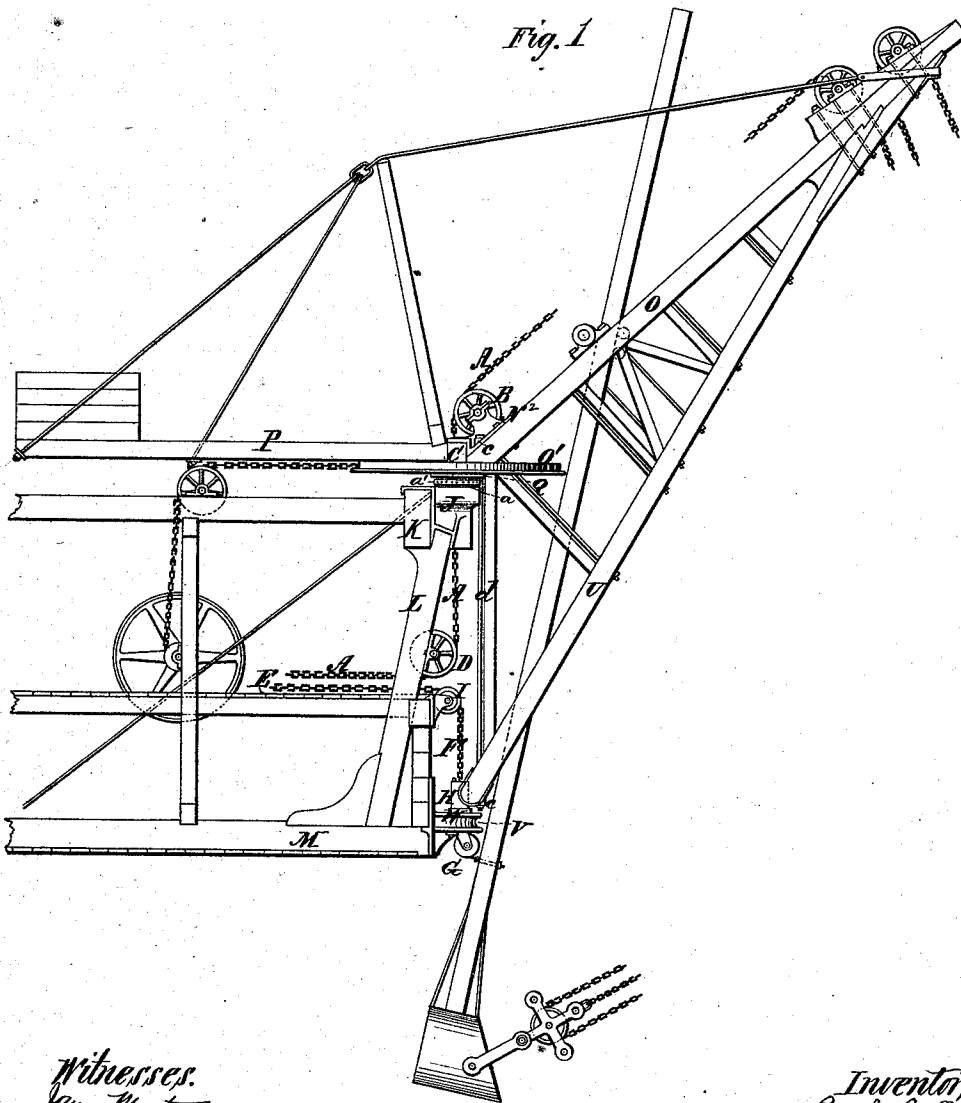


R. R. OSGOOD & F. BROTHERHOOD.

Dredging-Machine.

No. 162,763.

Patented May 4, 1875.



Witnesses.
James M. Hart
J. N. Campbell

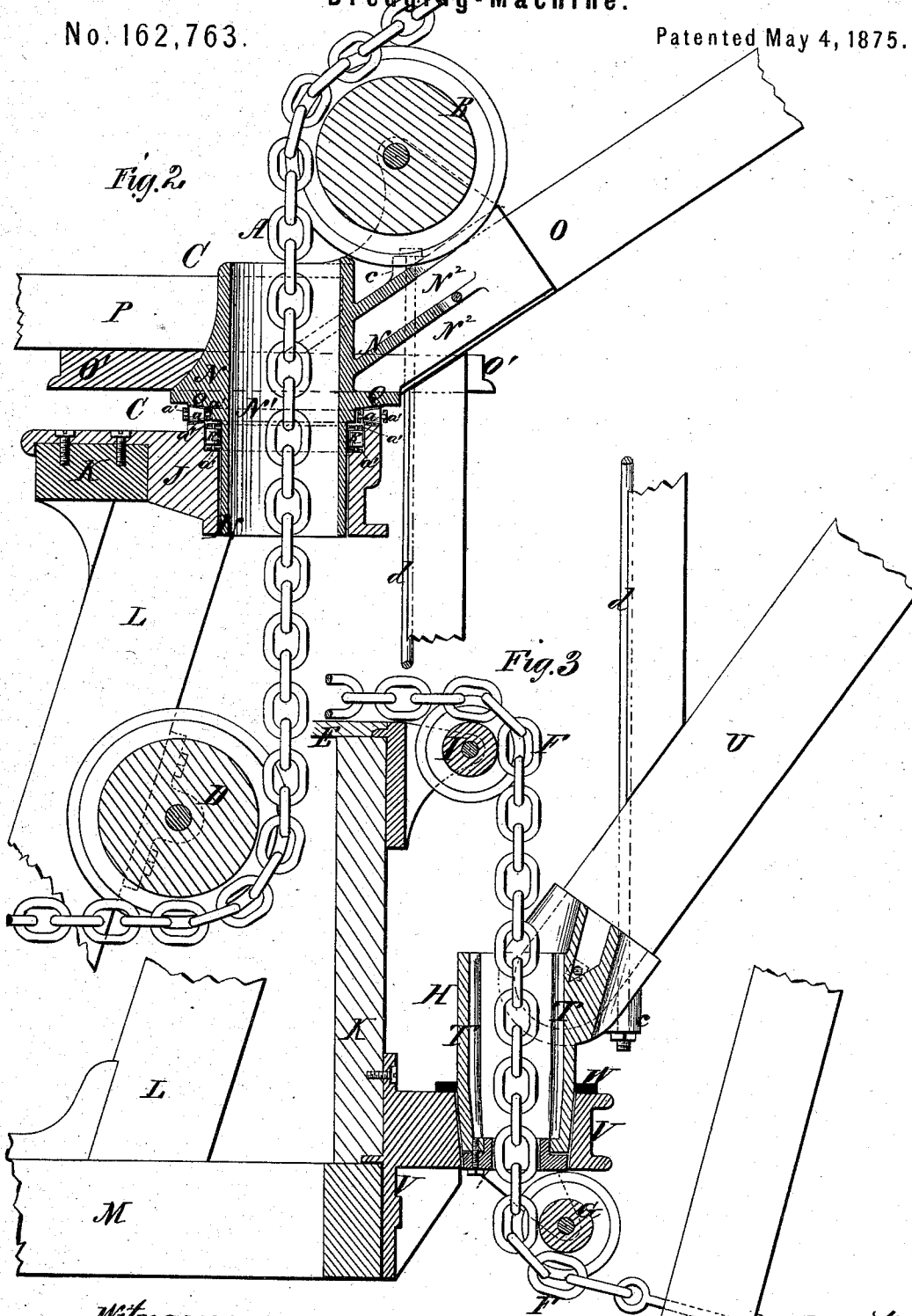
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UNITED STATES PATENT OFFICE.

RALPH R. OSGOOD, OF TROY, NEW YORK, AND FRED. BROTHERHOOD, OF CHARLESTON, SOUTH CAROLINA.

IMPROVEMENT IN DREDGING-MACHINES.

Specification forming part of Letters Patent No. **162,763**, dated May 4, 1875; application filed April 9, 1875.

To all whom it may concern:

Be it known that we, RALPH R. OSGOOD, of Troy, county of Rensselaer and State of New York, and F. BROTHERHOOD, of the city and county of Charleston and State of South Carolina, have invented a new and useful Improvement in Dredging-Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of a dredging-machine having our improvements applied to it; Fig. 2 is a vertical section of the upper pivot and bearing or trunnion of the crane; Fig. 3 is a similar section of the lower pivot and bearing or trunnion of the crane.

The nature of our invention consists in certain combinations and constructions of parts, as hereinafter described, and specifically claimed, whereby several advantages are obtained, viz: First, the hoisting-chain can be led down through the top pivot or trunnion of the crane to a sheave placed at a point near the deck of the boat, and thus a greater length of chain between the upper and lower sheaves, and an easy twist on the chain when the crane is swung round, obtained, and the use of centering guide-sheaves, which produce great friction and cause loss of power, dispensed with; second, the backing-chain is led directly from a pulley under the bottom pivot of the crane to a sheave placed near the deck of the boat, and thus a greater length of chain to ease the twist is obtained, and the use of centering guide-sheaves, which produce great friction and cause loss of power, is dispensed with, and the necessity of cutting a hole in the end of the boat to pass the chain through to the winch avoided; third, friction between the crane-pivots and their bearings is greatly reduced, compactness and strength obtained, while the weight of the crane is carried directly from the top bearing and keelsons instead of from the outside of the boat, said top-bearing being adapted for supporting the counterbalancing-beams of the crane.

To enable others skilled in the art to make and use our invention we will proceed to describe it.

A is the hoisting-chain, leading down from a sheave, B, directly through the top pivot or trunnion, C, to a sheave, D, placed near the deck of the boat E, so as to give a longer length to this chain between the said upper and lower sheaves B D, and also to give an easy twist on the chain when the crane is swung around. By leading the chain in this manner we are able to dispense with guide-sheaves, which, in ordinary dredges, keep the chain in its proper center line, but at a great loss of power from excessive friction. F is the backing-chain, leading from a sheave, G, attached directly under the bottom pivot or trunnion H, to a sheave, I, placed near the deck of the boat E, by which means a long length of chain, to ease the twist, is afforded, and the friction of side guide-sheaves avoided, as also the necessity of cutting a hole in the end of the boat to pass the chain through to the winch. J is a socket-casting upon the front girts K, and supported by one or more struts, L, such struts resting upon the keelsons M of boat E. In this socket-casting another casting, N, rests, which is directly carried by friction-rollers α , which are connected together by revolving wheels $\alpha' \alpha'$, which afford bearings for them. The casting N has a hollow pivot, N^1 , and pockets N^2 , into which are secured the ends of the crane-arms O, and also counter-balance-beams P, which are sustained by rods, as represented. This casting N is also made with a flange, Q, or other suitable extensions, which will overhang the casting J and friction-rollers α , and thus support the turn-table O' of the crane, while its pivot revolves in the tubular socket of the casting J. R are vertical friction rollers or balls placed around the pivot or trunnion. The casting N is also formed to furnish bearings for the angle-sheave B, over which the hoisting-chain passes, which sheave is so hung in its bearings that the hoisting-chain passes from it directly through the vertical axis of the hollow pivot of casting N. T is the bottom or heel casting,

made tubular and with suitable pockets for supporting the crane-braces or jib U, and provided with the means for carrying the angle-sheave G of the backing-chain F, which passes directly from the sheave G, through the vertical hollow axis of the bottom trunnion H, to a sheave, I, near the deck of the boat E. This casting is inserted into and steadied by a bracket-casting, V, having a tubular socket through it, and hung from the head of the boat. W is a gum ring, or its equivalent, placed around the tubular portion of casting T, on top of the box or socket-casting V, so as to fit close, and thus prevent dirt or other obstructions from getting between the working-faces. Friction-rollers, as in the case of the top pivot or trunnion, may also be introduced round this trunnion. *c c* are lugs formed on both the top and bottom castings of the trunnions or pivots of the crane, for bolts *d d* to pass through, for the purpose of carrying the weight of crane directly from the top casting or friction-rollers thereof while the strut-timbers L are carrying the weight of the crane from the keelsons M, instead of carrying it from the outside of the boat.

We do not confine ourselves to placing the backing-chain under the casting V of the bottom trunnion, as it might be placed on top of the same.

What we claim is—

1. The combination of the upper hollow suspended trunnion N and J, hoisting-chain passed through said trunnion, and a sheave nearly on a plane with the deck of the dredging-boat, substantially as described.

2. The combination of the bottom hollow trunnion, backing-chain passed through the said trunnion, and a sheave nearly on a plane with the deck of the boat, substantially as described.

3. The combination of friction-rollers with the suspended hollow-top trunnion and the turn-table of the swinging crane of dredging-machines, substantially as and for the purpose described.

4. The combination of struts L with the swinging crane, top trunnion, and keelsons of the boat, substantially as and for the purpose described.

5. The socket casting of the upper trunnion, constructed to receive the pivot of the top trunnion, and form an abutment for the struts L and their girts K, substantially as shown and described.

6. The pivot-casting of the top trunnion, having the turn-table of the crane, upper beams of the crane-arm, the angle-pulley, and the counterbalancing-timbers connected to it, substantially as described.

7. The combination of the counterbalancing-timbers P, turn-table, crane constructed with arms O and U, and the upper trunnion, substantially as described.

8. The suspension-bolts *d*, in combination with the crane, having main arm O, and auxiliary arm U, and top and bottom trunnions, substantially as described.

RALPH R. OSGOOD.

FRED BROTHERHOOD.

Witnesses:

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F. HARDEN.