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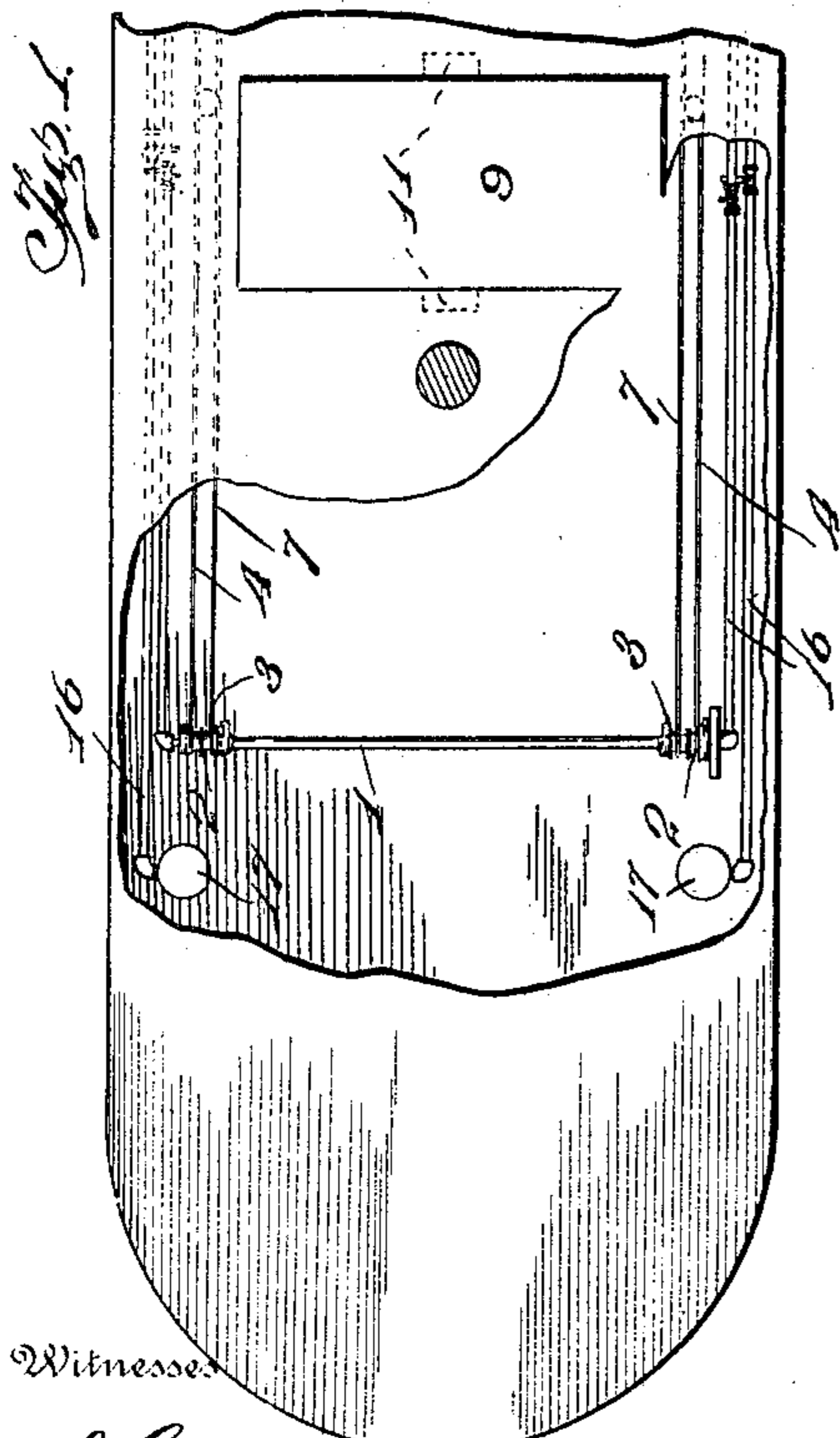
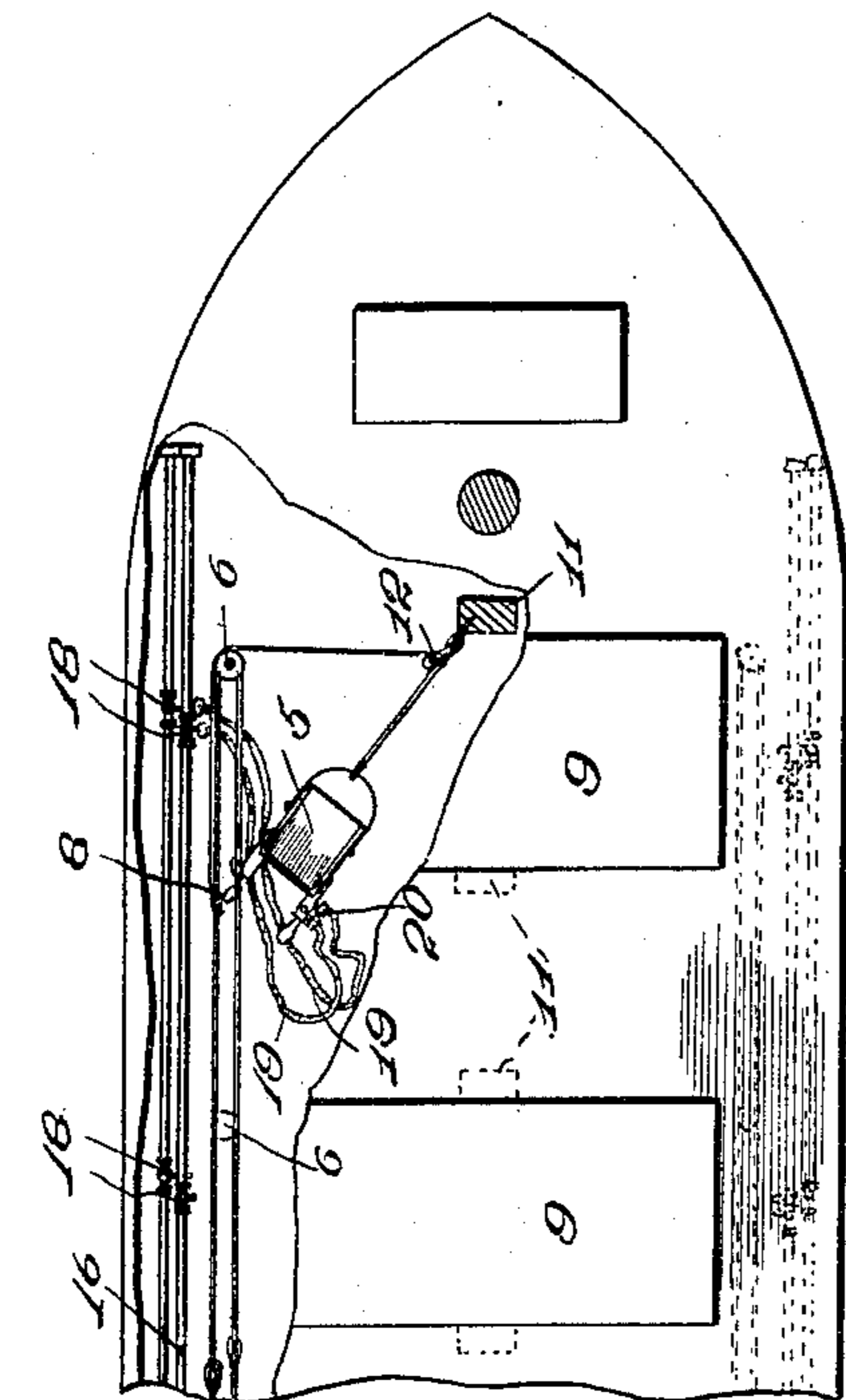
PATENTED MAR. 15, 1904.

J. G. WESTBROOK.  
SHOVELING DEVICE.

APPLICATION FILED MAY 25, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

L. Gifford Handy  
W. E. Jones.

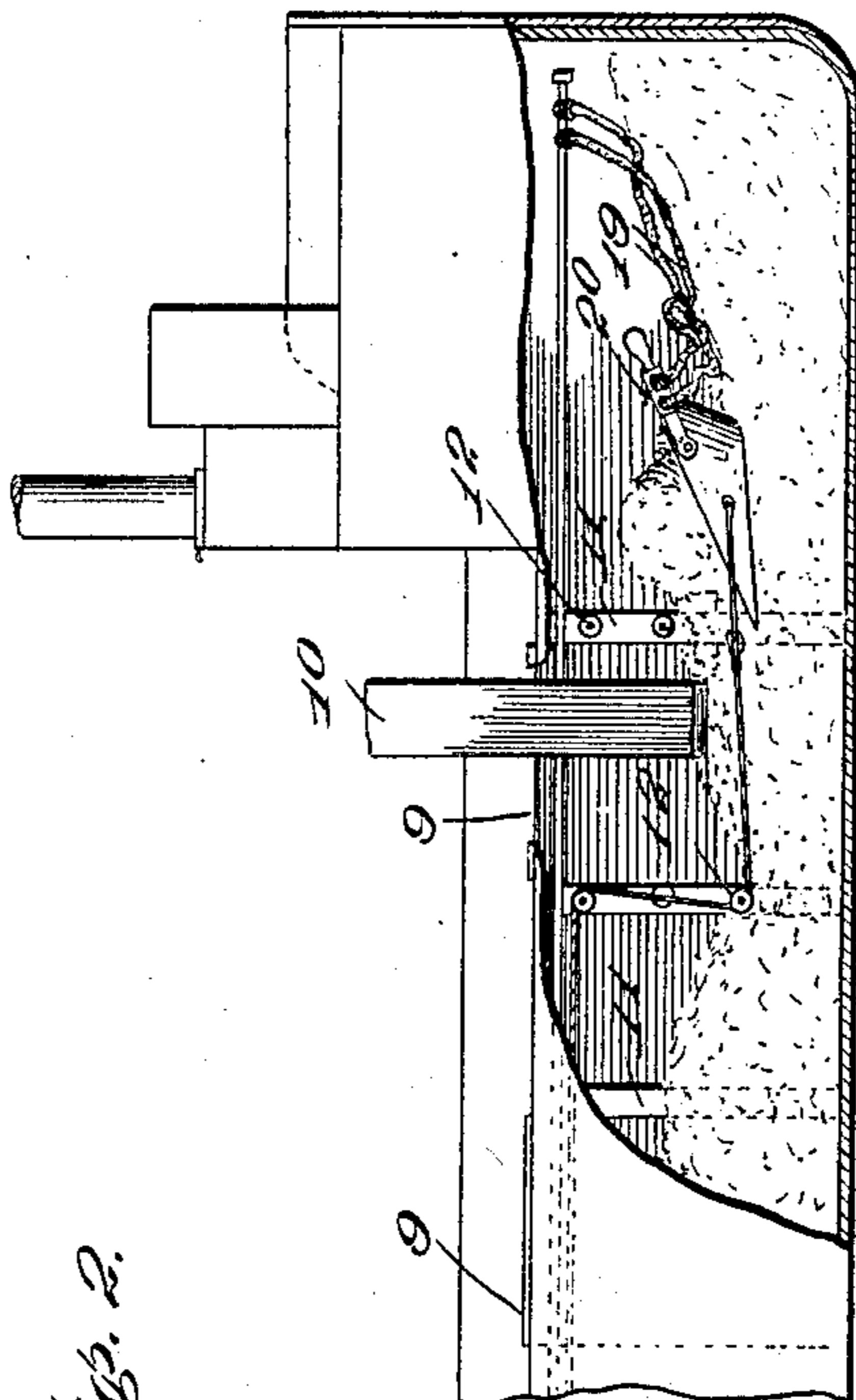
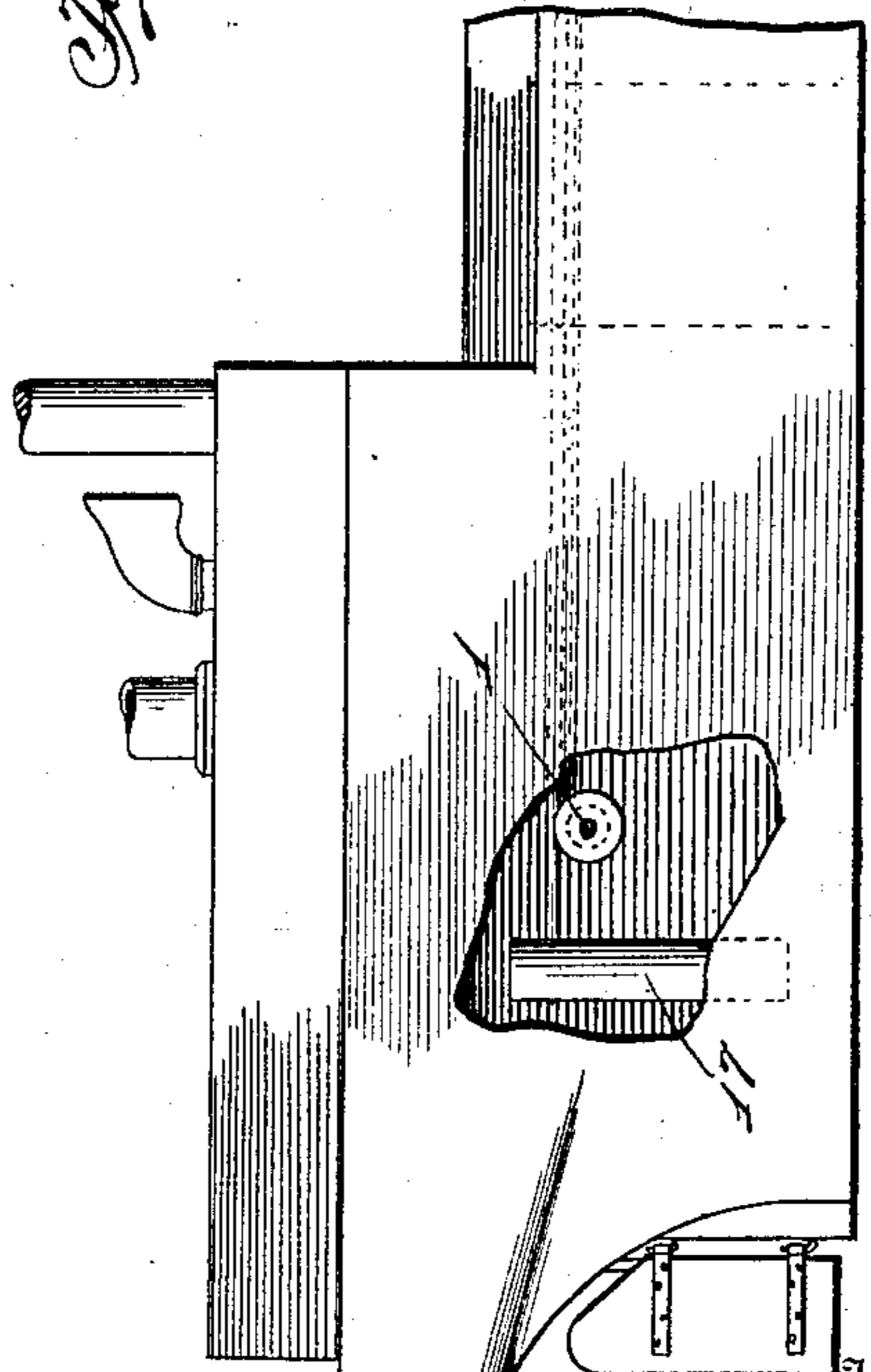


Fig. 2.



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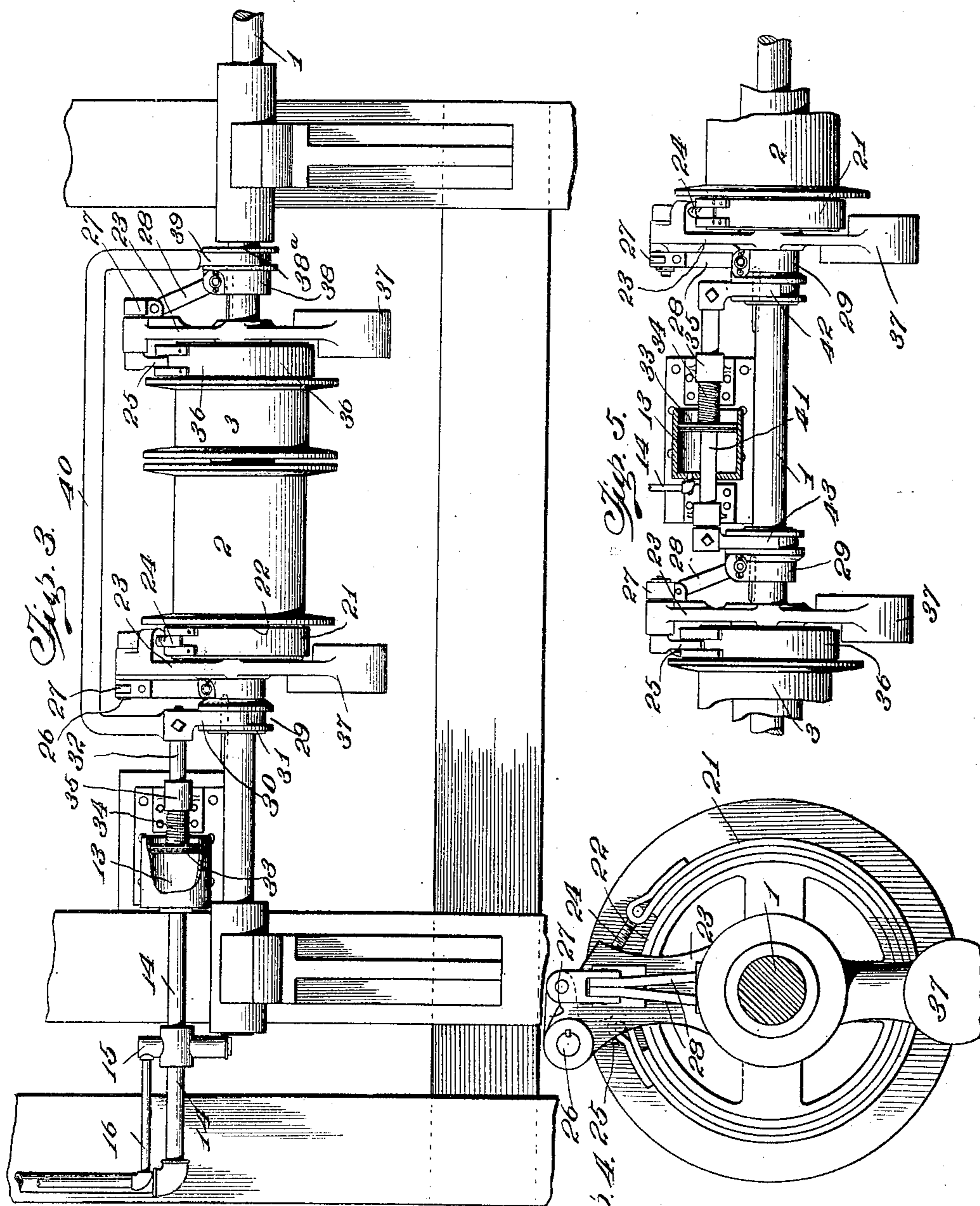
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*L. Gifford Handy*  
*W. J. Jones*

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# UNITED STATES PATENT OFFICE.

JAMES G. WESTBROOK, OF OGDENSBURG, NEW YORK.

## SHOVELING DEVICE.

SPECIFICATION forming part of Letters Patent No. 754,946, dated March 15, 1904.

Application filed May 25, 1903. Serial No. 158,740. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES G. WESTBROOK, a citizen of the United States, residing at Ogdensburg, in the county of St. Lawrence and State of New York, have invented certain new and useful Improvements in Shoveling Devices; 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 appertains to make and use the same.

This invention relates to improvements in means for moving materials from place to place by the application of suitable power, and is especially adapted for the operation of shovels for moving grain, sand, gravel, or the like from one part of a barge or other structure to another.

It consists, in connection with suitable power means, of one or more winding-drums, a cable or other flexible connection extending therefrom to a shovel or scraping device for drawing the said shovel in various directions, and an overhaul mechanism for unwinding the said cable from the drum when the shovel is to be moved to another position for further work.

The invention also consists in a power mechanism provided with a hauling-drum, a shovel or other scraping device connected with said drum, means for connecting or disconnecting the drum with the power mechanism controlled by fluid-pressure, piping extending from the power mechanism to different portions of the barge or other structure within which the shoveling operation is to take place, and means carried by the shovel for controlling the application of such fluid-pressure to the drum-operating mechanism.

It also consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a top plan view of a barge or vessel of any suitable structure, portions of the same being broken away to reveal the arrangement of the shoveling mechanism within the same.

Fig. 2 is a side elevation of such barge, a portion of the hull being broken away and shown

in section for illustrating the location of the shoveling mechanism. Fig. 3 is an enlarged view in elevation of the hauling-drum and overhaul-spool, together with the means for controlling the same. Fig. 4 is an enlarged view showing a side elevation of the friction-clutch employed upon the power-drum. Fig.

5 is a detail view in elevation and section, showing a different arrangement of the mechanism for controlling the power-drum and overhaul-spool.

The mechanism forming the subject-matter of this invention while applicable to the moving of various kinds of material in various places is especially well adapted for the moving or shoveling of material in vessels, barges, or the like, bringing said material beneath the hatches or openings leading from the hold of a vessel, so that it may be readily hoisted and removed therefrom. I have therefore illustrated the mechanism as applied to a barge or vessel in the accompanying drawings and will describe the same with reference thereto.

In the accompanying drawings, 1 indicates a power-shaft located near one end of the barge or vessel shown, which power-shaft is capable of continual rotation by any suitable mechanism. (Not illustrated.) Carried by the shaft 1 is a power-drum 2 and an overhaul-spool 3. The shaft may carry two or more of such drums or spools, two being shown in Fig. 1 of the drawings on opposite sides of the vessel. A cable 4, adapted to be wound upon the drum 2, extends therefrom to any suitable scraping device—as, for instance, the shovel 5—the said cable passing about any one of a series of sheaves or pulleys 6, located at various points in the hull of the vessel. An overhaul-cable, as 7, is also employed, which passes around one of the pulleys or sheaves 6 and is secured to the cable 4—as, for instance, at 8—so that when the shovel is to be retracted and the cable 4 unwound from its drum the pulling of said cable from the drum may be effected by the winding of the overhaul-cable 7 upon the spool 3. This is especially useful where the mechanism is operated in a vessel or structure of considerable size and the cables used are of considerable length and weight, and consequently difficult

to handle by hand. The object in using the shovel is to bring the material in the hold of a vessel beneath the hatches 9, so that it may be reached by any suitable lifting means, as 5 10, and thence be readily removed from the vessel. After the material at one hatch and its vicinity has been removed the shovel is capable of rearrangement near another hatch by shifting the cable 4 from one of the sheaves 10 or pulleys 6 to another. In this manner the cable can be made to operate opposite any of the hatches in a vessel and the shovel can be made to bring the material in the hull of the vessel to that particular hatch with great 15 facility. The blocks 6 may be located opposite the said hatches, as shown in Fig. 1, or one of the said blocks may be arranged so as to be readily dismounted or unhooked from its position opposite one hatch and taken to a position opposite another hatch.

When the vessel is full, the cables and shovel should be operated near the decks of the vessel; but of course as the vessel is unloaded the shovel approaches the bottom of the hull, and 25 it is necessary to arrange the cables so as to operate in a lower plane than when the vessel is full. For this purpose I contemplate using stanchions or standards 11 at suitable points near the hatches or openings in the deck, the 30 said stanchions extending to the bottom of the hull and being provided with means for supporting sheaves or pulleys, as 12, at different heights in the hull. A preferable arrangement of the sheaves is shown in the drawings, 35 especially in Fig. 1, where the pulleys 6 are arranged just under the decks of the vessel, while the pulleys or sheaves 12 are mounted upon the stanchions below the same, so as to be near the plane of operation. The pulleys or 40 sheaves 12 may also be mounted upon the inner sides of the vessel, as well as upon the central stanchions, or stanchions may be erected near the sides of the vessel, as well as in the center thereof. It will thus be seen that the cables 45 from the power and overhaul drums may run to any point in the vessel and to any height above its floor for properly pulling the shovel or scraping apparatus back and forth in drawing and assembling the material carried by the 50 vessel beneath its hatches.

The power-drum and the overhaul-spool are adapted to be thrown into or out of engagement with the power-shaft by clutch mechanisms which are controlled by a fluid-pressure 55 cylinder 13, and it is a part of this invention to place means upon the shovel or scraper which is capable of controlling the application of such pressure to the drum 13, as required for the movement of the shovel. The pressure employed in the cylinder 13 is led there- 60 to through suitable piping 14, the pressure through said piping being controlled by any suitable valve mechanism, as at 15. The valve 15 is controlled also by the pressure, which is 65 led to said valve through piping 16, which

also leads to any suitable source of pressure— as, for instance, the pressure-tank 17. In order to make it possible to readily control the pressure at the shovel, the piping 16 is led 70 from the pressure-tank 17 along the entire length of the barge, as shown in Figs. 1 and 2, and then back again to the pressure-controlling valve 15. At points opposite to the hatches the double line of piping 16 is provided with connections, as at 18, to which may 75 be joined the ends of flexible tubes 19, which lead to the shovel 5. Each of the connections 18 is also provided with a suitable valve for controlling the admission of pressure from the line-pipes 16 to the flexible connections 19, the 80 flow of said pressure through said flexible pipes being controlled by a hand-operated valve 20 at the handle of the shovel. When the flexible pipes are connected to each branch of the line-pipes 16 opposite one of the 85 hatches—as shown, for instance, in Fig. 1—pressure can then be controlled by the operator of the shovel through the agency of the valve 20, so that said pressure may be applied to the clutch-operating mechanism 13. In 90 this manner the operator at the shovel can throw the power-drum into engagement with the shaft 1, and by thus causing the winding of the cable 4 of the drum the shovel can be made to scrape material to a point opposite the 95 hatch. By shutting off the pressure again the overhaul-spool may be permitted to unwind the cable 4 for retracting the shovel to a proper position for another operation. When the shovel is to be moved opposite another hatch 100 in the vessel, the valves in the line-pipes 16 are closed and the flexible connections 19 are moved opposite another hatch and connected with the connections 18 opposite that hatch, and upon opening the valves at these connections the shovel may be operated at that hatch. 105 It will thus be seen that the pressure-controlling mechanism can be shifted to different points in the hull of the vessel, as well as the sheaves carrying the hauling ropes or cables. 110

The power-drum 2 may be connected with the shaft 1 by any suitable friction device; but a good form of mechanism is illustrated in the drawings, in which a friction-band 21 engages an annular friction-surface 22 on the 115 drum 2. This friction-band is carried by an arm 23, rigidly secured to the shaft 1. One end of said friction-band is secured by an adjustable connection 24 with the said arm, while the other end engages one arm, 25, of a 120 bell-crank mechanism made up of a rock-shaft 26, mounted in a bearing upon the arm 23, the said shaft 26 also carrying an operating-arm 27, which is pivotally connected with links 28. The links 28 are also pivotally connected with a sliding collar 29, splined to the 125 shaft 1. The length of the links 28 and the adjustment of the bell-crank mechanism are such that when the collar 29 is forced toward the drum 2 the friction-band 21 will be tight- 130

ened upon said drum and cause it to be rotated with said shaft 1. By pulling the collar 29 away from the drum the friction-band is loosened and the power-drum 2 is permitted to run freely upon the shaft. The means for moving the collar 29 illustrated consists in an arm 30, which engages an annular groove 31 upon the said collar 29 and carried by a piston-rod 32, which extends into the pressure-cylinder 13. The piston 32 is provided with a piston-head 33 within said cylinder, which is forced toward the drum 2 when power-pressure is introduced into the said cylinder 13 through the pipe 14. When said pressure is exhausted from the cylinder 13, a spring 34, surrounding the piston-rod 32 and abutting against a bearing 35, which guides the piston-rod in its movement, forces the piston and rod in the opposite direction, causing the release of the friction mechanism and the freeing of the drum upon the shaft 1. The end of the arm 23 which carries the friction-band 21 is counterbalanced by a weight 37, extending beyond the hub of the arm on the opposite side of the shaft 1. The spool 3 is also loosely mounted upon the shaft 1 and is provided with a friction mechanism 36, preferably like that described for connecting the drum 2 with the shaft 1, and since it is desired to permit the overhaul-spool 3 to run loosely upon the shaft 1 when the power-drum 2 is being worked the collar 38 of its friction mechanism is properly operated in the opposite manner from the collar 29. This is effected by connecting the arm 39, which operates the collar 38, with the arm 30 of the collar 29 by a connecting-bar, as 40. In this manner when the collar 29 is moved toward the drum 2 the collar 38 will be moved away from the spool 3, so that the drum 2 will wind in its cable while the overhaul-rope is withdrawn from the spool 3. When the collar 29 is moved away from the drum 2, so as to permit the drum to run freely upon the shaft 1, the collar 38 will be moved toward the spool 3 and tighten its friction mechanism, so that the spool 3 will be moved by the shaft 1 and overhaul its cable, withdrawing the cable 4 from the drum 2. A second spring, as 38<sup>a</sup>, may be employed for assisting the spring 34 in moving the collar 38 toward the spool 3.

In Fig. 5 of the drawings a slightly-different arrangement of the drums and their controlling mechanisms has been shown, and in this construction the pressure-drum 13 is mounted between the drums 2 and 3, and the piston of said drum carries a piston-rod 41, which extends beyond the drum in both directions and carrying at each end arms, as 42 and 43, which engage the collars of the friction device of the said drums. The effect of this mechanism will be practically the same as that above described, as one friction-clutch will be thrown out of operation when the other is thrown in, and vice versa.

From the above description it will be seen that steam or other fluid pressure may be readily utilized for controlling the operation of a shovel or some conveying means for moving materials from place to place, the said pressure being made to control the hauling mechanism by the action of a valve under the hand of the operator of the shovel.

I do not wish to be understood as limiting myself to the precise arrangement and construction of the parts illustrated in the drawings, since I may apply the system to different places, employing as many drums or spools at different points in the structure as may be required for facilitating the moving of the material. The specific structure also of the friction mechanism and its application to the drum may be varied as found desirable.

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

1. A mechanism for moving materials from place to place comprising a power-drum, a material-engaging shovel or scraper, a cable connecting the same with the said drum, an overhaul-cable connected with the scraper-cable for pulling it from its drum and an overhaul-spool for operating the same.

2. A material-transfer mechanism comprising a power-drum and a shovel connected therewith, line-piping connecting a pressure-supply with the drum-operating mechanism, the said line-piping extending to opposite points where the shovel is to be operated and means for connecting the shovel mechanism with the line-piping at different points and controlling the flow of pressure through the same.

3. A material-transfer mechanism comprising material-moving shovel or member, a power winding-drum connected with said shovel for moving it from place to place, a line of pressure-conducting pipe leading from the pressure-supply to the said drum mechanism and doubled upon itself opposite the points where the shovel is to be operated, means carried by the shovel for connecting the branches of the line-piping opposite said points of operation and controlling means mounted on the said shovel for regulating the flow of pressure through said piping.

4. A shoveling mechanism comprising a shovel, a power-drum, a cable connecting the shovel therewith, an overhaul-spool, a cable connecting the overhaul-spool with the said shovel-cable, sheaves for regulating the direction of the cable mounted at points opposite the place where the shovel is to be operated, means for delivering pressure to the drum-controlling mechanism the connections with the said pressure-regulating means being capable of movement to points opposite the said sheaves so as to be controlled by the operator of the shovel.

5. A shovel-controlling mechanism comprising a cable connected with the shovel, a power-

drum for winding in the cable, an overhaul-  
 spool for unwinding the cable, a cable con-  
 necting the overhaul-spool with the power-  
 cable, means located at different distances  
 5 from the drum for permitting the movement  
 of the cable, said means also being capable of  
 adjustment to different heights with respect  
 to the material operated upon by the shovel.

6. A material-shoveling mechanism com-  
 10 prising a shovel, a cable for hauling the same,  
 a drum for winding in the cable, an overhaul-  
 cable connected with the hauling-cable at a  
 suitable point intermediate its length for un-  
 winding the hauling-cable, sheaves for direct-  
 15 ing the movement of the said cable in the di-  
 rection of the pull thereof upon the shovel,  
 means for supporting the said sheaves at dis-  
 tances from the drum and stanchions for sup-  
 porting the said sheaves at different heights  
 20 with respect to the materials operated upon.

7. A material-shoveling mechanism for ves-  
 sels, barges and the like comprising a power-  
 shaft, a drum mounted thereon, a shovel con-  
 nected with the drum, a cable forming said  
 25 connection, sheaves mounted at points oppo-  
 site the hatches of said vessel for causing the  
 cable to draw the shovel toward said hatches,  
 pressure-supplying mechanism for operating  
 the said drum provided with line-pipes ex-  
 30 tending opposite of all said hatches, means  
 carried by the shovel for controlling the flow  
 of pressure through said piping, adjustable  
 connections carried by the shovel and means  
 opposite each hatch for engaging said adjust-  
 35 able connections.

8. A shoveling mechanism comprising a  
 winding-drum and an overhaul-drum, a shovel  
 connected therewith, a power-shaft for oper-  
 ating said drums, a friction mechanism for  
 40 the power-drum and a friction mechanism for

the overhaul-spool, a pressure-piston for op-  
 erating said friction mechanism and means ex-  
 tending from the pressure-cylinder to the  
 shovel for controlling the application of pres-  
 sure to said cylinder, and the consequent op- 45  
 eration of the friction device for connecting  
 the drum and spool with the power-shaft.

9. A material-shoveling mechanism, com-  
 prising a shovel, a cable connecting the same  
 with the power-drum, a power-drum for op- 50  
 erating such cable, a power-shaft carrying  
 said drum, a friction mechanism for connect-  
 ing the drum with the shaft, a pressure mech-  
 anism for operating the friction device and  
 means extending to the shovel for controlling 55  
 the application of power to the pressure de-  
 vice.

10. A shoveling mechanism comprising a  
 shovel, a power-drum, a cable for moving the  
 shovel, the said drum operating to wind in the 60  
 cable, a power-shaft for rotating the drum, a  
 friction mechanism for connecting the drum  
 with the shaft, a pressure-cylinder for con-  
 trolling the application of the friction mech- 65  
 anism, piping for introducing pressure to the  
 cylinder, a valve controlling the flow of pres-  
 sure through said piping, a line of piping ex-  
 tending to the shovel from said valve and  
 thence to the pressure-supply and a valve car- 70  
 ried by the said shovel for controlling the  
 pressure through said shovel-piping and ef-  
 fecting the valve which controls the admission  
 of pressure to the said cylinder.

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

JAMES G. WESTBROOK.

Witnesses:

CHARLES G. IDLER,  
 WILLIAM E. TURNER.