

The Kodak of 1888

By Jos Erdkamp

The original Kodak box camera from 1888 is undoubtedly one of the most historically important cameras. This device marks the beginning of true amateur photography. By this I mean the photography of the layman, of the enthusiast who is particularly interested in capturing beautiful or important moments in his or her life and who is not interested in the process of photography itself.

The Kodak of 1888 introduced an entirely new system aimed at the amateur market: the separation between taking the picture, something that anyone with enough brains to wind a watch could do, and processing the photographic medium to produce a print, which was specialist work. The slogan that George Eastman came up with at the time still best summarizes the whole principle: “You press the button, we will do the rest.”



Original Kodak from 1888.

In fact, the Kodak itself and the associated technology contained hardly any novelties. Eastman merged existing elements into something completely new: the Kodak system. The elements are:

1. 'Film photography': flexible film and accompanying roll holder
2. The development and printing service
3. The detective camera

In this article, in part 1, I discuss the developments during the 1880s regarding these three elements. Furthermore, in part 2 I make clear what their part is in the Kodak system on the basis of a description of the camera.

Part 1: Developments during the 1880s

First Development: Film Photography

George Eastman's first commercial photography business was in the manufacture of dry plates. In December 1880 he started his Eastman Dry Plate Company for the production of Eastman Gelatino-Bromide Dry Plates. The venture was successful and as early as the early 1880s Eastman was one of the leading dry plate manufacturers. During 1883 and 1884, however, competition intensified and prices fell so sharply that profit margins became narrow. In 1883, the wholesale price of dry plates fell by about 60%. In order to be able to realize a growing turnover and profit in the long term, Eastman developed a strategy that he described as follows: “The prosecution of experiments, having in view the perfection of a system of film photography that would supplant the use of glass dry plates.” His goal was therefore to create a system of photography on film

that would replace the dry plate process. It is important to note that he did not particularly have the shooting layman in mind. He initially focused on the professional photographer and the “serious” amateur.

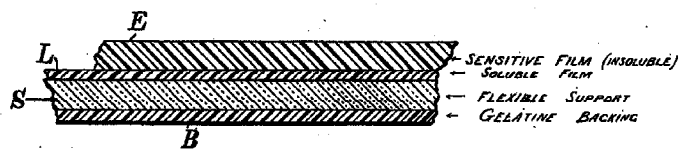
For the realization of “film photography” he had to create the following things:

1. Flexible film (roll film) and film production equipment.
2. A roll holder to use the film.

Eastman enlisted the help of a local camera builder, William Hall Walker, who sold his own business and joined Eastman's firm in January 1884. Walker would mainly deal with the roll holder and Eastman with the film. Together they would work on the production equipment for flexible films.

The flexible film and production equipment

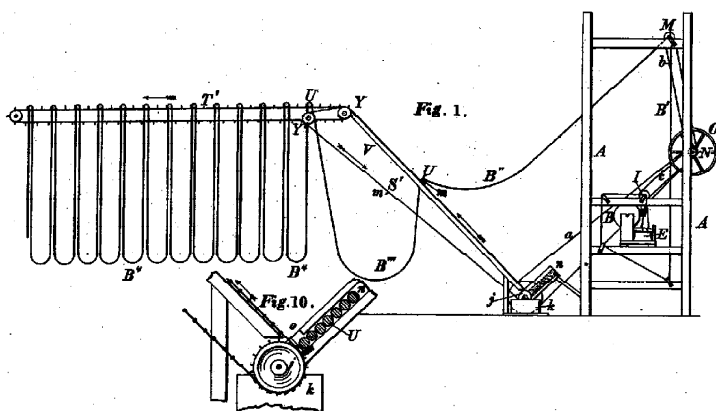
George Eastman, after some experimentation, developed a film consisting of a paper carrier, a water-soluble gelatin layer and a water-insoluble gelatin emulsion layer. (Patent 306594, filed Mar. 7, 1884, granted Oct. 14, 1884). The process was as follows: After development, the wet film was pressed with the emulsion layer down onto a glass plate. This was first provided with a layer of rubber and a layer of collodion. The gelatin intermediate layer of the film was now dissolved in a bath. The strip of paper that had served as a carrier could be removed. What remained was the emulsion layer on the glass plate. Then a collodion layer was poured over the emulsion layer. After drying, the film was released from the glass plate and the rubber layer was removed. What remained was a clear negative consisting of a gelatin film coated on both sides with collodion. Prints could be made from this negative.



American Film, patent 306470. Improved stripping film consisting of a paper carrier S, a layer of gelatin B on the back to prevent excessive curling, a water-soluble layer of gelatin L and an emulsion layer E.

After the application for the first patent, Walker came up with another improvement and a new patent was applied for. A gelatin layer was now also applied to the back of the paper strip to prevent excessive curling

of the film (patent 306470, filed May 10, 1884, granted October 14, 1884). The name Eastman came up with for his film was “American Film.”



Coating machine, patent 358848. After the paper web B was coated, it was hung in long loops to dry.

Film production equipment was also developed in the course of 1884. In order to coat long webs of paper with an emulsion layer, Eastman and Walker developed a machine that allowed them to coat webs 75cm wide and more than a kilometer long, 3,800 feet to be exact (Patent 358848, filed October 25, 1884, issued March 8). 1887). The advantages of machine coating over manual coating were better product quality and significant savings on labor (up to 95%), emulsion (between 25% and 50%) and paper.

Eastman had complete confidence in his American Film, and on October 3, 1884, he sent the first announcement to the publisher of the *Boston Commercial*: "...the exposures being made upon a continuous strip which is afterwards cut up and developed, the resulting negatives being undistinguishable from those made upon glass."

He also sent the following ad text to photo magazine publishers: "Announcement. Shortly after January 1, 1885, the Eastman Dry Plate & Film Co. will introduce a new film, which is expected to prove an inexpensive and convenient alternative to glass plates, both for outdoor shooting and studio work."

Unfortunately, the production turned out to be more difficult than expected. The film was blistering and peeling. It was not until the end of 1885, probably December, that the American Film came on the market. In order to be able to supply a film in the meantime that could be used in the roll holders that had now been produced, Eastman switched to marketing rolls of negative paper. This film consisted of a paper strip with an emulsion layer thereon. It was not a so-called "stripping" film. After development, the print had to be made through the paper carrier. "The first film of its kind intended for sale was produced on March 26, 1885. William Walker described the event as follows: "We started coating yesterday – it would have done your heart good to see the thing work – a prettier sight I never saw and strange to say without a hitch to the end."

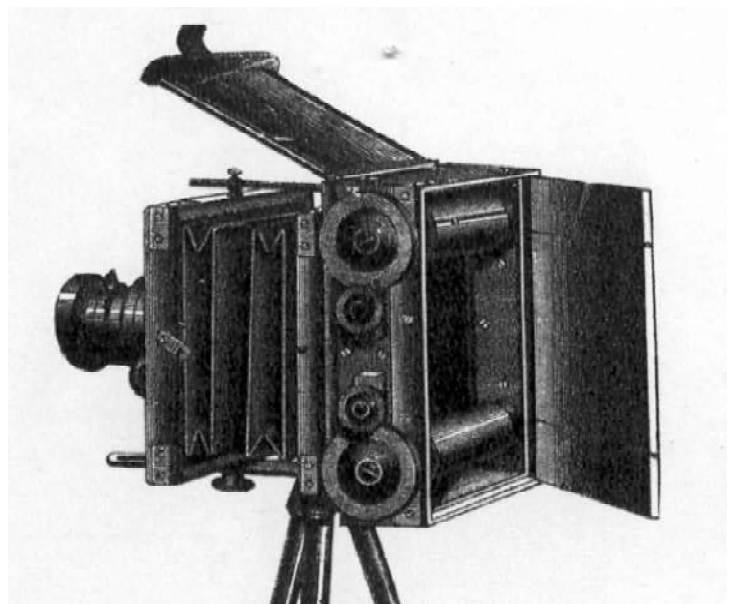
Roll holders containing the paper film were first marketed in April 1885, but the quality of the negatives left much to be desired. When making prints, the light first had to pass through the paper carrier, so that the structure of the paper became visible in the print. In addition, the photos were pale and lifeless. A lot of light was also lost in the paper layer, so that the printing time was long. To shorten this, the paper negatives could be treated with oil or wax, which allowed them to transmit more light. There was even a product on the market for this, called Translucine.

Both the negative paper and the American Film were intended for the professional photographers, but contrary to what George Eastman had hoped, these did not make the switch en masse to his flexible films. The negative paper produced insufficient quality results and the stripping film process was too laborious and prone to accidents.

The roll holder

The second component of Eastman's "film photography" system was the roll holder. This device was needed to be able to use the flexible film. After all, nothing could be done with a loose strip. The device contained a supply reel and a take-up reel and was attached to the camera in place of the glass plate holder.

The idea was certainly not new. Spencer and Melhuish had already patented a similar device in England on May 22, 1854. Eastman and Walker were aware of this early design, but I don't know if they owned a copy. One device they did have was Leon Warnerke's roll holder. This Russian living in England presented his invention in London in 1875. The device consisted



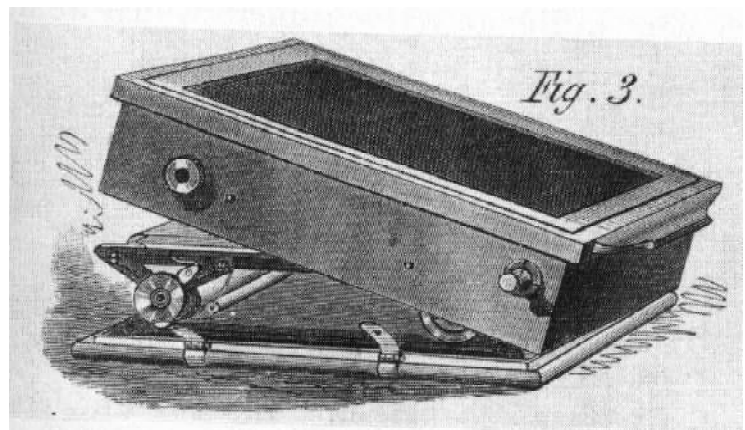
Warnerke roll holder, attached to a bellows camera.

of a rectangular case, which was attached to the camera instead of the normal plate holder. The case contained two reels, one of which acted as a supply reel and the other as a take-up reel. The paper film ran over a pressure plate past the display window. Through a red glass, the photographer could read the numbers on the film, which indicated when enough film had been transported. The rollers were secured with two clamping screws, so that the film could not unroll spontaneously.

Warnerke's roll holder had limited commercial success and was criticized in at least four ways:

1. The two reels were firmly attached to the case, so a new film first had to be wound on the feed reel in a dark room. This was quite inconvenient.
2. Measuring the amount of film transported was not flawless. Despite the red glass, the film could become fogged and in addition, the film was sometimes damaged by the mechanism.
3. Due to varying humidity, the length of the film varied, so the film was not always taut. This caused blur.
4. The artisanal production method with which the device was made resulted in a high cost price and a lack of accuracy.

Eastman and Walker were aware of these shortcomings when they began work on their own roll holder in late 1883. After six months of research and development, they were so far advanced that they could apply for and obtain a patent (number 306594, issued October 14, 1884). On the surface, the Eastman roll holder resembled Warnerke's, but on closer inspection it deviated from it in important ways. George Eastman put it this way in a letter: "We have a holder of his [Warnerke's] make of recent date which we will have our Mr. Cooper show you in New York in a few days. There is about the same similarity between it and our holder as there is between an old flint lock blunderbuss and a Smith & Wesson self acting six shooter."



Eastman Walker roll holder.

What then distinguished Eastman's roll holder from Warnerke's?

1. The rolls could be removed from the holder, which made loading with film a lot easier.
2. When enough film had been advanced for the next photo, a beep sounded. The roll holder did not have a colored glass window through which the photographer had to view marks on the film. So there was no window that could cause fogging.
3. By means of a brake on one roller and a spring on the other, the correct tension on the film was guaranteed, despite varying humidity.
4. The roll holder was produced on an industrial basis, which ensured high accuracy and interchangeability of the parts.

However, it still took some time before the first roll holders were in the shops, because there were still some difficulties to overcome. For example, there was insufficient production capacity at the firm of Brownell, a maker of studio cameras in Rochester, to whom the manufacture of the wooden parts and the assembly had been outsourced. In addition, a part of the roll holder appeared to conflict with a patent of David H. Houston. It was not until April 1885 that the first Eastman roll holders were introduced.

The device has been admired at exhibitions and has been praised in magazines. However, after three years, it turned out that the Eastman-Walker roll holder was not a successful product. The number of copies sold did not increase, but decreased:

1885: 1334

1886: 578

1887: 568

In the section on flexible film I already described that both the paper negative film and the American 'stripping' film did not catch on with the photographers. The roll holder also did not really catch on. In late 1887, the Eastman Dry-Plate and Film Company acknowledged that the roll film system was a failure. Later Eastman stated: "When we started out our scheme of film photography we expected that anyone who used glass plates would switch to film, but we found that only a relatively small number did."

Second Development: The Development and Printing Service

Until the mid-1880s, it was customary in the United States for the photographer to buy photographic paper that had already been provided with an albumen coating in a factory to make prints, but had to make it light-sensitive in a silver nitrate bath. The glass negative and the paper were clamped together in a printing frame and the paper was exposed to daylight. Characteristic was that the image was created slowly during the exposure and that the photographer could follow and control this process. When he thought the image had come up sufficiently, he took the paper out of the printing frame and immersed it in a fixing bath. Thus, there was no latent image developed in a developer bath. This type of paper is called 'printing out paper' or POP.

An entirely different type of paper was the 'developing out paper', also called DOP. This paper was not made light sensitive by the photographer, but by the manufacturer. An important difference was that in a very short exposure time a latent image was created, i.e. invisible, which was developed and fixed in the dark-room. So the photographer couldn't track the exposure process. This difference is important for the next part of my story.

I already mentioned in the section on flexible film that George Eastman and William Walker had constructed a machine for coating long strips of negative paper. The machine worked so well that Eastman soon switched to coating printing paper in the same way. This paper of the DOP type was sold under the name 'Eastman Permanent Bromide paper'.

Eastman found a good market for it in England and on the European mainland. In America, however, the paper was not quickly accepted by professional photographers. They continued to prefer their familiar POP, where they could follow and control the creation of the image.

In the early spring of 1886, Eastman started a development and printing service using Eastman Permanent Bromide paper. By this he intended the following:

1. Overcoming the hesitation of the professional photographers to accept the paper.
2. Serving the growing group of serious amateurs interested in enlarging negatives. After all, then they could use a small camera and still get large pictures.
3. Promote the acceptance of American stripping film by liberating the photographer from the cumbersome and time-consuming work I described in the section on flexible film.

The department that made the prints was also a buyer of the Eastman Permanent Bromide paper and this increased the turnover.

The service quickly became a great success. At the end of 1886, work had to be done not only during the day but also in the evenings to be able to handle all orders. By using electric arc lamps, people were independent of daylight. 5,000 to 10,000 photos could be printed per ten-hour working day.

In the above I have described two closely related developments in the 1880s that would later become part of the Kodak system, namely:

Flexible film and the necessary roll holder.

The development and printing service.

The third element of the Kodak system, introduced in 1888, is the so-called detective camera.

Third development: The detective camera

At the end of the 1870s, a technical revolution took place that would have major consequences: the introduction of the dry gelatin plate to replace the wet collodion plate. In summary, this resulted in the following improvements:

Greater light sensitivity of the recording material.

Easier process because the photographer no longer had to make the plates light-sensitive.

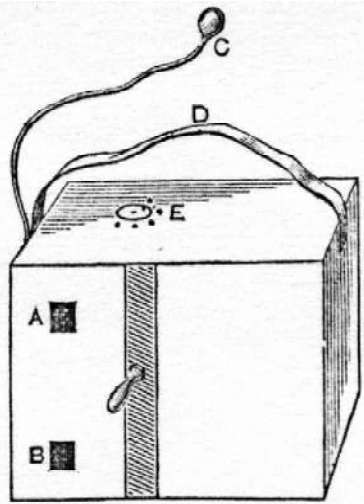
Easier shooting because the glass plates no longer had to be exposed while still moist and had to be developed immediately.

Easier shooting because the photographer didn't have to bring a mobile darkroom to light-sensitize and develop the plates.

This quickly had consequences for the construction of cameras and the type of photos that were taken. Due to the greater light sensitivity of the dry plate, shutter speeds could be much faster, which meant that the camera no longer always had to be mounted on a tripod. This gave the photographer more freedom of movement and was able to shoot with the camera in hand. In addition, it was possible to photograph moving objects without disturbing motion blur, for example in street scenes.

Not long after the commercial introduction of the dry plate in 1879 by John Carbutt, under the name 'Keystone Dry plate,' a camera was developed that differed greatly from the hitherto usual devices. In January 1881, Thomas Bolas introduced his camera in "The Photographic News" under the heading "The detective camera." In the article he says: "...in order to adapt it for the class of work for which it is intended, it is entirely enclosed in a rectangular wooden box, room being left for thirteen double slides, and the only suspicious looking features about it are the small square holes corresponding to the objectives, together with the tube and ball belonging to the pneumatic shutter. When the finder is used, it is generally quite easy to rest the apparatus against a wall, post or other firm object ; but in many cases it is sufficient to hold the camera in the hands. . . . In the majority of cases, however, it is altogether out of the question to use the finder, and, in such an instance, one must set the focus to certain fixed points previously determined by experiment. . . .".

Characteristic of the detective camera is on the one hand the unobtrusive appearance of the device, which differed greatly from the usual devices with their bellows and shiny brass lenses, and on the other hand the possibility to use it while holding it in the hand. This also explains the name 'detective camera.'



A. Aperture for working objective. B. Aperture for finder objective. C. Pneumatic ball and tube. D. Strap for carrying. E. Focusing head.

Bolas camera, first model. Image from "The Photographic News" of January 1881.

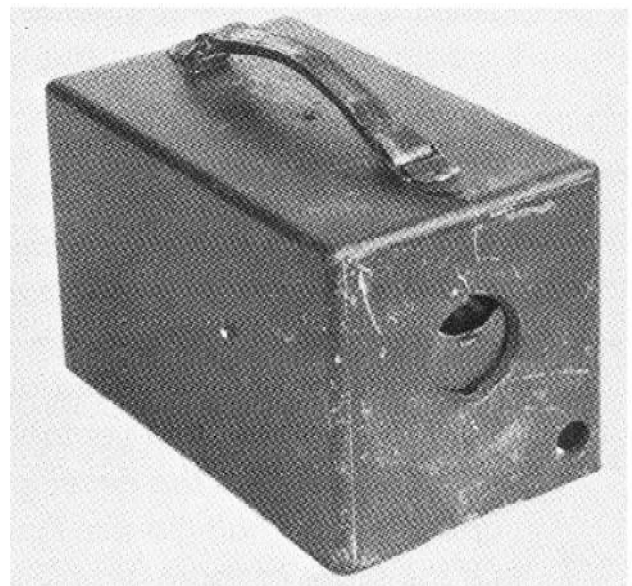
Bolas' device was never put into production. He did, however, photograph with it himself and built an improved model. Not long after the descriptions of Bolas' camera, William Schmid of Brooklyn filed for a patent on a box camera that was even better suited for shooting when carried in the hand or under the arm. The patent number 270,133 was granted on January 2, 1883, and the camera was released in the late summer of that year under the name "Schmid's Patent-Detective camera." Importantly, people usually bought the camera not just to take pictures in secret, but mainly because the device was easy to carry and it was easy to take snapshots.

After the introduction of the Schmid camera, a number of detective devices appeared on the market, such as the Parsell camera in 1885 and the Scovill Detective Camera in 1886. Over the course of a few years, the meaning of the term 'detective camera' changed from secret camera to box-shaped hand camera. No longer was the element of 'inconspicuous' of great importance, but the element of 'easy,' Nevertheless, the term "detective camera" continued to be used after the 1880s, especially in Germany and France.

The detective camera gave rise to a photographic genre that was quite different from the existing genres: the artless recording of everyday events, unobtrusively and quickly made. The photographed persons did not pose, but were engaged in their (un)usual activities. If there was any composition at all, it was more or less coincidental and of secondary importance. Many serious photographers would have hated this, but a growing group of new photographers were not bothered by all kinds of 'artistic' rules.

George Eastman had also ventured into the path of the detective camera. He continued to develop new products in the hope of finding new and, above all, large markets. While he was working with Walker on the roll film system, he came up with the idea of a detective device, but he postponed working on it until the fall of 1885. Together with new collaborator Franklin Millard Cossitt, he developed a box-shaped camera, with a roll holder, which could be removed from the device. The size of the device was approximately 15 x 15 x 25 cm. The patent was applied for on March 1, 1886 and granted on November 30, 1886 under number 353,545.

Due to the disappointing acceptance of American film and paper film, Eastman decided in June 1886 to make the camera also suitable for plate holders. Due to production problems, the device did not appear until the end of 1887. The selling price was \$ 45. Eastman had



Eastman Cossitt camera. Image from "Anthony : the man the company the cameras".

thought that he could bring the device to the market cheaply and beat the competition, but he had to conclude that his camera could not be produced at a competitive rate. He sold the copies that he had already had manufactured, a total of about seventy-five, of which forty or fifty were completely finished, to W.H. Walmsey from Philadelphia for \$33.75 each. As far as we know, only one copy has stood the test of time.

Despite the failure of this project, George Eastman had learned his lesson. A camera should not only be designed for ease of use, but also for efficient and simple production. In a letter dated October 22, 1887, he writes: "I think the experience we have had in getting out the detective camera will enable us to avoid most of the difficulties in manufacture. The trouble with the detective is that no matter how successfully it works, it will always be hard to make."

I quoted Eastman at the end of the section on the roll holder. However, the quote was not complete: "When we started out our scheme of film photography we expected that everybody that used glass plates would take up films, but we found that the number that did this was relatively small...". What Eastman added is: "... and that in order to make a large business we would have to reach the general public and create a new class of patrons."

This one sentence bridges the gap to the Kodak system of 1888. The developments of the mid-1880s had largely failed to lead to successful products. The flexible films were poorly accepted, as were the roll holders. The detective camera was a commercial failure. George Eastman, however, did not give up. The setbacks prompt him to even greater creativity. What he had developed in products, what he had gained in experiences and insights, he combined into something new with which he wanted to reach a large group of new users: the Kodak system, whose main characteristic was the separation between the simple recording work and the difficult specialist part of photography.

Part 2: The Original Kodak of 1888

In Part 1 of this article, I described the developments during the 1880s that eventually merged into the Kodak system:

1. 'Film photography' consisting of flexible film and the roll holder for this film.
2. The development and printing service.
3. The detective camera.

In Part 2 I explain how these developments are reflected in the Kodak system that saw the light of day in 1888 and that was composed of an easy-to-operate camera and a development and printing service. The innovative element consisted of the separation between the simple work that anyone could do (taking the picture) and the specialist work (processing the film and producing the print).

EASTMAN'S DETECTIVE CAMERA.

— Price, \$45.00. —

THIS Camera is the latest advance in complete apparatus for photography. The camera box, covered with leather, contains the lens, instantaneous shutter, and a roll-holder for forty-eight 4 x 8 exposures. The roll-holder may be removed and the space filled by two double glass plate-holders; the whole measures 6 x 6 x 10 inches, and has nothing on the outside to attract attention. Weight complete, 4 pounds. The camera can be used for instantaneous or time exposures, with or without a tripod. The great feature of this Camera is the new Alligator shutter, a unique device, which is the only one that does not diaphragm the lens. Send for circulars, nearly ready.

COMPLETE, WITH LENS, SHUTTER AND ROLL-HOLDER.

THE EASTMAN DRY PLATE AND FILM COMPANY,
ROCHESTER, N. Y., AND LONDON.

Eastman Cossitt camera ad. This has never been published. For Eastman, this camera was apparently still a real detective camera. He points out that nothing about the appearance attracts attention.

One of the earliest written references to the first Kodak camera can be found in a letter from George Eastman to W.J. Stillman of the Scovill firm, dated October 22, 1887. He writes, "I believe that I have got the little roll holder breast camera perfected." (The intention was to hold the Kodak at chest height when shooting.) In late January 1888, the time had come to make a few copies available to a select group of test subjects, including Kilbourne Tompkins, a relative of Eastman, who was to write the ad copy.

The production facilities were prepared in the spring and the camera was in production by the end of June. In July, the Kodak was put on display in Minneapolis at the annual conference of photographers. The jury awarded the Kodak the prize for the most important invention of the year in the field of photography. Slowly, the camera's success began to show itself. On July 23 Eastman writes: "From present indications it will be the most popular thing of the kind ever introduced" and on August 9: "The few dealers who have had them have made remarkable sales considering that they have not been pushed, in fact, wherever one of them is seen, it had secured the sale of several others. A feature which makes it a great favorite is our proposal to develop the 100 negatives and make one print from each and reload the camera, at a cost of \$10."

The attractiveness of the new camera is the combination of compactness, simplicity and service. Not everyone saw through this. Kilbourne Tompkins, author of the text for the "primer," an instructional and promotional booklet, had already received a Kodak in January, but after an exchange of twenty-one letters between Eastman and Tompkins, the latter still had insufficient emphasis on its revolutionary simplicity. In April, a frustrated Eastman decided to write the text himself, which he did in one afternoon.

He describes the history of photography in a nutshell and summarizes the core of the system: "For twenty years the art of photography stood still. ... Ten years ago every photographer had to sensitize his own plates and develop and finish his negatives on the spot where the picture was taken. ... Four years ago the amateur photographer was confined to heavy glass plates for making his negatives, and the number of pictures he could make on a journey was limited by his capacity as a pack horse. ... Yesterday the photographer ... must have a dark room and know all about focusing, relation of lens apertures to light and spend days and weeks learning developing, fixing, intensifying, printing, toning Today photography has been reduced to a cycle of three operations: 1 – Pull the string. 2 – Turn the key. 3 – Press the button. ... The Kodak camera renders possible the Kodak system whereby the mere mechanical act of taking the picture which anybody can perform, is divorced from all the chemical manipulations of preparing and finishing pictures which only experts can perform."

What does this revolutionary camera look like now? And how do the elements that Eastman had developed in previous years as part of his "film photography" return to the Kodak system?

The Kodak is clearly a descendant of the detective cameras: it is a box camera that is held in the hand when making the recording. The dimensions are 16.5 cm (length) x 9.5 cm (height) x 8.2 cm (width). The weight is



Silver medal for the Kodak as the most important invention in photography in 1888. From "The Photographer" No. 33.

approximately 620 grams. This has reduced the volume to one-fifth of the Eastman-Cossitt detective camera and the weight to half. The camera came with a leather shoulder bag and was very easy to take anywhere.

The device covered with black leather is compact, sleek in shape and feels solidly built. The Kodak is equipped with only a few controls. There is nothing to be found that could deter a layman. The operation of the Kodak is therefore extremely simple. On one side is a button that has to be pressed to take the picture. On top of the camera are a button with a cord, which has to be pulled to wind the shutter, a key to advance the film and a peephole in which you can see whether enough film has been advanced. There is no viewfinder, no distance setting, no aperture setting, no time setting, no frame counter, no glass plate holder door. This makes the Kodak different from the earlier detective cameras. With those cameras it was still necessary to perform a dozen actions when taking each shot, which also meant that the photographer could make a mistake ten times. With the Kodak, the number of operations was reduced to three: 1 – Pull the string. 2 – Turn the key. 3 – Press the button.

This simplicity of use is largely due to the American Film described earlier. The Kodak was factory loaded with a 100-shot spool, enough for an entire vacation trip. So the photographer didn't have to worry about loading a supply of glass plate holders, pulling out the cassette slide just before shooting and pushing it back afterwards, or changing the holder after each shot.

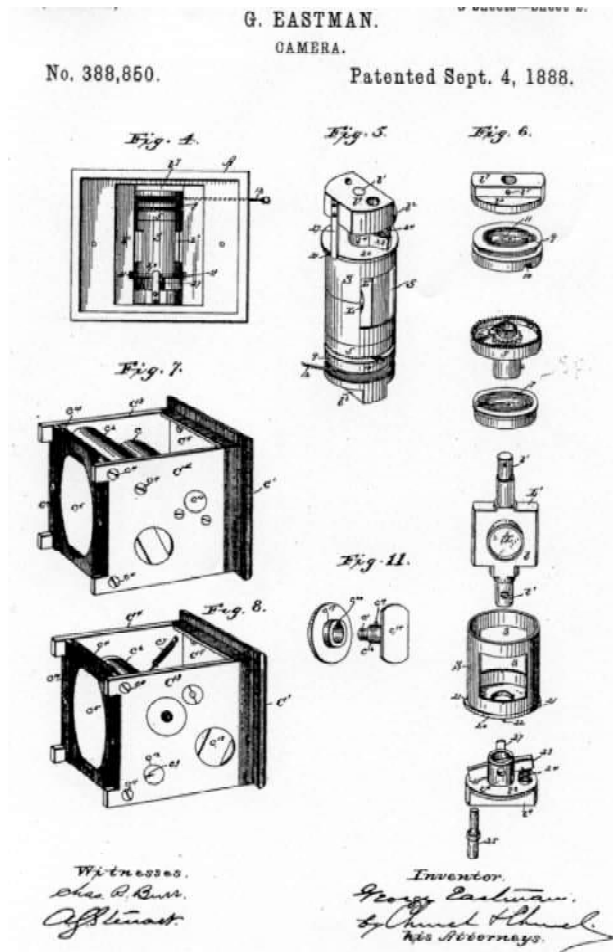
Furthermore, the smoothly functioning roll holder is an indispensable part to be able to use the roll film.

But perhaps the most important part of the Kodak system is the development and printing service. If the photographer did not have to worry about all kinds of actions while shooting, this service also freed him or her from developing negatives and printing photos.

In the following description of photographing with the Kodak I explain in more detail how technology and ease of use are intertwined in the Kodak system. It also repeatedly appears that Eastman-Kodak tried to strike a balance between far-reaching simplification on the one hand and acceptable photo results on the other. They were at the forefront of developments, nobody had gone that far in making photography simpler, but sometimes for the sake of that balance one had to take a small step back.

Pointing the Kodak

The camera is equipped with a Rapid Rectilinear f9 lens of 57mm with a shooting angle of 60 degrees,



Page from patent 388,850. Figure 5 shows the shutter and Figure 6 shows the parts of the shutter. The rotary shutter is horizontal in the camera.

which is quite large. Everything is sharply depicted from 1 meter. These features made it unnecessary to build in an accurate viewfinder. In fact, no provision had been made to help define the image in any way. The photographer only had to point his Kodak at the subject. Due to the fixed-focus lens and the large angle of view, the object always came into focus. Many Kodakers, as the Kodak photographers were soon called, did not set higher standards. They were already happy to be able to photograph something that had previously been beyond their capabilities.

As an aid to aiming the camera, a cardboard card was included, on which the number of shots taken could be noted on one side and a V-line was printed on the other side. This card could be placed on the camera, so that the V-line roughly indicated the boundaries of what was shown. Later copies of the original Kodak have the V-shaped line pressed into the leather on top of the camera. "The quality of the lens was such that the edges of the shot were rather out of focus and dark. To obscure this, a mask with a round opening was placed in the camera just before the film. Because of this, only the acceptable part of the image fell on the film. The faint and dark edges were stopped by the mask. This provides the characteristic round photos of the first Kodak.

The instruction manual goes into quite a bit of detail on how to aim the Kodak. For example, the photographer has to keep the device horizontal to prevent disturbing perspective distortion. This is important when photographing a building, because otherwise the building will appear to fall backwards. Furthermore, the booklet contains instructions regarding the distance to be kept from the object: "Heads, stand 3 feet from object, and the Kodak held level with the chin. Half length, stand 6 feet from object, the Kodak held against the chest. Full length, stand 9 feet from object, the Kodak held below the waist." The instructions are illustrated with drawings.

Taking the Picture

The shutter of the camera is of an unusual construction. It consists of a short horizontal tube, in which two openings are made. These are located in the middle and opposite each other. The lens is located in the tube, exactly in the center. As the tube rotates 180 degrees about its longitudinal axis, the two apertures move simultaneously in front of and behind, respectively, along the lens, allowing the light to pass through the lens and expose the film. This unusual shutter has the advantage that it does not need to be covered during cocking, which was the case with many other shutters at the time. With a camera for 'snapshotters', such an automatically covering shutter was indispensable. The photographer had to think about as few actions as possible. Every action meant a possible source of errors and therefore failed photos.

The shutter was cocked by pulling the string on top of the camera 2 to 3 times. That was enough to make about five shots. This was not completely foolproof. If the photographer forgot that he'd already taken five shots, chances are the shutter would stop rotating halfway through the sixth shot, causing the light to continue to fall on the film, resulting in a failed shot. It was better to pull the string before each shot. The shutter speed then always remained about 1/50 second.

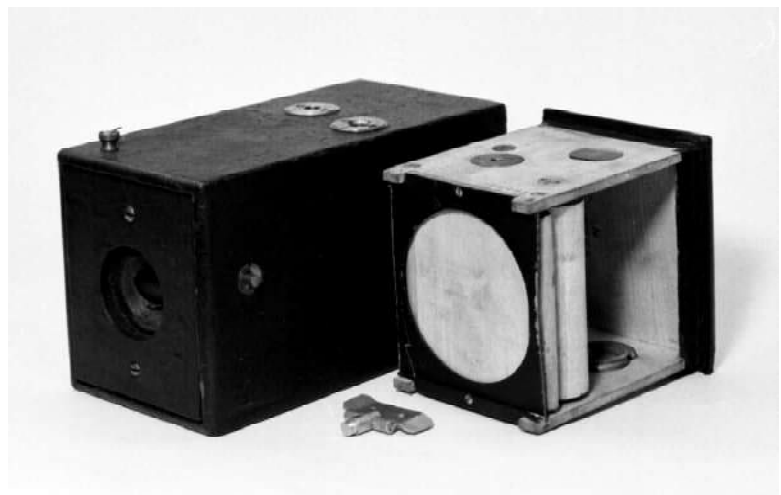
The Kodak could even take pictures indoors. Because of the low light, these were always time exposures. However, it appears from the instruction manual that this was not really taken into account in the construction of the Kodak. In any case, the working method gives an impression of improvisation to me. The preparation went like this: "Press the button repeatedly until the shutter refuses to revolve. Without changing the position of the Kodak, gently push the shutter wide open with the finger; it will catch when on the center, and thus open the lens. Wipe the lens with a soft handkerchief, the finger may have blurred it. Put on the cap or plug. Do this as quickly as possible, and be careful not to point it toward the light until the cap is on. ... Place the Kodak on some steady support. ... Detach the cap, holding the Kodak steady with the other hand ;

hold the cap an instant in front of the lens and remove the other hand ; then when all is steady take away the cap.”

Advancing the film

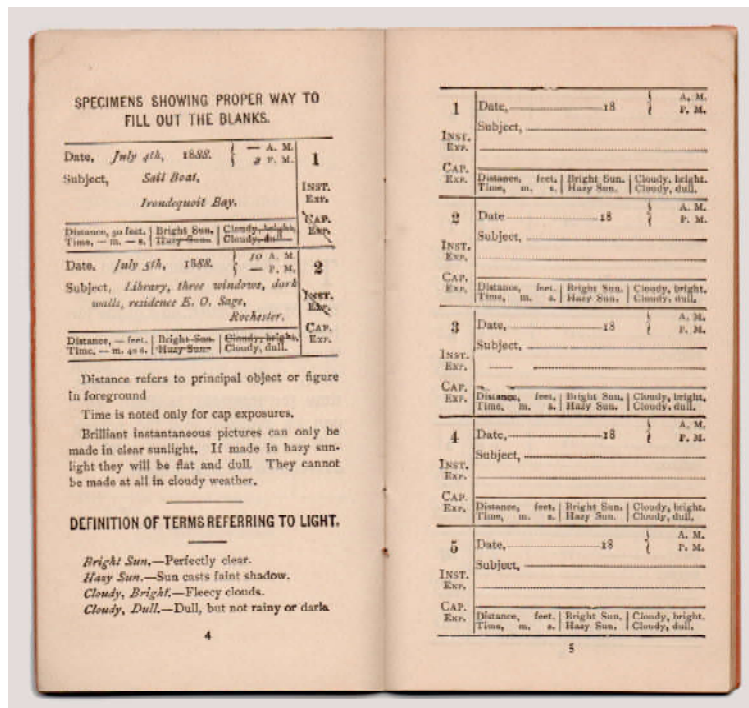
The film was advanced with the key on top of the Kodak. Next to the key is an opening, in which a stripe is visible on a rotating disc. If the stripe is aligned with a stripe in the brass ring around the opening, then sufficient film has been advanced. So the Kodak does not have a frame counter. The number of photos taken could be noted on the card mentioned earlier, or in a booklet that was included.

The camera was loaded with a roll of American Film for one hundred shots, approximately 2-5/8” (6.5cm) in diameter. This flexible recording carrier contributed significantly to the simple operation of the Kodak. After all, the photographer didn't have to worry about loading the camera or changing glass plates at all.



Kodak with roll holder next to it. The film reels are still behind the image plane. The mask with the round opening was supposed to obscure the blur and vignetting at the edges of the image.

An indispensable element here was the roll holder. The Kodak’s film holder, which couldn’t be seen by the user, consists of a simplified Eastman-Walker roll holder, which is located as an integral part of the camera in the rear part of the device. The coils are still behind the image plane. The so-called front-roll design was not applied until the 1890s.



As simple as the Kodak was, not everyone understood what to do. For example, there was a world traveler who bought a Kodak before he left. After a journey of months, he came back and had his film developed. The result was a long, completely clear strip of film, with only a pitch black circle at the beginning. The photographer had failed to advance the film and had shot all the shots on one and the same piece of film!

In order to educate the 'snapshooter' somewhat photographically, and to let him or her learn from mistakes made, the Kodak came with a booklet in which the photographer could write down a number of information after taking each shot. The results could then be compared afterwards with the conditions in which the photo was taken. This “Memo-

Page from “Memorandum of Kodak exposures.”

randum of Kodak exposures” contained one hundred pre-printed boxes in which one could enter the date, time, subject, snapshot or time shot, distance, possible exposure time and weather. The few notebooks that have withstood the test of time show that most Kodakers stopped filling them in after a few times. This doesn't surprise me. Filling in all kinds of data was at odds with the essentials of the Kodak: shooting without the hassle.

Develop and print

If the photographer had taken a hundred shots, he could pack the Kodak and send it to the factory. There, the camera was loaded with new film and immediately returned to its owner. After about ten days, he also received the printed photos.

A separate department was set up for development and printing, which quickly processed about 60 to 70 Kodaks a day. This means that they had to print 6000 to 7000 photos every day, which took place in a room on top of the roof of the Kodak building. Unlike the printing service of a few years earlier, no artificial light was used, but the printing frames were placed in the sun. I do not know why no artificial light was used.



Print department on the roof of the Kodak building.



*Photo taken with an original Kodak.
Pets were a popular motif.*

On arrival, the films were numbered, which was repeated on each negative, so that the thousands of photos did not get mixed up. The prints were each pasted onto a piece of cardboard and passed through a press to give them a glossy surface. They were also retouched if necessary. They paid \$10 to load the camera with new film, develop the exposed film, and make 100 prints. If some shots failed, duplicate prints were made from good shots, so that the total number of prints was always 100. But with the package of photos, the photographer would receive a form stating what he had done wrong.

Kodakers

George Eastman wanted to make it clear that his camera was not an ordinary camera, but something completely new, so he coined a new word: "Kodak." One Mrs. Collis has the credit for devising the verb form. She took a Kodak on her trip to Alaska and recorded her adventures in a book entitled "A woman's trip to Alaska." With the photos she mentioned "Kodak'd by the author." Photographers who

used a Kodak soon came to be called 'Kodakers.' Who were these Kodakers?

In the first place, they were people from the middle and high income groups. The Kodak cost \$25, which made the camera out of reach for large segments of the population. In 1888, a worker earned about \$9 in a 50-hour work week. Several years earlier, when George Eastman was still working at a bank, he was making \$15 a week. So buying a Kodak and having the photos developed and printed, which cost \$10, wasn't for everyone.

An advertisement text confirms once again that the Kodak was not aimed at minimum age-earners: "A picturesque diary of your trip South, to Europe, or to California, may be obtained without trouble with a Kodak camera..." Eastman mentions a few more examples of users in a promotional text: Travelers and tourists, bicyclists and boating men, engineers and architects, artist, parents, surgeons, sportsmen and camping parties, ocean travelers and last but not least lovers of fine animals.

A group that he does not explicitly mention here, but which should certainly not be forgotten, are the women. Many a lady became a Kodaker. The above-mentioned Mrs Collis, who incidentally was the wife of a general, is an example of this. Also in my collection is a book titled "Through Canada with a Kodak" written by Ishbel, Countess of Aberdeen. Alexandra, wife of the future King Edward VII, was also an avid photographer. Next to my display case with cameras hangs a portrait of Alexandra with a No. 1 Kodak, the slightly modified 1889 successor to the original Kodak.

Women also played a role in advertisements. In September 1888, an advertisement appeared in which a mother (?) takes a picture of a little girl with a doll, while a boy stands watching. A year later, Kitty Kramer, a young woman employed by Eastman Kodak, poses with a No. 2 Kodak box camera for an advertising photo. Photography is no longer exclusively a male affair. Perhaps the elimination of all kinds of handling with chemicals has to do with this. Author Nancy West points out in "Kodak and the lens of nostalgia" that the photographer no longer needs to get stains on the fingers due to the elimination of handling with chemical substances. At a time when white and soft hands were a measure of class and sophistication, this must have been important for ladies.

The photographs that still exist show that the Kodakers mainly focused their Kodak on the people and things in their daily lives that were dear to them or that they experienced as important: family and friends in the garden, at the beach or against the background of a pyramid; dogs, horses, cats and even roosters and chickens; bicycles, carriages, ships, trains and train accidents. The Kodaker "cut" what captivated him or her. He was freed not only from the technical yoke but also from the 'artistic' armor.



Advertisement from September 1888. A striking number of women became kodakers and Eastman took advantage of this very quickly.

Conclusion

During the 1880s, George Eastman tried to secure the sales and profits of his fledgling firm by marketing “film photography.” To this end, he developed a number of new products, aimed at the professional photographer and the serious amateur. Due to disappointing results, he started targeting a completely new target group in the second half of the 1880s, for whom he developed the original Kodak that appeared in 1888. In this device he combined previous inventions. The result was a very easy-to-use camera, whose essential innovative element was the decoupling of simple and specialist operations.

The American Film and the roll holder were important elements in the new camera. They liberated the photographer from the heavy glass plates and handling them. Those who wished could outsource the technical operations of development and printing to the Eastman Kodak Co.

The design and ease of use of the Kodak matched the fashionable detective cameras. These models made it possible to shoot handheld for the first time. The fast and unobtrusive way of shooting allowed a different kind of photography to emerge. Daily life was documented with the detective camera, without the usual pose. Tight ideas about artistically sound photos were let go by many.

The launch of the easy-to-operate Kodak brought about an unprecedented lowering of the threshold, which not only appealed to men but also convinced many women to take the camera in the white hand. George Eastman had achieved his goal: “in order to make a large business we would have to reach the general public and create a new class of patrons.”

This article has been written based on the literature below. I would like to especially point to the works of Reese V. Jenkins as sources of information par excellence

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