

2. Sheet.
Sheet 1.

G. Howell.

Filling Marshes

N^o 76194

Patented Mar. 31, 1868.

Fig. 1.

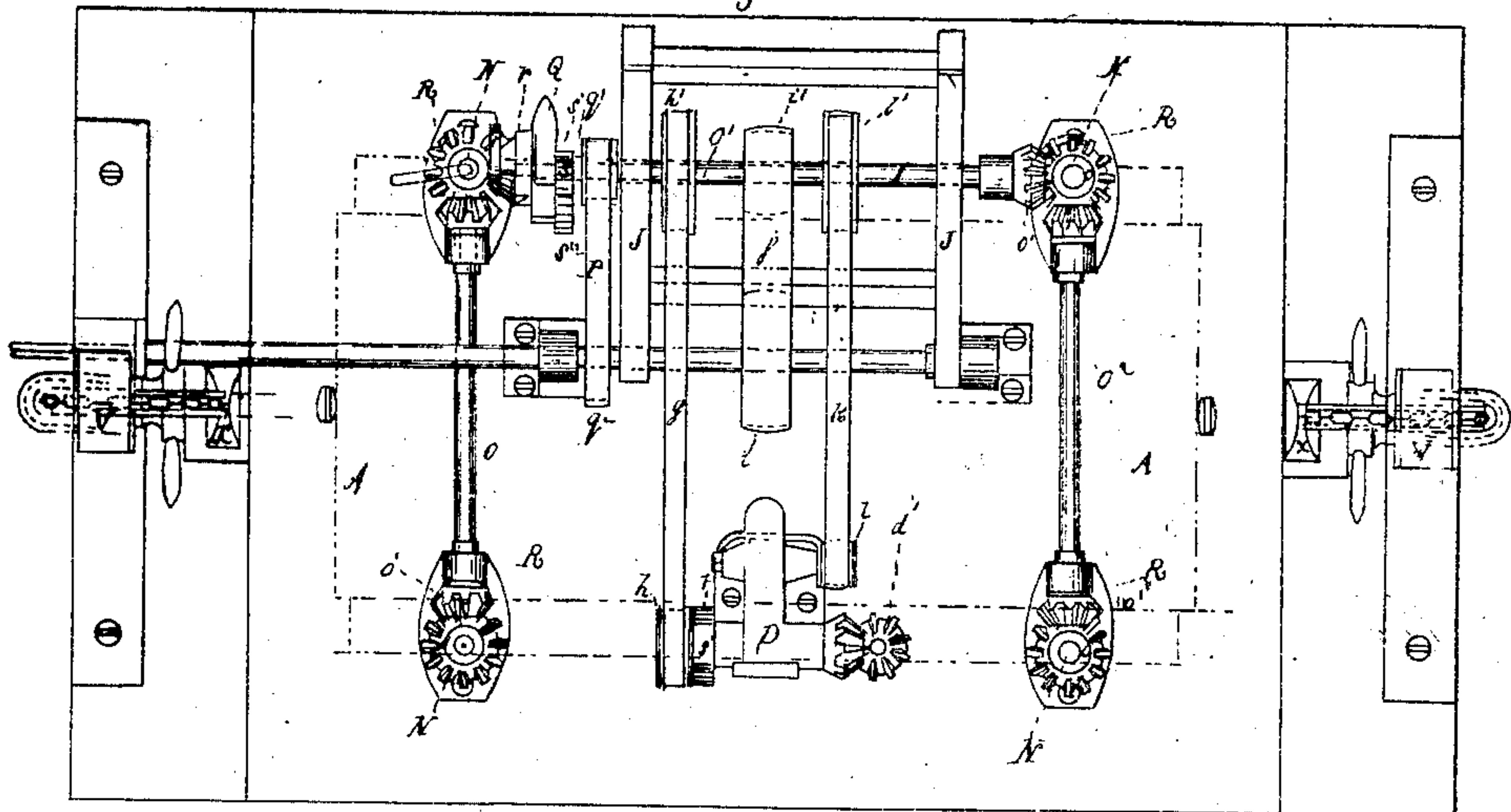
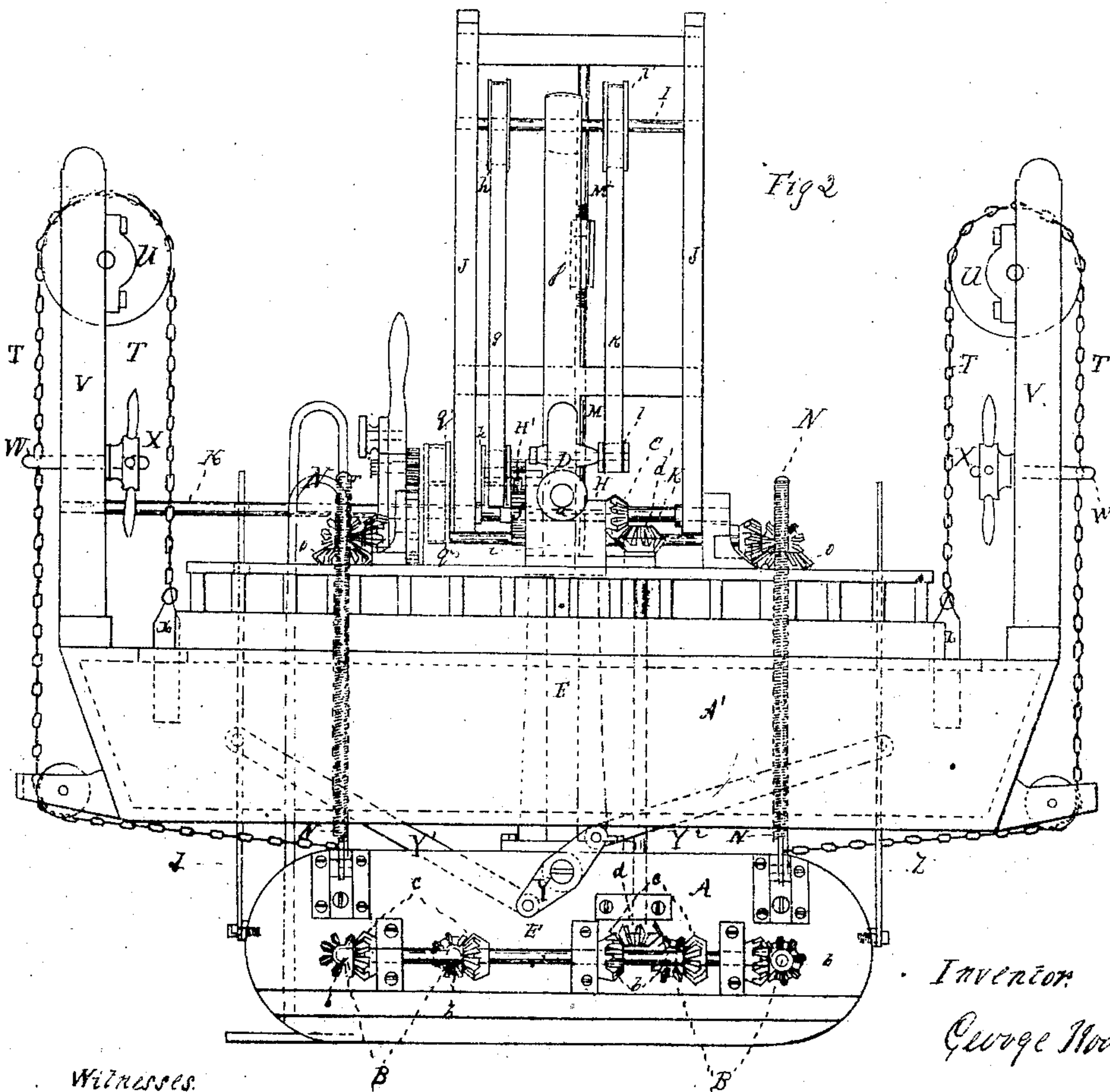


Fig. 2.



Inventor

George Howell.

Witnesses:
Stephen Utter
George Howell Jr.

United States Patent Office.

GEORGE HOWELL, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 76,194, dated March 31, 1868.

IMPROVED MODE OF FILLING MARSHES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE HOWELL, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and improved Mode of Filling Marshes, &c.; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention is an improvement on my mode of filling marshes, &c., patented November 12, 1867, and mainly consists, first, in an excavating and pumping-apparatus, combined with a scow or boat, beneath which it is placed for the removal of the mud or earth from the bed of the river or other sheet of water; the said apparatus being submerged and elevated at pleasure by means of vertical screws operated by means of a geared connection with a driving-shaft of a steam-engine. In the second place, the improvement consists in a novel mode of determining the proper depth to submerge the apparatus; and, in the third place, in a mode of holding it in its altitudinal position. The construction and arrangement of the apparatus will be understood by the following description. In the accompanying drawings, which make a part of this specification—

Figure 1 is a plan of the apparatus, in combination with a scow.

Figure 2 is a side elevation of the same.

Figure 3 is a view of the excavating-case A from beneath.

Figure 4 is an end view of one of the shafts B, provided with stirrers C.

Figure 5 is a side view of one of the gripes W.

Figure 6 is an isometrical view of the gauge S.

Figure 7 is a view of the geared lever Q, and parts in connection.

Figure 8 is a front view of the same.

Like letters in all the figures indicate the same parts.

A is a case, containing a series of revolving shafts B, which are provided with stirrers C for loosening the mud or earth and mixing it with the water it underlies, so as to bring it to the proper consistency to be sucked up and removed by the pump D, which is secured to the suction-pipe E. Said pipe has a flange, *a*, which is bolted to the upper surface of the case A, so as to rise and fall with it in its adjustment. The shafts B have wheels *b*, which gear into the pinions *c* on the longitudinal shaft F, and the motion is given to said shaft by means of its connections with the vertical shaft G, there being a bevel-pinion, *d*, on the lower end of said shaft. There is a pinion, *d'*, on the upper end of the shaft, which gears into the wheel *e*, on one end of the shaft H, which passes through the body of the pump D, and has on its other end a spur-wheel, *f*, which gears into the pinion *f'* on the short shaft H'. The said shaft has a connection with the counter-shaft I in the frame J, by means of the belt *g* and pulleys *h h*.

The counter-shaft is driven by the shaft K of the engine, which in practice is placed on board the scow A', there being a pulley, *i*, on the shaft K, and *i'* on the counter-shaft I, connected by the belt *j*.

The pump is rotated by means of the belt *k*, which connects the pulley *l* of pump and *l'* of the counter-shaft.

The frame J, which supports the counter-shaft, turns partially on the driving-shaft K, to provide for tightening the belts, there being coupling-rods M and M', connecting with a scow A' and frame J, as seen in fig. 1.

The case A is submerged and elevated by means of the vertical screw-rods N, which are connected with it at their lower ends, as seen in fig. 2. The upper ends of the rods are provided with bevel-wheels *o*, that gear into the pinions *o'* on the shafts O, O¹, and O², so that by turning one of said shafts the same motion is given to the four vertical screw-rods N, which motion is given by means of the belt P, pulley *q*, on the driving-shaft, and *q'* on the short shaft L, on the shifting-lever Q, and upright projection *r*, on one of the pedestals R. On the other end of said shaft L there is a spur-pinion, *s*, which gears into the pinions *s*¹ and *s*² on the pronged end of the lever. When the screw-rods N are not to be operated, the lever is in the position seen in figs. 7 and 8, sheet No. 2, which keeps both of the pinions *s*¹ and *s*² out of gear with the wheel *t* on the shaft O¹; but when motion is to be given to the rods, for the elevation or depression of the case A, one of the pinions is brought into gear with the wheel. The reverse motion is given by reversing the lever. There is a milled head, *u*, for

fastening the lever against the projection *r* of the pedestal *R*, the screw-stem *v* of the head playing in the eccentric slot *w* of the projection.

The scow has an opening in its bottom large enough to receive the case *A* when in shallow water. There is a gauge-rod, *S*, which is provided with a foot, *S'*, that sinks into the mud and determines the depth, slightly resting on the end of the screw-rod *N* when the case *A* is submerged the proper depth.

There are chains *T T* over the pulleys *U U* in the standards *V V*, which are provided with weights *x* to keep them tight. The lower ends of the chains branch off to each side of the case *A*, and are fastened thereto. When the case is at its proper depth, the gripes *W W* are drawn inwards in the standards by means of hand-wheels *X X* on the screw-shanks of the gripes to confine the chain against the standards, and thus secure said case in its position.

The stirrers *C* are made of flat springs of steel, as represented in figs. 3 and 4, and have a bent form, so as to cause them to readily spring when they strike any unyielding object, to keep them from breaking. Otherwise the construction and arrangement of the stirrers are the same as represented in my patent, dated November 12, 1867.

I attach a hose or tube to the flange *y* of the pump *D* for conveying the mud to its destination.

There are links *Y*, *Y'*, and *Y''*, which connect the case *A* and scow *A'* at side to give a parallel motion and firmness to the former, to take the strain off the rod *N*. There are also guiding vertical rods *Z Z*, the lower ends of which are secured to each end of the case, and their upper ends pass through the scow, as seen in figs. 1 and 2.

It will be seen that when the case is lowered to its proper depth, and the stirrer-shafts are revolved rapidly by means of their connection with the driving-shaft *K*, through the gearing above described, the mud and water become thoroughly mixed, and are sucked up by the pump *D* and forced through the hose or tube.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination and arrangement of the case *A* with a scow or boat by means of the vertical screw-rods *N*, wheels *o*, pinions *o'*, and shafts *O*, *O'*, and *O''*, the said parts being arranged and operating substantially as described.
2. The combination of the links *Y*, *Y'*, and *Y''* with the case *A* and scow *A'*, for giving a parallel motion to the former, substantially as described.
3. The combination of the vertical rods *Z Z* with the case *A* and scow *A'*, substantially as described.
4. The geared shifting-lever *Q*, arranged and operating in relation to the driving-shaft *K* and shaft *O'*, substantially in the manner and for the purpose specified.
5. The combination of the chains *T*, pulleys *U*, standards *V*, and gripes *W*, with the case *A* and scow *A'*, for holding the case in its altitudinal position, substantially as described.
6. The combination of the coupling-rods *M* and *M'* with the case *A* and scow *A'*, substantially as described and for the purpose specified.

In testimony whereof, I have hereunto set my hand and affixed my seal, this 17th day of February, 1868.

GEORGE HOWELL. [L. s.]

Witnesses:

STEPHEN USTICK,
JOHN WHITE.