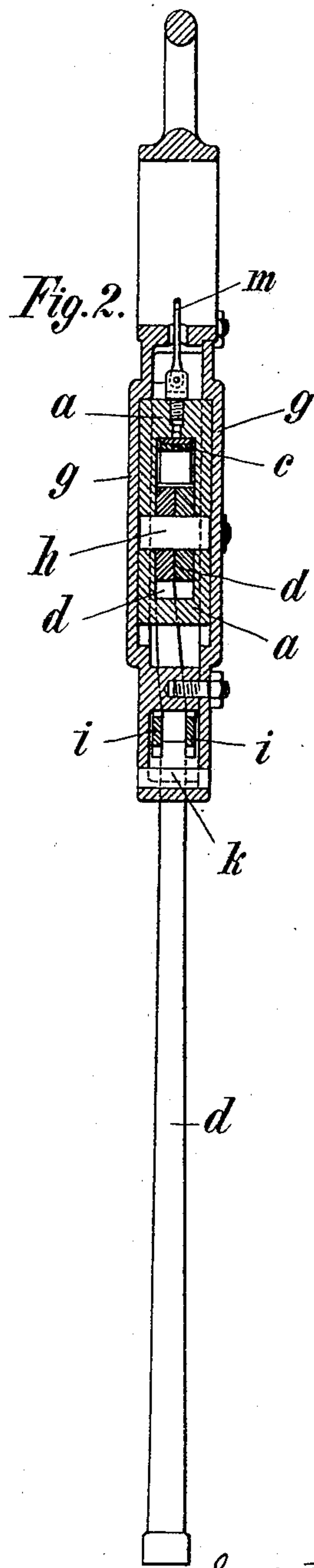
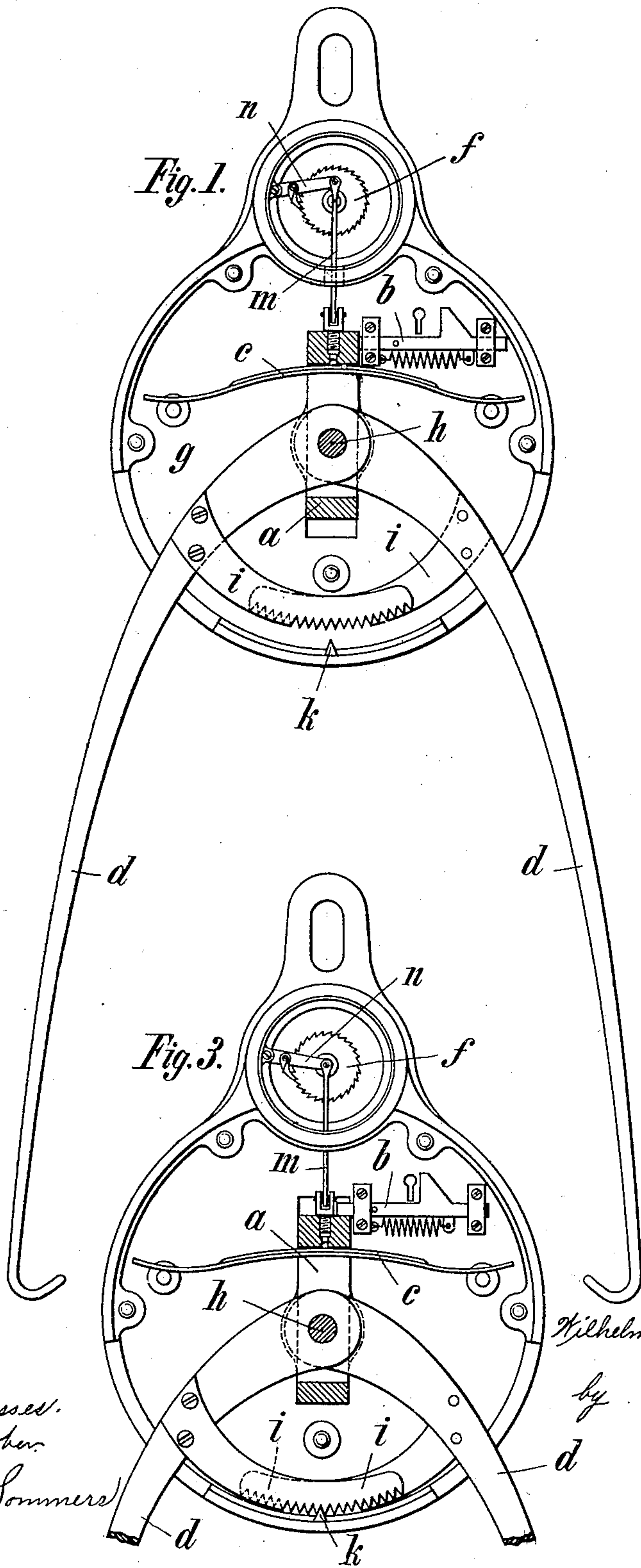


W. A. A. RÖPER.  
REGISTERING APPARATUS.  
(Application filed Aug. 19, 1899.)

(No Model.)



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by  
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Att'y.



# UNITED STATES PATENT OFFICE.

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## REGISTERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 651,888, dated June 19, 1900.

Application filed August 19, 1899. Serial No. 727,835. (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, of which the following is a specification.

This invention has relation to appliances for the registration of loads hoisted and carried from one point to another, as in loading or unloading the cargoes of ships, cars, or other vehicles or the displacement of goods or merchandise from one point to another, so as to obtain a correct record of the total number of loads so displaced.

The invention relates more particularly to appliances adapted to the shifting of casks, barrels, and similar receptacles of various dimensions having projecting head-flanges adapted to be engaged or gripped by tongs, by means of which they are lifted or hoisted and shifted from one point to another.

The invention consists, essentially, in the combination of hoisting and shifting tongs, a locking device operating to lock the same automatically against spreading when a load is gripped thereby, an auxiliary spring and key operated locking device coöperating with the automatic lock in preventing the spreading of the tongs by an unauthorized party to release the load, and a registering mechanism operated by the load on the tongs and operating to consecutively register the loads shifted, as will now be fully described, reference being had to the accompanying drawings, in which—

Figure 1 is an end elevation, partly in section, with the front plate of the casing removed, of a load-registering device of the type referred to, illustrating the operative appliances in their normal positions. Fig. 2 is a central vertical transverse section thereof; and Fig. 3 is a view similar to Fig. 1, the tong members being broken off, and illustrating the operative appliances in the position they occupy when a load is suspended from the tongs.

The device or apparatus consists, preferably, of a circular casing *g*, having a hook or, as shown, a slotted lug for connection with the hoisting and shifting tackle and a circular chamber below said hook for a train of

registering-gearing of any well-known or desired construction, *f* indicating the prime mover—namely, a ratchet-wheel engaged by an actuating-pawl carried by a lever *n*, fulcrumed at a suitable point in the casing and connected by a rod *m* with the support for the gripping-tongs, so that whenever the said support moves away from the ratchet-wheel *f* the pawl imparts to said wheel a partial rotation, which is transmitted to the train of registering-gearing in a well-known manner, while when said support moves toward the ratchet-wheel *f* the pawl will ride idly over the teeth of said wheel in a well-known manner.

The support for the tongs *d* consists of a bar *a*, which is preferably slotted vertically, the upper wall of said slot seating on a suitable spring *e*, and *h* is a pivot-pin lying across said slot, on which pin the members of the gripping-tongs *d* are pivoted.

The supporting-bar *a* has motion vertically in casing *g*, which motion is limited by suitable abutments, conveniently by forming vertical recesses *g'* in the proximate faces of the front and back plates of casing *g*, in which recesses the bar *a* is fitted to slide vertically in opposite directions to the required extent.

From the lower part of the casing *g*, in the vertical axial line thereof, projects a locking-tooth *k*, adapted to engage locking devices organized to lock the gripping-tongs *d* against spreading. These locking devices should of course be so organized as to be capable of locking the tongs *d* against further spreading whatever the distance between the gripping-jaws of said tongs may be, or, in other words, to lock the tongs against further spreading whatever may be the length of the cask or barrel held thereby in order that the apparatus may be used in shifting casks, barrels, bales, or the like of any capacity or diameter. To this end I provide each member of the gripping-tongs *d* with a segmental rack *i*, said racks converging and having the fulcrum-pin *h* for center. It will be obvious that the racks *i* will move reciprocally with their respective tong members, and when the latter grip or are engaged with the head-flanges of a barrel or cask and the apparatus is hoisted the weight on bar *a* will draw the latter down against the stress of the supporting-spring *c* sufficiently far to bring both segmental racks



*i* into engagement with the single locking-tooth *k*, thus preventing the tong members *d* from accidentally spreading and releasing the load. This downward movement of the tong-support *a* also imparts a partial rotation to the ratchet-wheel *f* through the means hereinbefore described. It will furthermore be obvious that if a load were lifted sufficiently to impart the aforesaid partial rotation to the ratchet *f*, whereby the load so lifted is registered, and said load were lowered to its support before shifting and then again hoisted, any number of loads not shifted could be registered. To avoid such a fraud, I provide a spring and key operated locking-bolt *b*, arranged within the casing *g* to be moved by its spring over the upper face of the support *a* for the tongs *d* the moment the latter has moved down clear of said bolt.

The relative arrangement of the locking-bolt *b*, the locking-tooth *k*, and the locking-segments *i i* is preferably such that as soon as the support *a* has moved down under its load sufficiently to bring the segments *i i* into engagement with the tooth *k* the said support will also have moved clear of the bolt *b*, causing the latter under the stress of its spring to move into the path of the support, and thus locking it against upward movement, the casing *g* being provided with a keyhole for the insertion of a key, acting on suitable wards of the bolt for the purpose of moving the same out of the path of the support *a* when the load has been shifted to the desired point.

It will be readily understood that when a load has been shifted and lowered to the ground or other support and the bolt *b* moved out of the path of the support *a* the tong members are free to spread and release the load, whereupon the spring *c* will move said support back to its normal position, Fig. 1.

It has been hereinbefore stated that the vertical movements of the support *a* in either direction are limited. This is necessary in order to prevent the pawl-lever *n* from being raised to such an extent as to throw its pawl out of engagement with the ratchet-wheel *f* by the upward movement of the support *a*, while it is necessary to limit the downward movement of the support so as to prevent the load from being supported by the locking-tooth *k*. This is effectually attained by the recesses *g'* in the casing hereinbefore referred to and would be equally as effectually attained by any other form of abutments. I prefer the recesses, because they form at the same time a guide for the support *a* and insure its correct rectilinear movements.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. Apparatus such as described, comprising a casing adapted to be connected with hoisting and shifting appliances, a registering mechanism in said casing, a pair of gripping-tongs, a support having vertical movement in the casing, to which support the mem-

bers of the tongs are pivoted, and a connection between said support and the prime mover of the registering mechanism; in combination with a locking device for locking the tong members against spreading when a load is suspended therefrom, for the purposes set forth.

2. Apparatus such as described, comprising a casing adapted to be connected with hoisting and shifting appliances, a registering mechanism in said casing, a pair of gripping-tongs, a support having vertical movement in the casing, to which support the members of the tongs are pivoted, and a connection between said support and the prime mover of the registering mechanism; in combination with a locking device for locking the tong members against spreading when a load is suspended therefrom, and an auxiliary key-operated lock operating to prevent the tong members from spreading after engagement with a load, for the purposes set forth.

3. In apparatus such as described, the combination with gripping-tongs, a support to which the tong members are pivoted, and a casing in which said support has vertical movement, said casing adapted to be connected with the hoisting and shifting tackle; of appliances locking the tongs against spreading when said support has reached the limit of its downward movement, for the purposes set forth.

4. In apparatus such as described, the combination with gripping-tongs, a support to which the tong members are pivoted, and a casing in which said support has vertical movement, said casing adapted to be connected with the hoisting and shifting tackle; of appliances locking the tongs against spreading when said support has reached the limit of its downward movement, and a key-operated locking device locking the support against upward movement, for the purposes set forth.

5. In apparatus such as described, the combination with gripping-tongs, a support to which the tong members are pivoted, and a casing in which said support has vertical movement, said casing adapted to be connected with the hoisting and shifting tackle; of appliances locking the tongs against spreading when said support has reached the limit of its downward movement, and a key-operated locking device locking the support against upward movement, said appliances organized so as to lock said tongs whatever may be the distance for the time being between their gripping-jaws, for the purposes set forth.

6. In apparatus such as described, the combination with gripping-tongs, a support to which the tong members are pivoted, a casing in which said support has vertical motion, and a spring acting to move the support upwardly; of locking appliances operating to lock the tongs against spreading when the support has reached the limit of its downward movement against the stress of the aforesaid spring, and a key-operated locking



device locking said support against upward movement, for the purposes set forth.

7. In apparatus such as described, the combination with gripping-tongs, a support to which the tong members are pivoted, a casing in which said support has vertical motion, said casing adapted for connection with hoisting and shifting tackle, abutments in said casing limiting the movement of the support in either direction, and a spring acting on the support to hold the same in a normal position; of locking appliances locking the tongs against spreading when the support has reached the limit of its downward movement against the stress of its spring, said locking devices organized to so lock said tongs whatever may be the spread of the members at the time, and a key-operated locking device locking the support against motion under the stress of its spring, for the purpose set forth.

8. In apparatus such as described, the combination with gripping-tongs, a support to which the tong members are pivoted, a casing having vertical recesses in proximate faces in which the support has motion, said recesses limiting the movements of said support in either direction, and said casing adapted for connection with a hoisting and shifting tackle; of locking appliances locking the tongs

against spreading when the support is at the limit of its downward movement, said locking devices organized to so lock the tongs whatever may be the spread of the members at the time, a spring acting upon the support to move the same upwardly, and a key-operated locking device for locking the support against such upward motion, for the purpose set forth.

9. In apparatus such as described, the combination with gripping-tongs, a support to which the tong members are pivoted, a casing adapted for connection with a hoisting and shifting tackle, in which casing said support has vertical motion, and converging toothed sectors *i*, secured to said tong members within the casing; of a locking-tooth *k* secured to the casing in line with the pivot of the gripping-tongs below their toothed sectors, a spring *c* from which the support is suspended, means for limiting the movements of said support in either direction and a spring and key operated locking-bolt *b*, arranged to engage the support when at the limit of its downward motion, for the purposes set forth.

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Witnesses:

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