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W. A. A. RÖPER.

REGISTERING APPARATUS FOR USE IN CONNECTION WITH LIFTING OR HOISTING DEVICES.

(No Model.) (Application filed Jan. 17, 1900.)

Fig. 1.

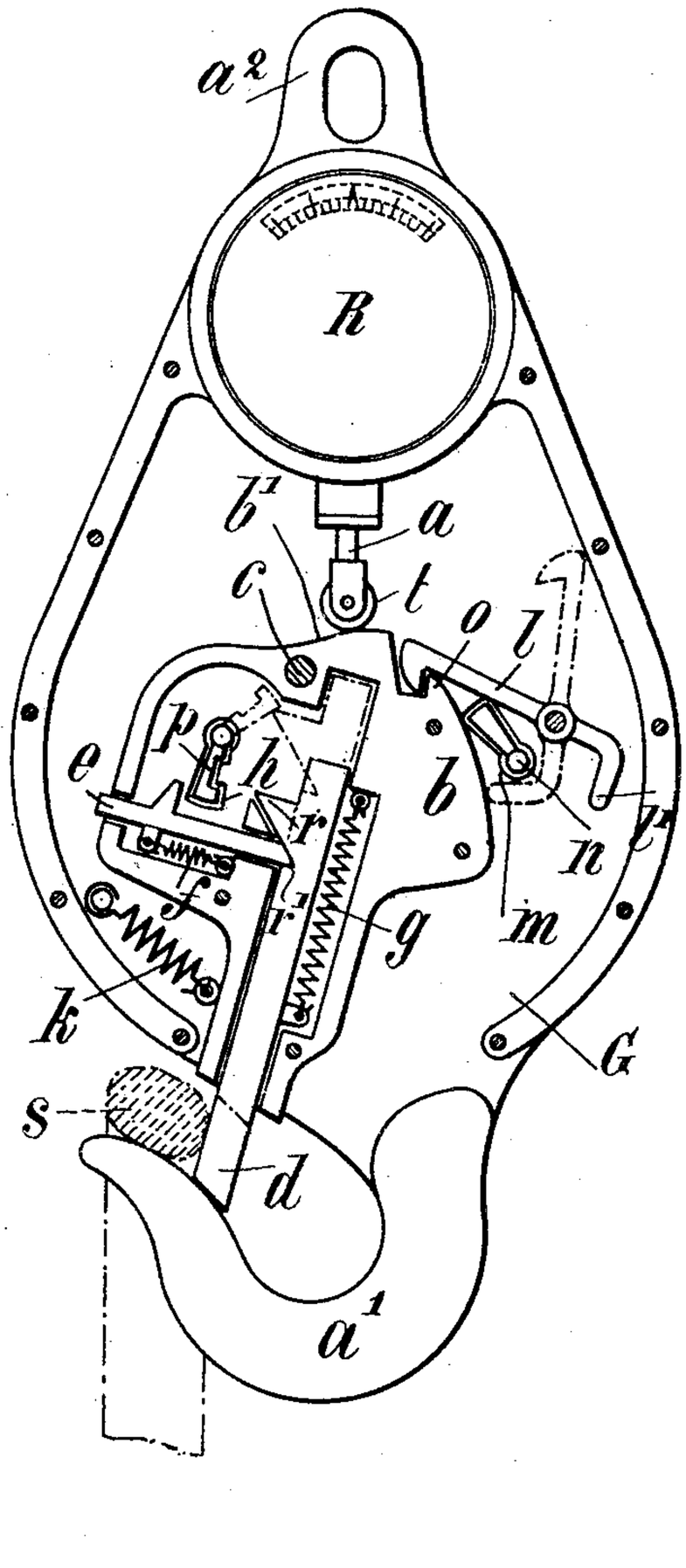
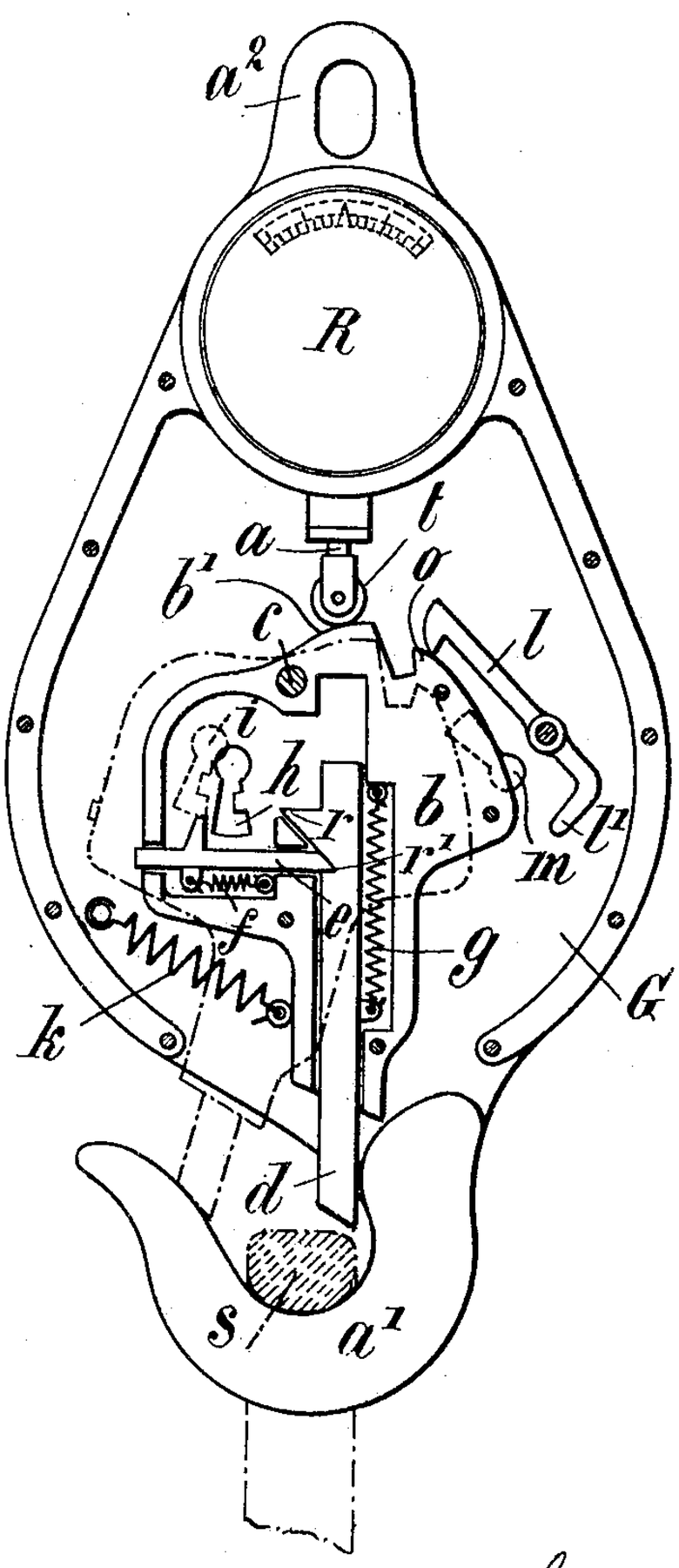


Fig. 2.



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REGISTERING APPARATUS FOR USE IN CONNECTION WITH LIFTING OR HOISTING DEVICES.

SPECIFICATION forming part of Letters Patent No. 672,012, dated April 16, 1901.

Application filed January 17, 1900. Serial No. 1,784. (No model.)

To all whom it may concern:

Be it known that I, WILHELM ADOLPH AUGUST RÖPER, a subject of the German Emperor, and a resident of Hamburg, in the German Empire, have invented certain new and useful Improvements in Registering Apparatus for Use in Connection with Lifting or Hoisting Devices, of which the following is a specification.

The improved apparatus which forms the subject of this invention serves to register the number of loads transferred or displaced from one place to another, and for this purpose it is affixed to the rope, chain, or the like which is employed for raising or lowering the load.

The apparatus is characterized by the arrangement in a suitable casing, to which a hook for the load and an eye or lug for the hoisting-chain are attached, of a pivotally-suspended locking device or mousing for temporarily closing the mouth of or entrance to the said load-hook and a registering mechanism, said registering mechanism being actuated by the oscillation or displacement of the locking device or mousing, the hook itself exercising no effect upon it.

In order that my invention may be more fully understood, I will now proceed to describe the same in detail, and for that purpose reference is made to the accompanying drawings, wherein—

Figure 1 is a side elevation of the apparatus as it appears after the removal of the front plate or cover, the parts being in the locking position; and Fig. 2 is a similar view showing the parts pushed aside by the load attached to the hook and being about to return into their locking position.

Similar letters refer to similar parts throughout both figures.

A hook a' for suspending the load is rigidly fixed to the casing G, while as a closing or mousing for this hook a spring-actuated tongue or bar d is arranged within or upon an oscillating or swinging part or plate b. This plate b, being under the influence of a spring k, is pivotally mounted upon a pin c, which is fixed in the casing. It is provided upon one side of the locking-bar d with a suitable spring-actuated detent or trigger-bolt $e\,f$, which engages a notch or shoulder r' of the locking-bar d in order to hold this bar in its forward or cocked position against the tension of its spring g. In proximity to the trigger-bolt a keyhole h is provided in the swing-plate b, and this keyhole comes in line with another keyhole i in the wall of the casing G when the swing-plate b or the locking-bar d, respectively, occupies the closing position, Fig. 1, so that a key p may then be inserted through the registering keyholes i and h for operating the trigger-bolt e. Within the casing G is also provided a catch-lever l, having a projection or arm l' at its lower portion. This catch is arranged in proximity to the swing-plate b, and a second keyhole m is provided in the casing-wall in order that the catch-lever $l\,l'$ may be disengaged from a nose or projection o of the swing-plate by means of a second key n.

The apparatus may be used as follows: Assuming there are loads at the same time to be registered and transferred from one place to another—for instance, from a steamboat into a barge or lighter—then the man on board the ship who attaches the load to the hook of the registering device will receive the key n for operating or releasing the catch l and the man on board the barge who removes the load from the hook the other key p for actuating the trigger-bolt e and the locking-bar d, respectively, of the registering apparatus, the latter being suspended by means of its lug or ear a^2 from the chain or rope of the hoisting device. The load to be raised and brought from the steamboat into the barge is hooked or attached by means of a loop s or the like of a suitable sling, sling-dog, strap-chain, &c., to the bill of the hook a' of the registering device, (in the drawings this loop s being shown by dotted lines.) The man on board the steamboat disengages the catch or ratchet lever l from the nose o of the swing-plate b by turning the said catch or ratchet lever by means of the key n into the upright position shown by dotted lines in Fig. 1, in which position it is retained by its lower arm l' resting against the face or edge of the swing-plate b, as is obvious from Fig. 1. On hoisting or raising the load (not shown in the drawings) the ear or loop s, with which the load is suspended from the hook, slides down the curved inner ridge of the hook and causes

by its weight the previously-released locking-bar *d* and its supporting-plate, respectively, to swing against the tension of the spring *k* toward the shaft or shank of the hook, whereby the mouth or entrance of the latter is opened and the loop *s* from which the load is suspended enabled to slide down underneath the lower end of the locking-bar *d* wholly into the hook. By this inward oscillation of the locking device also the previously disengaged catch-lever *l*, resting or bearing with the arm *l'* or the like against the swing-plate *b*, is caused to tilt back, so that it now rests or slides with its hook upon the edge of the swing-plate. (See Fig. 2.) As soon as the loop *s* of the load has passed the locking-bar *d* the latter or its swing-plate, respectively, is oscillated or turned back by its spring *k* into its former position in order to again close the mouth of the hook and to prevent thereby any fraudulent removal of the load from the hook. At the same time the locking-bar and the swing-plate, respectively, reach the closing or locking position the catch-lever slides or snaps over and behind the nose of the swing-plate, thus securing the latter against any movement. (See Fig. 1.) On displacement of the locking device, (swing-plate and locking-bar,) whether it be its inward or outward oscillation, or both, a push-rod *a*, attached to the registering mechanism R and provided with a friction-roller *t*, is operated by a cam-face *b'* of the swing-plate *b* in such a manner as to indicate the suspension of the load. After the load by means of the hoisting device has been transferred to and desposited at the place at which the load is to be removed from the hook—that is to say, after the load has descended into the barge—the man in this craft who holds the second key *p*—that is to say, the key for the locking device—puts this key *p* in the registering keyholes *i* and *h* of the casing and of the swing-plate, respectively, and by turning the said key draws back the trigger-bolt *e*, whereupon the thus-freed locking-bar *d* shoots inwardly into the casing G, thereby opening or unbarring the mouth or entrance of the hook *a'* and allowing the load, or the loop *s* of its attaching means, (sling, sling-dog, strap-chain, &c.,) respectively, to be removed from the hook. The inward position of the locking-bar *d* is shown in Fig. 1 by dotted lines. After the removal of the load the man in the barge again cocks the locking-bar *d* by moving the same against its spring *g* outward of the casing and into its former already-described closing or locking position, in which the said locking-bar is again retained by the trigger-bolt *e*, as described above, in order to again bar the mouth or entrance of the hook. The cocking or displacing of the spring-actuated locking-bar *d* may be effected by means of the same key *p* by which the trigger-bolt *e* had been previously released. For this purpose the locking-bar *d* is provided with a shoulder *r*, upon which acts the key *p* on its being turned around, as shown by dotted lines in Fig. 1. The hoisting-chain, with the registering apparatus and the barred hook, is then shifted onto the steamboat in order to unload in the same manner as described a second load, and so on.

As the registering apparatus which forms the subject of this invention is arranged for loads of at least some hundredweights, the spring *k*, retaining the swing-plate *b* and locking-bolt *d*, respectively, may be of such strength that the locking device cannot be pressed or pushed away toward the shank of the hook by ordinary manual force in order that the swing locking device may not be liable to be displaced with fraudulent intent.

The device above described is only a constructional example of the hook-lock or closing device. The invention embraces and includes all closing devices owing to the displacement of which the registering mechanism is operated, while the hook itself exercises no effect upon the registering mechanism.

Having fully described my said invention, what I claim, and desire secure by Letters Patent, is—

1. In an apparatus such as described, the combination with a casing provided with means for connecting it with a hoisting-tackle and with an immovable load-supporting hook, of a mousing organized to have rectilinear and circular motion and independent locking devices, each arranged to lock said mousing against one of its motions, substantially as set forth.

2. In apparatus of the class described, the combination with a casing provided with an immovable load-supporting hook and with means for connecting said casing with a hoisting-tackle, of a mousing arranged to have rectilinear and circular motion, a locking device to lock said mousing against rectilinear motion and an independent locking device to lock it against circular motion, said devices operated by independent keys, substantially as set forth.

3. In apparatus such as described, the combination with a casing and a registering mechanism therein, said casing provided with an immovable load-supporting hook and with means for connecting said casing with hoisting-tackle; of a mousing movable to clear or close the entrance to the hook, means for locking the mousing when closing said entrance, and means controlled by the movements of the mousing and operating the registering mechanism, for the purposes set forth.

4. In apparatus such as described, the combination with a casing provided with an immovable load-supporting hook and with means for connecting said casing with hoisting-tackle; of a normally-retracted pendulous mousing, means for projecting the same into the hook, means for swinging the mousing when so projected to close the entrance to said hook, and locking devices locking the

mousing in this position, for the purpose set forth.

5. In apparatus such as described, the combination with a casing provided with an immovable load-supporting hook and with means for connecting said casing with hoisting-tackle; of a normally-retracted pendulous mousing, means for projecting the same into the hook, means for swinging the mousing when so projected to close the entrance to said hook, and key-operated locking devices locking the mousing in this position, for the purpose set forth.

6. In apparatus such as described, the combination with a casing provided with an immovable load-supporting hook, and with means for connecting said casing with hoisting-tackle; of a pendulous and vertically-movable mousing, means automatically retracting and swinging the same toward the entrance to the hook, means for projecting the mousing to close said entrance, and locking devices locking the mousing in this position, for the purpose set forth.

7. In apparatus such as described, the combination with a casing provided with an immovable load-supporting hook and with means for connecting said casing with hoisting-tackle; of a pendulous support in said casing, a mousing mounted to have rectilinear motion on said support, a spring normally holding the latter with the mousing in line with the entrance to the hook, a spring normally retracting said mousing to clear said entrance, means for projecting the mousing to close said entrance and locking said mousing in this position, and a key-operated lock locking the support in its said normal position, for the purpose set forth.

8. In apparatus such as described, the combination with a casing provided with a load-supporting hook and with means for connecting said casing with hoisting-tackle; of a pendulous support in said casing, a mousing for the hook having to-and-fro motion in said support, a spring acting to retract the mousing so as to clear the entrance to the hook, said mousing constructed to be projected into the hook by a key, a spring acting to normally draw the support toward the hook-entrance to cause the mousing when projected to close the same, a locking device to lock the mousing against withdrawal, and a key-operated locking device for locking the mousing-support when in its aforesaid normal position, for the purposes set forth.

9. In apparatus such as described, the combination with a casing provided with a load-supporting hook and with means for connecting said casing with a hoisting-tackle; of a pendulous support in said casing, a mousing for the hook having to-and-fro motion in said support, a spring normally holding the support relatively to the entrance to the hook to cause the mousing when projected to close said entrance, a spring acting upon said mousing to hold the same in a normally-retracted position, said mousing constructed to be projected from its housing by a key, a spring-actuated locking-bolt adapted to engage the mousing when projected and lock the same against the action of its spring, said bolt arranged to be retracted by the key which operates the mousing, and a spring and key operated locking-bolt operating to lock the support in its aforesaid normal position, for the purpose set forth.

10. In apparatus such as described, the combination with a casing provided with a load-supporting hook and with means for connecting said casing with hoisting-tackle, a registering mechanism in the casing, and a vertically-movable actuating-rod for operating said mechanism; of a pendulous support in the aforesaid casing provided with a cam-face in contact with and adapted to reciprocate said rod when said support is vibrated, a spring-retracted mousing mounted in the support, a spring acting on the latter to normally hold said support in such a position relatively to the entrance of the aforesaid hook as to cause the mousing when projected to close said entrance, said mousing constructed to be projected by a key, a spring-actuated bolt adapted to engage and lock the mousing when so projected, said bolt arranged to be operated by the key used for projecting the mousing, and a key-operated locking device for locking the mousing-support in its aforesaid normal position, for the purposes set forth.

11. In apparatus such as described, the combination with a casing provided with a load-supporting hook and with means for connecting said casing with a hoisting-tackle; of a pendulous support in the casing provided with a lock-notch, and an eccentric bearing-face extending therefrom, a spring-retracted mousing for the hook, a spring normally holding the support in such a position relatively to the entrance to the hook as to cause the mousing when projected to close said entrance, means for projecting said mousing and locking the same in its projected position, and a key-operated two-armed locking-lever *l*, provided with a nose adapted to engage the aforesaid lock-notch and with an arm adapted to abut on the aforesaid eccentric bearing-face of the mousing-support according to the position into which said locking-lever is moved by the key, for the purposes set forth.

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Witnesses:
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