

956,204.

2 SHEETS--SHEET 1.



WITNESSED:
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for J. O. Frier

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956,204.

Fig. 3.

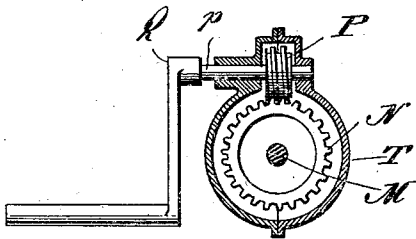
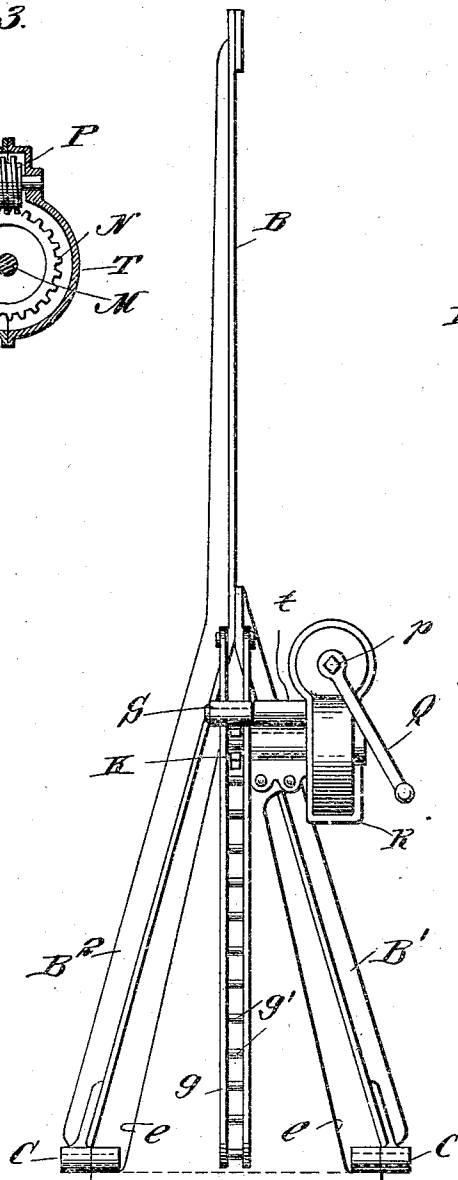
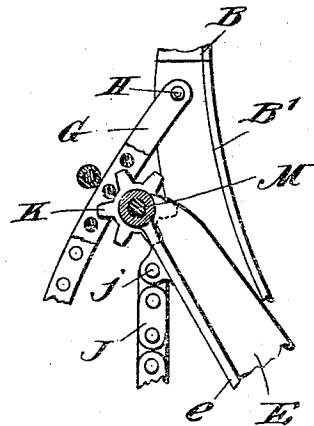


Fig. 4.



WITNESSES:

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Julius H. [Signature]
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Fig. 2.

INVENTOR

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UNITED STATES PATENT OFFICE.

EINAR L. M. SIVARD, OF NEW YORK, N. Y., ASSIGNOR TO WELIN DAVIT AND LANE & DE GROOT COMPANY, CONSOLIDATED, A CORPORATION OF NEW YORK.

DAVIT FOR SHIPS' BOATS AND SIMILAR PURPOSES.

956,204.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed August 9, 1909. Serial No. 512,064.

To all whom it may concern:

Be it known that I, EINAR L. M. SIVARD, a subject of the King of Sweden, and residing in the borough of Brooklyn, city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Davits for Ships' Boats and Similar Purposes, of which the following is a full, clear, and exact description.

My invention relates to improvements in davits for ships' boats and similar purposes.

In the accompanying drawings, in which similar reference characters designate corresponding parts throughout, I have illustrated a preferred form of my invention.

In these drawings, Figure 1 is a side elevation; Fig. 2 is an end elevation; and Figs. 3 and 4 are detailed views.

Referring now to these drawings, A designates a boat or other load which it is desired to swing in and out or backward and forward. In the case of a boat, it will also be desirable, when the same is in place upon the deck of a vessel, to raise the same slightly at the commencement of the operation to clear it from the chocks.

B designates a davit or davit arm. As shown, the davit arm has a double or split lower portion, composed of two portions B' B². As shown, the portion B² is cast integral with the arm proper B whereas the portion B' is cast separate therefrom and has its upper end secured to the arm B either by riveting, welding or in any other suitable manner, or the parts in question may be cast integral. If desired, the part B' might be made of precisely the same configuration as the integral structure B B² and the two parts either riveted or welded together to give additional strength.

C C designate two pivots for pivotally securing the lower ends B' B² to the deck or other suitable support. As shown, these pivots C C connect the lower ends B' B² to upwardly extending lugs of the base plate D which may be secured to the deck or other support in any suitable manner, such as by bolts.

E designates a casting having the base plate D for securing it to the deck or other suitable support and an upwardly extending portion provided with a flange *e* for sup-

porting the operating mechanism and the casing therefor. In Fig. 1, the upper boundary of this casting is indicated in dotted lines. The preferred shape thereof is indicated in Fig. 4. Any other suitable support for these operating devices may be utilized.

G designates my preferred form of operating rod which, as shown best in Fig. 2, comprises two outside plates *g g* bound together by spaced pins *g'*. As shown, this operating rod is curved to form the segment of a circle having the point C as the center and the distance from C to the operative position of the operating rod G as its radius. The pins *g'* of the operating rod G engage with and are driven in each direction by the teeth of a sprocket wheel K mounted on a shaft M, which shaft is shown as journaled in the upper end of the casting E. This same shaft M, as shown in Fig. 3, extends within the casing T, which may either form part of the casting E or may be mounted thereon and which will preferably be provided to inclose certain operating parts which, as shown, in the drawings, comprise the worm P and the worm wheel N. The worm wheel N is shown as keyed to the same shaft M to which is rigidly secured the sprocket wheel K. The worm P which engages the worm wheel N and drives the same in either direction is mounted on a separate shaft *p* journaled in the casing T and projecting at one end beyond the same to permit the securing thereto of a driving device which is shown as a manually operated handle Q. Obviously a motor of any suitable type might be substituted as a driving power. The operating rod G is pivotally secured at any suitable point, such as at H, to the davit arm. Preferably it will be secured at or about the junction of the two lower portions B' B² thereof.

S designates a roller mounted on a projection *t* of the casing T. As indicated in dotted lines in Fig. 2, the roller is secured to the projection by means of a bolt. This roller is so situated as to bear against the outer edge of the operating rod G and its connected sprocket chain J, while the parts are in operation, to keep the same in operative position or in engagement with the teeth of the sprocket wheel K. The sprocket chain

J may be a flexible sprocket chain of ordinary character pivotally connected at the point j^2 to the lower end of the operating bar G and pivotally connected at its other end at a point j to the casting or support E. This latter end may be secured at any desirable point to any desirable portion of the vessel or other structure upon which the davit is mounted.

10 The operation of the illustrated apparatus is as follows: Assuming the parts to be in the position indicated in Fig. 1 in full lines, the handle Q is turned, thus driving the worm P, which actuates the worm wheel N, thus rotating the shaft M and the sprocket wheel K which is keyed or otherwise rigidly secured thereto. The teeth of the sprocket wheel being in engagement with the pins g' of the operating rod G forces the same upward and around the circumference of a circle of which C is the center. This in turn forces the davit-arm B to swing outward until the lower end of the operating rod is reached. This operating rod should be of sufficient length to force the davit arm B sufficiently far beyond a central position to prevent the possibility of the same swinging back even in rough water when the boat is rolling. The precise distance beyond the center to which it will be necessary to push the davit arm will naturally depend upon the conditions under which the apparatus is to be used. If on land, the slightest distance beyond the center will be sufficient. If for use in smooth water, a very slight distance beyond the center will suffice. If for use in rough water, where the vessel is apt to roll heavily, it may be necessary to make the operating arm G long enough to force the davit arm considerably beyond its central position. The operating arm G, having forced the davit arm to the end of its predetermined extent of movement, the sprocket wheel continues to rotate and engage the links of the sprocket chain J. The engagement between the sprocket wheel and the sprocket chain acts, not as an operating or pushing device, but rather as a restraining device to prevent the boat and davit arm from moving too rapidly outboard. Preferably, of course, the worm and worm wheel will engage at such a pitch as to remain in a locked condition, excepting when driven by manual or other power. The shaft p is now rotated until the davit arm and boat reach the desired outboard position, such as indicated in dotted lines in Fig. 1. Obviously, the sprocket chain J may be of any suitable length to meet the conditions under which the apparatus is to be operated. To return the davit arm to the position shown in heavy lines in Fig. 1, the shaft p is rotated in the opposite direction, thus driving the sprocket wheel in the opposite direction which first takes up the flexible chain J and subsequently en-

gages the pins g' on the operating arm G to pull back the davit arm and boat or other object carried thereby to its original position. In all these operations, the roller S is bearing against the outer edge of the operating arm and flexible sprocket chain to keep the same in engagement with the teeth of the sprocket wheel K.

If the device to be handled is a boat, it will probably be mounted in chocks, and in order to swing the same outboard, it is necessary to raise the same slightly so as to clear the chocks before or simultaneously with the commencement of the outboard movement. For this purpose, I have shown the center a of the boat to be handled. In any event, whether the apparatus is used on land or on a vessel, and whether it is intended to handle boats or other articles, it is preferable to have the pivotal points C so arranged as to be an appreciable distance outside of the vertical plane passing through the center of the device which may be handled. This will insure a slight upward movement of the outer end of the davit arm and the consequent raising of the device to be handled which occurs simultaneously with the commencement of the outboard movement of the said outer end.

Any other suitable operating mechanism for operating the sprocket wheel may be employed and any other suitable means of moving the operating arm and flexible connection between it and the structure backward and forward may be substituted for the sprocket wheel. Furthermore, instead of having two separate pivots C C, one for each of the lower portions B' B^2 of the davit, a common pivot, such as a common shaft, may be substituted.

What I claim is:

1. A davit arm pivoted at its lower end to swing, a rigid operating rod connected at one end to said davit arm, a flexible connection pivotally connected at one end to the free end of the operating rod and at the other end to a rigid portion of the structure, and operating mechanism for engaging with the operating rod and flexible connection.

2. A davit arm pivoted to swing, a rigid operating rod connected at one end to said davit arm and shaped to form the arc of a circle having the pivotal point of the davit arm as its center, a flexible connection pivotally connected at one end to the free end of the operating rod and at the other end to a rigid portion of the structure, and operating mechanism for engaging with the operating rod and flexible connection.

3. The combination with a load, of a davit arm pivoted to swing at a point outside the vertical plane passing through the center of the load, a curved rigid operating rod connected at one end to said davit arm, a flexi-

ble connection pivotally connected at one
end to the free end of the operating rod and
at the other end to a rigid portion of the
structure, and operating mechanism for en-
gaging with the operating rod and flexible
connection.

to the foregoing specification in the presence
of two subscribing witnesses.

EINAR L. M. SIVARD.

Witnesses:

JOS. F. O'BRIEN,

R. V. FINN.

In witness whereof, I have signed my name