INSTRUCTIONS FOR USING

THE

BULL'S-EYE

TODAY

No. 2

PRICE, 10 CENTS.

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.

Successor to BOSTON CAMERA MFG. COMPANY, BOSTON.
KODAK,
Trade Mark, 1880.

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.

MANUFACTURERS OF
Kodaks,
Eureka Cameras,
Cartridge Roll Holders,
Eastman’s Solid Paper,
Western Collodion Paper,
Eastman’s Dry Plates,
Eastman’s Royal Bromide Paper,
Eastman’s Standard Bromide Paper,
Eastman’s Platino Bromide Paper,
Eastman’s Enamed Bromide Paper,
Eastman’s Matte-Enamel Bromide Paper,
Eastman’s Transparent Film,
Eastman’s Transparency Plates, Tripods and Other Specialties.

Dec. 1881.
INSTRUCTIONS

FOR USING THE

NO. 2 BULLS-EYE KODAK.

PATENTED:


MANUFACTURED ONLY BY

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.

Successor to Boston Camera Mfg. Co.
BOSTON.
THERE IS NO KODAK
BUT THE EASTMAN KODAK.
BEFORE LOADING.

Before taking any pictures with the Bulls-Eye Kodak read the following instructions carefully and make yourself perfectly familiar with the instrument, taking especial care to learn the construction of the shutter. Work it for both time and instantaneous exposures several times before threading up the film.

The first and most important thing for the amateur to bear in mind is that the light which serves to impress the photographic image upon the sensitive film in a small fraction of a second when it comes through the lens, can destroy the film as quickly as it makes the picture. Until it has been developed and fixed, the film must never be exposed to white light for even a fraction of a second, (this includes gaslight, lamplight, etc.) or it will be ruined. Throughout all the operations of loading and unloading, therefore, be extremely careful to keep the black paper wound tightly around the film to prevent the admission of light.

EASTMAN KODAK COMPANY,
Rochester, N. Y.
CONTENTS.

PART I.
Loading the Camera.

PART II.
Making the Exposures.

PART III.
Removing the Film.

PART IV.
Developing.

PART V.
Printing on Solio Paper.
PART I.

LOADING THE CAMERA.

The film for the Bulls-Eye Kodak is furnished in light-proof rolls and the instrument can therefore be loaded in daylight. The operation should, however, be performed in a subdued light, not in the glare of bright sunlight.

TO LOAD.

I. Take a position at a table as far as possible from any window and pressing on the bottom of camera near the tripod socket with the left hand pull out the brass catch at indicated in Fig. 1 and take the roll holder from the box. See Fig. 2.

II. Pull out on the spring which is at the bottom of the front left hand corner of the roll holder (Fig. 3).

III. Put the full spool into this recess and slip the pins into place in the hole in axis of spool and fasten with catch. Be sure and get the “Top” at the top. Each spool is marked on the end.
IV. Cut the gum slip that holds the end of the paper and holding the thumb of the left hand firmly against the roll as shown in Fig. 4, thread the black paper under the first cross piece and pull out beyond the end of camera nine inches. Pass the paper across the rollers in front of the pasteboard flap and under the second cross piece.

V. Thread into the slot in reel, (see Fig. 5) being careful that the paper draws straight and true, and turn the key until the paper is taut. See Fig. 6.

Fold the pasteboard flap up over the black paper and insert the camera body in the case once more.

Throughout the foregoing operations, from the time the gum slip is cut on the fresh roll of film, until the roll holder is once more in place in the case, keep the black paper wound tightly to prevent fogging the film.

VI. Press on bottom of camera near tripod socket and push in the brass catch at side.
VII. The roll of film in the Kodak is covered with black paper and this must be reeled off before a picture can be taken. Turn the key slowly to the left and watch in the little red celluloid window at the back of the camera. When 15 to 18 turns have been given, the figure 1 will appear before the window.

The film is now in position for making the first picture.

**SINGLE PLATE EXPOSURES.**

Occasionally it is desirable to make a single exposure in or about the house when the Kodak is not loaded and at a time when you do not care to purchase a fresh cartridge. In such an event the Bulls-Eye Kodak can be used for single plate exposures by removing the roll holder from box and inserting a glass plate between the black pasteboard flap and the aluminum rollers and putting a piece of black paper between the red celluloid window and the pasteboard flap. Close the camera once more and make the exposure the same as with film.

The operation of inserting the glass plate must, of course, be performed in a dark room. See page 10.
PART II.

MAKING THE EXPOSURES.

Section I.—Instantaneous Exposures.

("Snap Shots.")

The shutter is always set, and is operated by pushing the spring alternately to right or left. (See Fig. 1.)

If the lever stands at the right hand side of slot simply push it to the left and vice versa.

If the spring should be pushed the wrong way, the shutter would simply remain unmoved, and no “click” would be heard, thus indicating that the spring should be pushed in the opposite direction.

To take instantaneous pictures the object should be in the broad open sunlight, but the camera should not. The sun should be behind the back or over the shoulder of the operator.

USE THE LARGEST STOP.

Snap Shots can only be made when the largest stop is in the lens. If a smaller stop be used the light will be so much reduced that it will not sufficiently impress the image on the film and failure will result. In making snap shots both of the slides shown in Fig. 2 should be pushed down to the limit of motion. Slide A controls time and instantaneous exposures. For snap shots this slide must be down.

Slide B controls the stops, of which there are three. When it is clear down the largest stop is in place. This is the one to use for all snap shots; except where the sunlight is unusually strong, and there are no heavy shadows, such as views on the water or in tropical or semi-tropical climates, when the middle stop may be used.

The smallest stop must never be used for snap shots or absolute failure will result.
Aim the camera at the object to be photographed and locate the image in the finder, which is alongside the key. The finder shows the scope of view and is a fac-simile of what the picture will be. Hold the camera steady—hold it level as shown in Fig. 3 and push the lever.

This makes the exposure.

**Fig. 3.**

For Snap Shots the slides must both be down as shown in Fig. 4.

**Fig. 4.**

Turn a new film into position: Turn the key slowly to the left until the next number appears before the window. Three or four turns will be sufficient to accomplish this.

Repeat the foregoing operations for each picture.
Section 2.

TIME EXPOSURES INDOORS.

1. Put the Kodak in Position.

Use some firm support, like a tripod or table. Set in such a position that the finder will embrace the view desired.

The diagram shows the proper position for the Kodak. It should not be pointed directly at a window as the glare of light will blur the picture. If all the windows cannot be avoided, pull down the shades of such as come within the range of the Kodak.

To make a time exposure, place the Kodak on some firm support like a table or tripod, and pull out the time stop (A)
near finder, as shown in Figure 2; steady the Kodak with one hand and push the lever to open the shutter (see Fig. 1); give the proper time, (using a watch if more than two seconds), and press the lever in the opposite direction to close the shutter. (If preferred the shutter may be closed by pushing down lever A instead of giving the second pressure to the exposure lever.)

Notes: It will be seen that when the time slide is pulled out, the shutter strikes as it passes the lens, stopping it half way across with the opening over the lens.

Try this a few times, before winding the film into position, to become accustomed to the operation.

Turn a new film into position as described before. (See page 7.)

For interiors the following table is a good guide:

**Time Needed for Interior Exposures.**

This table is for the largest stop. When the second stop is used add one-half more time; when the smallest stop is used give four times the time of the table:

**White walls and more than one window:**
- bright sun outside, 2 seconds
- hazy sun, 5 seconds
- cloudy bright, 10 seconds
- cloudy dull, 20 seconds

**White walls and only one window:**
- bright sun outside, 3 seconds
- hazy sun, 8 seconds
- cloudy bright, 15 seconds
- cloudy dull, 30 seconds.
Medium colored walls and hangings and more than one window:

- bright sun outside, 4 seconds;
- hazy sun, 10 seconds;
- cloudy bright, 20 seconds;
- cloudy dull, 40 seconds.

Medium colored walls and hangings, and only one window:

- bright sun outside, 6 seconds;
- hazy sun, 15 seconds;
- cloudy bright, 30 seconds;
- cloudy dull, 60 seconds.

Dark colored walls and hangings, and more than one window:

- bright sun outside, 10 seconds;
- hazy sun, 20 seconds;
- cloudy bright, 40 seconds;
- cloudy dull, 1 minute, 20 seconds.

Dark colored walls and hangings and only one window:

- bright sun outside, 20 seconds;
- hazy sun, 40 seconds;
- cloudy bright, 1 minute, 80 seconds;
- cloudy dull, 2 minutes, 40 seconds.

The foregoing is calculated for rooms whose windows get the direct light from the sky and for hours from 3 hours after sunrise until 3 hours before sunset.

If earlier or later the time required will be longer.
TO MAKE A PORTRAIT.

Place the sitter in chair partly facing the light, and turn the face slightly toward the camera (which should be at the height of an ordinary table). Centre the image in the finder. For a bust picture the camera should be 4½ to 5 feet from the figure; for a three-quarter figure 8 feet, and for a full figure 10 feet. The background should form a contrast with the sitter.

NOTE: In making portraits where the subject is less than 8 feet from the camera use the smallest stop and time accordingly (See page 9). As a general rule use the middle stop for portraits.

Time Exposures in the Open Air.

When the smallest stop is in the lens the light admitted is so much reduced that time exposures out of doors may be made the same as interiors but the exposure must be much shorter.

WITH SUNSHINE—The shutter can hardly be opened and closed quickly enough to avoid over exposure.

WITH LIGHT CLOUDS—From ½ to 1 second will be sufficient.

WITH HEAVY CLOUDS—From 2 to 5 seconds will be required.

The above is calculated for the same hours as mentioned above and for objects in the open air. For other hours or for objects in the shadow, under porches or under trees, no accurate directions can be given; experience only can teach the proper exposure to give.

Time exposures cannot be made while the Kodak is held in the hand. Always place it upon some firm support, such as a tripod, chair or table.
STOPS.

The stops should be used as follows:

1. The largest—For all ordinary instantaneous exposures when the sun shines.

2-3. The middle—For instantaneous exposures when the sunlight is unusually strong and there are no heavy shadows; such as in views on the seashore, or on the water, or in tropical or semi-tropical climates; also for interior time exposures, the time for which is given in the table on pages 9 and 10.

1-4. The smallest—For time exposures out doors in cloudy weather. Never for instantaneous exposures. The time required for time exposures on cloudy days with smallest stop will range from \( \frac{1}{2} \) second to 5 seconds, according to the light. The smaller the stop the sharper the picture.

When setting the stops always see that the one to be used is brought to the center of the lens where it catches.

This will be the result if you use the smallest stop for instantaneous exposures.

To Avoid Curling always develop film face down.
Section 3.  

**FLASH LIGHT PICTURES.**

The invention of the flash light apparatus renders the taking of photographs at night easy, with such a camera as the Bulls-Eye.

The requisites are:

- The Bulls-Eye Kodak, $1.25
- Eastman Flash Lamp, $.60
- One bottle Eastman's Flash Powder, $.85

Total: $1.85

The flash light apparatus consists of a specially constructed alcohol lamp, having in front of it a little tray upon which is poured about a teaspoonful of flash light powder. A rubber tube attached to a blow pipe in the flame of the lamp conveys a blast of air from a bulb held in the hand and serves to project the powder into the flame of the lamp when it is desired to take a picture. As soon as the powder touches the flame it flashes up an intense white light, sufficiently strong to make a picture instantaneously.

Many interiors can be taken with the flash light that are impracticable by daylight, either by reason of a lack of illumination or because there are windows in the direct line of view which cannot be darkened sufficiently to prevent the blurring of the picture.

Pictures are taken so quickly that groups of people around a dinner table or card table can be taken as clear and sharp as if they were in the open sunlight. This enables the photographer to obtain souvenirs of many occasions which have hitherto been quite beyond the range of the art.

**PHOTOGRAPHING A ROOM.**—The Kodak should be prepared for time exposure, as directed on page 8 of this Manual, and placed on some level support where it will take in the view of the room desired.
PREPARATIONS OF THE FLASH LIGHT.—The light should always be placed two feet behind and two to three feet to one side of the Kodak. If placed in front, or on a line with the front of Kodak, the flash would strike the lens and blur the picture. It should be placed at one side as well as behind, so as to throw a shadow and give a little relief in the lighting. The lamp should be at the same height or a little higher than the Kodak. A piece of cardboard a foot square placed under the lamp will prevent any sparks from the flash doing damage. A sheet of white cardboard set up behind the flash lamp will act as a reflector and increase the strength of the picture.

TAKING THE PICTURE.

Having the Kodak and lamp both in position, load and light the lamp according to the directions furnished with it, pouring upon the tray one teaspoonful of the powder; then set the shutter open, stand at arm’s length and press the bulb. There will be a bright flash which will instantly impress the picture on the sensitive film. Then push the lever to close the shutter and turn a fresh film into place with the key, ready for another picture.

THE POWDER.

The amount of powder required to light a room varies with the distance of the object farthest from the camera, and the color of the walls and hangings. When more than one teaspoonful is to be used, all the powder should be poured in one pile on the tray.
Table.

For 10 feet distance and light walls and hangings use 2 even teaspoonful.
" 15 " " dark " " " " 2 " " "
" 15 " " light " " " " 3 " " "
" 25 " " light " " " " 4 " " "
" 25 " " dark " " " " 4 " " "

To Make a Portrait.—Place the sitter in a chair partly facing the Kodak (which should be at the height of an ordinary table), and turn the face slightly toward the camera. The proper distance from the camera to the subject can be ascertained by looking at the image in the finder. For a three-quarter picture this will be 8 feet, and for a full figure, 10 feet.

The lamp should be on the side of the Kodak away from the face, that is, the sitter should not face the lamp. The lamp should not be placed higher than the head of the sitter.

To Make a Group.—Arrange the chairs in the form of an arc, facing the camera, so that each chair will be exactly the same distance from the camera. Half the persons composing the group should be seated and the rest should stand behind the chairs. If the group is large any number of chairs may be used.

Backgrounds.—In making single portraits or groups, care should be taken to have a suitable background against which the figures will show in relief; a light background is better than a dark one, and often a single figure or two will show up well against a lace curtain. For larger groups a medium light wall will be suitable.

The finder on the camera will aid the operator to compose the group so as to get the best effect. In order to make the image visible in the finder, the room will have to be well lighted with ordinary lamplight, which may be left on while the picture is being made, provided none of the lights are placed so that they show in the finder.
PART III.

REMOVING THE FILM.

No dark room is required to change the spools in the Bulls-Eye. The operation should, however, be performed in a subdued light.

I. When the last film has been exposed, turn the key about 15 half turns.

II. Provide an extra spool of film to fit this Kodak and take a position by a table as far as possible from any window.

III. Unloose the catch at the bottom and take the roll holder from the box, Fig. I.

IV. Holding it taut, so as to wind tightly, turn the key until the paper is all on the reel. See Fig. 2.

V. Hold the reel tightly with one hand to prevent the paper from loosening; moisten the gummed end of the paper and stick it down to prevent the paper from unwinding; loosen the key by turning to the right and pull it out.

VI. Remove the film from Kodak by swinging out the pivoted ratchet.
carrier as shown in Fig. 3. The roll is then merely pulled away from the ratchet pins when it will be free.

VII. Wrap up the roll immediately to prevent the light from injuring the film.

VIII. Now take out the empty spool (this will form the new reel) and slip the three pins in the ratchet wheel into the holes in the end of the spool. Swing the ratchet carrier back into place; insert the key and turn to the left until it is screwed firmly into place. This forms the new reel.

IX. Load as described in part one, page 3. The roll of exposures can now be mailed to us for finishing. (See price list) or you can do the developing and printing yourself.

Note: In mailing us film for development do not fail to mark the package plainly with your name and address and write us a letter of advice, with remittance.

**IN GENERAL.**

We recommend everyone to do their own developing. With our Bulls-Eye outfit it is very simple and inexpensive, no regular dark room is required, and the operator can obtain proofs from the negatives as soon as they are dry.

If, however, the camerist prefers to have us “do the rest,” he can send his exposures to us by mail.

We have larger and better facilities for developing and printing and more skilled operators than anyone else, and it is to our interest to get the best results from every negative.
PART IV.

DEVELOPING.

Provide an Eastman’s Bulls-Eye Developing and Printing Outfit.

This outfit contains paper and chemicals for 12 pictures and can be used with any camera for films or plates up to and including 3½ x 3½. The simplest, cheapest and best outfit for the beginner.

1 Eastman’s Improved Candle Lamp, —— $ .25
4 Developing Trays, —— .40
1 Glass Beaker, —— .12
1 3½ x 3½ Printing Frame, —— .25
1 3½ x 3½ Glass for same, —— .05
1 Stirring Rod, —— .08
¾ Dozen Hydrochinon Developing Powders, —— .15

¾ Pound Hypo-sulphite Soda, $ .04
1 Dozen Sheets 3½ x 3½ Solio Paper, —— .15
1 Bottle Solio Toning Solution, —— .10
1 Package of Bromide of Potassium, —— .10
Bottle Glycerine, —— .05
Directions, —— .10

Total $1.81

*Price, complete, neatly packed, —— —— $1.60

*This outfit cannot be shipped by mail.
To Avoid Curling Always Develop Film Face Down.

Also provide a pair of shears, a pitcher of cold water (preferably ice water), a pail for slops, and a dark room having a shelf or table.

By a dark room is meant one that is wholly dark—not a ray of light in it. Such a room can easily be secured at night almost anywhere. The reason a dark room is required is that the film is extremely sensitive to white light, either daylight or lamplight, and would be spoiled if exposed to it even for a fraction of a second.

Having provided such a room or closet, where, when the door is closed, no ray of light can be seen:

1. Set up on the table or shelf the Orange Candle Lamp, and light it as directed in the circular which comes in the box in which the lamp is enclosed.

The Lamp.

The lamp gives a subdued yellow or orange light which will not injure the film unless it is held close to it. Set the lamp on the table at least eighteen inches from and with the side toward the operator.

2. Unroll the film and cut the exposures apart as shown in Fig. 1.

In unrolling the film preparatory to development, care must be taken that the end be not allowed to roll up over the paper. The expos-
Fig. 2.
WRONG.

Figures should be cut apart with the paper on top.

Fig. 2 shows a cartridge unrolled with the film on top. To correct this simply turn back the film as indicated by the dotted lines, thus bringing the film under the paper.

3. Fill one of the trays nearly full of water, and put into it the exposures, one by one, face down; put them in edgewise, to avoid air bubbles, and immerse them fully.

Cover the tray with a bit of brown paper to keep out the light from the lamp.

4. Open one of the developer powders, then put the contents (two chemicals) into the beaker and fill it up to the ring with water. Stir until dissolved with the wooden stirring rod and pour into second tray.

5. Take one of the exposures from the water and immerse it, face down, in the second tray. Rock it back and forth to prevent streaks and air bubbles; in about 1 minute the film will begin to darken in spots, representing the lights of the picture, and in about two minutes the operator will be able to distinguish objects in the picture. The developer should be allowed to act 5 to 10 minutes. The progress of the development may be watched by holding the negatives from time to time, up to the lamp.
ANOTHER WAY.

If desired, the development may be started before cutting the negatives apart, and by some this method is preferred, as it removes the possibility of cutting through the negatives.

1. Unroll the film and detach the entire strip from the black paper.
2. Pass the film through the tray of clean, cold water as shown in the cut, holding one end in each hand. Pass through the water several times, that there may be no bubbles remaining on the film. When it is thoroughly wet, with no air bubbles, place the strip of film in a dish of clean cold water which is large enough so that the film may be immersed fully without folding tightly enough to crack it.
3. Prepare the developer, as described in Sections 3 and 4.
4. Now pass the film through the developer in the same manner as described for wetting it, and shown in cut. Keep it constantly in motion, and in about one minute the high lights will begin to darken and you will readily be able to distinguish the unexposed sections between the negatives.
5. With a pair of shears cut the negatives apart, and place them in the tray of clean water.

The negatives may now be immersed in the developer one at a time and developed as before described.
6. Transfer the developed film to the third tray and rinse two or three times with water, leaving it to soak while the next film is being developed.

Note: A dozen negatives can be developed one after the other in one portion of the developer; then it should be thrown away and a fresh portion mixed.

Only one negative should be developed at a time until the operator becomes expert, then he can manage three or four in the tray at one time and the developer will answer for twenty-four films before being exhausted.

As each successive negative is developed it should be put with the preceding negatives, in the washing tray and the water changed twice to prevent the developer remaining in the films from staining them.

7. Put two tablespoonfuls of Hypo-sulphite of Soda into the fourth tray, fill two-thirds full of water, and stir until dissolved. This is called the fixing bath.

8. Immerse the negatives one by one in the fixing bath until they are entirely clear of white spots and are transparent instead of milky by transmitted light. This will require about ten minutes.

9. The yellow shade can be removed from the lamp as soon as all the exposures have been fixed.

10. Pour off the fixing solution into the slop bucket, and fill the tray with clear, cold water; repeat this at intervals of five minutes, five or six times keeping the negatives in motion, or transferring them back and forth to tray No. 3, one by one to ensure the water acting evenly upon them.

The fixing solution must only be used in tray No. 4. And the negatives after fixing, must not be put in either No. 1 or No. 2 trays. Neither must any of the fixing solution be allowed to touch the films, through the agency of the fingers, or otherwise, until they are ready to go into the fixing bath, otherwise they will be spotted or blackened, so as to be useless.
II. When the negatives are thoroughly washed, put one half ounce of glycerine into one pint of water (four portions measured with the developer glass), stir well and soak the negatives in the solution for 5 minutes, then remove them and wipe off the surplus moisture with a soft damp cloth, and pin them by the four corners, face up, to a flat surface to dry.

The glycerine solution may be used repeatedly.

The trays and beaker should now be rinsed out and set away to drain and dry.

When the negatives are dry, they are ready for printing, as described in part V.

DEFECTIVE NEGATIVES.

By following closely the foregoing directions, the novice can make seventy-five per cent., or upwards, of goods negatives. Sometimes however, the directions are not followed, and failures result.

To forewarn the camerist is to forearm him and we therefore describe the common causes of failure.

Under-Exposure.

Caused by making snap shots indoors, or in the shade, or when the light is weak, late in the day or by closing the lens too soon on time exposures.

Over-Exposure.

Caused by too much light.

Negative develops evenly, shadows almost as fast as high lights. No contrast, and no deep shadows. Over-Exposure can be overcome in the development, by the addition of bromide of potassium to the developer. The
print and developing outfit includes a package of bromide with directions for its use. The novice will soon learn to recognize over-exposure, and to apply the remedy.

After the bromide has been added to the developer, it should not be used for another negative unless it is known to have been over-exposed.

Over-Development.

Caused by leaving the negative too long in the developer.

In this case the negative is very strong and intense by transmitted light and requires a very long time to print. The remedy is obvious.

Under-Development.

Caused by removal from the developer too soon.

An under-developed negative differs from an under-exposed one, in that it is apt to be thin and full of detail, instead of harsh and lacking in detail. If the development is carried on as before directed, this defect is not liable to occur.

Spots, Streaks, Etc.

Air bells on the film in the developer or fixing bath, are liable to cause spots, and streaks are caused by allowing the film to remain uncovered in part by the various solutions while in them.

White, milky spots are evidence that the negative has not been properly fixed, and the negative should be put back into the fixing bath and then re-washed.

To Avoid Curling always develop film face down.
PART V.

PRINTING ON EASTMAN'S SOLIO PAPER.

Solio Paper which we furnish with our outfits gives prints having beautiful warm, brown tones and which are usually mounted on card-broad and highly burnished.

METHOD OF PRINTING.—Open the printing frame of the outfit and lay the negative back down upon the glass (the back is the shiny side). Place upon this a piece of Solio Paper, face down. Replace the back of the frame and secure the springs. The back is hinged to permit of uncovering part of the print at a time to inspect it without destroying its register with the negative. The operation of putting in the sensitive paper must be performed in a subdued light, that is to say, in an ordinary room, as far as possible from any window. The paper not used must be kept covered in its envelope.

The printing frame, when filled as directed, is to be laid glass side up, in the strongest light possible (sunlight preferred), until the light, passing through the negative into the sensitive paper, has impressed the image sufficiently upon it. The progress of the printing can be examined from time to time by removing the frame from the strong light, and opening one-half of the hinged back, keeping the other half fastened to hold the paper from shifting. The printing should be continued until the print is a little darker tint than the finished print should be. Place prints without previous washing in the following combined toning and fixing bath:

1 oz. Eastman's Solio Toning Solution.
2 oz. Cold Water.

Pour the toning solution into one of the trays and immerse the prints, one after the other, in the toning bath. Five or six