A. KÖNIG.

LOOKOUT TELESCOPE.

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1,034,804. Patented Aug. 6, 1912.

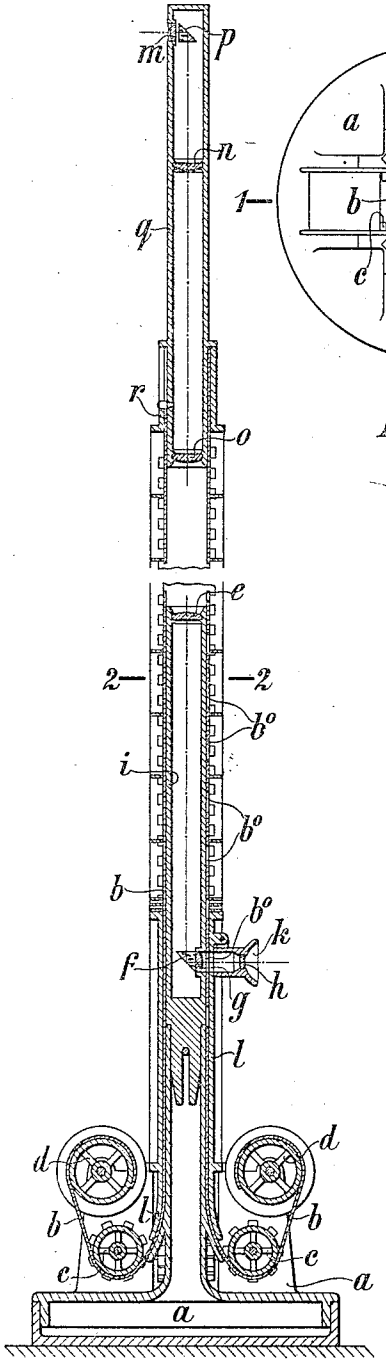

Fig.1

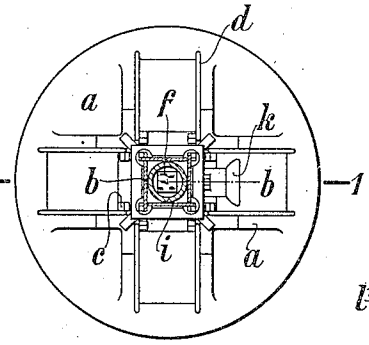

Fig.2

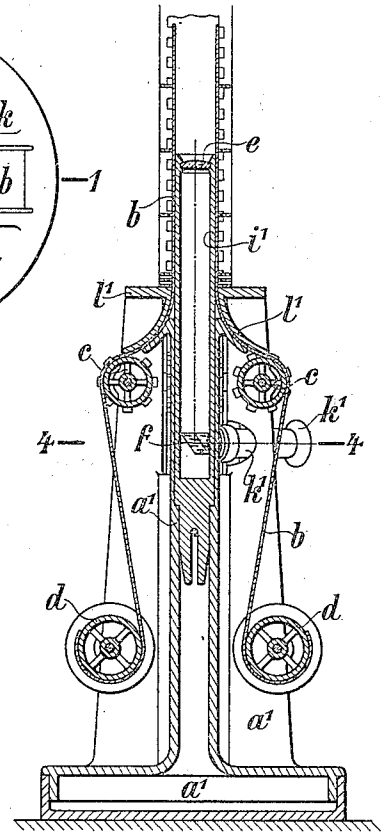

Fig.3

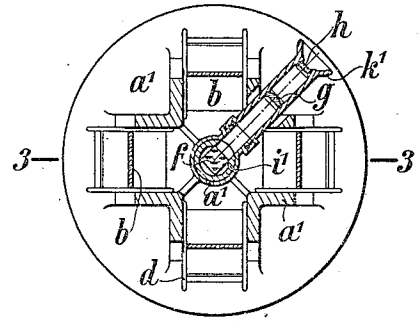

Fig.4

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LOOKOUT-TELESCOPE

1,034,804 Specification of Letters Patent. **Patented Aug. 6, 1912.**

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To all whom it may concern:

Be it known that I, ALBERT KÖNIG, a citizen of the German Empire, residing at Jena, Germany, have invented a new and useful Lookout-Telescope, of which the following is a specification.

The invention consists in an improvement in look-out telescopes having a variable distance between objective and ocular, formed as independent structures and carried in their upper part by a stand capable of being lengthened and shortened from below and forming the casing of the telescope between the upper and lower parts of the latter. It has been suggested to use as a stand of this character a telescopic tubular system to be actuated by rope-tackle or gas pressure. Such a telescopic stand, however, proves comparatively heavy, as in look-out telescopes of adjustable length even the bottom lens of the upper part of the telescope and consequently even the top tube, *i. e.*, the tube of smallest diameter, of the telescopic stand, has to be given a very large cross-measurement. According to the present invention this drawback is obviated by employing as stand instead of a telescopic tubular system a hollow mast capable of being extended and withdrawn, having the same cross-measurement from top to bottom: a prismatic hollow mast with sides that may be coiled and uncoiled, a so-called "Fontana" mast, one form of which is described in the specification of Patent 980,157, and shown in Figures 7 and 8 of that patent.

In the annexed drawing: Fig. 1 is a vertical section through a look-out telescope constructed according to the invention. Fig. 2 is a horizontal section on line 2—2 of Fig. 1. Fig. 3 is a vertical section through the lower part of a second constructional form of such a telescope. Fig. 4 is a horizontal section on line 4—4 of Fig. 3.

In the first example, Figs. 1 and 2, a Fontana mast disposed in the ordinary way stands on a pedestal consisting of a turn-table *a*. It has, corresponding to its four sides *b*, which fit together to form a square cross-section, four winches *c d*. The lower part of the telescope, consisting in the example chosen of an objective lens *e*, a reflecting prism *f* and the two ocular lenses, viz., the field-lens *g* and the eye-lens *h*, is mounted in two independent casings. Of these the casing *i* disposed within the mast comprises objective lens, prism and field-lens. It is inserted in the middle, tubular part of the turn-table *a* in such a manner that it can be lifted out, when the mast has been withdrawn. The casing *k* of the eye-lens *h* is fitted to the square chair *l*, which embraces the lower part of the mast. In this disposition the horizontal arm of the lower part of the telescope belongs to both casings *i* and *k* and its axis passes through one of the four sides *b* of the mast. This one side of the mast is therefore provided with openings b^0 arranged along it in its longitudinal direction. Their spacing represents the intervals between the consecutive steps of different heights, in which the look-out telescope may be used. So as to be able easily to clean the lens-surfaces adjacent to the side of the mast, the casing *k* is fitted by means of a joint to the chair *l*. The upper part of the telescope is constructed in a similar way to the lower one. It comprises an ocular system *m n* serving as objective and an objective lens *o* as well as a reflecting prism *p*. These optical parts are united in a single casing *q*, which is inserted removably in the head-piece *r* of the mast.

In the second example, Figs. 3 and 4, the axis of the horizontal arm of the lower telescope no longer passes through a side of the mast, as the place, where the sides of the mast are brought together, is disposed above the height of a man's head. In this case therefore the look-out telescope is capable of being used, when its height is being varied, not step by step, but uninterruptedly. The part i^1 of the casing of the lower part of the telescope contains the objective lens *e* and the reflecting prism *f* and is inserted in the central, tubular part of the turn-table a^1. The part k^1 of the casing contains the two ocular lenses *g* and *h* and is fixed to the central tube of the turn-table a^1. The principal parts *c* and *d* of the winch have a position differing from that of the equivalent parts in the first example, and the square chair l^1 of the Fontana mast has a somewhat different form.

I claim:

1. A look-out telescope comprising a pedestal, two independent optical combinations, a lower ocular one and an upper objective one, the axis of each combination being broken, a prismatic hollow mast and means

mounted on the said pedestal for coiling and uncoiling the sides of the said mast from below, the ocular combination being fitted to the pedestal near the bottom end of the mast with its entrance axis lying within the latter and the objective combination being fixed on the top end of the mast with its exit axis lying within the latter.

2. A look-out telescope comprising a pedestal, two independent optical combinations, a lower ocular one and an upper objective one, the axis of each combination being broken, a prismatic hollow mast and means mounted on the said pedestal for coiling and uncoiling the sides of the said mast from below, the ocular combination being fitted to the pedestal near the bottom end of the mast with its entrance axis lying within the latter and with its exit axis lying below the place where the sides of the mast are brought together and the objective combination being fixed on the top end of the mast with its exit axis lying within the latter.

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