

No. 811,709.

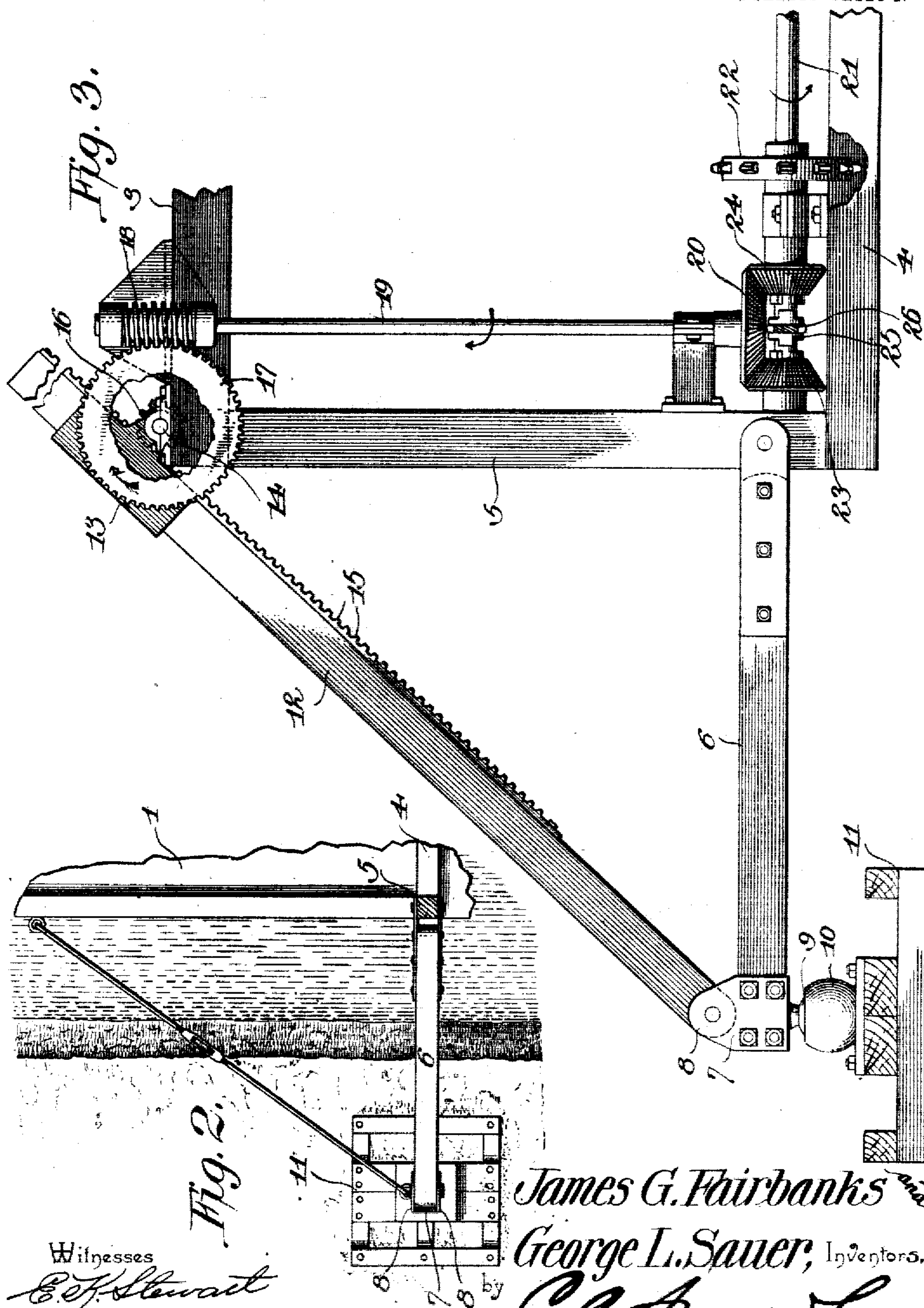
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JACK FOR STEAM DREDGES, &c.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JAMES G. FAIRBANKS AND GEORGE L. SAUER, OF MARION, OHIO.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JAMES G. FAIRBANKS and GEORGE L. SAUER, citizens of the United States, residing at Marion, in the county of Marion and State of Ohio, have invented a new and useful Jack for Steam-Dredges, &c., of which the following is a specification.

This invention relates to bracing mechanisms or jacks for dredging, ditching, and analogous machines, and has for its objects to produce a comparatively simple inexpensive device of this character which in practice may be readily operated and will effectually prevent the tilting or overturning of the scow or other body carrying the dredging mechanism when the latter is operated for dredging and raising the material at the sides of said vessel or body.

To these ends the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is an end elevation of a scow equipped with the mechanism constituting this invention and illustrating the latter in dredging position. Fig. 2 is a detail plan view. Fig. 3 is an elevation of the improved bracing mechanism, showing the latter on an enlarged scale.

Referring to the drawings, 1 designates a dredging-scow of the usual or any preferred construction and designed to carry a dredging mechanism, (not shown,) said scow being provided with a pair of the bracing mechanisms or jacks 2, which constitute the subject-matter of this invention and are disposed at opposite sides of the scow to sustain the latter against lateral tipping or overturning due to the dredging mechanism raising material at the sides of said scow. At this point it may be said that while the invention has been shown herein as applied to a dredging vessel it is to be understood that the same is applicable to and designed for use upon ditching and analogous machines used upon land.

The bracing mechanisms or jacks 2 are each sustained by a frame comprising upper and lower horizontal bars or beams 3 4 and a vertical beam or standard 5. Inasmuch as said jacks are identical in construction and operation we will describe but one in detail, in which 6 is a normally horizontal supporting member or element in the form of a beam pivoted at its inner end to the standard 5 to swing in a vertical plane and having bolted or otherwise secured to its outer end a

bracket or casting 7, having upwardly-extending spaced ears 8 and carrying upon its normally under face a ball 9. This ball is seated and works freely in a socket 10 to form a universal joint or ball-and-socket connection between the supporting element 6 and a ground-engaging shoe or platform 11 carried thereby, this shoe being intended in practice to engage and rest upon the surface of the ground or bank adjacent to which the dredging-machine may be operated, as is usual in this class of devices.

Pivoted at its lower ends between the ears 8 is a pressure member or ram 12, which extends diagonally upward and inward and is slidably seated adjacent to its upper end in a guide 13, pivoted upon a counter-shaft 14, mounted in suitable bearings at the upper end of the standard 5. The pressure member is preferably in the form of a rack provided upon its lower face with teeth 15 in mesh with a pinion 16, fixed upon the shaft 14, which latter has also fixed thereon a worm-wheel 17, engaged by a worm 18, provided upon the upper end of a vertical shaft 19, mounted in suitable bearings on the frame and carrying at its lower end a bevel-gear 20.

21 is a horizontal drive-shaft, upon which is fixed a sprocket-wheel 22, through the medium of which the shaft is driven from any suitable source of power. This shaft has also loosely mounted thereon a pair of idle bevel-pinions 23 24, both in mesh with the gear 20 and either adapted to be clutched to the shaft 21 to be driven thereby through the medium of a clutch member 25, keyed upon said shaft. This clutch member is operable by suitable lever 26, extending to a point within convenient reach of the engineer, thereby placing the entire mechanism wholly under his control.

In operation, supposing the drive-shaft 21 to be rotating in the direction indicated by the arrow in Fig. 3 and the pinion 23 to be clutched to the shaft, the worm-shaft will be rotated in the direction indicated by the arrow thereon, thus causing the worm through the medium of wheel 17 to drive the pinion 13 in the proper direction for moving rack 12 upward, and thus raising the supporting element and its shoe, whereas if the pinion 24 be clutched to the drive-shaft the worm will be driven in the opposite direction, and thus through the medium of wheel 17 and pinion 13 move the rack bar or ram 12 downward, thus exerting downward pressure upon the

shoe and tending to lift the adjacent side of the vessel 1. Thus the mechanism may be readily and properly adjusted and after the desired adjustment has been obtained may be locked in such position by throwing the clutch 25 out of engagement with both pinions 23 24.

It is apparent that the beams 3 and 4 may extend across the scow 1, thus forming a common part of both supporting-frames, and that the shaft 21 is likewise by preference of sufficient length to be common to both mechanisms, the latter, however, being totally free and independent of each other in the matter of operation.

From the foregoing it will be seen that a device of simple construction admirably adapted for the ends in view is produced. In attaining these ends it is to be understood that various minor changes may be made in the details herein disclosed without departing from the spirit or scope of the invention.

Having thus described the invention, what is claimed is—

1. In a device of the class described, the combination with a body, of a supporting element pivotally connected with and projecting from said body, a bearing member carried by the element, an operating member connected with said element and provided with a rack, and means for actuating said operating member, said means comprising a rotary pinion in mesh with the rack, a drive-shaft, means for operating the latter, and operative connections between the drive-shaft and pinion for actuating the latter.

2. In a device of the class described, the combination with a body, of a supporting element pivotally connected with and projecting from said body, a bearing member carried by the element, an operating member connected with said element and provided with a rack, and means for actuating said operating member, said means comprising a counter-shaft, a pinion thereon in mesh with the rack, a drive-shaft, means for operating the same, and mechanism actuated by the drive-shaft for driving the counter-shaft.

3. In a device of the class described, the

combination with a body, of a supporting element pivotally connected with and projecting from said body, a bearing member carried by the element, an operating member connected with said element and provided with a rack, and means for actuating said operating member, said means comprising a counter-shaft, a pinion fixed thereon in mesh with the rack, a worm-wheel fixed on the counter-shaft, a drive-shaft, means for operating the same, and a worm-shaft operated by the drive-shaft and provided with a worm engaging the worm-wheel for driving the counter-shaft.

4. In a device of the class described, the combination with a body, of a supporting element pivotally connected with and projecting from said body, a bearing member carried by the element, an operating member connected with said element and provided with a rack, and means for actuating said operating member, said means comprising a counter-shaft, a pinion fixed thereon and in mesh with the rack, a worm-wheel fixed on the counter-shaft, a worm-shaft having a worm engaging the latter wheel for operating the counter-shaft, a gear fixed on the worm-shaft, a drive-shaft, means for operating the same, a pair of idle pinions on the drive-shaft in mesh with said gear, and a clutch member capable of engaging either pinion to reversely rotate the worm-shaft or for releasing both pinions to lock the latter shaft.

5. The combination with a body, of a tension-bar pivotally connected to the body, an obliquely-disposed spud pivotally connected to the outer end of the tension-bar, a guiding means for said spud, and means for positively feeding said spud longitudinally through said guide.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JAMES G. FAIRBANKS.
GEO. L. SAUER.

Witnesses:

FRANK G. NORTON,
W. LINDER.