

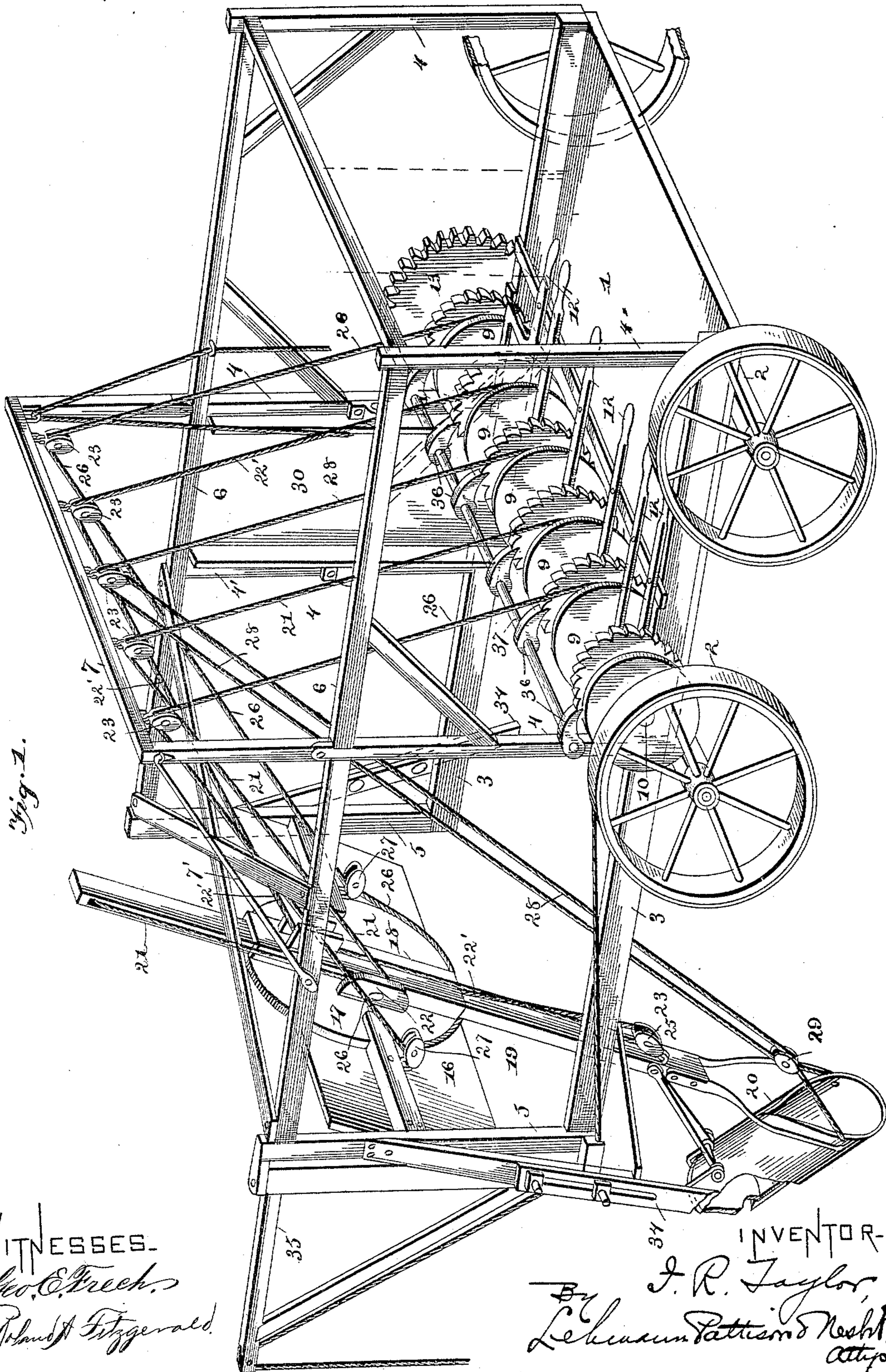
(No Model.)

2 Sheets—Sheet 1.

I. R. TAYLOR.
DREDGING MACHINE.

No. 497,735.

Patented May 16, 1893.



WITNESSES.
Geo. C. French.
Robert Fitzgerald.

INVENTOR-
J. R. Taylor,
Lehman, Patterson & Nesbit,
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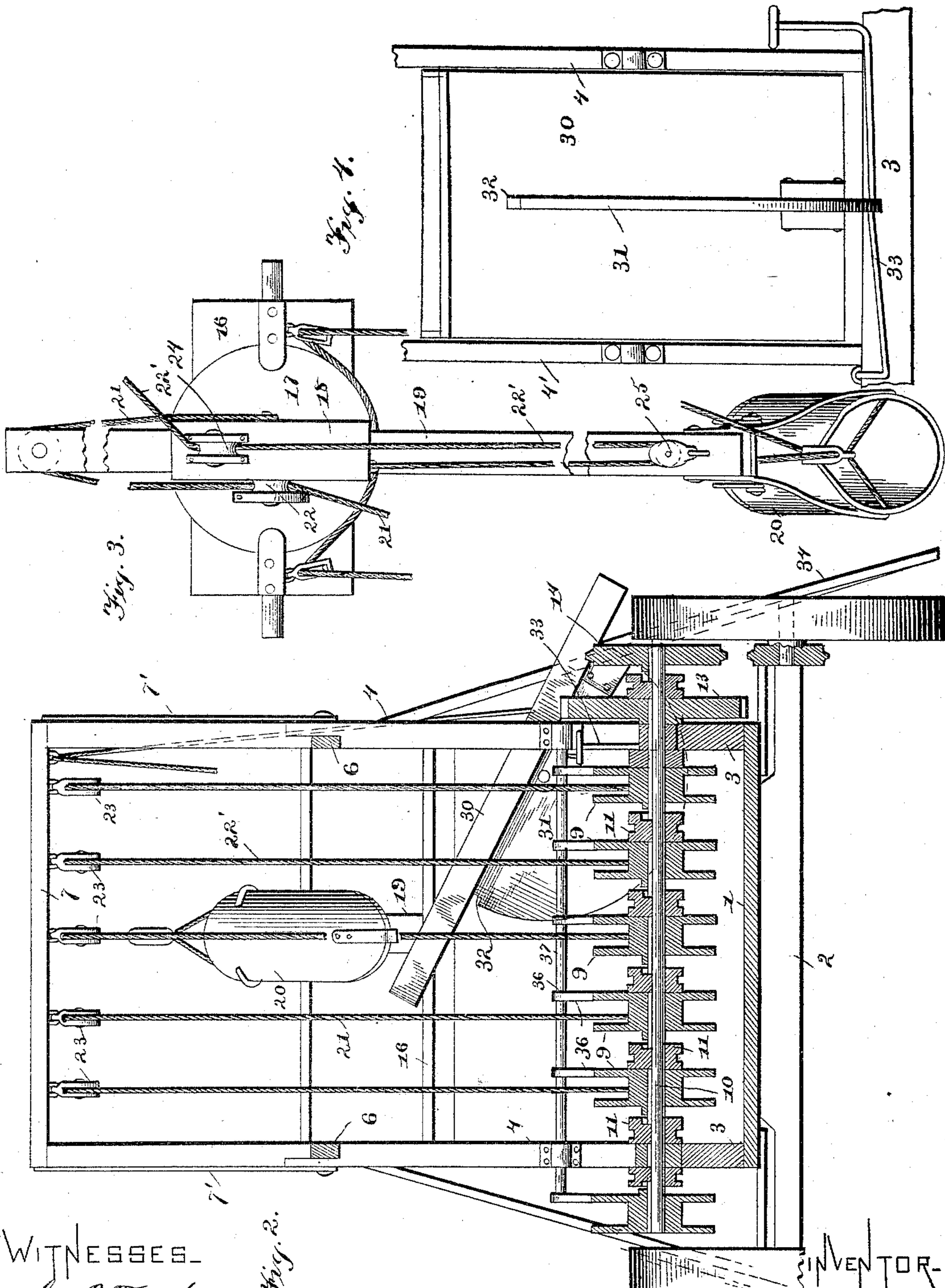
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Geo. E. French.

Roland A. Fitzgerald.

INVENTOR.

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UNITED STATES PATENT OFFICE.

ISAAC ROOD TAYLOR, OF ELMIRA, NEW YORK.

DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 497,735, dated May 16, 1893.

Application filed December 8, 1892. Serial No. 454,553. (No model.)

To all whom it may concern:

Be it known that I, ISAAC ROOD TAYLOR, of Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Dredging-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in dredging machines; and it consists in the novel combination and arrangement of parts which will be fully described hereinafter, and more especially referred to in the claims.

The object of my invention is to construct an improved machine in which the dredging dipper may be forced either upward or downward as may be desired as well as to either side for excavating beneath a bank.

A further object is to provide an improved chute in which the dipper empties when elevated.

Referring to the accompanying drawings,—Figure 1 is a perspective view of the machine. Fig. 2 is a vertical cross sectional view of the same. Figs. 3 and 4 are elevations of the dipper arm and chute respectively.

The main platform 1, of my improved machine is preferably mounted on trucks 2, as here shown, though the same could be supported equally as well upon a boat for steam dredging or upon runners. Extending longitudinally on the platform and projecting rearward therefrom are the parallel beams 3, and rising vertically therefrom are the uprights 4 and 5 the latter being located at the extreme rear ends of said beams. Supported by these uprights are the upper beams 6 which complete a strong and substantial frame. A vertically extended bridge 7 is arranged over the center uprights 4 which is pivoted as shown, being held in a vertical position by the braces 7' which, when the latter are removed, may be turned down upon the top of the frame; thus reducing materially the height of the machine, and thus making it more easy to move from place to place, especially when being used in a wooded country. This bridge carries a suitable number of pulley blocks 23

through which the several operating lines pass on their way to the spools 9 which are mounted on a shaft 10 and with which they revolve when engaged by the clutches 11 which latter are moved laterally in and out of said engagement by the operating levers 12. Shaft 10, through the medium of gear 13, carried thereby may be driven by any suitable power or engine located near the machine or carried thereby. A sprocket wheel 14 may be placed on the extended end of said shaft and connected to a sprocket 15 secured to one of the truck wheels thus providing a traction mechanism for the machine for use in moving it from one place to another.

16 designates a plate or bar which is pivoted between the rear uprights 5 and mounted on said plate is the revoluble head 17 carrying a guide way 18 through which moves the arm 19 to the lower end of which the dipper 20 is rigidly secured. For the purpose of forcing the dipper downward to the desired depth a rope or line 21 is provided which is secured at one end to the head 17 from which point it extends upward to the end of the arm 19 where it passes over a pulley suitably mounted in said end and from which it extends downward around a pulley 22 on the head and from thence over one of the pulley blocks 23 on the bridge 7 to one of the spools 9. From this construction it will be seen that by winding the rope or line 21 upon its spool the dipper arm may be forced downward through the guide way 18 to any desired depth in the matter being excavated. Now for reversing this movement or raising the arm 19 in its guide way a line 22' is started at the lower end of the way 18 and extending downward around a block 25 at the lower end of the arm is brought up around the pulley 24 mounted on the said guideway from which point the line extends over one of the pulleys 23 and from thence downward to its winding spool. Thus by winding this line the dipper and dipper arm will be raised vertically in the guide way.

It is often desirable to remove material located beneath a bank which is not accessible with a vertically disposed dipper arm. To obviate this difficulty and adapt my machine for use in such places I make the head 17 revoluble so that at once the dipper arm may

be set at an incline while the dipper is moved laterally so as to occupy a position beneath the bank and in reach of the material there located which is to be excavated. Two lines 5 26 are provided for the respective side movements of the head which lines at their ends are secured to the lower portion of the periphery of the head and passing in opposite directions upward and around the latter they are 10 brought to the blocks 27 which are secured to opposite sides of the plate 16, and from these blocks the lines pass to their respective bridge blocks 23 and from the latter downward to the spools. Thus for moving the dipper 15 to the right or to the left the correspondingly located line is drawn upon, which turns the head upon its pivot and gives to the dipper arm the proper lateral inclination.

For drawing the dipper forward in the 20 material being excavated as well as raising the dipper vertically when loaded a line 28 is provided which is secured at one end to its bridge pulley 23 from which it depends and passes around a pulley block 29 suitably 25 secured to the forward portion of the dipper and from thence the said line passes upward over its block 23 and then downward to its winding spool. When the dipper is thrown backward as in Fig. 1 it is evident that a 30 retraction of the line 28 will drag the dipper forward into the material and thus load it. By continuing the retraction of the line 28 more of a lifting movement will be exerted on the dipper and by this line the latter is 35 brought up to the position for dumping. In elevating the loaded dipper it would be liable to sag forward out of the arc which it should describe in being elevated and in order to prevent this the line 22 is held taut after the 40 dipper has been raised a portion of the distance by the line 28. Thus it will be seen that by a proper manipulation of the several operating lines the dipper may be brought into the correct position for dumping or into 45 any position for this purpose that may be desired. A chute 30 is pivotally supported between its ends by one of the uprights 4 and an additional upright 4'. Secured to the bottom of this chute is a segment 31 which is 50 concentric with the pivotal point of the chute and which near its respective ends is notched as at 32. The upper or outer end of the chute is weighted so that when the spring catch 33 which is secured to the beam 3, is depressed 55 the weighted outer end of the chute will lower into the position shown in Fig. 2 while the outer notch 32 will be automatically engaged by the said spring latch. The chute is only raised after the dipper has been drawn upward in position for dumping and is again 60 lowered as in Fig. 1 when the said operation has been completed, thus being entirely out of the track of the dipper while the latter is swinging. The end of the catch 33 is within 65 easy reach of the operator so that the adjustment of the chute is effected with ease.

The extreme rear portion of the machine

frame is braced and supported by the adjustable legs 34 which hold the same rigid over the ditch being excavated. 70

A revoluble crane 35 is mounted on one side of the rear end of the frame, to which a hoisting line extends from a spool on the shaft 10, for the purpose of hoisting buckets of earth or water from an excavation alongside 75 of which the machine has been located.

The periphery of each of the spools 9 is serrated to form a ratchet, and these ratchets are engaged by pivoted dogs 36, which latter are supported by a cross bar 37. By this 80 means the spools are prevented from unwinding while the continued winding motion is accomplished with ease. When any one of the lines is to be unwound the dog engaging its spool is thrown back thus freeing it. 85

In operation the rear portion of the machine is astride the excavation while the forward or truck portion is immediately ahead of but in line with the same. It will also be noticed that the direction of the draft required 90 to fill the dipper is toward the actuating power at all times.

The bottom of the dipper is hinged at one side as shown while its opposite edge is engaged by a depending catch which may be 95 easily drawn backward by the operator when the load is to be dumped.

I do not wish to limit myself to the means herein shown for operating the several lines as any mechanism may be employed for this purpose that may be desired. 100

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

1. A dredging machine comprising a frame, 105 a plate pivoted horizontally therein, a revoluble head on said plate, an arm carried by the head, a dipper on the lower end of the arm, a means for operating said dipper, and a means for adjusting the said head, substantially as 110 shown and described.

2. A dredging machine comprising a frame, a revoluble head supported therein a dipper arm carried by said head, a dipper on the end 115 of the arm, an operating means for the dipper, lines secured to the periphery of the head at a common point but extending therefrom in opposite directions and pulley blocks secured to the support for the head over which the said lines pass, substantially as shown and 120 described.

3. A dredging machine comprising a frame, a plate pivoted horizontally in said frame, a revoluble head on said plate, oppositely extending lines for adjusting the said head, a 125 guideway on said head, an arm adapted to move therein, lines for adjusting the arm in either direction in said guideway, a dipper on the lower end of the arm, a line for dragging the said dipper into the material being exca- 130 vated which also raises the dipper into a dumping position, and a means for operating the several lines, substantially as shown and described.

4. A dredging machine comprising a frame, a pivoted dipper arm support therein, a dipper at the lower end of the arm, lines for operating the said dipper as well as its support, a bridge pivotally supported over the machine, pulley blocks secured to said bridge over which the said lines pass, and a means for operating the said lines, substantially as shown and described.

10 5. A dredging machine comprising a frame, a dipper and a means for elevating the same in said frame, a chute pivotally supported between its ends by the side of the frame, and a spring catch secured to the frame which is adapted to hold the chute in position beneath the dipper when the latter is elevated or in a vertical position, substantially as shown and described.

20 6. A dredging machine comprising a frame, a dipper and a means for elevating the same in the frame, a chute pivotally secured to the

frame side, a segment on the under side of the chute which is concentric with the pivotal point of the chute, and a catch on the frame which is adapted to engage said segment and hold the chute in the desired position, substantially as shown and described.

7. A dredging machine comprising a frame, a dipper and a means for elevating the same in the frame, a chute pivotally supported in the frame, a notched segment secured to the chute bottom which is concentric with the pivotal point of the chute, a spring catch on the frame which is adapted to engage said notches, and a weight on the outer end of the chute, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

I. ROOD TAYLOR.

Witnesses:

J. M. NESBIT,
A. S. PATTISON.