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# MAGIC LANTERN

## JOURNAL

### And Photographic Enlarger.

*A Magazine of Popular Science for the Lecture-Room  
and the Domestic Circle.*

WITH WHICH IS INCORPORATED THE "LANTERN WORLD."

EDITED BY  
J. HAY TAYLOR.

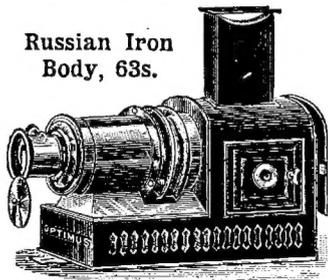
Vol. 10.—No. 122.

JULY, 1899.

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ii. The Optical Magic Lantern Journal and Photographic Enlarger

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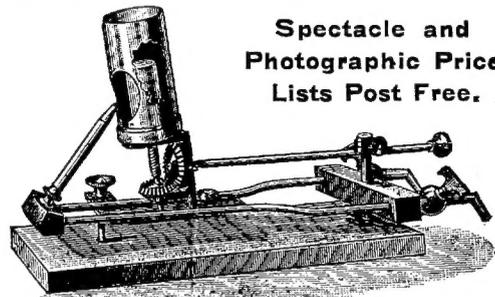
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WITH WHICH IS INCORPORATED THE "LANTERN WORLD."

Vol. 10.—No. 122.

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Price 2d., Post-free 3d.

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### NOTICES.

*The Optical Magic Lantern Journal and Photographic Enlarger* is issued on the 1st of every month, price Two Pence, and may be obtained from all Newsvendors, Railway News Stalls, Photographic Dealers, or from the Publishers, at the following rates, post free:—

12 months, 3/-. United States, 75 cents.

EXCHANGE Column, General Wants, &c. (not Trade)—First 20 words, 6d.; and for every 3 additional words, 1d.

**SMALL ADVERTISEMENTS** must reach the office not later than the first post on the 24th of each month. All cheques and postal orders to be made payable to the Magic Lantern Journal Company, Limited.

**EDITORIAL** communications must be addressed, **J. HAY TAYLOR**, Advertisements and business communications to **THE MAGIC LANTERN JOURNAL COMPANY, Limited, 9, Carthusian Street, London, E.C.**

**American Agents:**—The International News Co., 83 and 85, Duane Street, New York City.

### NOTES.

**Rotary Print Trimmer.**—A new and neat print trimmer has been brought out in the United States, and will probably be introduced in this country shortly. The print to be trimmed is laid on a special board, and a wheel cutter which is held in guides is drawn across, the print being meanwhile held clamped in position. With this cutter it is claimed that not only is a clean and true edge given, but no buckle whatever can be given to the print.

**Photographic Trade Names.**—A copious index of photographic trade names forms a 24 page supplement to the June number of the *Photogram*. This list is a most useful one, inasmuch as reference to it enables one to ascertain the name and address of the firm or agent dealing in any particular brand of goods.

**Cinematographic Enterprise.**—Hardly had work been commenced on the stranded liner "Paris," than the Cinematographic Company, Limited, of Camden Town, were on the scene, the result being a fine cinematographic picture—about 75 feet of film—showing the unsuccessful attempt to float the steamer.

**The Lantern for Education in India.**—The Inspector-General of Education, Mysore, has provided several lanterns and sets of geographical and historical slides for use in schools, and on his tour of inspection takes an outfit with him for the benefit of schools which are yet unprovided with apparatus. The inspector is having a lantern constructed so as to utilise sunlight as an illuminant.

**Prize Pictures.**—The Thornton - Pickard album of prize pictures in their recent competition contains between 40 and 50 fine half-tone illustrations from prints which were awarded prizes. They are particularly clear and brilliant, printed on fine paper, and the album is issued by Dawbarn & Ward, Limited, for the nominal price of sixpence.

**What the Cinematograph has done for Constantinople.**—Till recently the employment of electricity in any shape or form in Constantinople was strictly forbidden. Incredible as it may appear, the Sultan naively imagined that a dynamo must have something to do with the manufacture of dynamite. The final triumph over the prejudices of the Sultan is said by the *Electrical Review* to have been due to a Spaniard and the cinematograph. The city authorities would not allow him to set his new instrument in operation, because it had to be driven by the condemned electricity. He applied to his ambassador, who, during the next audience which he had with the Sultan, took occasion to enlarge on the wonders of the cinematograph, and interested the Sultan so much that Don Ramirez was ordered to bring his instrument to the palace. The Sultan became convinced that electricity, though produced by a dynamo or a battery, had no connection with dangerous explosives; the lucky Don got kudos and wealth, and permission was granted to him to instal in his circus the first electric lighting plant in Constantinople.

**"Early Work in Photography."**—The second edition of this text book for beginners, by Mr. Ethelberg Henry, has just been published by Dawbarn and Ward, Limited (1s.). Included in the book is a film negative and positive, which serves as an admirable guide as to what a good negative and transparency should be.

**Adurol Developer.**—Messrs. Fuerst Bros. are now ready to supply Hauff's new developer "Adurol." A report upon this developer, by Dr. A. Bogisch, will be found upon page 90 of this issue.

**Oxygen Cylinders and Fire Brigades.**—It has been suggested that cylinders of compressed oxygen be included in the outfit of the New York Fire Brigade, to be used for the resuscitation of those victims of fires who may be partly asphyxiated.

**Scottish Kinematograph Company.**—The Scottish Kinematograph Company (lately known as G. W. Walker and Company, of Aberdeen) has just made arrangements for a tour in the United States. Several vocal, violin, and mandoline artistes are included in the company.

**Royal Photographic Exhibition.**—From September 25th to November 11th the forty-fourth annual exhibition of this society will be held in the gallery of the Royal Society of Painters in Watercolours, 5a, Pall Mall, London, S.W. On Saturday, September 23rd, the exhibition will be inaugurated by a private view, followed in the evening by a *conversazione*. On the 24th ult., the headquarters of the Royal Photographic Society were removed from 12, Hanover Square, to their newly fitted up premises at 66, Russell Square, W.C., the event being signalled on the 27th ult. by a soiree, when the President and Council received the fellows, members, and their friends.

**Traill-Taylor Memorial Lecture.**—The Traill-Taylor memorial lecture, November 8th, will this year be given by Colonel Waterhouse, his subject being "The Teachings of the Daguerrotype."

**Cardiff Bohemian Camera Club.**—The members of this society have decided to hold a monthly exhibition of photographic work; pictures to be left on the walls of the clubrooms for four weeks, at the end of which time a committee will select prints from same to be placed in the club album.

**Photographic Salon.**—The seventh annual exhibition of the Photographic Salon will be held at the Dudley Gallery, Egyptian Hall, Piccadilly, London, from September 22nd to November 4th. The aim of the committee is to exhibit only that class of work in pictorial photography in which there is distinct evidence of personal artistic feeling and execution. Full particulars may be obtained by addressing the Hon. Sec., at the exhibition hall.

*How to connect up a Dissolver.*

No. II.—TRIPLE.

**W**ITH a triple lantern, unless the lantern is fitted with the two stand-pipes spoken of, the connections become much more elaborate; but of this we will speak later on.

Given the two stand-pipes alluded to, one six-way and one four-way dissolver can be used being connected up much in the same manner as shown in the first illustration; but in this case connection is made with the

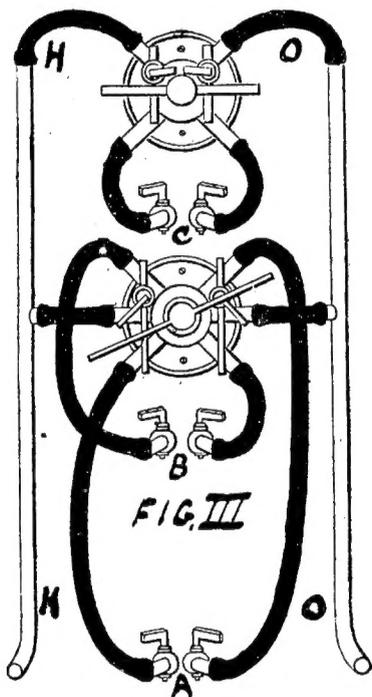


FIG. III

central or inlet tubes of the dissolver, from the stand-pipes as shown in Fig. III.; whereas for the top lantern jet connection is made from the top of the stand-pipes as shown.

Fig. IV. shows what we consider to be a more satisfactory method of connecting up, and this is done by means of three four-way dissolvers. Each lantern is thus controlled by its own tap, and dissolving to or from A, B, or C, is rendered a very simple matter.

Should the lantern body not be provided with stand-pipes, the various connections can be made with two six-way dissolvers after the style shown in Fig. V. In this instance, con-

nection from the gas cylinders is made at the central inlet tubes, and one outlet on either side is then connected up with the inlet of the other

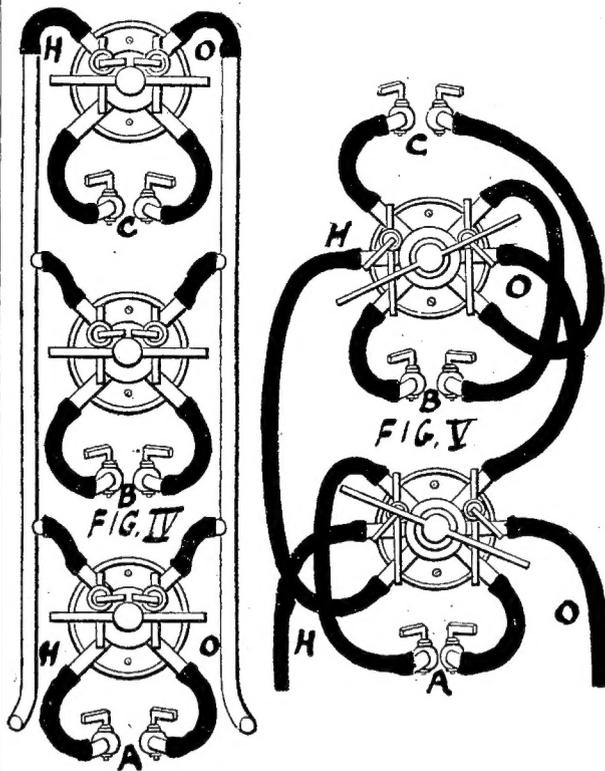


FIG. V

dissolver. The proper manipulation of the bypass taps will be quite apparent on proceeding to light up.



*For Acetylene Users.*

**I**N a recent lecture before the Royal Photographic Society, Prof. Vivian B. Lewes dealt concisely, yet exhaustively with acetylene, both from the historical and practical points of view, and his entire discourse is well worthy of careful study by all who use or intend to use this most useful gas. The following points are of particular interest:—

**THE APPEARANCE OF THE RESIDUE.**—This gives an unfailing indication of the performance of the generator. Given a well-designed generator in which the carbide is decomposed without undue heating, the residue will be a pure white lime. With a generator in which

the decomposition takes place at too high a temperature, the residue will be of a snuff colour, this means that other gases and tarry matter have been formed, with a consequent loss of illuminating power. With a very bad generator in which great heating occurs, the residue will consist of black carbon and white lime, while the yield of gas will be far below that which one has a right to expect, in some cases only half the proper quantity being obtained from the carbide. To test the carbide, a small quantity should be dropped into a glass of water; it will quickly decompose, and the colour of the residue should then be noted. If it is white and the residue from the same sample used in the generator brown or black and white, a faulty generator is indicated. Many people fancy they can judge the quality of carbide by its appearance, believing that a distinct crystalline structure denotes great purity, while a surface similar to pig iron is a sign of inferior quality. This is a fallacy. The purest carbide, that made by the "running" process, is of the fine grained variety, the rapidity with which it is cooled causing the formation of smaller crystals.

**BURNERS AND HOW TO AVOID CARBONISING.**—There are many types of burner beside the small Bray, which until recently held the field in England. It has been found better to make two entirely independent jets coming from burners inclined at a convenient angle impinge upon each other and form a flat flame. At a point below the outlet there is a hole or holes or slit, which allows air to be sucked in by the rush of gas. This air surrounds the acetylene, and prevents it coming in contact with the steatite tip of the burner; consequently no carbon can be deposited. Carbonising is usually started by the presence of a trace of benzine or the like in the gas, which is absorbed by the steatite of the burner, and which becomes carbonised by the heat of the flame. This small beginning starts a catalytic action, and carbon is then rapidly deposited from the acetylene.

**THE EXPLOSIBILITY OF ACETYLENE.**—Pure acetylene may be exploded by means of a detonator, but in actual working there is no possibility of such an occurrence. With air, however, explosive mixtures are formed when the proportion of acetylene is anywhere between 3 and 90 per cent.—a much wider range than that of coal gas. Hence great caution is necessary in dealing with generators, gasometers, and the like, in which such mixtures may be formed.

With regard to the fulminating compounds

said to be formed by the action of acetylene upon fittings composed of copper, brass, or other alloys, it has been proved by repeated experiments that it is impossible to form even the smallest quantity of such explosive in this way. It appears that the copper must be in ammoniacal solution for the explosive salt to be formed, and this condition does not obtain in or about any ordinary generator.

In conclusion, pure acetylene is practically odourless. It is only the impurities which make one wish for ventilation when the gas is escaping. The two principal impurities, viz., phosphoretted and sulphuretted hydrogen, can be eliminated, but except in very bad cases, *i.e.*, where very impure carbide has been used, it is hardly desirable to remove all traces, as it would then be difficult to detect a leakage of which a violent explosion might be the first intimation.



## Optical and Mechanical Effects for the Lantern.—No. IX.

By EDMUND H. WILKIE.

(LATE ROYAL POLYTECHNIC INSTITUTION).



THE natural course of events has gradually led us from the consideration of simple mechanical movements to those of a more complex nature in which several plates of glass are used, each having a portion of the picture painted upon it.

In designing effects of this class, the slide maker must take into consideration the character of the lantern in which it is proposed to work the motions, some being made in such a cramped fashion that the stages allow of little or no movement beyond the limits of the slide frame.

Most lanterns of really good construction allow a little latitude in this respect, and the large lanterns used at the late Royal Polytechnic were arranged so that the back and front stage plates were not connected by pillars, but were simply built up opposite to each other on the foundation framework.

This method of construction allowed slides to be introduced which had projecting glasses at the bottom and sides, without which it would have been quite impossible to realise some of the effects.

**A** PROFESSIONAL lanternist and cinematographist of great experience is open to engagements, with or without his own apparatus, in town or country, on very moderate terms. Reference, Editor of this Journal.—Address, Optics, 13, York-street, Walworth, London.

**E**FFECT slides painted to order, from 3 inch to 10 inch or 12 inch diameter, for high-class dioramic exhibitions; hand-painted and coloured photos also made from owner's negatives and drawings, etc.; list of standard effects 1d., free.—Wilkinson & Co., Slide Makers, Wholesale Opticians, Sunderland.

**G**RAND new effect sets in exquisite hand work; unique and unequalled; new and original subjects and novelties. Exhibitors wishing to secure for their entertainments a reputation for brilliancy and novelty of effect, will do well to send for lists of high-class specialities. Reproductions of the grand effects formerly exhibited at the late Royal Polytechnic Institution. Special highly finished flower studies; elaborate opening pictures and designs. Special attention given to artistic colouring of photographs in oil colour, water colour, varnish colour, or by the beautiful American process; brilliant results, hitherto unattainable.—Edmund H. Wilkie, as below.

**T**HE economic series of lantern effects, principally based on natural photographs, first-class work at first hand prices; many entirely original subjects, all are above the average, some of exceptional value.—Edmund H. Wilkie, as below.

**W**ILKIE'S Solar Flint Limes, in air-tight tins, 2s. 9d. per dozen, post free; special large limes, 1½ inches in diameter, in tins of six each, 2s. 3d., post free.—Edmund H. Wilkie, 114, Maygrove-road, West Hampstead, London.

**E**XCHANGE.—After re-arranging sets, have several hundred first-class coloured slides, including lecture sets and effects, to exchange for others of same value, or will sell; stamp for list.—F. R. Wood, Public Hall, Douglas, Isle-of-Man.

**A** THOROUGHLY practical cinematograph manipulator, can make own slides and effects; also thoroughly understands cinematograph photography and development and printing of films. Seeks position with firm or travelling company. Salary £4 weekly and travelling expenses.—Address, Operator, 58, Eversly-street, Princes-road, Liverpool.

**W**ANTED, 20 foot screen or less; also latest helioscope or other lecturer's lantern.—Particulars and price to Saxton, Islington, Liverpool.

**C**INEMATOGRAPH.—Wrench's bi-unial cinematograph outfit for sale, including a number of excellent films and all fittings in travelling case complete; a splendid instrument, and in perfect order; can be seen at work by appointment; price very moderate.—W. L. Reed, 7, Westmorland-road, Newcastle-on-Tyne.

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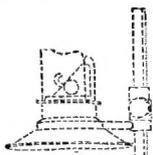
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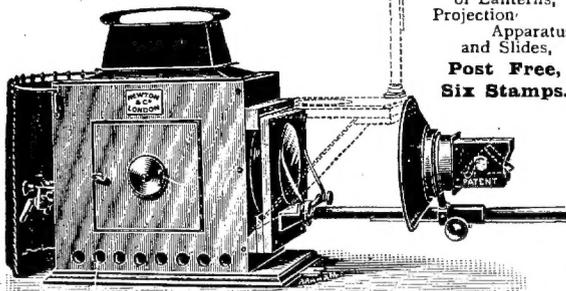
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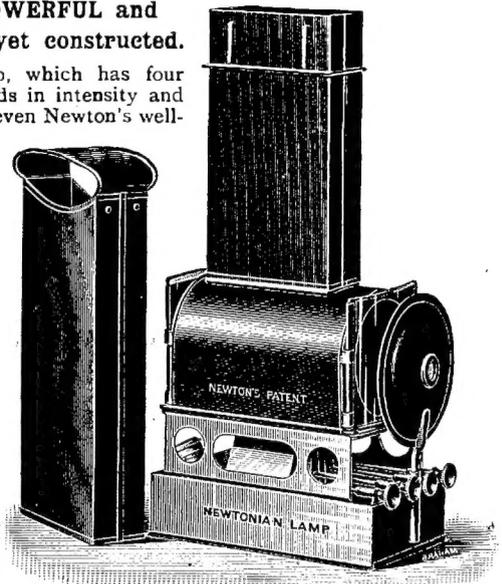
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It is Easier to Manipulate than any other.

There are no unnecessary Adjustments.

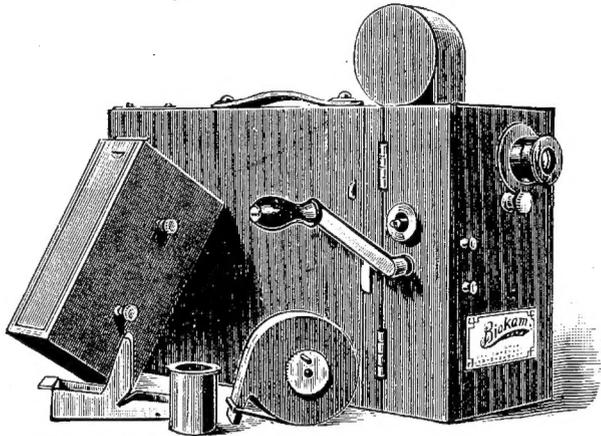
The Reflector of each Lamp is Permanently Adjusted to its most effective distance before being sent out.

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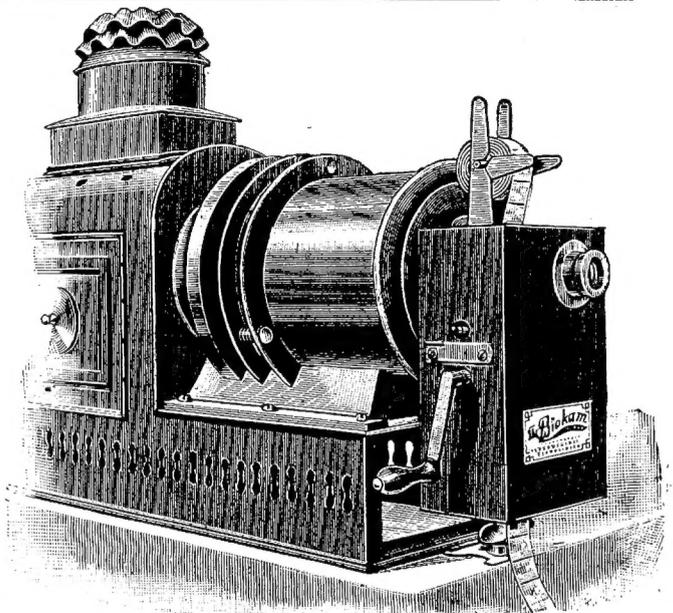
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High Holborn, London, W.C.

In the entertainment entitled "The Adventures of Baron Munchausen," there were several instances of this, which will be more easily understood by reference to our sketch, Fig. XXVI.

The story of Baron Munchausen is familiar to most of us who have not yet reached the advanced age when the joys of our youthful days have sunk into the forgotten past. The mendacious hero of the wonderful adventures treated of in that eventful history was on one occasion taken prisoner by the Sultan of Turkey, and as it was at that time the custom in Turkey to retain prisoners of war as slaves, the Baron was told off to protect the beehives in the Royal garden. Being night, the scene was necessarily dark, few details being visible

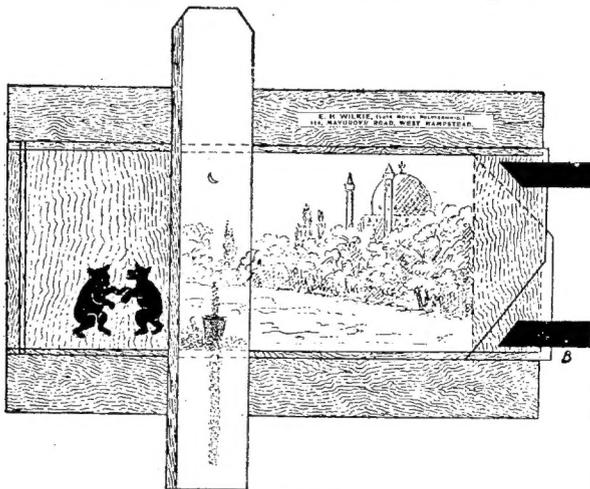


Fig. XXVI.

besides the garden path bordered by high hedges, over which a few domes and minarets were to be seen, also a large flower pot in the left-hand bottom corner. The Baron is not visible; he is possibly round the corner somewhere, busily engaged in watching his precious charges.

I was not previously aware that bears roamed in a wild state in the streets of Constantinople, but according to the story two of these animals found their way into the Sultan's gardens, and being proverbially fond of honey proceeded to attack the hives. Disagreeing, however, in the division of the spoil, a terrible fight ensued between them, which was illustrated by drawing out the two slips A and B, causing the bears to appear in the centre of the picture.

As they were painted in dark colours on separate glasses it was possible, by moving the

slips independently, to give a fair idea of a bear fight (Queensberry rules not observed).

The Baron, wishing to scare them away, threw his hatchet at them, but to his surprise it was carried right up to the moon into which it was seen to be fastened. Here was a pretty situation; he was afraid to return home without it and was at a loss to know how to regain his weapon, but suddenly remembering that he had one of the beans which grew upon the stalk mentioned in the tale of "Jack and the Beanstalk," he planted it in the flower pot seen in the left hand corner, and awaited the result.

Soon the plant is seen to rise above the edge of the pot, and continues growing until it reaches the crescent moon; the method of its growth being apparent on reference to our diagram, where it will be seen that it is painted on a long glass sliding between uprights, the

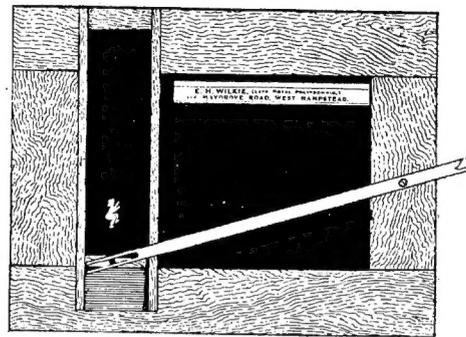


Fig. XXVII.

length of the glass being about twice the width of the picture.

From another lantern is thrown on a small figure of the Baron in a climbing attitude, and this slide being mechanical he apparently climbs the magic beanstalk until he reaches the moon, when the stalk quietly withers away and leaves him hanging in space.

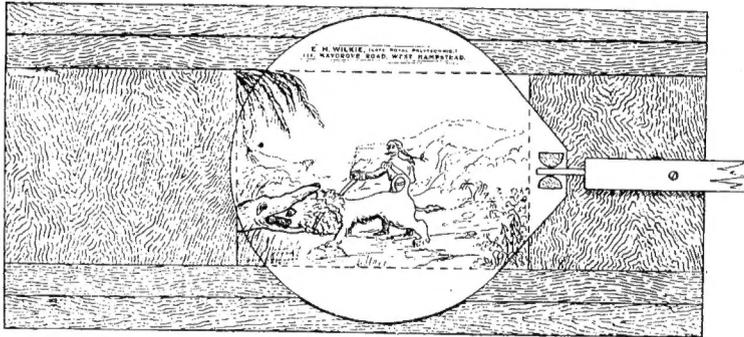
By referring to Fig. XXVII., we see the mechanism by means of which this effect is carried out. The small figure is painted upon a blacked out strip of glass A, which, travelling between uprights in a vertical direction, may be made to rise and fall by means of the lever handle seen on the right of our sketch.

As this glass rises in the frame, a portion of the main glass plate B would be uncovered, but to avoid this and do away with the necessity for a long black glass to follow it up, a long strip of stiff paper the same width as the glass is folded backwards and forwards like the bellows of a concertina and packs away in the

small space in the frame below the edge of the rising glass. As the lever moves this glass, the concertina paper extends and entirely fills the space which would otherwise be left blank.

Such a story as Baron Munchausen forms a capital foundation for a dissolving view entertainment, especially with regard to mechanical and other effects, and the whole tale being a burlesque, admits of humorous treatment in the designs of the pictures.

These opportunities were thoroughly taken advantage of when the entertainment was produced at the late Royal Polytechnic Institution, and those who were in the habit of frequenting that exhibition will no doubt remember the very fine series of views, and the remarkable number of effects by which it was illustrated, and which, it may be remarked in passing, now form part of the collection in the possession of the writer.



to 20 feet wide, and so on, until the magnitude of the "lantern show of the heavens," for such it amounts to, reminds one that we too have been able to boast of a gigantic screen at least, viz., the Nansen lecture screen, at the Royal Albert Hall.

Still another "graph" to remember. The latest addition is to be known as the "Oscillograph." The new-coined word implies at once something of a vibrating character, and that is so—for it is a species of galvanometer, its purpose being to trace alternate current wave forms. It proved one of the most interesting of the many and varied exhibits at the annual conversazione of the Royal Society, held May 3rd, the inventor, Mr. W. Duddell, giving demonstrations during the evening to an appreciative assembly.

In delivering temperance lectures advocates are sometimes (in fact, I may say too often) apt to place too much stress on the gloomy side. Remember a lantern entertainment at the Band of Hope, Temperance Hall, etc., is likely to make good impressions, if of a bright and cheerful kind. Scenes that are mournful are so frequently thrust upon us in real life, that their introduction before enlightened audiences are, for the most part, to be guarded against.

Provision against mishaps in manipulation should concern every operator, but how to make that provision is not easily done, as no rules can be laid down. Moreover, much depends upon the class of apparatus employed, some being of the primitive order, whilst others are perfection itself. Therefore let it trouble the memory of novice and expert alike to take the necessary precautions, according to their various requirements. Slides

#### carelessly arranged

in their order of running has often brought disaster, so also has a leaky joint in the gas arrangements, or an insufficiency of oxygen, or the acceptance of proffered assistance in setting up, or the want of thought in not having passed the new slide or slides through the carrier.

The word carrier reminds us of one of the earlier form of carriers, and known as the Panoramic. This useful accessory is still in favour with many, as many are the little dodges that can be practised with it. If a piece of small watch spring be affixed to the top of the stage, inside of course, the slides are not so apt to get out of place, but travel smoothly. A home-made carrier of this type may, with advantage, be left somewhat roomy, so that a thin plate of glass can be passed along the back of slide. These slips should be graduated in

tints, so that by moving behind landscapes, water, and other scenes, pretty effects may be made. The tinting must be done by the lanternist himself, who should remember to use the finger or brush lightly, so as not to obscure too much of the illumination. Birds have been seen to fly, as it were, across the picture in this way.

To those who use acetylene gas, a reminder as to the importance of the carriage and storage of the carbide of carbon; never expose it to atmospheric influences, keep in hermetically sealed tins, being particular that the lids are always snapped down. A freshly opened canister was quite recently put away without this being properly done. A few days elapsed, and it was discovered that decomposition had set in, rendering the bulk useless. Fortunately this is all that happened.

It should be borne in mind that an object tank can easily be constructed by taking a couple of cover glasses and cementing between three parts round a strip of lead bent to sizes. India-rubber solution, red lead, or Prout's elastic glue may be used, though the latter makes a crude job.

Remember, when puzzled as to the smallest lantern one can use when travelling, and no effects wanted, an American catalogue should be consulted, as with many American firms small lanterns are made a speciality of. Lately, however, one or two English firms have been turning their attention to small and compact lanterns. There are many designs, and for the most part, compactness is their speciality.

(To be continued.)



## Lantern Slides and Slide Making.

Continued from page 77.

**A**MONG dry-plate workers chloride plates are often used for making slides by contact, both on account of the great latitude allowable in exposure and the long range of colours obtainable. One advantage of these plates is the amount of light that may be used when developing; it is only necessary to have yellow glass in the lamp for judging density, and there is no harm in having an unprotected light in the room if care is taken that the direct rays do not strike the plate before it goes into the developer. They are especially useful for slides of flowers or still life, and for some

landscapes, but are not so generally used as their merits deserve.

There is no doubt that the great majority of amateur slide makers use bromide or chlorobromide plates. I should think it is no exaggeration to say that they exceed all the others put together. Most makers supply plates of two rapidities, rapid for black tones and slow for warm tones. With the rapid plates very pleasing brown colours can be obtained with a long exposure and restrained developer, and the slow series will give good warm blacks with a short exposure and quick development. For pure cold blacks the newer developers, such as metol, amidol, and rodinal, give the best results; hydroquinone also gives a good colour, and pyro may be used where rather more warmth is preferred. The solution for developing slides must be weaker than that used for negatives, generally about half the strength, and with most plates the development must be carried further than

#### appears necessary

in the unfixing slide, as the hypo bath often has an apparently reducing effect. Any slight veil over the sky and high lights will be hardly visible when the slide is fixed, and can usually be ignored. With the newer developers a rather shorter exposure should be given than when using quinol or pyro; a full exposure is very likely to lead to considerable veiling of the lights with a consequent over flattening of the slide. A safe guide in the choice of a developer is to use the one recommended by the plate maker, but I find that an average developer will suit most of the kinds of plates that I have tried. The great thing to learn is when to stop development. It is not a thing to be learned from books or verbal instruction, but comes with practice. There are far more plates spoiled after they go into the developing dish than by the exposure, and among beginners, at any rate, the fault is in not developing long enough.

The production of brown tones is dependent on long exposure and restrained development; the longer the exposure and development, the warmer is the tone.

The favourite developers for these colours are hydroquinone and pyro, used with the addition of considerable amounts of bromide and sometimes ammonium carbonate. For my own use I prefer pyro ammonia, Thomas's old formula, made up of pyro sulphite 10 per cent. solution 30 minims, ammonium bromide  $4\frac{1}{2}$  grains, ammonium carbonate  $4\frac{1}{2}$  grains, ammonia 8.803 minims, water to 2 ounces; for redder tones

more bromide and ammonium carbonate is added, with, of course, increased exposure.

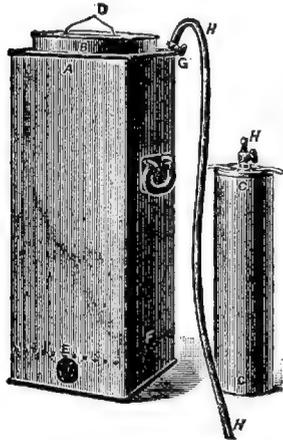
There is some difficulty at first in judging the depth to which development should be carried, and it varies greatly with the make of plate used. The appearance of a fully-developed Ilford special plate treated for brown tone would be quite different from a Thomas's plate developed for the same colour. The Ilford plate should look rather weak, and the other make fully dense; in the first case you have a bromide plate, and in the other, I believe, a mixture of chloride and bromide emulsion; but, as I said before when speaking of black tones, do not stop development too soon, for the richness of the colour depends largely on the time required to obtain density; a slide that has developed too quickly is often a poor and rusty brown colour. A good slide will often take 10 minutes or more, and, if the acid fixing bath is used, it will clear away any slight stain there may be from the pyro. With hydroquinone there is no fear of staining, and the same developer may be safely used for two or three plates; but care must be taken that the exposure is sufficient, or there is some risk of the slide being rather hard; the colours obtainable are very good.

Thomas's is a useful formula, and is as follows:—

No. 1 SOLUTION.		
Hydroquinone .. .. .	..	160 grs.
Sodium sulphite .. .. .	..	2 ozs.
Citric acid .. .. .	..	60 grs.
Potassium bromide .. .. .	..	40 grs.
Water to .. .. .	..	20 ozs.
No. 2 SOLUTION.		
Sodium hydrate .. .. .	..	160 grs.
Water to .. .. .	..	20 ozs.

For black tones take  $\frac{1}{2}$  ounce of each and 1 ounce of water; for brown, add  $1\frac{1}{2}$  grains each of ammonium bromide and ammonium carbonate, and for warmer tones, increase the amount up to 9 or 10 grains of each to the 2 ounces of developer; the full amounts of restrainer will require a very long exposure—about five or six times as much as would be given for a rather cold brown, and will probably take a quarter of an hour to develop. In very cold weather it is advisable to use a little warm water in making up the developing solution, as many developers act very slowly when very cold; pyro is, however, to a large extent an exception. If a slide gains density very slowly in cold weather, it is a useful but unscientific dodge to rest the dish on the top of the dark-room lamp for a minute or two so as to raise the temperature slightly—I have often saved slides

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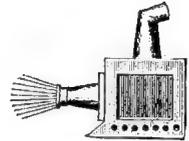
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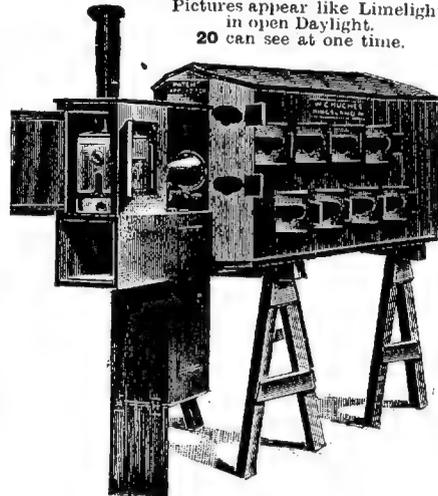
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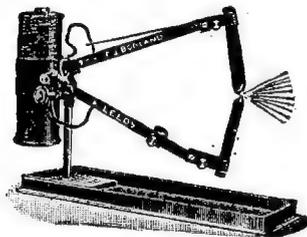
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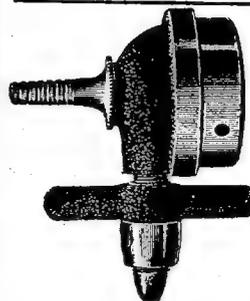
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that way. If you are developing a slide to a brown tone, and through under-exposure it will not come out properly, and only appears as a ghost, pour the developer off, and pour 1½ or 2 ounces of water into the dish, cover it from the light, and leave it to develop in the plain water for a quarter of an hour or so; if you look at it then you will probably find a nearly fully developed slide. The colour will not be quite as good as if finished in the ordinary way, but will be quite presentable, and a plate may often be saved in this manner which would otherwise have been cleaned off for a cover glass.

For fixing, either a plain or an acid hypo bath may be used. I prefer the latter myself, as it is of great assistance in removing any possible slight stain after pyro development. The formula is:

Water .. .. .	20 ozs.
Hypo .. .. .	5 ozs.
Soda sulphite .. .. .	1 oz.

When dissolved, add, while stirring vigorously, 1 dram of sulphuric acid.

(To be continued.)



### Shadowgram or Silhouette Slides for the Optical Lantern.

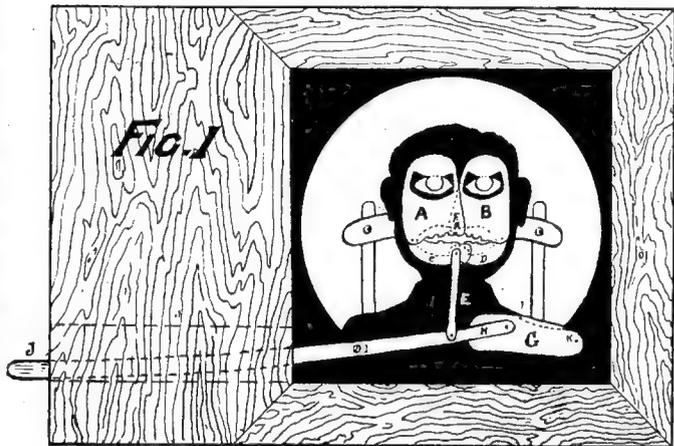
By THEODORE BROWN.

#### NIGGER BOY AT DINNER.—No. VI.

All the slides here described are of new and original construction, working models of each having been made and tested before publication by the author. Manufacturers will therefore find them to be thoroughly practicable, and if they desire to make them for the market they are at liberty to do so, providing a sample is sent to the inventor by way of acknowledgment.

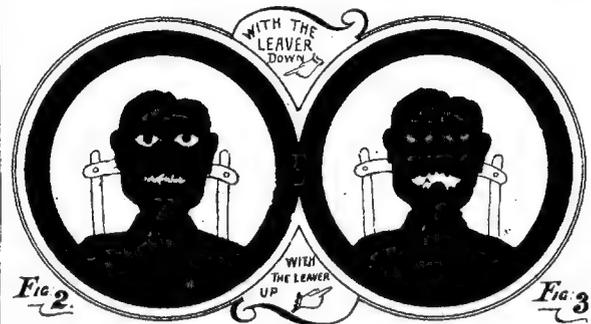
**T**HE object of the present construction is to produce on the lantern screen the effect of a nigger boy eating his dinner. Reference being made to Fig. I., the whole of the model is fitted into the usual wooden framework. The working parts and the base are made of suitable materials such as tinned iron, zinc, or thin brass. The base (indicated on the drawing by the black portion) is first cut out to the shape of the head. Three holes are made in it, one for the mouth and two

others for the eyes, representing the white portion of the eye-balls. The two plates A and B, forming the top jaw and blacks of the eyes,



are pivoted to a second pair of plates C and D, representing the lower jaw. A small slot is made in both A and B at R, at which junction a pin is permanently fixed to the base, working in the slots of A and B, and thus acting as a stay and guide. Except K and I, all the other points at which the fittings are pivoted work independently of the base.

The lever H, working on the fixed pivot at I, is connected with the moving parts of the face



by the rod E, and it is also in communication with G, working on the fixed pivot at K, which part represents the shoulder and gives the apparent movement of the arm as the food is raised to the mouth.

Now, when the lever is pressed down (up when in the lantern) as in Figs. I. and II., the nigger will be looking straight towards the audience, and whilst in this position the operator at the lantern gives a series of

vibrations to the lever at J, thus imparting the action of chewing the food. Then, as the lever is gradually moved in the opposite direction, the eyes will appear to roll over in their sockets and be directed towards the food. The food at A, Fig. III., also shown by the dotted line at the same point in Fig. I., which is really a projecting portion of the base, will come into view as the mouth is opened by this second movement of the lever. The illusion is thus complete, and whilst it is most realistic, is at the same time easy to effect. The mask should be fixed to the glass protecting the model, and upon its inner surface, prior to inserting the working parts, a diagram should be drawn representing the back of a chair, and other objects may also be included if thought desirable.



## A New Photographic Developer.

ADUROL—HAUFF.

Report by Dr. A. Bogisch.

UNDER the name of Adurol, Messrs. J. Hauff & Co. and the Schering Chemical Works are bringing forward a new developer, which, in spite of the increasing number of developers which have been introduced during the last decade, has a great amount of interest, and will find favour even in the most conservative circles.

This new developer is really an old friend whose good and bad qualities are already known, but it is brought out in an improved form as the chloride and bromide substitute of the well known hydroquinone (commonly called quinol).

Both the above firms have simultaneously discovered the great developing powers of adurol, and have resolved to combine in putting same on the market, being well protected by patents.

As regards the special qualities of adurol—same shows the advantages of hydroquinone in a greater degree without possessing its disadvantages. The disadvantages of hydroquinone generally are:—

1. The great amount of alkali required to increase its developing powers.
2. The very slow appearance of the image, and
3. The influence of low temperature which in the winter time practically precludes its use; as the low temperature causes the image to appear slowly, hard development ensues, therefore hydroquinone is known as a "hard developer."

Of course one of the advantages of hydroquinone is the good density which can be obtained with it, and which no other developer exceeds.

As against the above disadvantages, adurol has the following advantages:—

It requires only a very small quantity of alkali; in fact, the potash can almost be replaced by soda, the use of caustic alkali being entirely unnecessary. In spite of the small quantity of alkali the image appears very much more quickly, and, what is most important, a low temperature has practically no influence on the appearance of the image on development.

The most important property of adurol, however, is its power to give density which is not attained by even hydroquinone and caustic alkali. Taking these properties into consideration, adurol is not what one would call a rapid developer like hydroquinone and caustic alkali (with the latter it only shares the power of giving density but not the rapid development), apart from the fact that adurol works free from fog until development is completed (which cannot be said of hydroquinone and caustic alkali).

With adurol the image appears in about 20 seconds (that is, normal rapidity), and builds up gradually. After about four minutes the necessary density in the high lights as well as in the details is obtained. The density does not therefore cover the high lights alone, but as development proceeds the details become dense in an equal manner, so that a harmonious graduated, and we may say more soft rather than hard negative is the result.

It is therefore clear that when using adurol the time of exposure as against hydroquinone can be reduced; in other words, even when exposures are made in very dull weather, in the studio, when snapshots are taken, or when taking animated or X ray photographs, adurol will answer for development where hydroquinone is absolutely useless. Nevertheless, hard negatives can be obtained with adurol when required by a judicious mixing of "used solutions," and by the addition of bromide, or where over-exposure has taken place development can be easily regulated.

Bromide solution with adurol has a very effective retarding influence, although perhaps unusually large quantities may be necessary, as compared with hydroquinone. That is, however, no fault; in fact, we might say an advantage, because by the addition of bromide the used developer retains its developing properties much longer and can be used oftener than is the case with hydroquinone. When experiments are made in this direction it is astonishing what amount of work can be done with adurol. The solutions have extremely good keeping qualities, not only in the separate, but also in the mixed state. (An adurol solution made on the 17th June, 1898, is to-day absolutely clear and possesses full developing powers.)

The adurol manufactured by Messrs. Hauff is the chloride substitute, that of the Schering Chemical Works is the bromide substitute, of hydroquinone, but both are identical in their action.

The chloride substitute of hydroquinone is a white crystalline powder which is much more soluble in water than hydroquinone.

The following is a formula which has been thoroughly tested, and can be recommended:—

### 1. ADUROL-POTASH DEVELOPER.

A.			
Adurol .. ..	25	grammes or	80 grains.
Sulphite of sodium, crystals .. ..	200	" "	640 "
Water .. ..	1,500	ccm. "	10 oz.

B.			
Potash carb. .. ..	100	grammes or	1 oz.
Bromide of potas- sium .. ..	2½	" "	12 grains.
Water .. ..	1,000	ccm. "	10 oz.

### 2. ADUROL-SODA DEVELOPER.

A.			
Adurol .. ..	25	grammes or	80 grains.
Sulphite of sodium, crystals .. ..	200	" "	640 "
Water .. ..	1,500	ccm. "	10 oz.

	B.	
Soda carb., crystals	350 grammes or	3½ oz.
Bromide of potassium .. ..	2½ " " "	12 grains.
Water .. ..	1,000 ccm. "	10 oz.

With clear working negatives the bromide of potassium may be left out.

For studio exposures take three parts A, two parts B.

For landscapes and snapshots take three parts A, two parts B, two parts water.

To make a concentrated single solution developer the following formula is recommended:—

Adurol .. ..	25 grammes or	80 grains.
Sulphite of sodium, crystals .. ..	200 " " "	640 "
Potash carb. .. ..	100 " " "	320 "
Bromide of potassium .. ..	2½ " " "	12 "
Water .. ..	300 ccm. "	2 oz. "

For studio work take one part developer and five parts of water.

For landscapes and snapshots take one part developer and seven and a half parts water.

The image appears, normally, in 20 seconds, and is completely developed in four to five minutes.

For under-exposure dilute the developer still further.

For over-exposure take a solution that has already been in use, or add to the fresh developer more bromide of potassium. If still greater density is required, same is obtained by the addition of more potash solution.

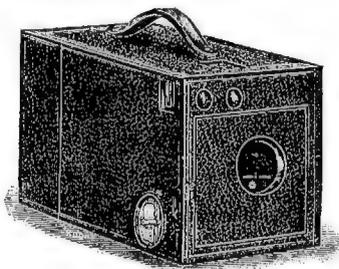
For developing bromide paper take three parts of A, two parts of B, five parts of water; or one part concentrated developer and twelve parts water.

For developing this paper bromide of potassium may be dispensed with altogether.



“ZENITH” CAMERAS.

The latest production from the works of Kodak, Limited, is a box style of hand camera termed the “Zenith.” This, the makers inform us, is



made in two sizes, viz., ¼-plate and 5 by 4, either size being capable of taking glass plates or daylight changing cartridge film. The

sizes of the cameras are respectively 4½ by 5½ by 9½ and 5½ by 6½ by 11 inches, and the weight 30 and 33 ounces. The lenses, which are said to give excellent definition, are fitted with three stops and an ever-set shutter, which is also provided with an adjunct for time exposures. So simple is the substituting of glass plates for films or *vice versa*, that alternate pictures can if desired be taken with each with little loss of time. The “Zenith” cameras have an adjusted scale for focusing; also two finders for vertical or horizontal work.



The following List, relating to current Patent Applications, is compiled expressly for the “Optical Magic Lantern Journal” by W. P. Thompson & Co., Patent Agents, of 322, High Holborn, London, W.C., to whom all enquiries for further information should be addressed.

No.	RECENT PATENT APPLICATIONS.
10290.	16th May, 1899. James Harvey Hill. Improvements in tubular lanterns. Complete.
10562.	19th May, 1899. John Francis Wood and James Malin. Improvements in and in the manufacture of vehicle, hand, and other lamps and lanterns.
10742.	23rd May, 1899. Joseph Henry Jackson and Harry Raymond Nathan. An improved receptacle or box for preserving cinematograph films.
11059.	27th May, 1899. Alexander James Jones and Levi Jones & Co., Ltd. Improvements in cinematographs.
11284.	30th May, 1899. Dixon Henry Davies and John Tourtel. Improvements in apparatus used in connection with microscopes and the like.
11356.	31st May, 1899. Edmund Tryon Craige. Improvements in coin-controlled photoscopes.
11360.	31st May, 1899. Charles Faure and Maurice Dufossé. Improvements in coin-freed apparatus for exhibiting transparent photographic views and the like. Complete.
11550.	2nd June, 1899. William Philips Thompson. Improvements in cinematographs and in the production of photographs therefor. (Gregoire Bagrachow, France.)
11556.	2nd June, 1899. Hans Schmidt, of the Photo. Optical Company. Improvements in prisms for optical purposes.
11559.	2nd June, 1899. Carl Paul Goetz. Improvements in telescope objectives. Complete.
11567.	2nd June, 1899. George John Cuddon. Improvements in panoramas.
11960.	8th June, 1899. Cornelis Verwer. Improvements in acetylene lamps.
11997.	9th June, 1899. Robert W. Paul. Improvements in animated photography.

12036. 9th June, 1899. Richard Bayer (Alfred Schoeller, Germany). Improvements in animated picture machines and the like.  
 12079. 9th June, 1899. George Haydon. Coin-freed apparatus for the exhibition of cinematographic pictures and other objects.

## SPECIFICATIONS PUBLISHED.

Copies of the following specifications may be obtained by remitting 1/- for each specification to W. P. Thompson & Co., Patent Agents, 322, High Holborn, London, W.C.

- 12415 of 1898. Wolff. Kinetoscopes.  
 3439 of 1899. Davies and Still. Lamps or lanterns.  
 13162 of 1898. Wray and Oulton. Film operating mechanism of apparatus for taking, printing, and exhibiting series of photographs.  
 6793 of 1899. Dickson. Moving pictures or consecutive view apparatus.  
 8245 of 1899. Barr. Apparatus for taking and displaying photographs of moving objects.  
 12939 of 1898. Acres. Cinematographic apparatus.  
 17287 of 1898. Street. Apparatus for use in taking and exhibiting cinematographic photographic views. (Date applied for under International Convention, February 5th, 1898.)

—:O:—

## THE NATIONAL PHOTOGRAPHIC AND ALLIED TRADES EXHIBITION, 1900.

To Mr. J. Hay Taylor, Editor.

DEAR SIR,—Will you kindly permit me to announce through the columns of your valuable journal that the Second Trades Exhibition of Photographic and Scientific Apparatus and Sundries will be held early next year. The Portman Rooms, Baker Street, London, W., have again been secured, and the exhibition opens on Friday, April 27th, and closes Saturday, May 5th. Arrangements have been made for increased space, and some 30 or more stalls, in addition to the spaces occupied last year, will be available for exhibits. The entertainments, lectures, and musical arrangements, which proved so attractive on the last occasion, will be repeated, and special attention is being given to this department in order to make the exhibition, if possible, even more attractive to the outside public. The magnificent suite of rooms are specially adapted to a display of technical apparatus, and the Portman Rooms are easily accessible from all points of the metropolis. Any suggestions from your readers will be much appreciated, and, if practicable, will probably be adopted.

Most of the firms who exhibited last year have already intimated their intention to again take space, and several other firms have also expressed a desire to be represented. The prospectuses and application forms for space will be issued very shortly, and spaces will be allotted strictly in rotation as applications are received, the only exception being that former exhibitors will have first refusal of the spaces previously occupied by them.

I trust that an early announcement of these dates will prevent clashing with any other exhibitions, and that exhibitors will thus be free from the inconvenience of having two displays to attend to at the same time. It is of the utmost importance that intending exhibitors should reply to the prospectus immediately upon receipt of same, in order to avoid disappointment.

I am, dear Sir,

Yours faithfully,

ARTHUR C. BROOKES,

Secretary.

15, Harp Alley,  
 Farringdon Street, London, E.C.



## Notes and Queries.

Robert Burgess.—Negatives have been returned, a print from each would have been sufficient; 2 is much under-exposed, the others about right. You will find illustrations of over and under-exposure in a handbook just issued by the Imperial Plate Company.

Condenser.—We think you are mistaken about the party to whom you allude holding the patent for triple condensers; his patent is only for the particular catch for holding the mounts together to which the lenses are attached. This you will see is a very different matter to that which you suggested.

P. R.—A small oil lamp (not gas) must be placed over the door of each exit, and kept burning throughout the lantern entertainment; so that in case of accident, and the gas or electric supply is cut off, the exits can be quickly distinguished.

Beginner.—You have got matters a little mixed up. What do you want a purifier for when using oxygen from a cylinder? This is only required at the time of making oxygen, and storing it, say, in a bag. The gas bubbles up through water containing some carbonate of soda, which frees it from chlorine.

R. J. H. writes:—I have a cylinder to hold oxygen compressed gas; the last time I used it was March 1st, and I shall not use it again until the latter end of September. I estimate that I have about 8 feet of gas left in the cylinder, but if oxygen deteriorates in the same manner as hydrogen does when kept in cylinder, I would prefer to allow the gas to escape and get cylinder refilled just before using. Will you kindly advise me as to your opinion as to what I should do? *Ans.*—Oxygen will keep good for practically any length of time, and does not deteriorate in the same manner as hydrogen, but after standing for so many months you had better try the quantity by means of a gauge, as a very slight leak at the valve may tell seriously on the gas supposed to be left in the cylinder; this precaution may save you great annoyance when next using the cylinder.

Howard Stubbs.—Sorry your article could not be got into this issue, but it will appear in next. At your leisure we shall be glad to get the article spoken of on the colouring of slides.

Colour Photography.—Although it is true that experiments are being made in the direction you speak of, the process is at present far from perfect. The light in reaching the negative passes through a screen containing coloured glasses, which is rapidly rotated. A transparency is then taken from the negative and projected on the screen by means of a lantern, a disc of the same nature as that used when taking the negative being fitted at the lens and rapidly rotated. In this manner a certain amount of colour is imparted to certain parts of the picture. Much depends upon the proportionate duration of the respective colours in passing in front of the plate, both during the exposure of the negative and the projection of the transparency. We understand that Mr. Friese-Green is at work on this process, but up to the present nothing of great exactitude has been obtained.

T. Perkins.—Your very interesting article on "Book Illustration by Photography" will appear in next issue.

Rev. W. H. Young (Georgia, U.S.A.).—Thanks for communication.

# COOKE LENSES FOR HAND CAMERAS

Series III, aperture f/6.5.

Series V, aperture f/8.

COOKE EXTENSION LENSES, for varying the lens focus.  
NEW FOCUSING MOUNT, containing the means of focussing.

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MR. J. C. STEVENS begs to announce that he holds Sales of the above, every Friday, at half-past twelve precisely, at his great Rooms, 88, King Street, Covent Garden, London.

Gentlemen wishing to include property in these Sales are requested to send particulars one week prior to sale.

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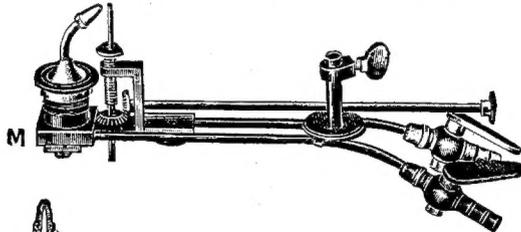
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# THE "INJECTOR" MIXED JET.

Patents 10,554 and 24,761/93.

PRICE 30s.



This is the only Mixed Gas Jet which will work at full power with coal gas taken direct from the town supply, and oxygen from a cylinder. In order to effect this the oxygen, on its way to the mixing chamber, is made to pass through the small Injector I in the sketch at a pressure of about 12 lbs. per square inch. In passing through the Injector it sucks a supply of coal gas from the pipe H, which is connected with the house pipe, and forces it forward through the short pipe T into the mixing chamber M. Here the mixed gases meet the baffle plate B, which has the two-fold effect of silencing the passage of the gases, and ensuring their complete admixture. The

mixed gases then pass through holes in the edge of the plate, and so to the burner. The requisite pressure of oxygen is obtained in the ordinary way by a fine tap on the cylinder, or an automatic regulator fitted with a high-pressure spring to deliver at about 15 lbs. pressure.

Four seasons' experience has fully established the superiority of this Jet over all others. It will yield **THE FULL 1,800 TO 2,000 CANDLE-POWER** (so-called) of the ordinary mixed jet when taking its supply of coal gas direct from the town's pipe, or even from a bag *without any pressure at all*. If a town's supply is not available, it will work just as well with coal gas from a cylinder. We cannot see why ordinary mixed jets should be purchased which cannot offer these alternatives. As for blow-through jets, we do not know why

they should be used at all, when with the same economy and convenience of working, the Injector Jet will give two or three times the light. By removing the Injector nipple the jet becomes an ordinary mixed jet. This can be done whenever it is desired to work with oxygen at low pressure, and coal gas from a cylinder.

The working of the Jet is simpler than that of an ordinary jet. When the H tap is once adjusted, it does not need to be touched again when using town's gas. The turning off or on of the oxygen supply regulates automatically the supply of coal gas. This is a great convenience in actual use.

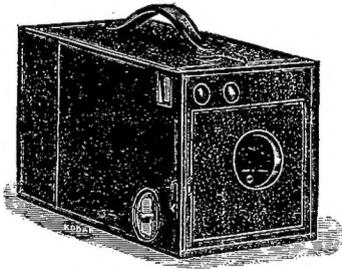
Most existing jets can be fitted with an Injector to enable them to take their coal gas supply from the house pipe.

The Jet will in certain cases be sent on approval on deposit of purchase price. Further particulars free on application to

**MANCHESTER OXYGEN (Brin's Patent) CO., LTD.,**  
Great Marlborough Street, Manchester.

## EASTMAN'S NEW CAMERA.

# ZENITH



The Zenith Camera is available for use with glass plates in handy plate-holders. Also perfectly adapted for use with daylight changing film in an Eastman Cartridge Roll Holder. The latter is slipped into and removed from the Zenith as easily as a plate-holder, with which it may be alternated at pleasure. This arrangement permits of focussing upon the ground glass screen for each separate exposure, whether upon film or a glass plate. The Zenith has a fine lens with three stops and everset shutter, an accurately adjusted focussing scale, etc.

**QUARTER=PLATE = only 30s.**

(INCLUDING DOUBLE PLATE-HOLDER.)

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