardly from the strip and reversing the image thereon, a mirror above the lens set at an angle to direct rays to a point back of the lens, a second mirror for receiving the reflection from the first, and a display screen in the forward upper part of the casing for receiving the image reflected from the second mirror.

7. In a projecting device, the combination of a casing having a display screen, means for projecting an image from the lower portion of the casing to the display screen including a lens, a mirror, a lamp for illuminating the image, a reflector curved over the lamp and flues leading upwardly from adjacent the lamp to the upper part of the casing for allowing a circulation of air around the lamp.

8. In a projecting device, the combination of a casing having a display screen, means for projecting an image from the lower portion of the casing onto the display screen including a lens, a mirror, a lamp and a reflector surrounding the lamp, said casing having an opening at one side near the bottom, openings through the reflector above the lamp, and flues leading upwardly form adjacent said openings to the top of the casing allowing a circulation of air around the lamp.

9. The combination, with means for supporting and exposing a portion of a record strip, of means including a lamp and a reflector curved around the same for projecting light onto the exposed portion of the record strip, a lens, means for mounting the same spaced from the strip at the side which receives the writing, a display screen, and reflecting means between the lens and the screen whereby the image on the strip may be projected to the screen through said lens.

10. The combination with a casing, of a support for a record strip having an opening adapted to expose only a small portion

of the strip for writing, a record strip carried by the support and having columns for separate items, column headings carried by the support adjacent the writing openings, means for illuminating the record strip at the opening, a screen carried by the casing, means for projecting writing on the strip to the screen so that it may be read from the exterior of the casing, and column headings above the screen corresponding to those over the record strip.

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

WILLIAM L. DEMING.

Witnesses:
GERTRUDE K. SMITH,
JUSTIN W. MACKLIN.