2 Sheets—Sheet 1.

T. B. TAYLOR.

Machine for Deepening River Channels.

No. 227,595. **Patented May 11, 1880.**

Fig. 1.

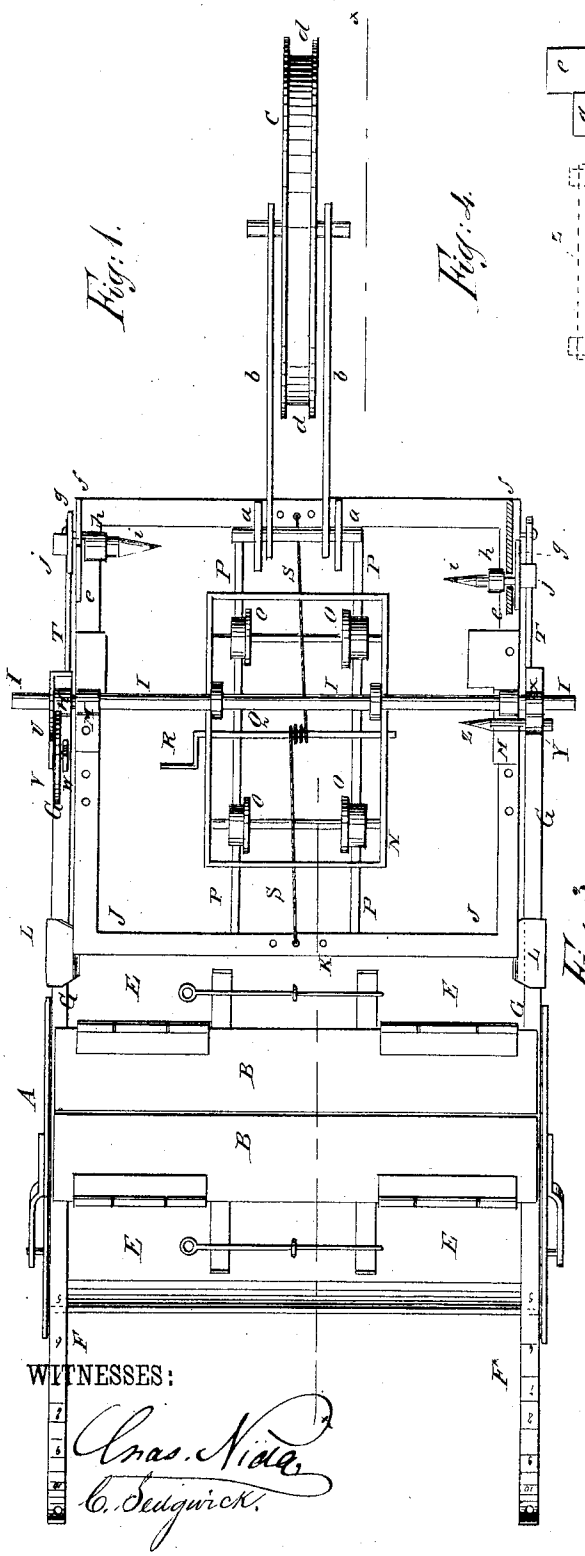


Fig. 4.

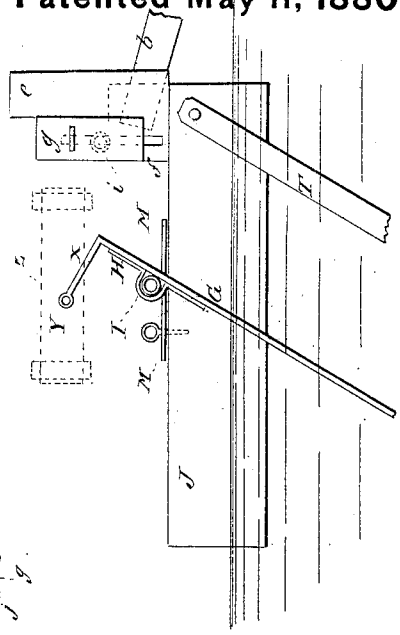
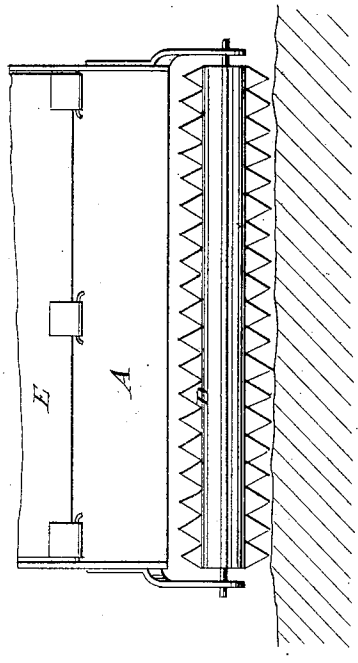


Fig. 3.



WITNESSES:

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2 Sheets—Sheet 2.

T. B. TAYLOR.

Machine for Deepening River Channels.

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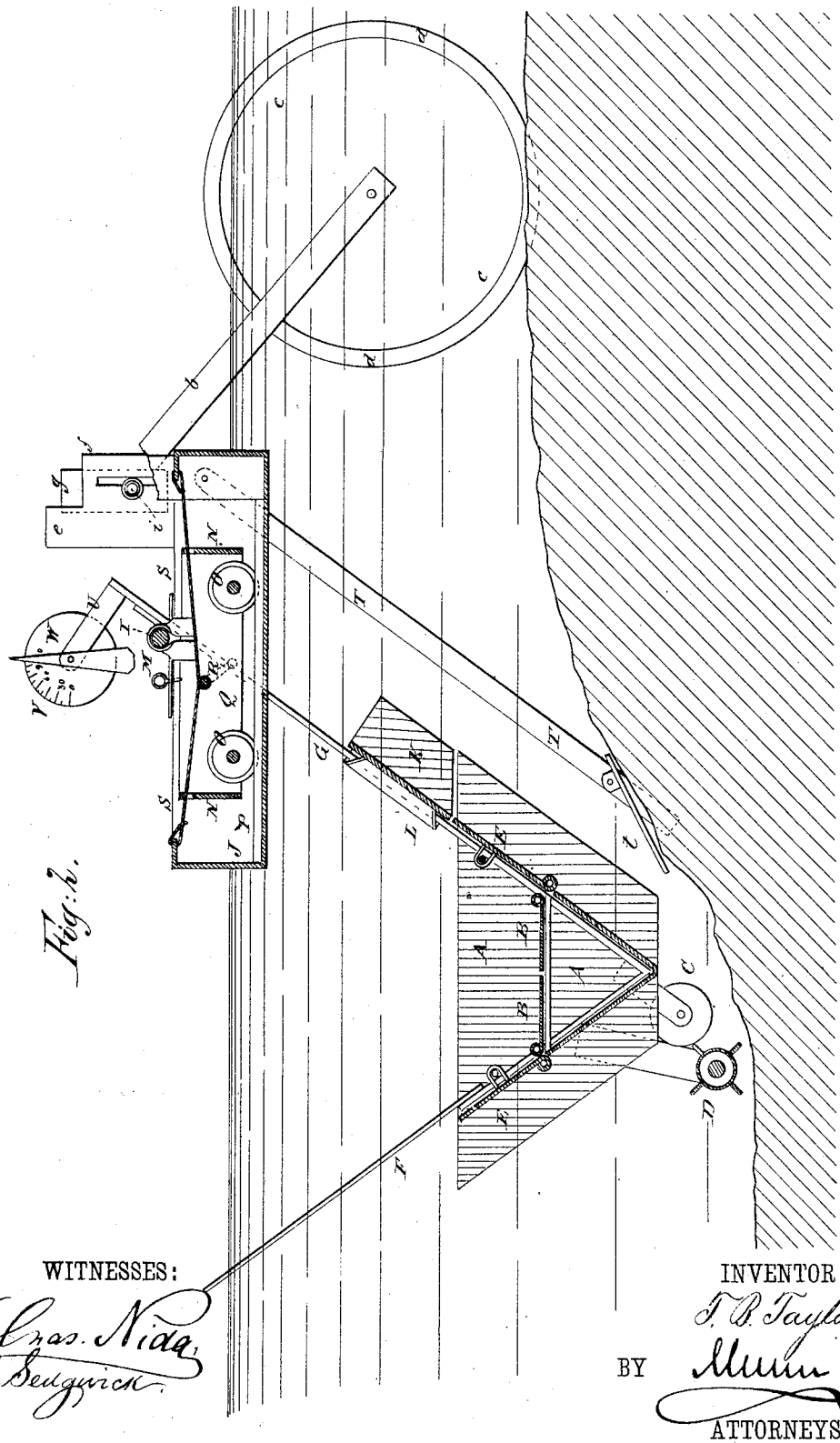


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UNITED STATES PATENT OFFICE.

THOMAS B. TAYLOR, OF MOUNT MEIGS, ALABAMA.

MACHINE FOR DEEPENING RIVER-CHANNELS.

SPECIFICATION forming part of Letters Patent No. 227,595, dated May 11, 1880.

Application filed December 4, 1879.

To all whom it may concern:

Be it known that I, THOMAS B. TAYLOR, of Mount Meigs, in the county of Montgomery and State of Alabama, have invented a new and useful Improvement in Machines for Deepening the Channels of Rivers, of which the following is a specification.

Figure 1, Sheet 1, is a plan view of the machine. Fig. 2, Sheet 2, is a sectional side elevation taken through the line *x x*, Fig. 1. Fig. 3, Sheet 1, is a rear elevation of the lower part of the machine. Fig. 4, Sheet 1, is a side elevation of the boat.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish a machine so constructed as to deflect the current of a river downward, and thus cause the said current to deepen the channel of the river.

A represents a triangular box of any desired length and size, and which is designed to be filled with wet mud, sand, gravel, stones, or other suitable substance to such an extent that the box A will sink to and remain upon the bed of the river.

The box A is provided with covers B to prevent the substance with which the box is filled from washing out. To arms attached to the bottom of the box A are pivoted wheels C, to roll upon the bed of the river and prevent the bottom of the box A from coming in contact with the bed of the river, and leave a space beneath the box for the passage of the current.

With this construction, when the box A is drawn along the bed of the river, either against or with the current, the inclined side of the box A will deflect the current downward and cause it to impinge against the bed of the river, washing into the bed and forming a canal or channel along it, the mud and sand being swept away by the current.

In case the river flows over a bed of clay or other hard substance a revolving toothed cylinder, D, will be pivoted to arms attached to the box A, to loosen up the clay or other substance and allow it to be swept away by the deflected current. The ends of the box A project beyond the sides, to serve as flanges or wings to prevent the deflected current from escaping laterally and without doing its work upon the bed of the river.

To the upper edges of the sides of the box A are hinged plates E, which may be turned up and secured to the frame of the box A to form extension sides when desired, and which may be turned down when not required for use.

To the rear corners of the box A are attached arms F of railroad-rails or other suitable material, and of sufficient length to rise above the surface of the water. The ends of the arms F should have holes formed through them, or should be provided with other appliances to receive ropes or chains for raising the box A out of the water when desired, or to support it at any desired depth in the water. To the forward corners of the box A are attached two arms, G, similar to the arms F, and which have bearings or keepers H attached to their upper ends, to receive the ends of a round bar, I, which crosses and is secured to a flat-boat, scow, or other float or vessel, J.

K is a plate, provided with keepers L to slide upon the arms G. The plates K, when lowered, serve as an additional extension to the side of the box A, and when not required for use will be slid up the arms G.

The cross-bar I is secured in bearings M, which slide upon the edges of the sides of the boat, and are secured in place, when adjusted, by pins or other suitable fastenings. To the middle part of the bar I is attached a truck, N, the wheels O of which roll upon rails, P attached to the boat J.

Q is a shaft, which works in bearings attached to the truck N, and is provided with a crank or cranks, R, for operating it. To the shaft Q are attached the inner ends of two ropes or chains, S, which are wound upon the said shaft in opposite directions. The other ends of the ropes or chains S are attached to the opposite ends of the boat J.

With this construction, by releasing the bearings M and operating the shaft Q, one of the chains or ropes S will be wound upon and the other will be unwound from the said shaft Q, so that the truck N will be drawn toward one or the other end of the boat J, carrying the bar I with it, and thus adjusting the weight of the angular box A and its attachments to

any desired part of the said boat. The reason for making the box adjustable is, that it is desirable to counteract the effect of the current due to the attachment and operation of the bars T.

More than one pair of ropes or chains S may be used to guard against accidents from the breaking of one of the said ropes or chains. To the forward parts of the sides of the boat J are pivoted the upper ends of two arms, T, which are made of such a length that their lower ends may rest upon the bed of the river, and thus hold the boat in place against the pressure of the current until the part of the river-bed being operated upon has been reduced to the requisite depth.

In case the bed of the river is soft mud the arms T should be provided at a little distance from their lower ends with wide feet *t*, to rest upon the soft mud and give the arms a hold upon it. These feet *t* should be hinged or pivoted to the arms T, so that the said feet may adjust themselves to the surface of the river-bed.

To the upper end of one of the arms G is attached a standard, U, having a circular plate or disk, V, formed upon or attached to its upper end. To the center of the disk V is pivoted a pointer, W, the lower end of which is made heavy or is weighted, so that the pointer will always stand vertical.

The disk V, or at least its upper left-hand and its lower right-hand quadrants, are divided up into degrees and fractions of degrees, so that the indicator will always show the angle at which the arms G stand, and consequently the depth of water at that point. The depth of water may also be indicated by numbers or other symbols placed upon the arms F, and painted of such a color as to be readily seen.

To the upper end of the other arm, G, is attached a standard, X, provided with a socket or other device, Y, to receive and hold a pencil, Z. With this construction the pencil Z will move up and down as the box A moves up and down in passing over the uneven bed of a river, so that the point of the pencil, if placed against a moving strip of paper, will give an outline or survey of the irregularities of the river-bed.

A strip of paper can be carried past the point of the pencil Z by an ordinary clock-work, such as is used with telegraph-instruments, and about the construction of which there is nothing new.

With this construction the machine may be drawn over the portion of the river-bed to be operated upon, so as to obtain a chart of the river-bed before beginning work, to serve as a guide in subsequent operations; or the pencil-holder and pencil may be attached to the upper end of an arm pivoted to the forward end of the boat J, and having a weight or heavy wheel attached to its lower end, so as to obtain an outline of the river-bed in advance of the machine.

To suitable supports, *a*, attached to the forward part of the boat J is hinged a frame or bars, *b*, to the lower ends of which is pivoted a large wheel, *c*. The wheel *c* is made of such a diameter that its upper part will rise above the surface of the water, while its lower part rolls along the bed of the river. The rim of the wheel *c* has a channel, *d*, formed in it, so that it may take up mud, sand, or other substance from the bottom of the river and raise it above the surface of the water, when it may be detached from the wheel by hand and inspected. This arrangement enables the engineer to know exactly the kind of bottom there may be at each point, so that he may conduct his operations understandingly.

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

1. In devices for deepening river-channels, the covered and weighted box A B, having flanged ends provided with bottom wheels, C, and made of triangular form, as shown and described.

2. The combination, with the vessel J and the weighted angular box A, of the arms F G and the cross-bar I, substantially as herein shown and described, so that the weighted box A will adjust itself to the depth of the water, as set forth.

3. The combination, with the weighted box A and its arms F G, of the extension sides E K, both or either, substantially as herein shown and described, so that the inclined surface of the box A may be increased and diminished as required.

4. The combination, with the vessel J, the bar I, and the weighted box A, of the truck N, the crank-shaft Q R, and the pair or pairs of ropes or chains S, substantially as herein shown and described, so that the point of support of the weighted box A may be adjusted upon the vessel J as required.

5. The combination, with the pivoted arm G and the vessel J, of the moving strip of paper, pencil-holder Y, and pencil Z, substantially as herein shown and described, so that as the arm G or box A is drawn over the river-bottom the pencil Z may draw upon a moving strip of paper an outline of the elevations and depressions of the river-bed, as set forth.

6. The combination, with the vessel J and the weighted box A, of the pivoted arms T, substantially as herein shown and described, to hold the vessel and box against the force of the river-current, as set forth.

7. The combination, with the holding-arms T, pivoted to the boat J, that carries the weighted box A, of the hinged feet *t*, substantially as herein shown and described, to prevent the arms T from sinking too deep in soft mud, as set forth.

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Witnesses:
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F. M. TAYLOR.