No. 647,472. Patented Apr. 17, 1900.

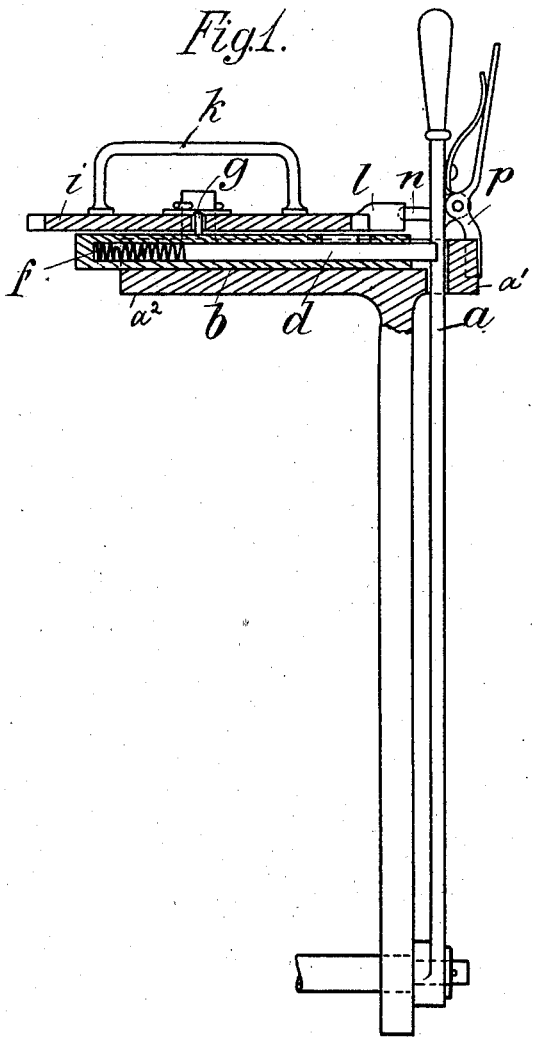
E. BRUCKSCH.

REVERSING GEAR MECHANISM.

(Application filed Aug. 22, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



Witnesses:
Fred Miller.
John Becker

Inventor:
Emil Brucksch
by his attorneys
Roeder & Briesen

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Fig. 2.

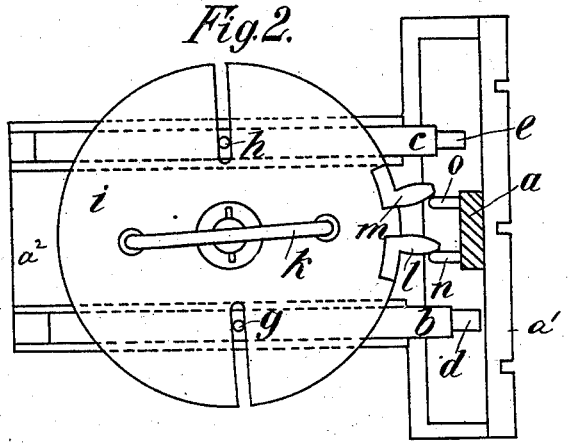

Fig. 3.

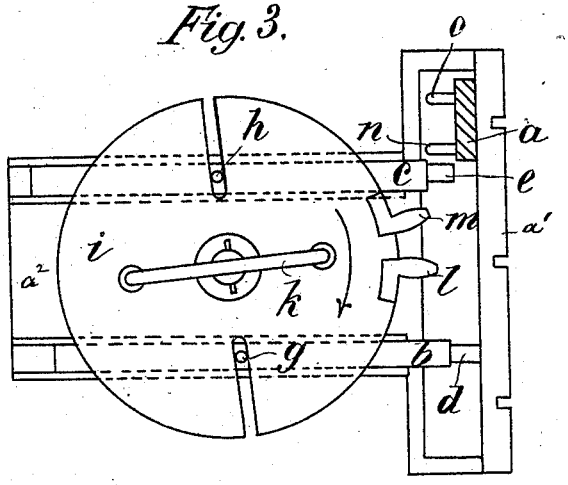

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Fig. 4.

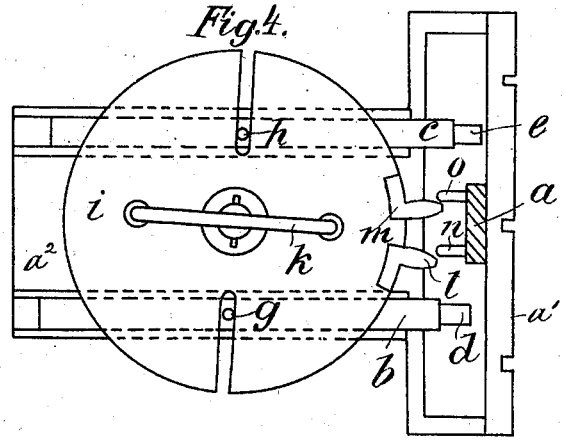
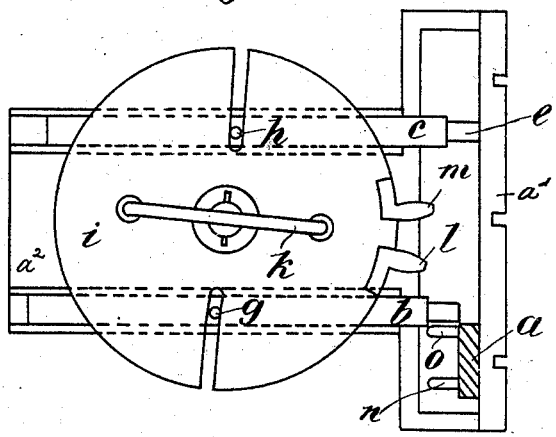


Fig. 5.



Witnesses:
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John Becker.

Inventor:
Emil Brucksch
by his attorneys
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UNITED STATES PATENT OFFICE.

EMIL BRUCKSCH, OF SCHÖNBRUNN, GERMANY.

REVERSING-GEAR MECHANISM.

SPECIFICATION forming part of Letters Patent No. 647,472, dated April 17, 1900.

Application filed August 22, 1899. Serial No. 728,052. (No model.)

To all whom it may concern:

Be it known that I, EMIL BRUCKSCH, mine-owner, a subject of the German Emperor, and a resident of Schönbrunn, near Goerlitz, Silesia, Germany, have invented certain new and useful Improvements in Reversing-Gear Mechanisms, of which the following is a specification.

This invention relates to a safety arrangement for the reversing-gear of hoisting-machines, &c., which prevents the machine from being run in the same direction twice, excepting when desired.

In the accompanying drawings, Figure 1 is a cross-section of the apparatus. Figs. 2 to 5 are plans, partly in section, showing the parts in different positions.

The reversing-lever *a* is adapted to be engaged by a catch *p* and is provided with two laterally-projecting pins *o n*. The frame *a'*, that constitutes a guide for the lever *a*, is provided with a lateral extension a^2, that contains two movable tubular sockets *b c*. These sockets contain bolts *d e*, influenced by springs *f*. Pins *g h* on sockets *b c* engage radial slots of a pivoted rotatable cap-plate or disk *i*, having projections *l m* and a handle *k*.

The operation is as follows: The lever *a*, being in the position indicated in Fig. 2, can be set to the right, (ahead,) but not to the left (back.) It cannot be set to the left, as the socket *b* and bolt *d* are in the path of the lever. It can be set to the right, because the projections *l m*, which are in the path of pins *n o*, will be pushed aside by said pins, so that the disk *i* is partly rotated until the pins have cleared the projections. When the lever has arrived in the position Fig. 3, the end of bolt *d* by impinging against frame *a'*, and thus compressing spring *f*, will rotate the disk *i* slightly backward, so that the projections *l m* are again brought within the paths of the pins *o n*, and the projections will be reëngaged by the pins upon the next stroke of the lever. By reversing the steering-lever the pins *o n* will now rotate the disk by engaging the projections *m l*, Fig. 4, until the projections have been pushed out of the paths of the pins, and the lever may be brought from the position Fig. 4 into the position Fig. 5. It cannot be brought from position Fig. 4 directly back into the position Fig. 3, because the socket *c* and bolt *e* will now be in its way. When the lever has arrived in the "back" position, Fig. 5, the spring of bolt *e* will be compressed, so that the projections *l m* are again set into the paths of the lever-pins. Thus it will be seen that the lever may be moved from one terminal position directly into the second terminal position, but never back into its first position without having previously arrived at its second position. Thus the hoisting-machine must be alternately steered forward and backward, and any misplacing of the reversing-lever is avoided.

If the machine is to be run twice in the same direction, the disk *i* is turned by hand by means of the handle *k*.

The lever may remain in either one of its end positions, or it may be brought after each operation back to its normal—*i. e.*, intermediate or "dead"—position. Thus the lever is allowed to remain in either of its end positions if the machine is to be run forward or backward, and it is brought to the normal position if the throttle is to be opened and a sudden start is to be prevented. It is not possible to bring the lever from either of its end positions to the normal position and then directly back to its original end position. If this is to be done, the disk must be turned by hand; but it is possible to throw the lever from, say, its left-hand end position into the normal position and then later directly to its right-hand end position, and vice versa. So, also, the lever may be thrown directly from one end position into the other end position.

What I claim is—

A safety attachment for reversing-gear, consisting of a lever having a pair of pins, a rotatable disk having a pair of projections, sliding sockets engaging said disk, and spring-bolts within the sockets, substantially as specified.

Signed by me at Zittau, Germany, this 3d day of August, 1899.

EMIL BRUCKSCH. [L. S.]

Witnesses:

FRANZ SCHREIBER,

WILHELM KRAUSS.