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COMPLETE SPECIFICATION.

Improvements in Apparatus for Aerial Photography.

I, JOHN SAMUEL PARKER, Merchant, of 126—129, Holborn, in the City of London, do hereby declare the nature of this invention and in what manner the same is, to be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention relates to improvements in apparatus for aerial photography and has principally for its object to provide a more advantageous mode of suspending the camera or photographic apparatus from the cord or wire which holds captive the kite, aeroplane, or other aerial apparatus. The application of these improvements is more particularly beneficial in the case of kites, which
10 latter are most conveniently of the collapsible box type.

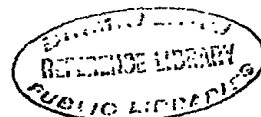
In suspending a camera from a kite, there are at least two known methods. According to the first method, a bracket is fixed on the cord or wire as by lashing or clamping, and a camera is supported on a horizontally extending arm thereof, which arm may be hinged so as to be adjusted to a certain angle before
15 flight. According to the second method, the camera is suspended from the flying cord or wire, by means of a flexible connection such as a short length of cord. Such flexible connections however allow of the camera partaking of an up and down vertical movement in relation to the flying cord.

According to the present invention, the camera is also suspended from the
20 kite flying cord but in a manner improved to that heretofore used, being suspended by means of a freely pivoted rod which, whilst always supporting the camera vertically, ensures against any up and down vertical motion thereof.

A swinging rod pivotally connected to a horizontally extending link, one end whereof is slidably attached to the flying cord of a kite whilst the other end
25 is supported by a cord from a balloon or parachute, has been heretofore used in suspending toys, fireworks, messages and the like. In a modification of this device, the pivoted rod is provided with supporting struts adapted to hold the rod steady and allow the use of a photographic camera or the like. As the supporting struts however are attached to the flying cord of the kite, the angle
30 at which the camera is suspended is determined by the angle of the flying cord of the kite.

Under the present invention, only one kite or flying device is used, and the pivoted rod is attached at its upper end to a device secured directly to the flying
35 cord thereof. The rod is furnished at its lower end with any suitable and well-known fitting such as a bail yoke, or stirrup in which the camera is supported by trunnions or the like. The camera is most advantageously supported upon one flight of an endless cord or wire forming part of the kite-flying cord or wire, the upper pulley for the endless cord being attached to the kite cord and the lower pulley being fitted with one member of a swivel the other member
40 of which has connected to it the lower portion of the kite cord. This endless

[Price 8d.]



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cord arrangement enables the kite to be flown to a satisfactory height after which the camera can be elevated by causing the endless cord to travel upon its pulleys. The swivel connection prevents the endless cord from becoming twisted.

In order to enable the invention to be readily understood reference is made to the accompanying drawings in which:—

Figure 1 is a general view of these improvements as used during the flight of a kite and

Figure 2 is an elevation of the suspensory fitting for supporting the camera.

Referring to Figure 1, *a* is the kite and *b c* are the lower and upper portions respectively of the kite cord. *d* is the endless cord, running around pulleys *e f*, from the lower flight of which the camera *g* is suspended. The suspensory device comprises the rod *h* which is jointed with an arm or bracket *j* carried by a suitable support, such as a split tubular portion *k*, which latter is fastened on the cord or wire by clamping bands *l*. A bail or arched piece *m* is secured to the lower end of the rod *h* being suitably clamped between a wing nut *n* and shoulder *o* on the rod *h* so that the bail *m* may be adjusted to any desired angular position in relation to the clamp *k*. Suitable devices or trunnions *p* are provided near to the extremities of the bail and are adapted in known manner for the purpose of enabling the camera to be fastened in the bail at any desired angle of tilt.

The upper pulley *e* is connected with the upper portion *c* of the kite cord with a non-swivelling connection, but the lower pulley *f* is connected with the lower portion *b* of the cord by a swivel *q* which is diagrammatically indicated in Figure 1.

The lower flight of the endless cord *f* is provided with a suitable stop *r* so that overwinding of the cord *d*, which would result in the camera suspending arrangement fouling the upper pulley *e*, cannot take place.

When the kite is flying satisfactorily, the camera is adjusted in the bail *m* to a suitable angle of tilt and the bail *m* is adjusted upon the rod *h* so as to give the required direction. The cord *d* is now caused to travel about its pulleys *e f* in the direction for elevating the camera *g* and the latter is suitably operated for the exposure of a sensitized plate or film when it has been adjusted to the desired elevation.

Not only does the endless cord arrangement afford great facility in operating and adjusting the camera but in a high wind, it is possible to employ the endless cord and pulleys for facilitating the hauling in of the kite. For example by making fast the lower end of the upper flight of the cord *f* and pulling on the lower flight, the work of hauling in the kite is greatly facilitated.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Apparatus for aerial photography comprising a suspensory device wherein the camera is adapted to be suspended vertically from the flying cord or wire of a kite by means of a freely pivoted rod, substantially as and for the purpose set forth.

2. Apparatus for aerial photography comprising a rod pivotally suspended from a device adapted to be secured to a kite or like cord or wire, the rod being fitted at its lower end with a camera-supporting arrangement in which the tilt of the camera can be adjusted substantially as described.

3. Apparatus for aerial photography comprising a camera support rotatably adjustable upon a rod pivotally suspended from a clamp or like device adapted to be secured to a kite or like cord or wire, substantially as described.

4. Apparatus for aerial photography comprising a camera support suspended from an endless travelling cord connected with and forming part of the kite flying or captive cord substantially as described.

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5. In apparatus for aerial photography as claimed in Claim 4, connecting one pulley for the endless cord directly with a kite or kite spring, and the other pulley with a swivel arrangement adapted to be held substantially as described.

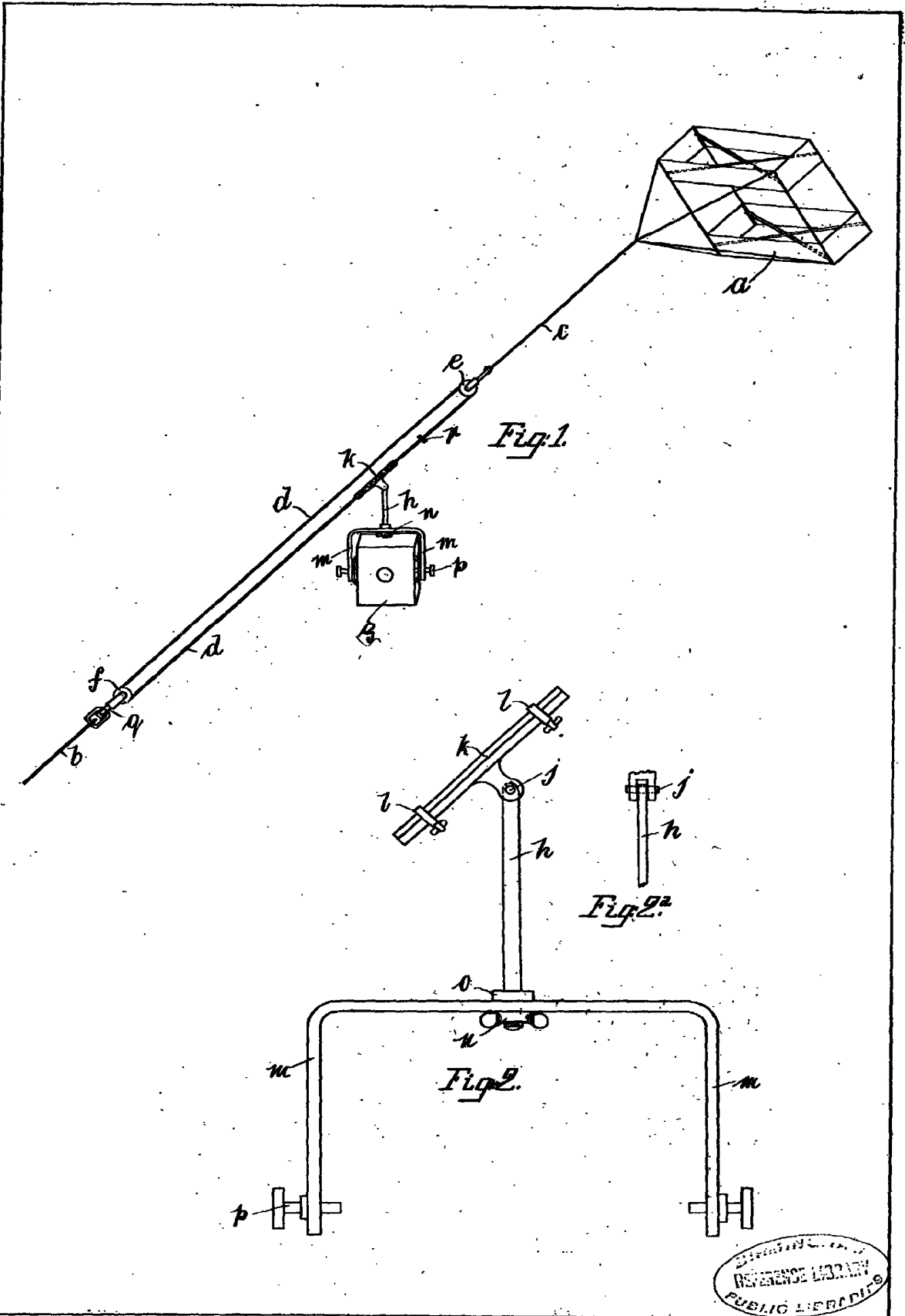
6. The improved apparatus for aerial photography constructed substantially
5 as described with reference to the accompanying drawings.

Dated this 2nd day of May, 1912.

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[This Drawing is a reproduction of the Original on a reduced scale.]



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