May 23, 1933. A. LEIB 1,910,023

DIRECTION FINDER

Filed April 23, 1930

Fig. 1

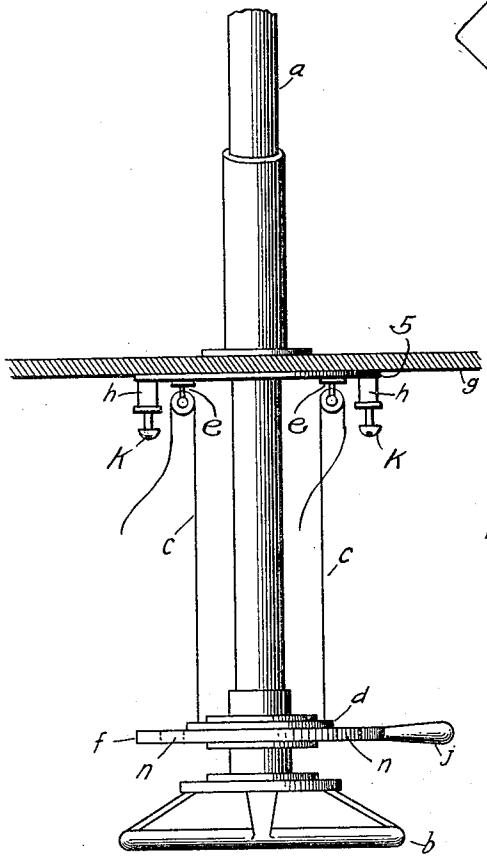


Fig. 3.

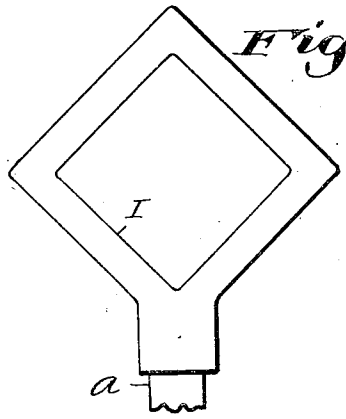
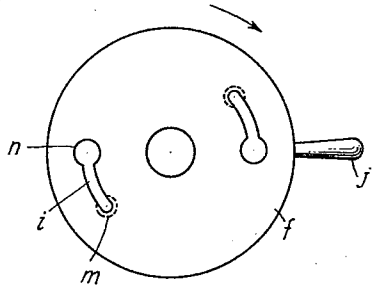


Fig. 2



INVENTOR
AUGUST LEIB
BY HG Grover
ATTORNEY

Patented May 23, 1933

1,910,023

UNITED STATES PATENT OFFICE

AUGUST LEIB, OF BERLIN, GERMANY, ASSIGNOR TO TELEFUNKEN GESELLSCHAFT FUR DRAHTLOSE TELEGRAPHIE M. B. H., OF BERLIN, GERMANY, A CORPORATION OF GERMANY

DIRECTION FINDER

Application filed April 23, 1930, Serial No. 446,478, and in Germany June 5, 1929.

The present invention is concerned with a safety device for load-lifting rope drives which has the particular purpose of relieving the ropes as soon as a certain limiting or end position has been reached.

According to the invention, there is provided an element being in engaged relation with a carrier or support fixed in reference to space and an element being engaged with the load in such a manner that the said two elements can be inter-coupled when the end position is reached and that the said elements then take care of the supporting of the load. This can be accomplished more suitably in this manner that of the two elements insuring the relieving of the ropes or cables, one is furnished with one or more bolts or claws, while the other one is provided with corresponding slots, so that upon reaching the liminal position, the clamping or locking members of one come to be introduced in the slots of the other element, and that, by mutual turning, the two elements are brought to inter-engage as the cable tension diminishes.

In order to lock the said two clutch elements in their end position, it is advisable to provide a recess at the end of the slot of one of the said elements into which the heavier end of the bolt or the claw of the other gripping element is recessed or engages as the rope tension decreases.

One embodiment of the safety device according to this invention shall be described in what follows by reference to the accompanying drawing as applied to the outward movement of pressure-proof direction finder antennæ.

Figure 1 is a vertical view of the device according to this invention and the revoluble shaft carrying the frame of the direction-finding antenna; while,

Figure 2 is a top view of the coupling element with guiding slot in engaged relationship with the said direction finder antenna shaft.

Figure 3 is a view of the shaft and the frame aerial supported thereby.

Referring to Fig. 1, *a* is a rotatable tubular vertical shaft having at its top end a frame aerial closure member 1, as shown in Fig. 3. The coils or turns of the direction-finder antenna may be accommodated within the member 1. *b* is the control wheel by means of which the shaft *a* conjointly with the direction-finding antenna is oriented. It is often necessary that an antenna of this type should be adapted to move from an unexposed position to an exposed position. According to the present invention the aerial is made shiftable along its axis of rotation. This is effected by the agency of suitable ropes *cc*, the ends of which are secured to a disk *d* which is rotatable in relation to the shaft *a*, though being mobile therewith in vertical direction. The said ropes are guided over idling pulleys *e* the shafts of which are supported in fixed bearings attached to a plate 5 fixed to frame *g*. Tension may be applied to the ropes *c* in any known manner to move the shaft *a* axially so that the frame aerial in 1 is moved to an exposed position with reference to support *g*.

In order that the ropes *cc* may be relieved of strain in the raised position of the antenna, two clutch members *h* and *f* are provided according to the invention. *h* as here shown denotes a number of vertical bolts disposed upon the plate 5 fixed to the frame support *g*, said bolts being enlarged at the bottom ends as shown at *k*. The clutch element *f* consists of a disk being vertically mobile conjointly with the shaft, though being revoluble in relation thereto. The said disk is provided with a number of slits *i* slightly larger in width than the diameter of the small portions of the bolts *h*. The slits *i* terminate in one end in recesses *m* large enough to permit the bolt heads *k* to rest therein and in the other end in large openings *n* which permit the bolt heads *k* to pass through the member *f*. When the antenna has been moved out into its exposed position, as the ropes *cc* are pulled over pulleys *e* manually or are pulled by being wound upon a drum or the like, the clutch member *f* comes to be in the neighborhood of the bolts *h*. The member *f*, for instance, by suitably turning by the agency of the handle *j*, must first be so set that the bolt heads *k* will pass through the enlarged open-

ings *n* of slots *i*. Next the disk *f* is so turned that the bolts *h* will move into the guides *i* until the bolt heads *k* come to be positioned opposite the recesses *m* of the disk *d*. For locking the two clutch members there suffices the reduction of the pull-on ropes *cc*, with the bolt heads *k* being incidentally sunk into the recesses *m*. As a result the load is then carried by the heads *kk*.

Unlocking can be accomplished only after the ropes have been tensioned again and after the bolt heads have been removed from the recesses *m*.

I claim:

1. In a device for moving a direction finder antenna into an exposed position the combination of, a shaft connected with said antenna, means for rotating said shaft, means connected with said shaft for moving said antenna into an exposed position, and means connected with said shaft for locking said antenna in said exposed position.

2. In direction finding apparatus to be used with a water-proof aerial system the combination of, a rotatable shaft connected with said aerial system, manual means for moving said shaft longitudinally, and means for retaining said shaft in position including a rotatable disc longitudinally fixed with respect to said shaft, a plurality of slots in said disc, said slot terminating in recesses, a plurality of bolts adapted to enter such slots and projections on said bolts adapted to be retained in said recesses on rotation of said disc.

3. In apparatus to be used with shielded direction finding devices adapted to be moved from an unexposed position to an exposed position the combination of a support, a direction finder shaft mounted for rotation in said support, means for moving said shaft longitudinally with respect to said support including a disc longitudinally fixed with respect to said shaft, a plurality of ropes engaged to said disc and a plurality of pulleys engaging said ropes, said pulleys being fastened to said support, and means for retaining said direction finder in an exposed position including a circumferential slot in said disc, said slot terminating in an enlarged opening in one end and a recess in the other end, a bolt fastened to said support, said bolt having an enlarged head adapted to enter the enlarged opening in said slot when the direction finder shaft is in an exposed position and to be engaged in the recess in said slot on rotation of said disc.

AUGUST LEIB.