'Sanger-Shepherd & Co Ltd'

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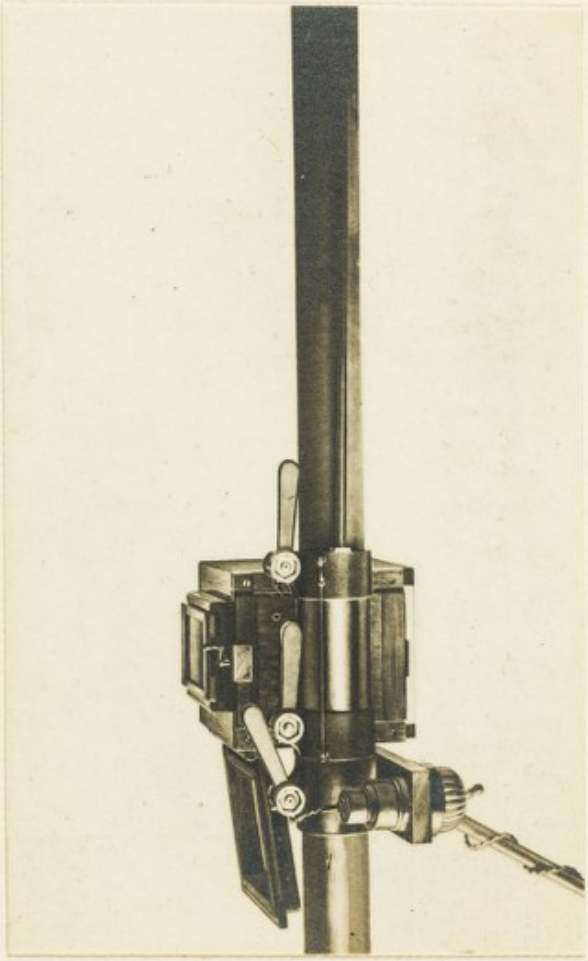
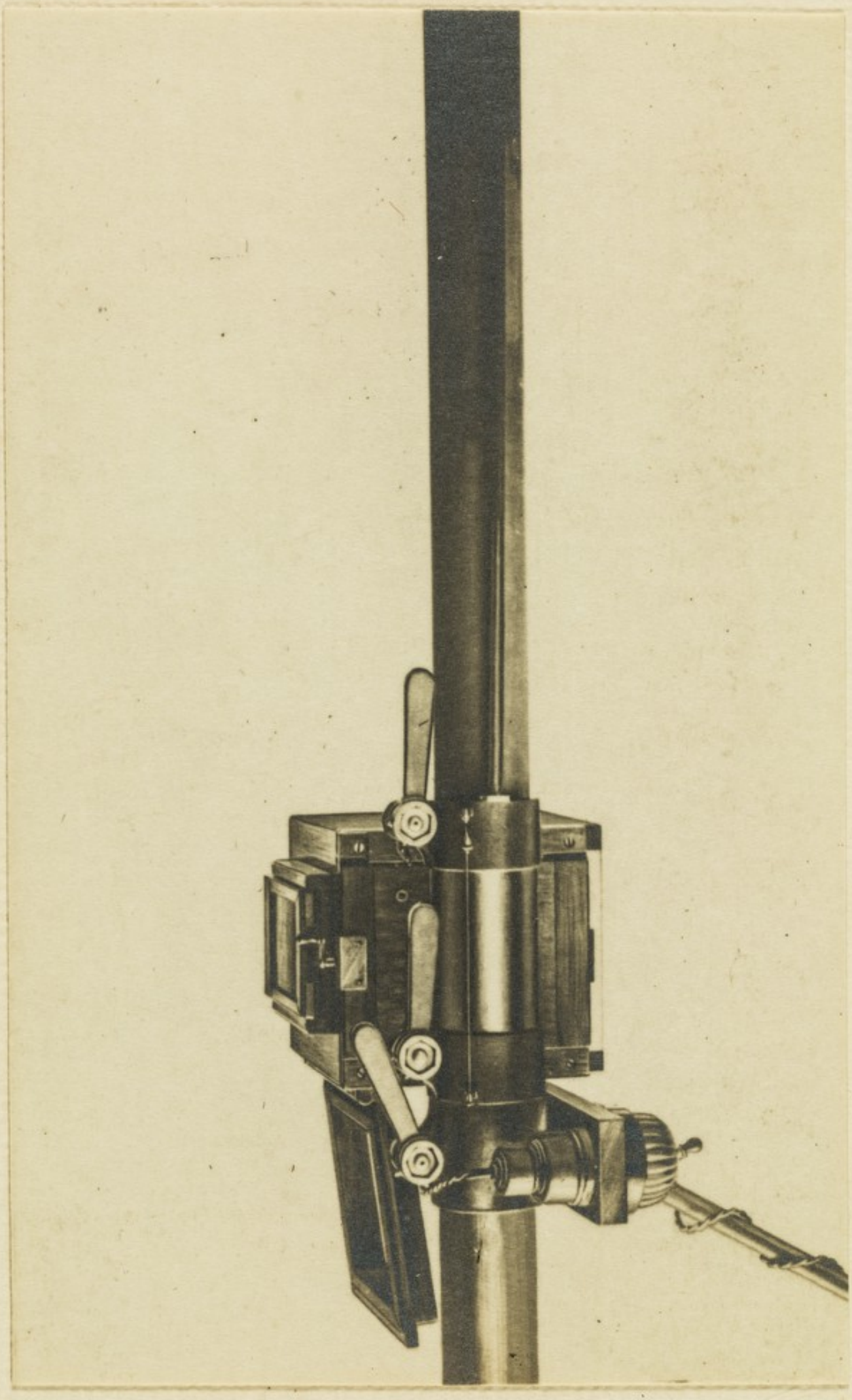
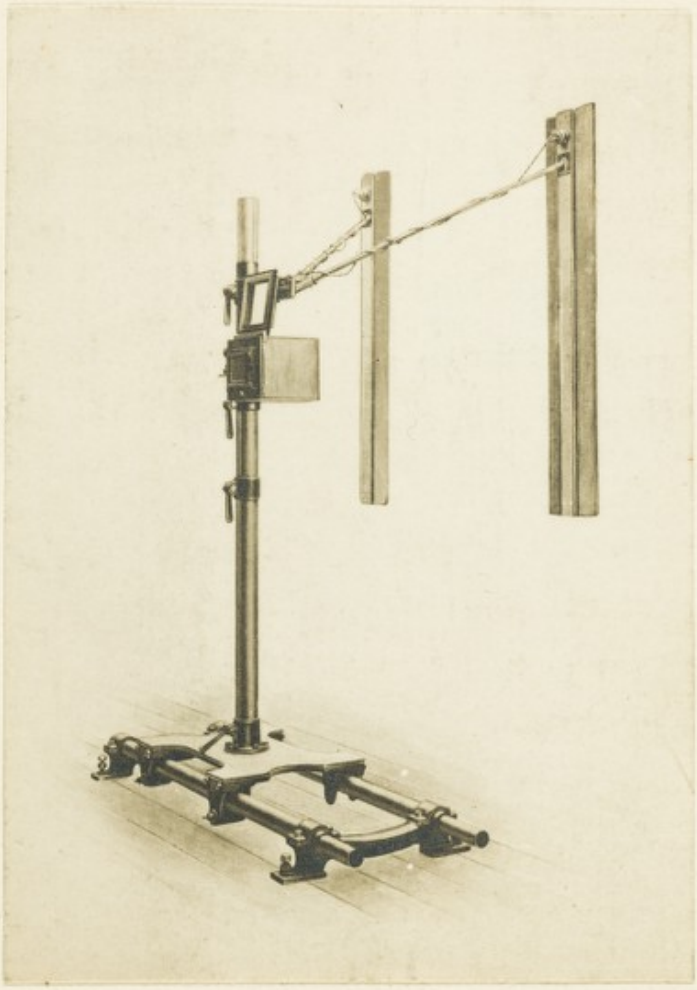
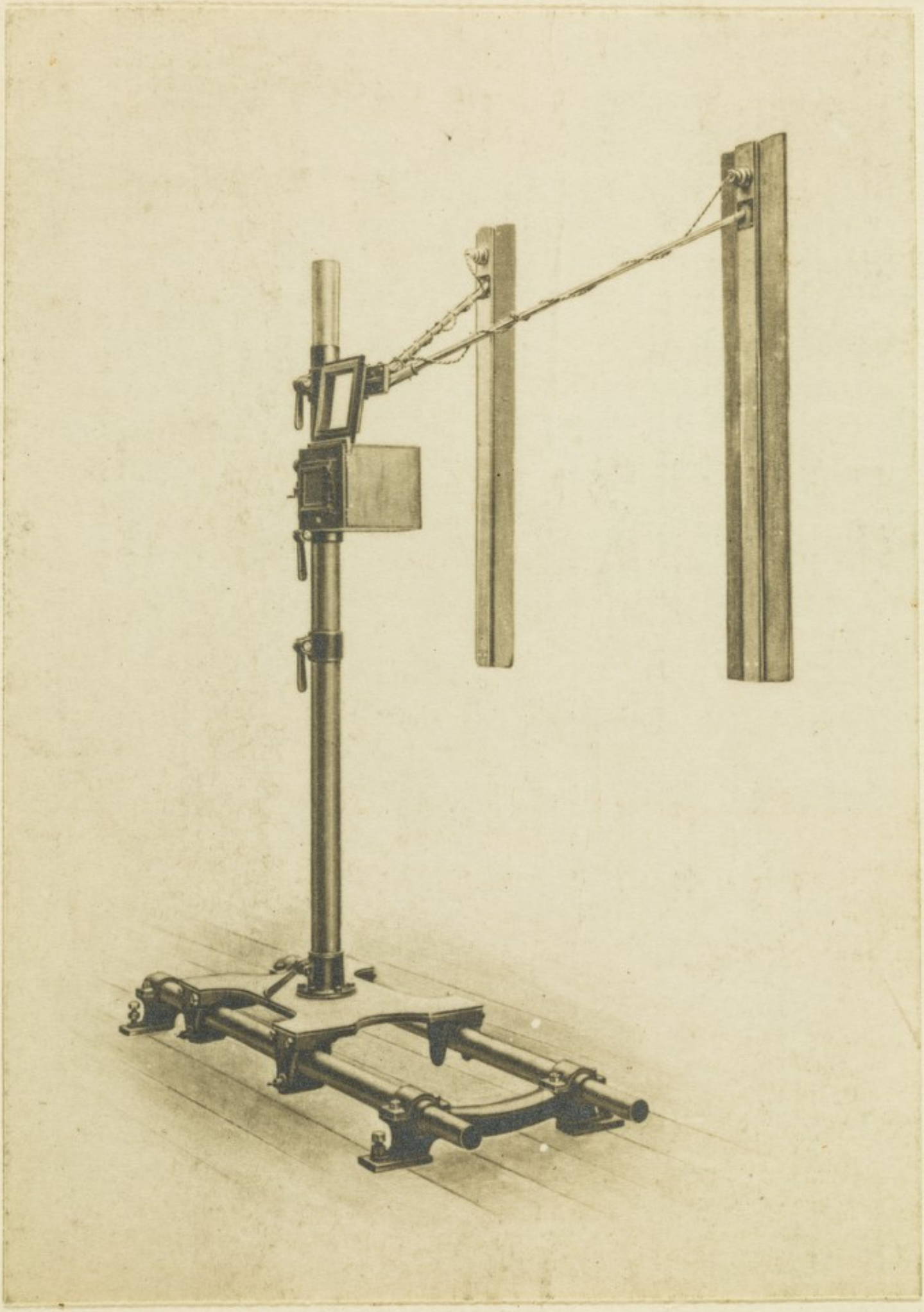
SANGER-SHEPHERD & CO., LTD.

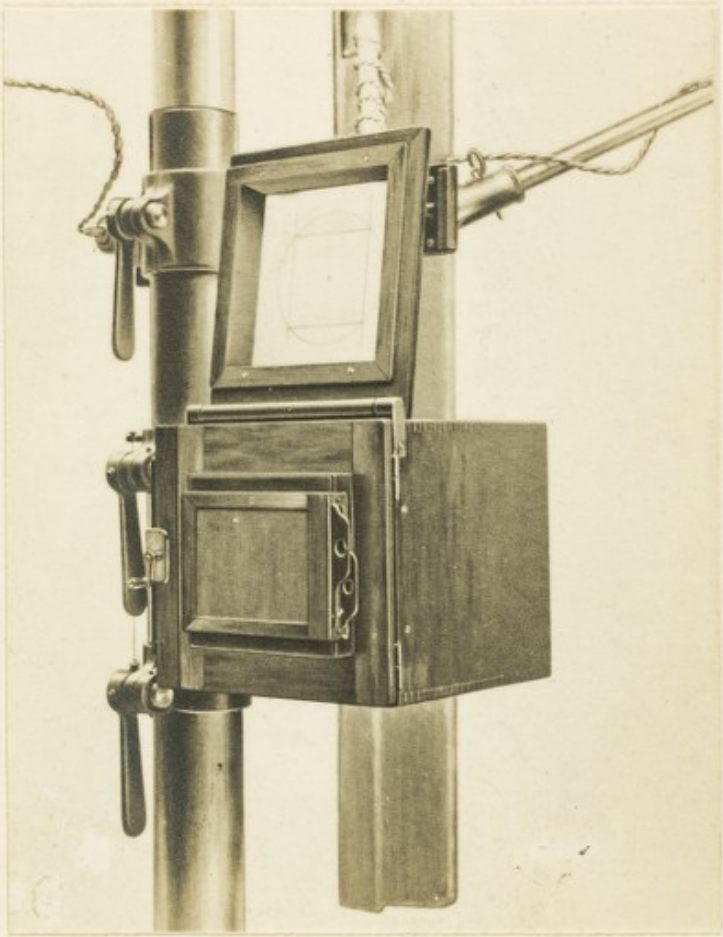
1914

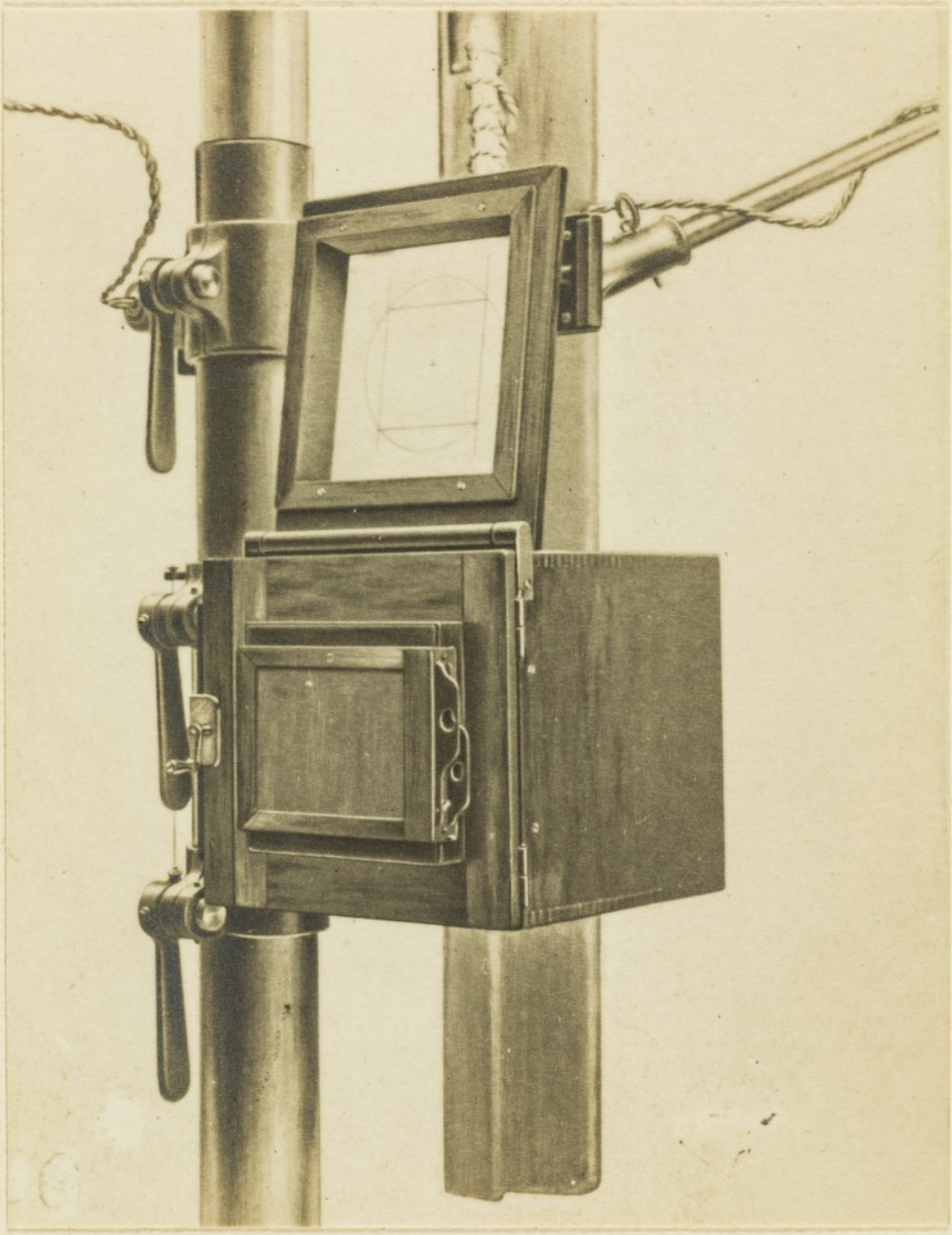


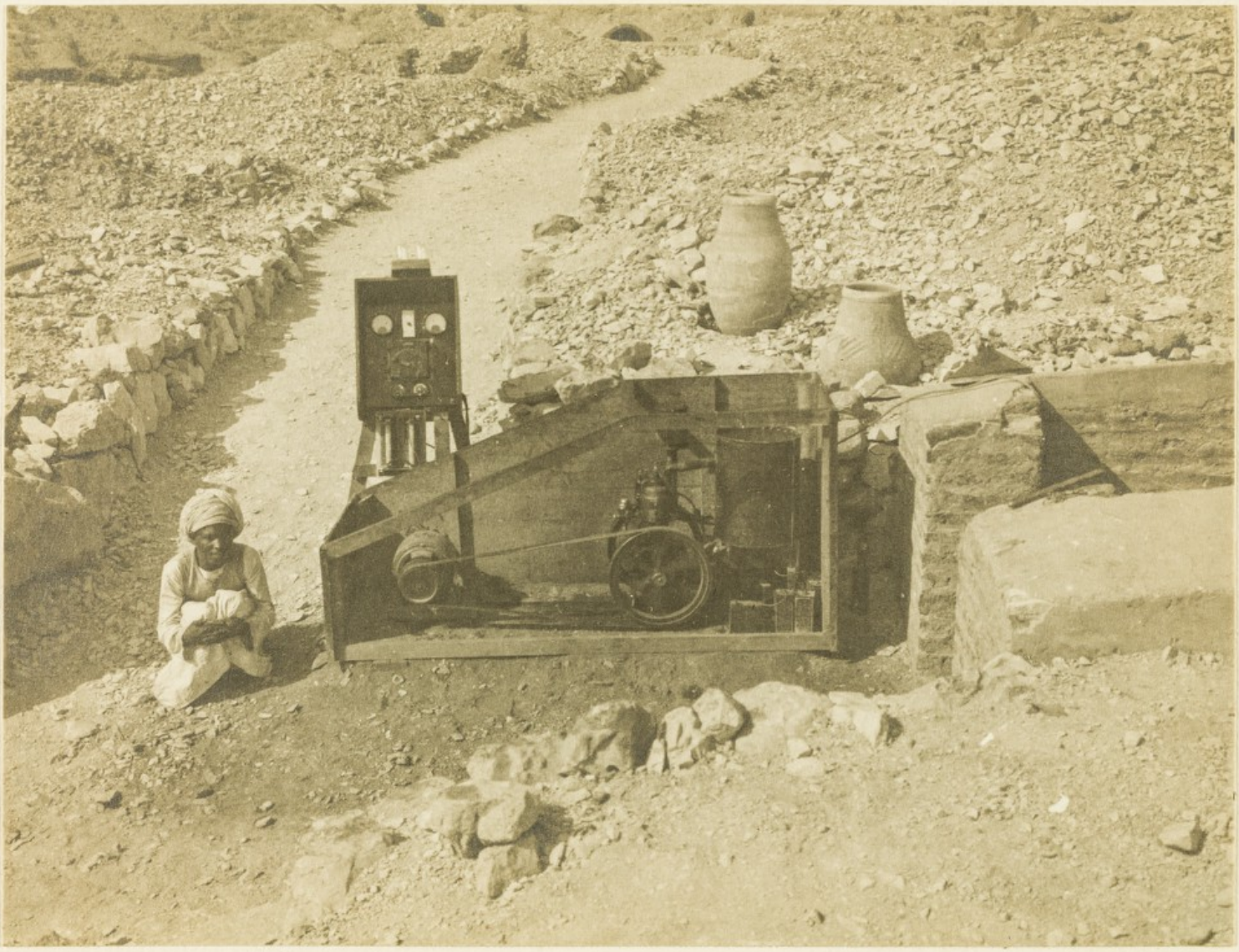












TELEGRAMS "SENTIDO" LONDON. TELEPHONE Nº 8722 CENTRAL.

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MANUFACTURERS OF
SCIENTIFIC APPARATUS,
LIGHT FILTERS, CAMERAS,
and every requirement for the
PHOTOGRAPHY OF COLOUR.

September 28th 1914.

C.J.S. Thompson, Esq.,
The Wellcome Historical Medical Museum,
54a, Wigmore Street, W.

Dear Sir,

I am in receipt of your note with reference to Mr. Robert Mond's Optical Bench Photographic Camera, and shall be pleased to see you at any time, to discuss the matter, either here or at your office on receipt of an appointment,

I am, Dear Sir,

Yours faithfully,
FOR SANGER-SHEPHERD & Co LTD
E Sanger-Shepherd

MANAGING DIRECTOR

TELEGRAMS "SENTIDO" LONDON. TELEPHONE Nº 8722 CENTRAL.

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MANUFACTURERS OF
SCIENTIFIC APPARATUS, LIGHT FILTERS, CAMERAS, and every requirement for the PHOTOGRAPHY OF COLOUR.

September 24th 1914.

C.J.S. Thompson, Esq.,
The Wellcome Historical Medical Museum,
54a, Wigmore Street, W.

Dear Sir,

I have received from Mr. Robert Mond a copy of your letter of the 18th inst, and he has asked me to forward to you particulars of his Optical Bench Photographic Camera for photographing tomb walls in confined situations, and the portable electric lighting equipment for use with the same.

I am sending you a copy of Mr. Mond's description of the apparatus, and also some photographs showing the engine and dynamo in use; Optical Bench in use, and three photographs of the separate parts of same.

We worked out the whole of this equipment to Mr. Mond's instructions, and we have his permission to supply you with a duplicate of any part, or the whole of the equipment. If same would be of value to you in your work in Egypt we should be pleased to discuss the matter, and give you quotations for same. As we have been in correspondence

with the staff using this apparatus we are well acquainted with the little difficulties likely to arise in a new method of working, and we have lately had the opportunity of going through the whole of the equipment with the operator so as to bring the model up to date.

This apparatus is, we believe, the only one which will ensure a satisfactory photograph of a large wall where there is insufficient distance to get back far enough to take in the whole of the picture.

The lenses used are narrow angle, and therefore give very perfect drawing and entire freedom from the distortion inevitable with the use of wide angle lenses.

We are, Dear Sir,

Yours faithfully,

FOR SANGER-SHEPHERD & Co LTD

E Sanger Shepherd

MANAGING DIRECTOR

A NEW METHOD OF PHOTOGRAPHING THE INTERIORS OF PAINTED TOMBS IN EGYPT.

During the past few years whilst engaged in excavating and conserving the tombs of the nobles in the Necropolis of Thebes, I have constantly wanted to photograph a complete wall of a tomb so as to have a permanent copy beside me in order to work up my results. Owing to the extreme narrowness of most of the tombs I have found it impossible even with the most extreme wide angle lens to photograph a wall except in sections. The disadvantage for working purposes of a series of photographs comprising one scene or wall will be apparent to all, especially when it is bourne in mind that despite the utmost care given to taking these photographs I have found it to be with an ordinary stand, quite impossible to obtain sufficient accuracy to enable the finished prints to be joined together to make a presentable picture. The slightest skew in the camera or measurement of distance in taking the various parts of the whole was quite sufficient to throw my various sections $\frac{1}{8}$ of an inch out or more, with the result that practically none of my pictures would join together.

With the help of Mr. Sanger Shepherd I have now devised a piece of apparatus which has entirely solved my difficulty, and after three months of work has enabled me to obtain a series of pictures each one comprising the whole side of a tomb.

The apparatus is an extremely simple one, and consists of a small iron carriage fitted with four gun-metal rollers, running on two steel tubular rails. In the middle of the table is fixed a gun metal clamp taking the end of a tubular mast up and down, which slides a box camera fitted with a lens of suitable focus. The camera is carried by a bracket on a collar adapted to slide up and down the mast and provided with a clamping screw for fixing at any elevation.

The rails upon which the carriage runs are made in various lengths, some of which are fitted with sleeves and so can be jointed together to effect a range of length from three feet to twenty four feet, in accordance with the length of the wall to be photographed.

Similarly I can lengthen or shrten my mast, up and down which the camera slides, according to the height of the tomb.

The two rails rest at their extreme ends upon

two iron chairs fitted with levelling screws to ensure that the mast is absolutely vertical. A mercury plumb-bob is fixed to the sliding sleeve carrying the camera to obtain the desired accuracy.

As the interior of most of the tombs in the Necropolis are too dark to be photographed except with the aid of artificial light, the camera is provided with twelve incan-descent electric lights, placed in two groups of six lamps upon panels hanging vertically down each side of the camera, and so arranged that they slide up and down with the camera. These panels have hinged sides which besides protecting the lamps from possible breakage, also provide that no light shall reach the lens except that reflected from the portion of the wall being photographed.

The electric current is supplied by a 50 volt dynamo, belt, driven by a 2½ H.P. single cylinder 2 cycle engine, the fuel employed being paraffin. This engine and dynamo is placed outside the tomb and connected with the lamps by means of a small cable. A small native boy aged 15 years has sole charge of this engine and dynamo, with its accompanying switch-board, and up to the present has managed them with the greatest success. The only aid he required is a man to start the engine for him, the compression being a little heavy.

The transport of the engine and dynamo from tomb to tomb is a very simple matter, as six to eight men can easily carry it on their shoulders to the place required without much effort and at a neglible cost.

The method of working the apparatus is as follows:- The two rails are laid parallel to the wall to be photographed and clamped down at their ends upon the chairs. The carriage is then placed upon the two rails and the vertical mast placed in position in its middle and clamped. The camera is then fixed to the top of the mast almost touching the ceiling of the tomb. The rails are then levelled with the aid of the levelling screws in the chairs that support them, until the mast is quite vertical at both ends of the rails.

A series of plates is then exposed, beginning at one end of the tomb, the carriage being gently pushed along for every section of the wall to be photographed.

When the upper portion of the wall has been finished the camera is slipped down to the middle of the mast, and the whole length of the middle of the wall is then done, and so on until the whole of the wall has been photographed in sections. I invariably use the smallest stop of my lens (f.64) so as to get a fairly long exposure

in case the two boys who use the apparatus should make a mistake in their time, thus causing possible variation in the density of the negatives.

All this sounds rather a lengthy proceeding, but it is wonderful how quickly the boys can work with this machine, it taking about a day and a half to photograph 192 square feet of wall.

The size of the plate employed is ¼-plate, as being the most convenient size for handling by native boys. The plates are developed with Rodinal in batches, each batch consisting of the plates taken of the whole of one wall so as to ensure all of the plates being of the same density. It is needless to remark that tank development is employed, the period of development being from 15 to20 minutes according to the temperature. I can safely leave my two boys to do all this work themselves, as it has been made as mechanical as possible.

When the negatives are dry they are brought to me for inspection and I then pack them up for postage to England. Mr. Sanger-Shepherd, to whom they are sent, prepares bromide prints from each negative, and when these are finished they are fitted together and stuck down upon a large piece of cardboard. In the early part of the work, each print (which has about a quarter of an inch overlap all round) was cut down and then laid edge to

edge in order to form a continuous picture. By experiment, however, a quicker way was found of piecing together the scenes, and the edges are now allowed to overlap. The completed picture, which is exactly one-tenth of the size of the original wall, is then placed in a suitable light and photographed down to a convenient size, generally 15 x 12 ins. If this copying is carefully done no trace of the joins between the various sections is to be seen, and we have as a result, a large negative containing the scenes and inscriptions upon the whole of one wall.

As the results of the six tombs already photographed have been so successful, I have made arrangements to photograph all the tombs in the Necropolis of Thebes, of which there are over 250 open to the public, and probably the same number still undiscovered and under ground. It is also my intention to store the finished negatives in some safe place, so that scholars can always procure at a purely nominal sum, copies of any particular wall of a tomb that they require.

Most of the painted tombs in the cemetery are roughly cut in very indifferent limestone, the face of the rock being plastered over with a smooth coating of mud and straw. This coating is then covered with a lime-

wash in order to make a white background for the pictorial scenes. Unfortunately, owing to the nature of the mud coating, a tomb can be easily destroyed by natives cutting pieces out for sale to tourists, or to get into trouble the guardian of the tomb. It is therefore highly necessary to obtain as quickly as possible, permanent records of these tombs, so that our descendants, if they are not able to inspect the tombs for themselves, will have at least faithful copies of the tombs as they stand at present.

Owing to the high temperature of the Egyptian summer (frequently 120F in the shade) I had to devise also a special darkroom for developing my negatives. My room measures about 12 by 8 feet inside, and has walls over three and a half feet thick. These walls have a hollow centre or compartment, which is tightly packed with the leaves of sugar cane so as to render them as insulating as possible. On the north side of the room, just above the level of the floor are four channels, protected at their mouths with wire meshing to prevent the entry into the room of snakes and scorpions &c. These communicate with a chamber built against the North side of the dark room. On the rop of this chamber, which

is made and roofed with red brick, are four large holes into which fit four unglazed earthenware vessels, each being about four feet high. These vessels are filled with water, which slowly percolates to the outside and due to rapid evaporation in the dry air, makes the water inside the vessels to be of much lower temperature than the surrounding air.

Owing to the porous natures of the jars the water inside gradually drips into the base of the chamber, which is water-tight. The presence, therefore, of a few inches of cold water in the bottom of the chamber renders the air above it also extremely cold, and it is only this cold air which is allowed to enter the dark room by means of the four channels already mentioned.

In order that the circulation of this cold air should be good, I have had a chimney about 20 feet high fitted to the double roof of the dark room, the upper part of which is made of iron sheeting. When the sun makes this sheeting hot it creates a big draught in the chimney and therefore pulls plenty of cool air into the room.

It is possible to develop plates in the middle of summer at mid-day without the use of alum or formalin which, as many have found to their cost, is a very difficult thing to do on a hot day in England.