

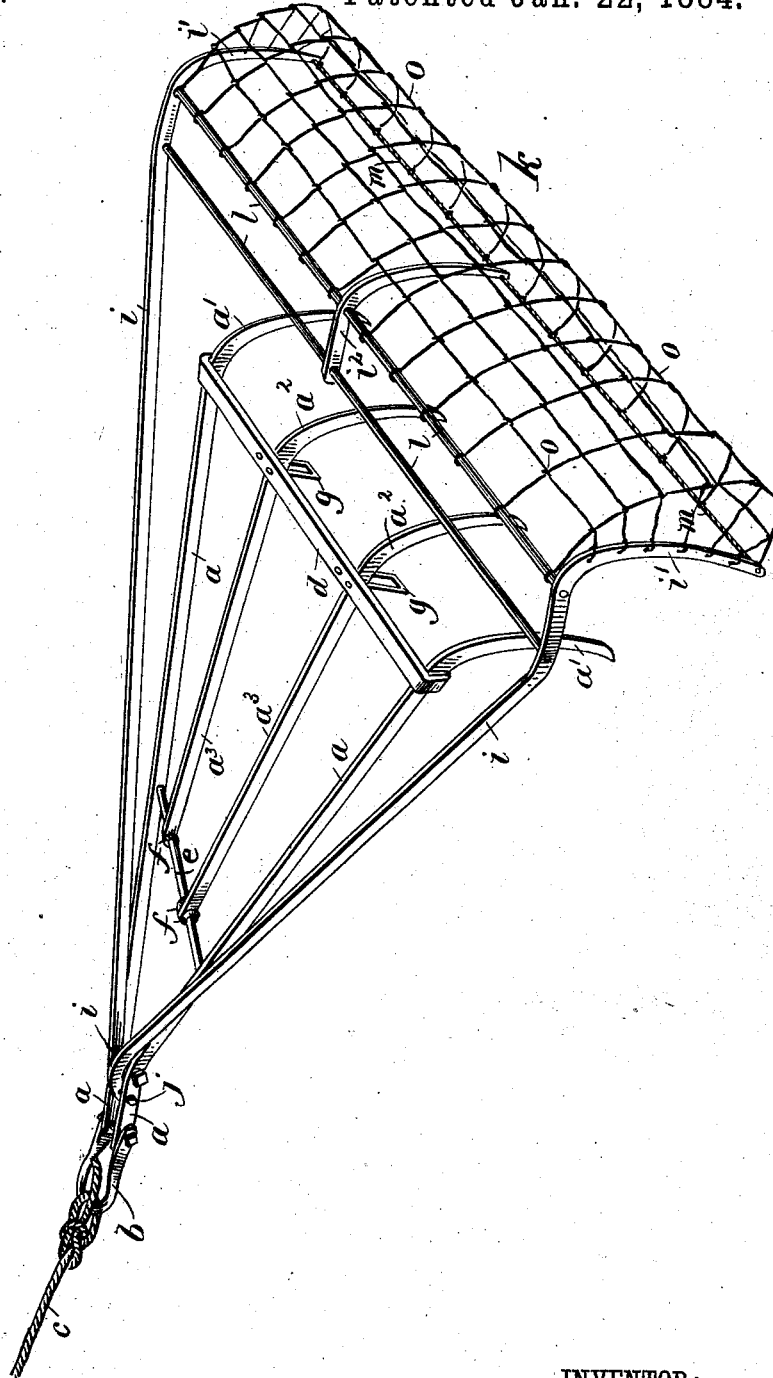
(No Model.)

I. DU BOSE SEABROOK.

ROCK DREDGE.

No. 292,371.

Patented Jan. 22, 1884.



WITNESSES:

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ISAAC DU BOSE SEABROOK, OF ST. HELENA ISLAND, SOUTH CAROLINA.

ROCK-DREDGE.

SPECIFICATION forming part of Letters Patent No. 292,371, dated January 22, 1884.

Application filed May 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, ISAAC DU BOSE SEABROOK, of St. Helena Island, in the county of Beaufort and State of South Carolina, have invented a new and Improved Rock-Dredge, of which the following is a full, clear, and exact description.

My invention relates to machines employed for the disintegration and recovery of the phosphate rock deposits of river bottoms or beds; and the object of the invention is to provide a machine of this class contrived for greater flexibility of action for the recovery of a larger percentage of rock for the time and labor expended than can be obtained by the use of such machines as at present constructed.

The invention consists of a heavy rake or breaker having teeth capable of independent vertical movement relatively with each other, and combined with a basket or gatherer, also having free vertical movement, and arranged to trail behind the breaker, for collecting the fragments of rock broken up thereby, both the breaker and gatherer having, also, a free lateral play, for better accommodating themselves to the irregularities of the river-bed for maximum useful effect, the machine being connected to a drag-rope or chain, to be worked by any suitable power, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawing, forming part of this specification, in which the figure is a perspective view of my improved rock-dredge.

I make the breaker in the form of a heavy rake, consisting in part of metal side bars, *a*, ranging about parallel with each other at the forward ends, where they are connected by any suitable clevis or shackle, *b*, to the drag rope or chain *c*, which is to connect with any suitable power for hauling the breaker and attached gatherer over the river-bottom—such as a moving vessel, or a winding-drum, or an anchored scow or boat. From their forward ends the bars *a* diverge, and are secured together by a transverse bar, *d*, at the downward bend of bars *a*, to form their teeth, the connection of the bars *a* to the shackle *b* permitting a rocking or vertical movement of the side teeth, *a'*, to conform to the irregularities of the lumpy or honey-combed phos-

phate rock-bed of the river; and to afford the same freedom of movement, and for like purpose, to the central or intermediate teeth, *a''*, I connect them to a bar, *e*, by their forwardly-extending shanks or body portions, *a'''*, and between collars or stops *f*, to confine them laterally on bar *e*, which is secured to bars *a*, so that the teeth *a''* may rock freely in vertical plane and independently of each other, clips or loops *g*, fixed to bar *d*, and through which the shanks of the teeth *a''* pass, serving to limit the downward play of said teeth. The breaker thus constructed has and maintains a general angular or < form, and all the teeth work freely and independently of each other to a sufficient degree to insure a maximum contact and friction on the lumpy and irregular river-bed for a large displacement of the phosphate rock, the teeth being preferably steel-pointed for better effect and increased durability.

Between the forward ends of breaker-bars *a*, I connect the ends of the draft-bars *i* of the basket or gatherer *k* by a suitable pin or bolt, *j*, so that the gatherer will be drawn or trailed along behind the breaker, to collect the fragments of rock broken up or freed from the river-bed by the breaker, and which pass through its teeth, which are spaced suitably to avoid clogging of the breaker by the rock. The bars *i* are bent downward and curved suitably at *i'*, to act with one or more intermediate curved plates or bars, *i''*, and the transverse upper rod or rods, *l*, and lower rod or wire rope, *m*, to form a frame-work for support of any suitably intermeshing wires or chains *o*, to make a basket-like structure, which is held by its frame close to the river-bed and at suitable distance behind the breaker-teeth to form an effective gatherer of the broken rock, and which, when filled, may be hauled up by the drag-rope *c*, for discharge of its contents.

The gatherer is supported by its frame a sufficient distance above the vertically-moving arms or shanks of the breaker-teeth to insure all necessary freedom of action of the breaker, and the breaker and gatherer have also a free lateral play independently of each other, giving the machine a wide range of flexible movement well calculated to insure the best results in action.

The breaker may have any desired number of vertically-movable teeth, depending on the capacity of the machine, and the gatherer may consist of two or more similarly-constructed contiguous basket-like sections, without departing from the spirit of my invention.

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

1. In a rock-dredge, the combination, with a trailing basket or gatherer and drag rope or chain, of the breaker having shackled side toothed bars and intermediate independently-movable toothed bars, adapted to have vertical movement, substantially as and for the purpose set forth.

2. The breaker, made with diverging tooth-bars $a a'$, connected suitably to a draft-clevis or shackle at the front, and by a rear transverse bar, d , having clips or loops g , through which pass the intermediate teeth, a^2 , which connect pivotally with cross-bar e of bar a , substantially as shown and described.

3. The gatherer, constructed with frame-bars

$i i'$, cross-rods l , flexible wire rope m , and intermeshing cords or wires o , substantially as shown and described.

4. The combination, in a rock-dredge, of the breaker consisting of toothed bars $a a'$, connected to draft-shackle b and to each other by bars $d e$, said bars e carrying pivotally and between collars f the forward ends of the intermediate tooth-bars, $a^2 a^3$, which work in loops g , and a trailing basket or gatherer, pivoted to bars a at j , and formed of end-curved bars i , bars i' , top cross bar or bars, l , and flexible wire rope m , and the intermeshing cords or chains o , said breaker and gatherer being connected to the drag-rope e and to each other, to afford free vertical and lateral play of the breaker and gatherer, substantially as shown and described.

ISAAC DU BOSE SEABROOK.

Witnesses:

SAMUEL EVANS,
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