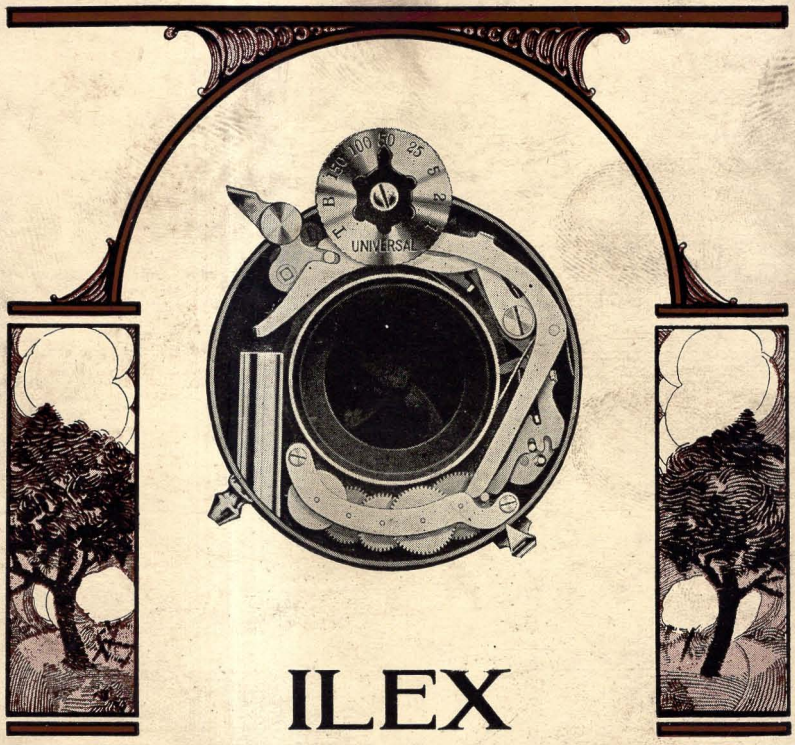
ILEX SHUTTERS



ILEX OPTICAL COMPANY

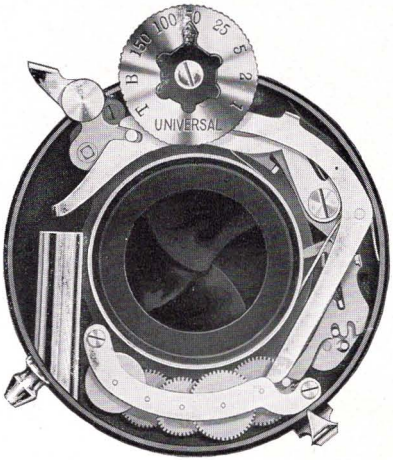
ROCHESTER NEW YORK

Catalogue *and* Price List

OF

ILEX SHUTTERS

The ingenious invention that marks one of the greatest material advances in photography in years



ILEX OPTICAL COMPANY

ROCHESTER, N. Y., U. S. A.

ILEX SHUTTERS

EVER since the advent of photography as the world's accepted recorder of objects, the camera with its accessories has called forth the most profound study and application by professional and amateur photographers, as well as the knowledge of scientists and the genius of the world's greatest inventors. As a result, we have to-day the highly perfected camera built for manifold purposes, the marvelous and highly sensitized plates and film, and the most scientifically corrected lenses. But just as the steam engine, powerful as it was, never gained its full efficiency until the recent perfection of the turbine — just so has the highly developed camera with its equally highly developed accessories been losing a great measure of its efficiency through inaccurate and non-dependable Shutters.

More than twenty-five years ago, when the first Shutter, with a retarding device for producing automatic time exposures, was put upon the market, the retarding mechanism was in the form of an air-pump or valve similar to the check used on doors to prevent slamming. This form of retarding device, used these many years as the only means of regulating or controlling the various shutter speeds, operated in the following way: The Shutter was built to respond to its fastest speed, but automatically controlled, so that when the slower speeds were required for the longer exposures, the mechanism engaged the plunger of the air-pump or

valve, and by the back pressure of air in it produced a retarded action of the mechanism. The length of stroke of the plunger when drawn out of the pump or valve was the determining factor in regulating the time of the exposure.

Although this pump or valve arrangement produced a retarding of the mechanism, it proved to be the source of much trouble and annoyance on account of its inaccuracy and non-dependableness. The reason was that the plunger used made it necessary for the mechanism to work against its dead weight, when the camera was in one position, and drop by the force of its own weight when the camera was in another position, thus vitiating the action of the entire mechanism. The result was that an exposure, set at any of the retarded speeds, would be much quicker when the plunger dropped by the force of its own weight, and much slower when it worked against its own dead weight. This is a matter of self-demonstration.

In addition to this, the changes of temperature proved to be a problem which could not be overcome; for with the temperature low, a longer exposure than desired is very likely, while with a higher temperature a quicker exposure than that at which the indicator was set, is very probable.

The shutter troubles, however, that were the greatest detriment to good results, were those caused by gumming and by dust getting into the pumps or valves. The concealing of the pumps or valves within the shutter-case *did not* overcome this, as the action of the atmosphere on the pumps or valves will gum up the plunger and cause it to stick. Likewise, the constant action of the plunger in the pump or valve carries the particles of dust with it which impedes the action, and by clogging also eventually causes it to stick. This results not only in an uncertainty of the speeds produced by the retard, but also in the uncertainty of its acting at all.

The demands made upon automatically-controlled shutters by the improved cameras and the highly-sensitized plates and film, as well as the fast-speed lenses, required a shutter that would respond in the most minute fraction of a second, and still be able to automatically adjust itself to accomplish the slower instantaneous speeds with the utmost precision and accuracy. It has long been recognized that the only possible means of accomplishing this would be in the *elimination of the troublesome and inaccurate pumps or valves*, and to this end leading camera manufacturers and inventors have applied themselves for years without success.

The ILEX OPTICAL CO. has accomplished this great achievement and eliminated ninety per cent. of all shutter troubles by substituting for the pumps and valves a "wheel-arrangement" that works upon the same principle as a watch. The entire action of the retarded speeds is controlled by this "wheel-arrangement," and it is absolutely impossible for it to vary under any conditions. The mere setting of the dial to the speed desired acts automatically upon the entire mechanism of the shutter, placing it in readiness, so that when the exposure is made the mechanism responds with that even exactness of action so essential to good results in photography.

Besides many other features tending towards perfection in shutter construction, the ILEX OPTICAL CO. has added an entirely new feature in the form of an "auxiliary speed-attachment," which co-operates with the speed device ordinarily used.

All other automatic shutters are opened by the motor spring and closed by the action of a secondary spring, which of necessity must be weaker, acting as it does entirely independent of the motor spring, and deriving its tension only from the opening of the shutter blades. *In Ilex shutters the shutter blades are opened and closed by the full strength of the motor spring in one continuous movement of the motor lever.* This is an exclusive feature, made possible only by the use of the Ilex Auxiliary Speed Attach-

ment. This gives Ilex Automatic Shutters a fast speed never before attained, and a combined speed almost double that of any other automatic shutter.

Until the innovation of automatic shutters, all shutters required setting before each exposure. The setting or tensioning of the motor by one lever, required a separate lever or action to release it, and by this means the shutter mechanism was operated. The construction of automatic shutters, however, does not permit of a highly-tensioned motor, as the one lever must accomplish the setting and releasing in one operation. The high speed of automatic shutters is therefore limited, and the extraordinary speed of $\frac{1}{150}$th second attained by the ILEX UNIVERSAL represents the maximum speed that is possible in strictly automatic shutters.

To meet the demand for a "fast-speed" shutter, however, the use of the extra setting lever is still required. The high tensioning of the motor necessary to produce the added speed, while accomplishing the purpose of a "fast-speed" shutter, has heretofore either prevented a full automatic control by one dial, or required a greatly increased size of the shutter-body to accommodate a complicated adjustment of the added mechanism. The latter type of "fast-speed" shutters, while removing the necessity for two separate indicators that interlock against one another, proved seriously deficient in its capacity for regulating the various speeds, as well as being burdened by its bulky size and complicated mechanism.

The ILEX OPTICAL COMPANY in its "fast-speed" shutter has not only eliminated the various disadvantages of other "fast-speed" shutters, but has added an entirely new feature in the form of an "auxiliary speed adjuster," which allows the maximum speed to be attained by the setting motor, and furnishes the means for producing a distinct and effective variation between the higher speeds. The "auxiliary speed adjuster" also co-operates with the ILEX "wheel-arrangement" in producing an even exactness of action on *all* retarded speeds.

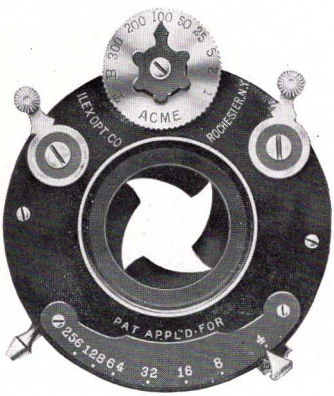
We have spared neither time nor expense in bringing ILEX SHUTTERS to the highest point of efficiency, and while they undoubtedly cost more to produce than the troublesome and non-dependable pump or valve shutters, and furnish the user with a sense of satisfaction through absolute accuracy and dependableness, still we charge no more for ILEX SHUTTERS than the prices asked for the other kind.

Our shutters are substantially and accurately made and set up by experts. They are entirely free from the flimsy construction so noticeable in others.

Our desire and aim is to furnish you with the BEST.

We guarantee every shutter we make to be mechanically perfect, and absolutely accurate. Purchase price cheerfully refunded if found otherwise.

ILEX ACME



THIS shutter, while built to meet the demand for an extraordinarily fast speed, has every advantage of the slower speeds.

Unlike other "fast-speed" shutters, it is not dependent upon the inaccurate and non-dependable pump or valve to produce the retarded speeds, which at their best, result in an almost imperceptible variation between the higher instantaneous speeds, and an even more pronounced inaccuracy and non-dependableness on the slower speeds.

It has *but one motor* with a true action, *constant* on *all* speeds, A positive and accurate difference between the higher speeds is secured by the ILEX "auxiliary speed adjuster," and by its co-operation with the ILEX "wheel-arrangement"—both of which are embodied in its construction—an absolute accuracy is secured on *all* speeds and under *all* conditions, accomplishing a result heretofore impossible with a "fast-speed" shutter.

The entire mechanism is controlled automatically by one dial operating in either direction, instead of two separate indicators that interlock against one another. The different speeds indicated on the dial are exactly what you get. It is impossible for them to vary under any conditions.

It possesses the advantage of a greater light aperture with a smaller shutter body, thus overcoming the bulkiness of other "fast-speed" shutters. The shutter-blades have a full forward and backward movement to each exposure, instead of a forward movement to one exposure and a backward movement to the next. Compare the two and you will understand why it was impossible for two successive exposures to be alike with the latter method.

It has a speed of $\frac{1}{300}$th second and is capable of photographing most of the fastest moving objects without the slightest blur in the picture. In addition to "Time and Bulb" it furnishes all the intermediate speeds down to one full second, and is absolutely dependable and unvarying.

It has the four-blade, star-shaped light opening, which allows the light to penetrate instantly over the entire plate or film, thus giving the greatest and most even illumination.

The shutter is set by the right-hand lever which remains in its "set" position until released, making it easy to discern whether or not the shutter is set.

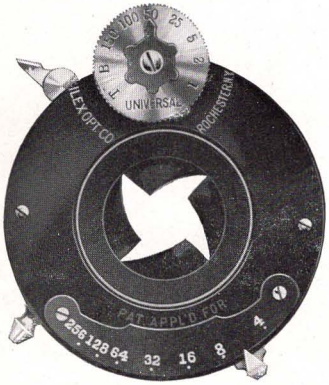
The shutter may be released either by finger-lever or bulb, and responds without the slightest jar or recoil.

The combined advantages embodied in the Ilex Acme make it the most perfect and complete "fast-speed" shutter ever produced.

It has iris diaphragm and is made in the following sizes:

	Light Aperture	Lens Opening	Outside Diameter	Price
No. 1	$\frac{7}{8}$″	$1\frac{3}{16}$″	$2\frac{1}{2}$″	$14.00
" 2	1 ″	$1\frac{7}{16}$″	$2\frac{5}{8}$″	16.00
" 3	$1\frac{1}{4}$″	$1\frac{3}{4}$″	3 ″	18.00
" 4	$1\frac{5}{8}$″	$2\frac{5}{16}$″	$3\frac{5}{8}$″	20.00

ILEX UNIVERSAL



THIS shutter is strictly automatic in action and does not require setting. It may be operated either by finger-lever or bulb. The entire mechanism is controlled by one dial operating in either direction. It is the fastest speed automatic shutter ever produced, having a speed of $\frac{1}{150}$th second, which is fast enough for most purposes, and also has all intermediate speeds down to one full second in addition to "Time and Bulb."

It has the ILEX "wheel-arrangement" embodied in its construction and is absolutely accurate on *all* speeds. Its general scope, both as regards fast speed and accuracy, adapts it to use either with medium or high-grade lenses. Excepting such cases as require extraordinarily fast speed, we guarantee it to meet every requirement of the amateur as well as the more exacting demands of the most discriminating user of a camera.

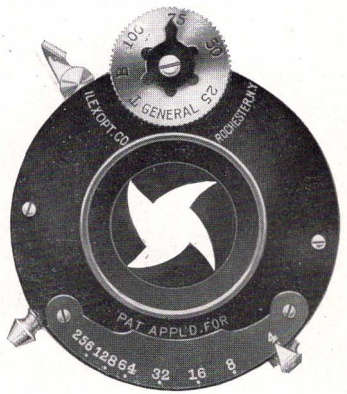
It has the four-blade, star-shaped light opening, giving the greatest and most even illumination, the light penetrating instantly over the entire plate or film.

The latitude secured in an *Automatic* Shutter by the Ilex Universal, makes it positively essential and wholly indispensable to every camera.

It has iris diaphragm and is made in the following sizes:

	Light Aperture	Lens Opening	Outside Diameter	Price
No. 1	$\frac{7}{8}''$	$1\frac{3}{16}''$	$2\frac{1}{2}''$	$10.00
" 2	$1''$	$1\frac{7}{16}''$	$2\frac{5}{8}''$	11.00
" 3	$1\frac{1}{4}''$	$1\frac{3}{4}''$	$3''$	12.00
" 4	$1\frac{5}{8}''$	$2\frac{5}{16}''$	$3\frac{5}{8}''$	14.00

ILEX GENERAL



THIS shutter is a popular priced "general-use" shutter, strictly automatic in action and does not require setting. It may be operated either by finger-lever or bulb. The entire mechanism is controlled by one dial operating in either direction. It is similar to our Ilex Universal, but lacks the extraordinary fast-speed and the slower retarded speeds. It has, however, the Ilex "auxiliary speed attachment" embodied in its construction, and while its highest speed is marked at $\frac{1}{100}$th second—we guarantee it to give almost double the speed of any other popular priced automatic shutter on the market to-day.

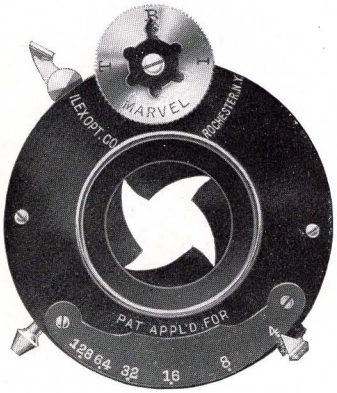
The Ilex "wheel-arrangement" embodied in its construction, gives an absolutely accurate 100th, 75th, 50th and 25th, in addition to "Time and Bulb," the bulb supplying the slower speeds.

Instead of the two-blade arrangement opening from the center, which gives a greater light exposure in the center and an uneven illumination, it has the four-blade, star-shaped light opening.

The Ilex General has iris diaphragm and is made in four sizes. It covers every requirement for a general-use shutter, and is decidedly the greatest value ever offered at its cost.

	Light Aperture	Lens Opening	Outside Diameter	Price
No. 1	$\frac{7}{8}$″	$1\frac{3}{16}$″	$2\frac{1}{2}$″	$5.00
" 2	1″	$1\frac{7}{16}$″	$2\frac{5}{8}$″	6.00
" 3	$1\frac{1}{4}$″	$1\frac{3}{4}$″	3″	7.00
" 4	$1\frac{5}{8}$″	$2\frac{5}{16}$″	$3\frac{5}{8}$″	8.00

ILEX MARVEL



THIS shutter is built to meet the unquestioned demand for a T. B. I. Shutter that does not have the function and appearance of a clap contrivance. Our Ilex Marvel is similar to our Ilex General in appearance, and while lacking the variable speeds, it has a good fast speed more than equal to the highest marked speed of other automatic shutters costing considerably more. In addition to its fast instantaneous action it has "Time and Bulb" which accomplishes the slower speeds and makes it the most practical and valuable shutter ever put on the market at its price.

It is strictly automatic in action and may be operated either by finger-lever or bulb. The mechanism is controlled by one dial operating in either direction.

It has the four-blade, star-shaped light opening, which allows the light to penetrate instantly over the entire plate or film, thus giving the greatest and most even illumination, instead of the two-blade arrangement opening from the center which gives a greater light exposure in the center and an uneven full illumination.

The Ilex Marvel has iris diaphragm and is made in one size only, but can be adapted for use with all ordinary sizes of lenses, either single or double.

Light Aperture	Lens Opening	Outside Diameter	Price
$\frac{7}{8}$"	$1\frac{3}{16}$"	$2\frac{1}{2}$"	$4.00

ILEX IOCO

THIS shutter meets the demand for a low price T. B. I., and excels anything ever before offered at its price.

It is smaller than the Ilex Marvel and is controlled by a pointer-lever instead of a dial. It is strictly automatic in action and furnishes either Time, Bulb, or Instantaneous exposures. It may be operated by finger-lever or bulb.

It has a three-blade, star-shaped light opening, giving a full, even illumination to plate or film, instead of the two-blade arrangement, opening from the center which gives a greater light exposure in the center and an uneven full illumination.

The Ilex Ioco has iris diaphragm and is made in two sizes. It can be adapted for use with all ordinary sizes of lenses, either single or double.

	Light Aperture	Lens Opening	Outside Diameter	Price
No. 01	$\frac{3}{4}$″	$1\frac{1}{16}$″	2 ″	$2.00
" 02	$\frac{1}{2}$″	$\frac{7}{8}$ ″	$1\frac{5}{8}$″	2.00

CONCLUSION

IN the preceding pages we have merely outlined the many points of superiority of ILEX SHUTTERS viewed from a purely mechanical standpoint. No doubt it will be interesting to the reader of this catalogue to learn just what results can be obtained in a picture by the use of the different degrees of time and instantaneous exposures as indicated on the dial of a shutter.

One of the most prominent camera and lens manufacturers in the United States, and an authority on photography, has aptly remarked that the *under-exposure* of plate or film is the most common fault of the average user of a camera. In other words, the full efficiency of the camera or lens is not secured because photographers are inclined to make their exposures shorter than necessary.

The great progress made in Anastigmat Lenses makes it possible to secure perfect definition with full detail in the negative even though taken with a very high speed exposure, but the shutter speed need not be faster than will insure overcoming the motion in the subject.

The Rapid Rectilinear, or Achromatic Lenses most commonly used, are capable of giving good definition, but detail in the negative and proper tone gradation is the result of accurate exposures, i.e., a landscape picture with browsing cattle cannot very well be taken with a time exposure without blurring the picture by the movement of the cattle; neither would the best results be obtained by using the fastest of instantaneous exposures, as the result would be an undertimed negative.

It will therefore be observed that the intermediate speeds between the highest marked speed and the one second inclusive, have a most important function to perform, viz., the securing of a speed fast enough to overcome any motion in the subject and still maintain the maximum of time exposure so neccessary to secure the

fullness of detail; otherwise the full efficiency of camera and lens are lost.

To accomplish this the speeds are divided into 1, $\frac{1}{2}$, $\frac{1}{5}$, $\frac{1}{25}$, $\frac{1}{50}$, etc., and depend entirely upon the retarding device to produce them, as well as for their accuracy.

It is absolutely essential that every one of the intermediate speeds should respond *exactly the same each time*, but with shutters dependent upon the varying and uncertain pumps or valves for their retard, this has been impossible. The natural result has been an encouragement of the use of a much faster speed than was actually necessary to overcome the motion in the subject, merely to allow for the varying and uncertain action of the shutter. This results in the *under-exposure* of plate or film, with the consequent loss of the full efficiency from both lens and camera.

With ILEX SHUTTERS the intermediate speeds are scientifically graduated and the ILEX "wheel-arrangement" controls their action. It is absolutely impossible for the shutter to respond other than at the exact speed indicated on the dial, as the "wheels" must run their prescribed time before the shutter can shut. It therefore insures a full efficiency from both lens and camera, as the accuracy and unvarying action permit the use of the maximum time exposure consistent with the degree of motion in the subject, and furnishes the picture with the greatest definition and fullness of detail. There is absolutely no variation in speeds due to different positions of camera or atmospheric conditions. The *various speeds* will positively respond *exactly the same every time* even under the most adverse conditions, a feature that could not be hoped for in pump or valve shutters even under the most favorable conditions.

An automatic shutter capable of the very highest speed possible is a necessary adjunct to a high grade Anastigmat Lens to secure fast speed when required, and a speed of $\frac{1}{150}$th second will be found plenty fast enough for most purposes.

For extraordinarily fast speed, it is best to use a "fast-speed" or "setting" shutter which, with a speed of $\frac{1}{300}$th second, is fully capable of securing a good picture of even the fastest moving objects.

To get the best results, however, from Anastigmat Lenses, and especially from Rapid Rectilinear or Achromatic Lenses, it is positively essential that a faster speed than is absolutely necessary *should not* be used.

To secure this, it is of utmost importance that the action of the shutter on *all speeds*, especially the *intermediate speeds*, should be constant and certain, and it is for this reason that ILEX SHUTTERS commend themselves for use with all grades of Lenses.

OPTISCHE ANSTALT G. RODENSTOCK

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