(No Model.) 2 Sheets—Sheet 1.

C. DE KNORRING.

SELF ACTING FASTENING FOR TOP-MAST FIDS.

No. 463,157. Patented Nov. 17, 1891.

Fig. 1.

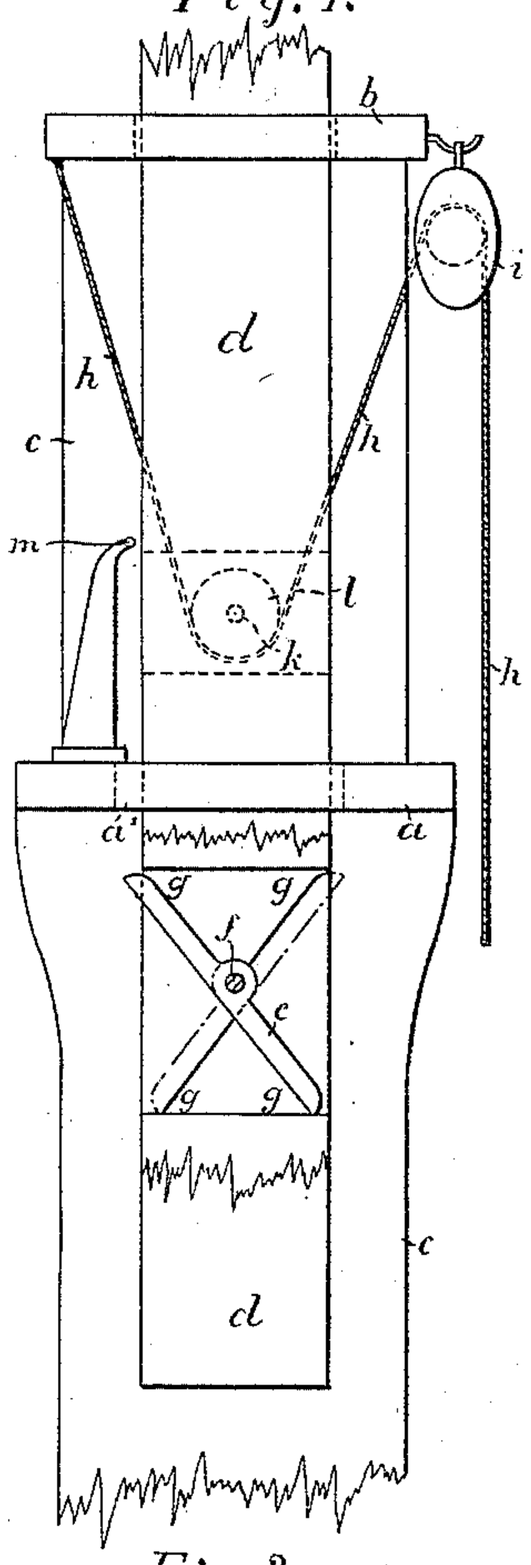


Fig. 2.

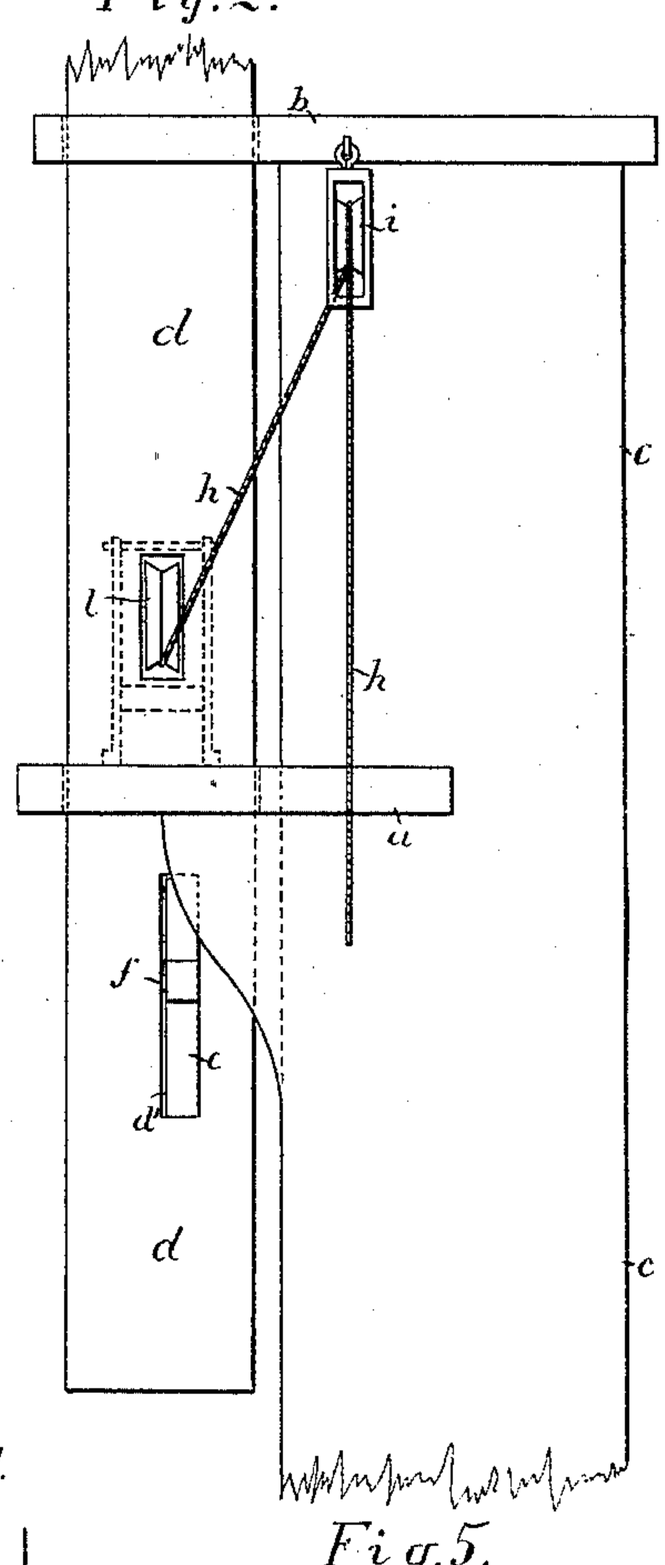


Fig. 3.

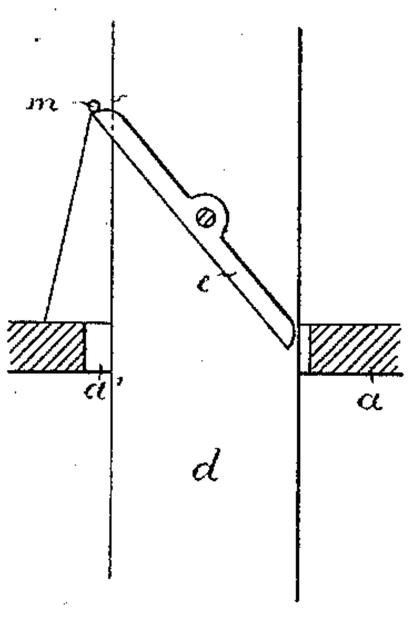


Fig. 4.

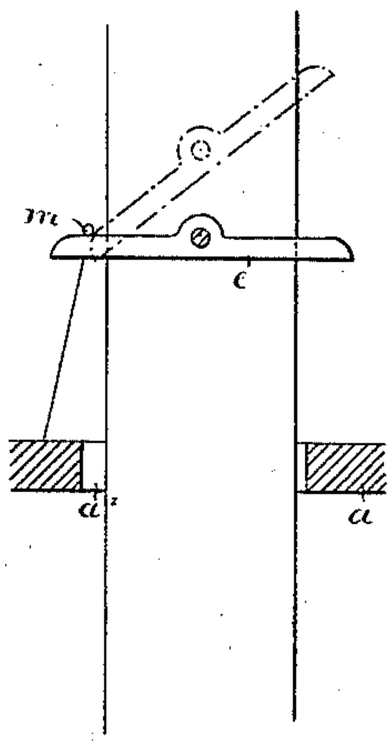
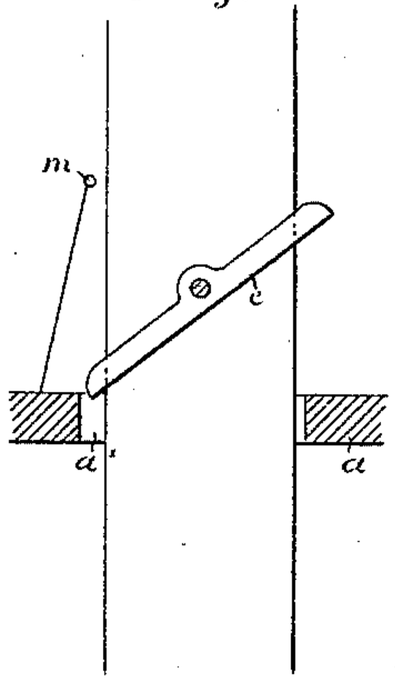


Fig. 5.



Witnesses.
Wm. H. Bates
L. F. Wiester

Inventor.
Constantin de Knorring
by Herbert W. J. Jenner.
Attorney

(No Model.) 2 Sheets—Sheet 2.

C. DE KNORRING.

SELF ACTING FASTENING FOR TOP-MAST FIDS.

No. 463,157. Patented Nov. 17, 1891.

Fig. 6.

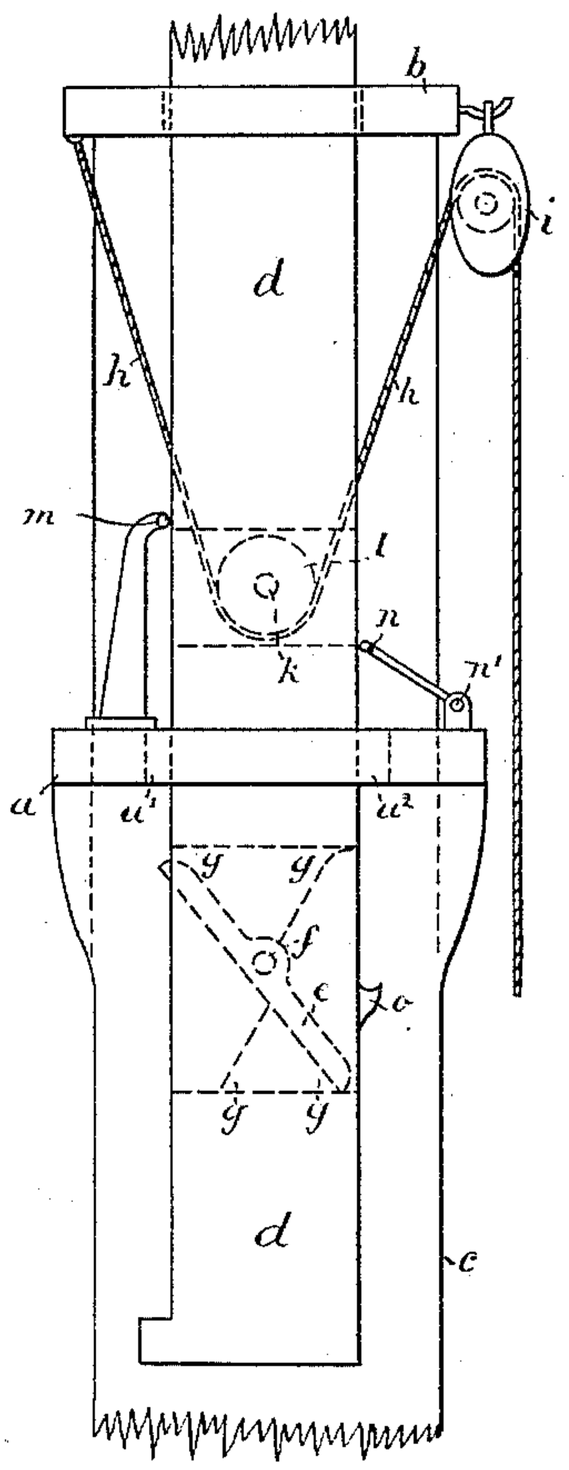


Fig. 7.

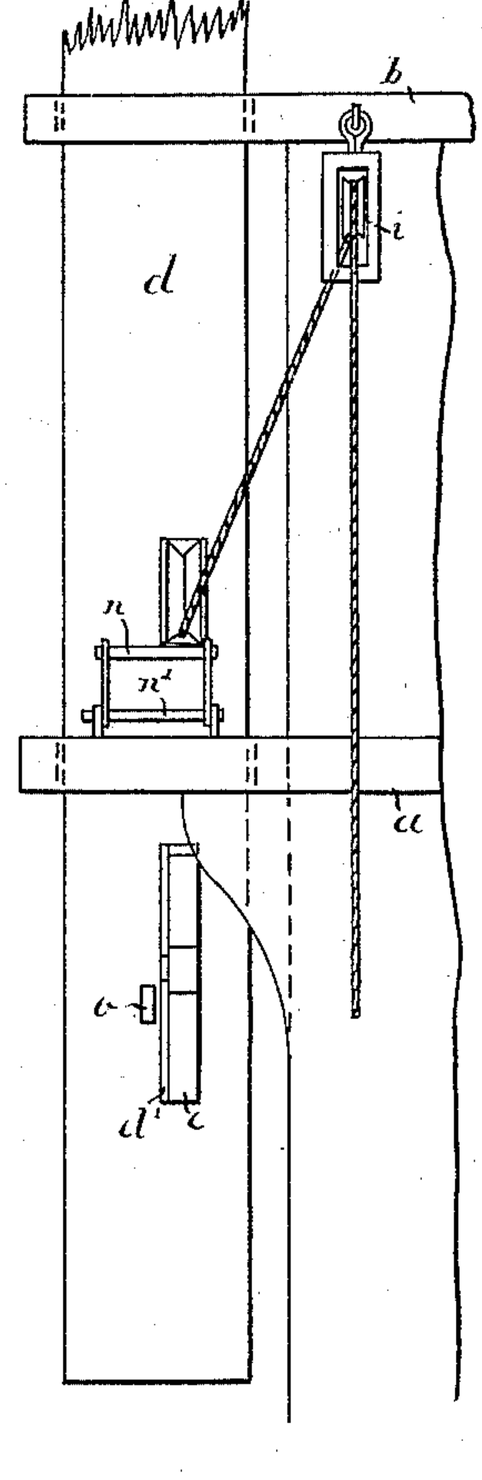


Fig. 8.

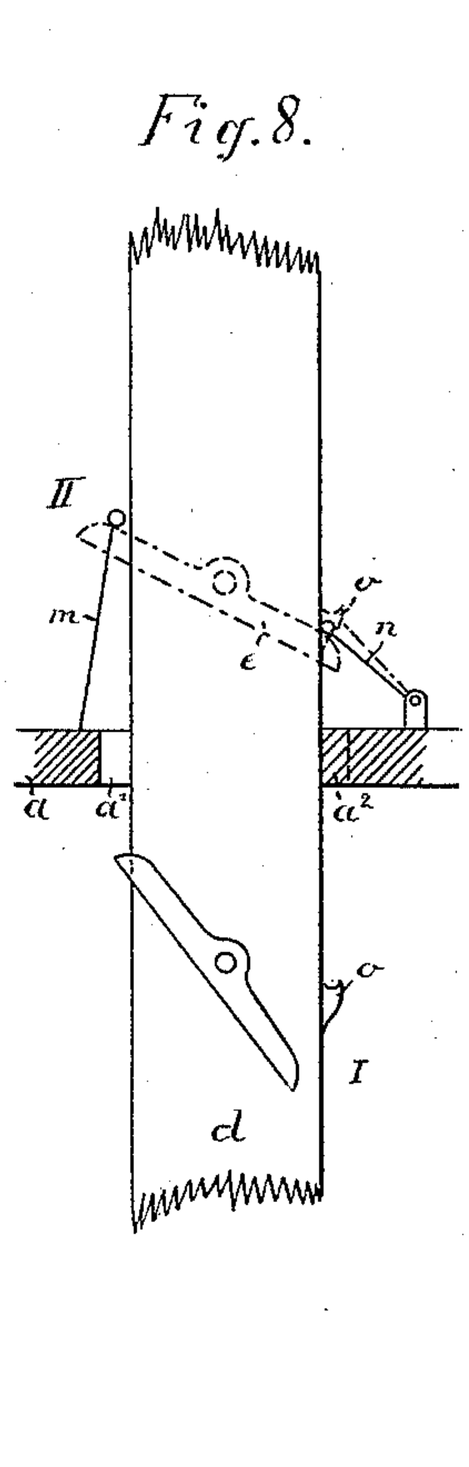


Fig. 9.

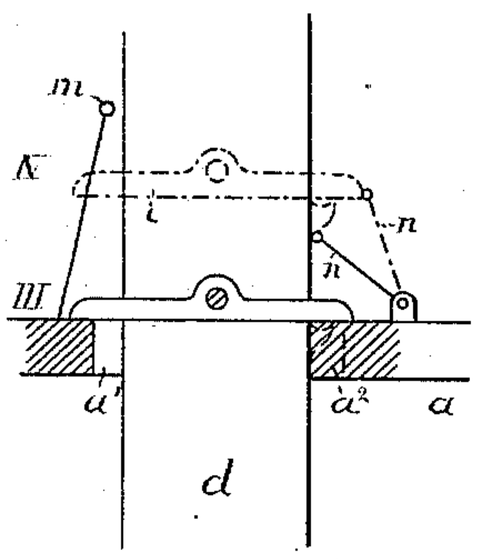


Fig. 10.

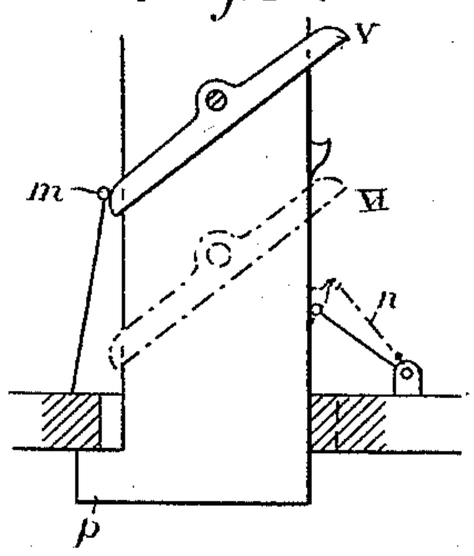
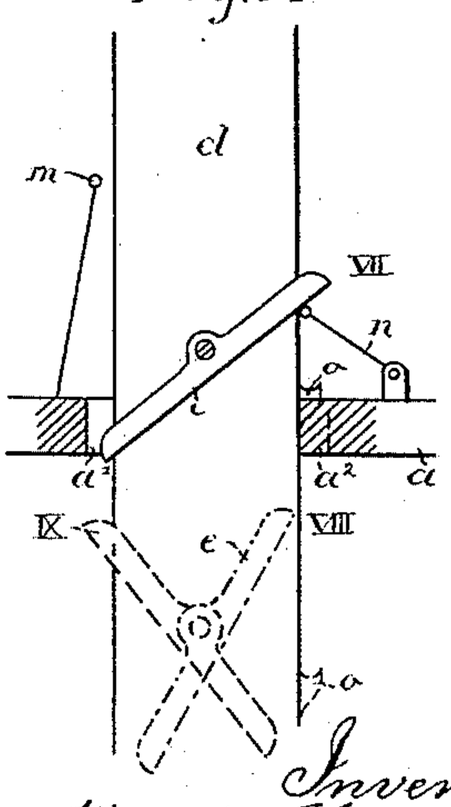


Fig. 11.



Witnesses:
Wm. A. Bates
J. W. Meister

Inventor.
Constantin de Knorring.
by Herbert W. J. Jenner.
Attorney.

UNITED STATES PATENT OFFICE.

CONSTANTIN DE KNORRING, OF BERLIN, GERMANY.

SELF-ACTING FASTENING FOR TOP-MAST FIDS.

SPECIFICATION forming part of Letters Patent No. 463,157, dated November 17, 1891.

Application filed July 11, 1891. Serial No. 399,128. (No model.)

To all whom it may concern:

Be it known that I, CONSTANTIN DE KNORRING, Secretary to the Imperial Russian Embassy, a subject of the Emperor of Russia, residing at Berlin, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in Self-Acting Fastenings for Top-Mast Fids; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in self-acting fastenings or locking devices for top-masts, such as are used in sailing-yachts and other sailing-vessels of smaller size.

It has for its object to prevent any missing of the action of the locking device in the event of the top-mast being raised too high.

In the accompanying drawings, Figure 1 shows a part front elevation and part section, and Fig. 2 a side view, of a locking device of the construction heretofore employed, while Figs. 3 to 5 show the several relative positions of the movable parts, from which the defective action of such an arrangement will be seen. In Figs. 6 and 7 are shown the front and side views of the improved construction, while Figs. 8 to 11 show the various relative positions of the movable parts.

In the construction shown at Figs. 1 and 2 the lower end of the top-mast *d*, which is guided in the cap *a* and ring *b* of the lower mast *c*, is provided with a latch *e*, which is pivoted on a pin *f*, but which is subjected to such frictional resistance that the latch *e* cannot move freely. In the arrangement shown the latch *e* is situated in a slot *d'* in the top-mast. The two-armed latch *e* is of such length and the ends *g* are so rounded that when inclined with its right-hand end downward and left-hand end upward only the latter projects beyond the top-mast, as shown at Fig. 3. When the inclined position is reversed, neither end projects. When in a horizontal position, which is not regulated by stops, both ends project. The movement of the top-mast is effected by a cord *h*, which, passing up from below, is led first over a block *i*, suspended from the ring *b* of the lower mast *c*, then downward to a pulley *l*, let into the top-mast *d* and rotatable on a pin *k*, and then up again to the ring *b*. To the cap *a* is fixed a stop *m* in such manner that, shortly before the position is attained in which the right-hand lower end of the latch *e* rises above the cap *a*, the left-hand upper end of the latch, which has passed through the slot *a'* in the cap, will strike against the stop *m*, as at Fig. 3. If after the latch has been turned into the horizontal position, as at Fig. 4, the top-mast were raised still higher, the right-hand end of the latch *e* would be raised until the left-hand end thereof was pushed by the stop into the slot *d'* of the top-mast. On releasing the cord *h*, therefore, and on the consequent descent of the top-mast, the latch would remain in this inclined position, in which case it would pass through the cap again, as at Fig. 5, instead of, as is intended, assuming the horizontal position in which it projects on each side beyond the hole of the cap *a*, and thus prevents the top-mast from dropping beyond the lock, in which the latch rests with both ends on the cap *a*. According to the present invention this defect is obviated by providing in the arrangement shown on the right-hand side of the cap *a* a second stop *n*, capable of turning through a small angle on a horizontal axis *n'*, while on the top-mast *d* itself is provided a fixed upward-directed hook *o*. Corresponding to this hook there is formed in the cap *a* a second slot a^2. The action of these parts, in combination with the arrangement described with reference to Figs. 1 and 2, will be understood on reference to Figs. 8 to 11. The top-mast moves up out of the first position I, Fig. 8, into the position II, shown in the same figure, causing the left-hand upward-directed end of the latch *e* to come in contact with the stop *m*, as described with reference to Figs. 1 and 2, whereby the latch will be turned so as to make the lower right-hand end project from the side of the top-mast. When the latch has been turned to this extent, the hook *o* will have engaged with the stop *n*, whereby any further rising of the top-mast will be prevented. The top-mast can then be lowered until the latch *e* bears with both ends upon the cap *a*, and it is consequently locked in this position. In order now to unlock the top-mast again, it is again raised, whereby the horizontal latch first attains the position IV, in which its end raises the stop *n*, so as to free it from

the hook *o*. On now raising the top-mast still farther the left-hand end of the latch strikes against the stop *m*, whereby it is turned into the opposite inclined position at V, Fig. 10. When by such turning the left-hand end of the latch no longer projects beyond the top-mast, a stop *p* on the top-mast bears against the under side of the cap *a*, thereby preventing any further rising of the top-mast. On now lowering the latter, the hook *o* first presses the stop *n* outward, so as to allow it to pass, as at Fig. 10, whereupon the right-hand end of the latch *e* also comes in contact with the stop *n*, which will have fallen back against the mast after the hook has passed, as at VII, Fig. 11, and the latch will now be turned first by the stop *n* and then by passing through the hole of the cap until it assumes the position VIII, Fig. 11. From this position the latch is lastly turned back by hand into the opposite inclined position IX with the upper left-hand end projecting, whereupon the device is ready to operate again, as described, on raising the top-mast.

What I claim is—

The combination, with a main mast provided with a cap and a ring, of a top-mast sliding in the said cap and ring, the latch pivoted to the top-mast, the stationary stop at one end of the latch, the pivoted stop at the other end of the latch, and a hook or projection on the top-mast for operating the said pivoted stop, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

C. DE KNORRING.

Witnesses:

DANITSTRATZ MANNENSTAL,

SIEGFRIED HAMBURGER.