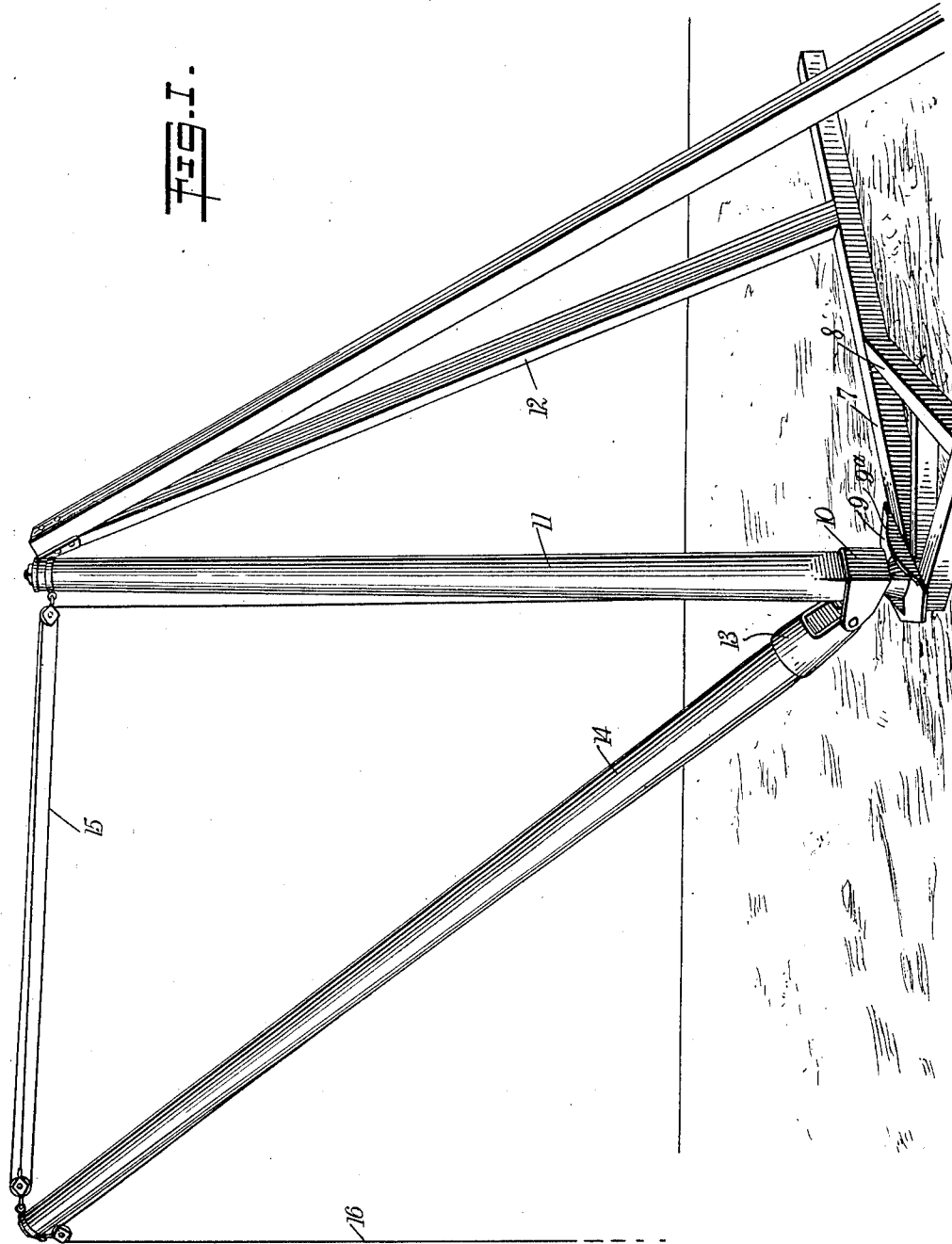


R. H. BLACKBURN.
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APPLICATION FILED SEPT. 28, 1911.

1,020,793.

Patented Mar. 19, 1912.

2 SHEETS—SHEET 1.



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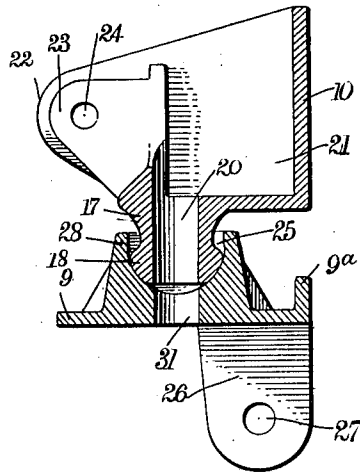


FIG. 2.

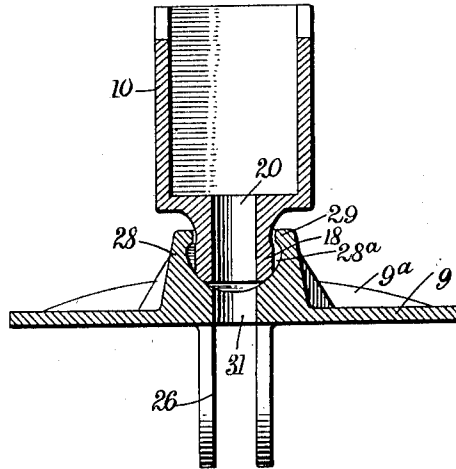


FIG. 3.

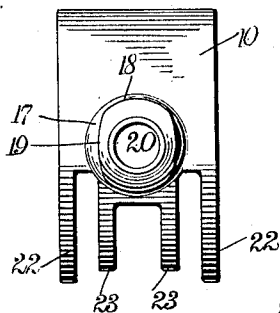


FIG. 4.

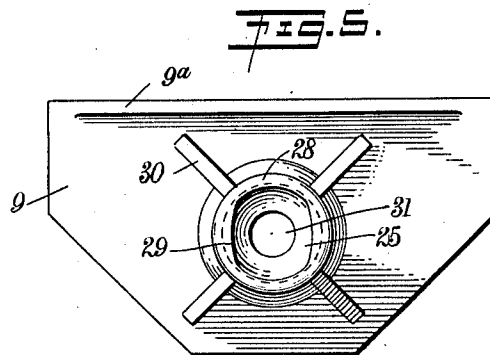


FIG. 5.

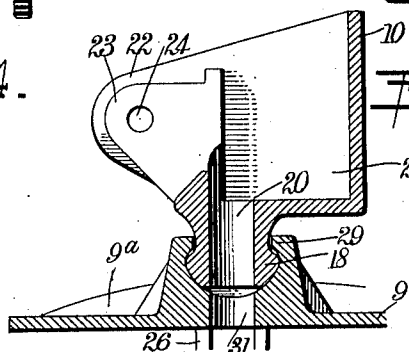


FIG. 6.

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RICHARD HUDSON BLACKBURN, OF JERSEY CITY, NEW JERSEY.

SELF-LOCKING MAST-STEP AND FOOT-BLOCK.

1,020,793.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed September 28, 1911. Serial No. 651,766.

To all whom it may concern:

Be it known that I, RICHARD H. BLACKBURN, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Self-Locking Mast-Step and Foot-Block, of which the following is a full, clear, and exact description.

My invention relates to mast steps and foot blocks as together employed for supporting masts, booms and the like, my more particular purpose being to provide a device of this character containing two members one of which is adapted to turn relatively to the other, said members being non-detachable one from the other when they occupy certain relative positions, and being detachable one from the other when they occupy a different position.

More particularly stated my invention comprehends a mast step and a foot block admitting of general use, but of special service in connection with derricks and so disposed that a mast or boom is supported by them and adapted to turn into different positions, the parts being so arranged that when the mast or boom is in such position that the members mentioned might otherwise be disconnected from each other by virtue of the strain of the mast or boom, these members are rendered inseparable, but in another position they are easily separable. In this connection it may be noted that where a mast or boom forms a part of a derrick and is adapted to swing angularly into different positions, it is often desirable, and in some instances it is even necessary, that the mast step may be readily separated from the foot block, and yet it need not be thus separable in all the different positions which it may assume as the mast or boom is moved around. What I seek, therefore, to do is to so shape and proportion the various parts that when there is considerable strain upon the mast or boom in a direction tending to unseat the mast step from the foot block, these parts are not separable, and yet when the mast or boom is swung around, say, to a position at right angles to the position it had at first, the mast step may be easily lifted from the foot block.

Reference is to be had to the accompanying drawings forming a part of this specification in which like characters of reference

indicate corresponding parts in all the views, and in which—

Figure 1 is an elevation showing a derrick equipped with my device; Fig. 2 is a substantially central vertical section through the mast step and foot block showing the mast step occupying one position relatively to the foot block; Fig. 3 is a vertical section through the mechanism shown in Fig. 2, but is taken on a plane at right angles to that upon which Fig. 2 is taken; Fig. 4 is an inverted plan of the mast step; Fig. 5 is a top plan of the foot block; and Fig. 6 is a vertical section showing the mast step occupying a different position from that which it occupies in Fig. 2 relatively to the foot block.

A supporting frame 7 is provided with a brace 8 and adapted to rest upon the ground or upon a floor. A mast step is shown at 9 and is provided with an upwardly extending flange 9^a serving as a guard. A foot block is shown at 10, and extending upwardly from the same is a mast 11. Two guides 12 are connected with the top of this mast for steadying it and are also connected at their bottoms with the frame 7. A cuff 13, made of metal, is fitted upon the lower end of a boom 14 for partially supporting the boom. A tackle 15 is connected with the outer or free end of the boom and is used for supporting the latter. A hoisting line is shown at 16 and depends from the outer end of the boom. The lower portion of the foot block is formed into a neck 17 carrying a knob 18, the latter being provided with sides 19 slightly flattened, as will be understood from Fig. 4, and having its diameter reduced in consequence of this flattening of the sides. The foot block 10 is further provided with a hole 20 extending axially downward through the knob. The foot block 10 is further provided with a compartment 21 for receiving the lower end of the mast 11. Integral with the foot block 10 and extending therefrom are a number of ears 22, 23 provided each with a hole 24 by aid whereof the cuff 13 is journaled in position, as will be understood from Fig. 1. The mast step 9 is provided with a pair of ears 26 integral with it and extending downwardly, these ears each being provided with a hole 27 to receive a bolt and facilitate the fastening of the mast step upon the frame 7. The mast step 9

is further provided with a bearing 28 provided with a compartment 25 (see Fig. 2), and with oppositely disposed edges 29 slightly overhanging said compartment. 5 These overhanging edges are opposite each other, as will be understood from Fig. 5, so that the compartment, as a whole, presents a shape more or less similar to that of the knob 18, the overhanging edges 29 corresponding to the flattened sides 19. 10

The operation of my device is as follows: The parts being fitted together, as indicated in Fig. 1, and as above described, the boom 14 may be swung angularly into a number of different positions. When the boom 14 occupies the position indicated in Fig. 1, the knob 18 is in such position that its flattened sides 19 are approximately parallel with the overhanging edges 29 of the bearing 28. With the parts in this position the mast step may readily be lifted up and thus disconnected from the foot block. Suppose, now, that the boom is swung around into the position indicated in Fig. 1. The rotation of the foot block 10 relatively to the mast step now causes the flattened portions 19 of the foot block to extend crosswise of the overhanging edges 29. The mast step cannot now be disconnected from the foot block for the reason that the knob 18 cannot be removed owing to the presence of the overhanging edges 29. If, now, as it sometimes happens in lifting or lowering a weight by aid of a derrick, there is, for the moment, a tendency, due to the strain of various parts, to lift the foot block upward from the mast step, this tendency does not manifest itself when the parts are in the respective positions indicated in Fig. 1, but when the boom is turned around to a substantial angle relatively to the position it occupies in said figure, and the 40

strain now has the tendency just mentioned, the mast step can no longer be disconnected from the foot block. The net result is that 45 if the operator desires to disconnect the foot block he can readily do so, and yet in the ordinary operation of lifting, lowering and transferring weight, the foot block is not likely to become disconnected from the 50 mast step.

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

1. A device of the character described 55 comprising a foot block provided with a knob having flattened portions, and a mast step provided with a compartment for receiving said knob and further provided with edges partially overhanging said compartment, said edges being disposed oppositely to each other and spaced apart sufficiently to permit the entrance or removal of said knob relatively to said compartment when said mast step and said foot block are turned into a definite position only relatively to each other. 60 65

2. A device of the character described comprising a mast step provided with a substantially hemispherical compartment 70 and with overhanging edges disposed upon opposite sides of said compartment, and a foot block provided with a knob, said knob being of such shape as to readily enter or leave said compartment when said mast step is turned into a definite position only in relation to said foot block. 75

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RICHARD HUDSON BLACKBURN.

Witnesses:

WALTON HARRISON,
ALFRED H. DAVIS.