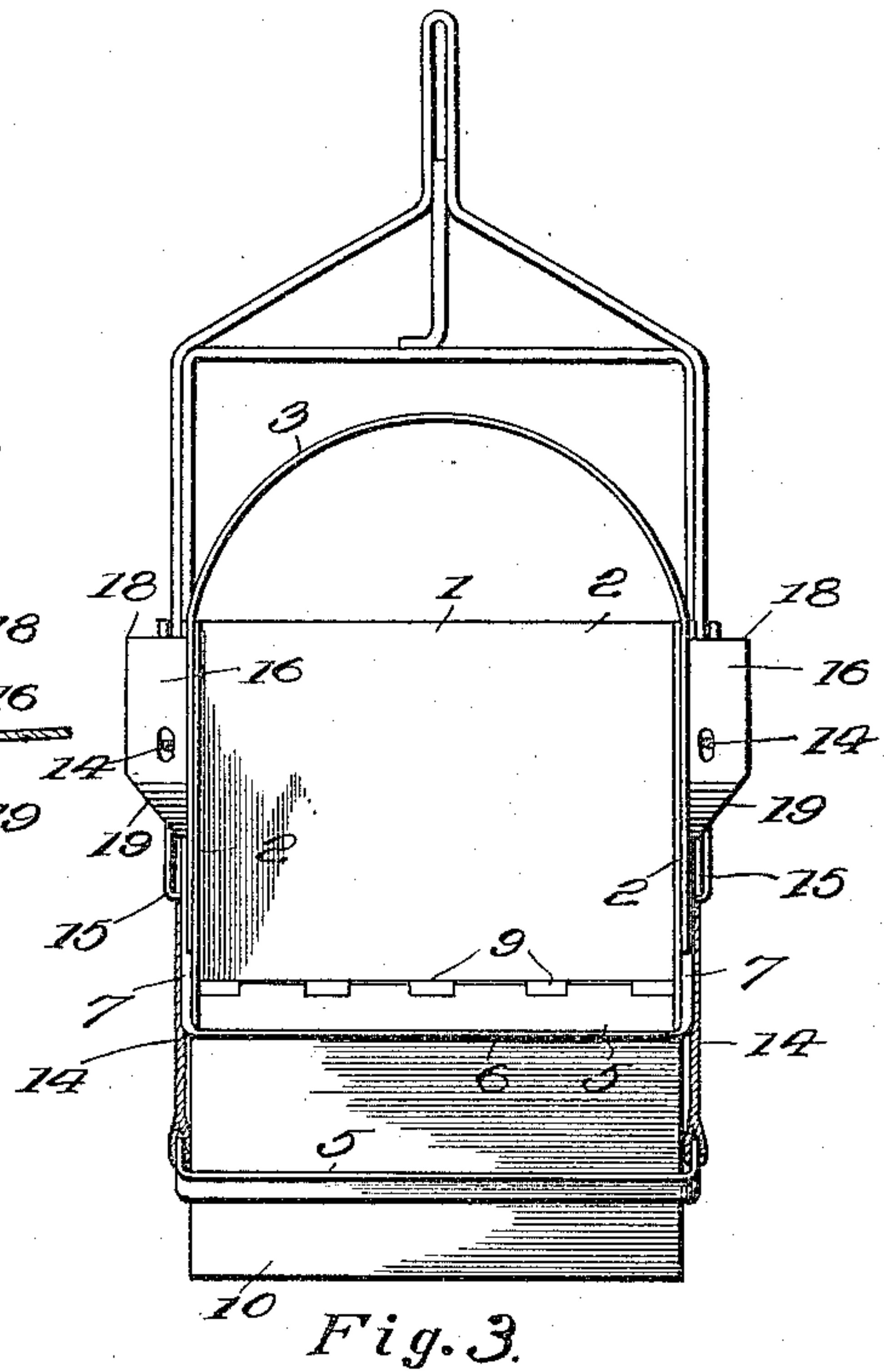
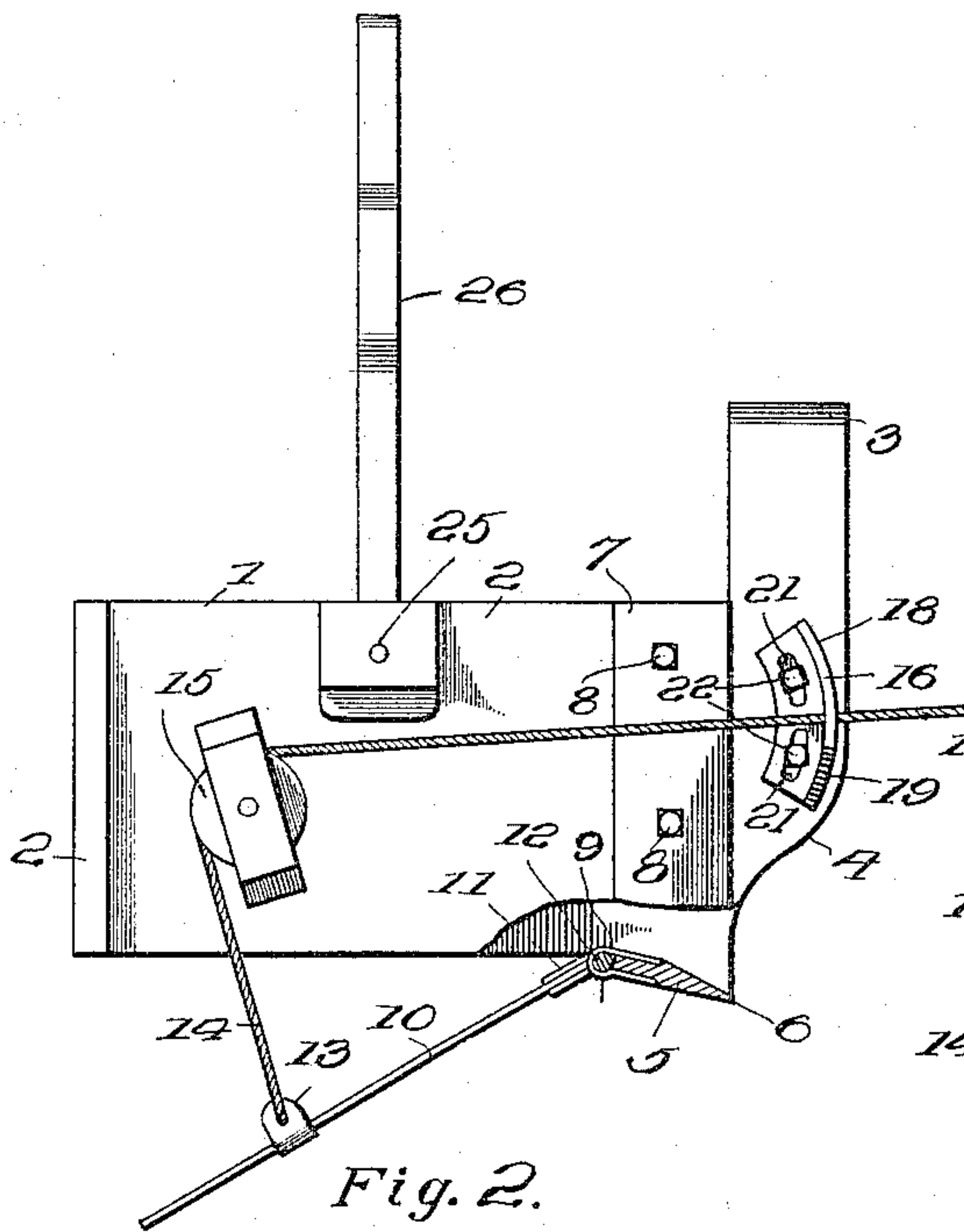
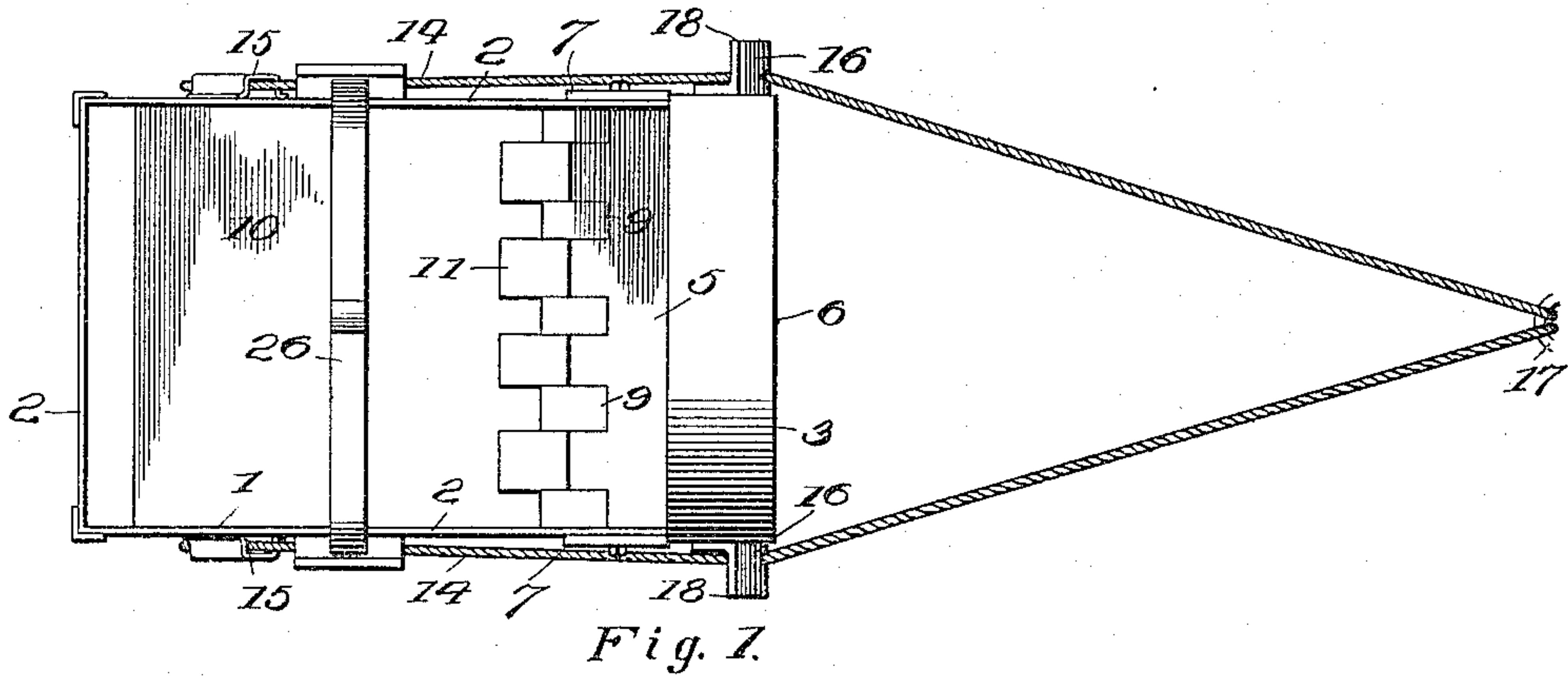


R. HOLMES.
EXCAVATING SHOVEL.
APPLICATION FILED NOV. 30, 1914.

1,155,153.

Patented Sept. 28, 1915.



WITNESSES:

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ROGER HOLMES, OF NEW ORLEANS, LOUISIANA.

EXCAVATING-SHOVEL.

1,155,153.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed November 30, 1914. Serial No. 874,864.

To all whom it may concern:

Be it known that I, ROGER HOLMES, citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Excavating-Shovels; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in excavating shovels of the drag type.

One of the objects of the invention is to provide means for conveniently and expeditiously excavating hard or sticky material.

According to my invention the front open end of the shovel is provided with a fixed shear, and to the rear of this shear is hinged a bottom or door, controlled by a drag line, so that when said bottom is opened a load will slide therefrom.

Another feature of the invention is the provision of means for regulating the depth of cut in the earth.

Still another feature of the improvement relates to the manner of bracing the parts to resist strain and provide durability when the excavator is in operation.

The invention also comprehends improvements in the details of construction and arrangement of parts which will be hereinafter described and particularly pointed out in the claims.

In the accompanying drawings:—Figure 1 is a plan view of the improvement. Fig. 2 is a side elevation of same, a part being broken away. Fig. 3 is a front elevation.

The same numerals refer to like parts in the figures.

1 represents the body portion of a shovel of the excavator, the same comprising rear and side walls 2, and a front arch-shape brace 3, which connects the forward ends of the side walls, and is extended some distance above the top of said side walls, as shown clearly in Figs. 2 and 3. This brace forms a means for rigidly bracing the side walls, which is quite essential in the construction of the shovel, as the front is open to receive the material being excavated.

Located under the forward open end of the body portion is a shear 5, which inclines downwardly and forwardly, and is sharpened at its front edge, as at 6. The shear is provided with extensions 7 which fit against the forward outside surfaces of the side walls of the body portion, and are bolted thereto as at 8.

Extending from, and secured to the rear of the shear are bales 9, which are rounded at their rear ends to form hinge members for a bottom 10. The bottom 10 comprises a flat sheet of metal, which is provided at its forward end with a series of bales 11, forming hinge members, the latter fitting between and registering with the hinge members 9 on the shear, and passing through both sets of bales, is a pintle 12, hingedly connecting the bottom 10 to the shear. It is to be noted that the pintle 12 is located forward of the center of gravity when the shovel is loaded and in normal position, so that when the material is in the shovel and the drag cable is slackened, the weight of the load will open the bottom and slide out.

13 indicates ears formed on a strip which extends under the bottom 10, and to these ears are fastened cables 14, which extend over pulleys 15, mounted on the sides of the body portion, said cables passing through guides 16, from whence they converge and are fastened to a ring 17. Each guide 16 is formed of angle iron, the horizontal portion 18, extending outwardly, and is beveled at its lower end, at 19. The horizontal portion of each angle iron is provided with an opening 20, through which the cable passes, while the vertical portion of said angle iron is formed with slots 21, to receive bolts 22, by means of which the guide is fastened to the brace 3.

The guides form an essential feature of this invention in that by adjusting the bolts 22, said guides may be raised or lowered, to act as gages to determine the depth of the cut of the shear 5. When the guides are in their lowest position, and the shear penetrates the ground, the lower horizontal portions of the guides engage the surface of the earth and the depth of the cut is thus gaged, the bevel portions 19 serving as a means for readily allowing the gages to penetrate slightly into the earth and thereby reduce the strain on the parts. Where the guides are raised, obviously the shear 5 can pene-

trate deeper than when the guides were lowered, consequently the depth of the cut may be determined by the operator.

Pivoted to the top portion at 25, at a point to allow the shovel to swing in a horizontal plane when in normal position, is a bale 26.

When in use, the shovel is lowered and the drag line is tightened to close the bottom 10, then the shovel is drawn forward and the shear penetrates the ground to make the cut. As the shovel is drawn through the ground, the load passes into the body portion, and is supported on the bottom 10. When a sufficient load has been obtained, the shovel is elevated, and is moved to the position where the load is to be dumped, and then the cable is slackened, and the weight of the load on the bottom tilts the latter, and the material slides from the rear of the shovel.

By means of the construction described, and particularly because of the location of the pivotal point of the bottom 10, hard or sticky earth will readily slide from the shovel. Furthermore, because of the construction of the forward end of the body portion of the shovel, the brace affords ample space for the introduction of the load, and said arch brace and the extensions on the shear provide a substantial means for entirely resisting the strain when the earth is forced into the shovel.

What I claim is:—

1. In an excavating shovel, the combination of a body portion open at its front end, an arch-shape brace secured to the sides of the body portion adjacent the open end, a shear at the bottom of the body portion adjacent the front end, said shear having side extensions which engage the outside of the body portion, means for securing the extensions to the body portion to rigidly fasten the shear, a bottom hinged to the rear of the shear, the hinge being forward of the center of gravity when the shovel is loaded, guide pulleys mounted on the body portion, angular adjustable slotted guides on the forward part of the sides of the body portion, and drag cables secured to the sides of the bottom and extending over the guide pulleys and through the slots in the adjustable guides.

2. In an excavating shovel, the combination of a body portion open at its front end, an arch-shape brace secured to the forward ends of the side walls of the shovel adjacent

the front open end, a shear at the bottom of the body portion adjacent the open end thereof, means for securing the said shear to the bottom of the body portion, said bottom being hinged to the rear of the shear forward of the center of gravity when the shovel is loaded, guide pulleys on the sides of the body portion, angular shape guides at the forward end of the body portion, means including bolts and slots through which the bolts pass to fasten the guides to the body portion, the lower edges of the horizontal portions of the body portion being beveled and formed with openings above said bevel portions, the drag cables extending through said openings.

3. An excavating shovel comprising a body portion open at its forward end, a shear secured to the bottom adjacent the open end thereof, a bottom hinged to the rear of the shear, the hinge being located forward of the center of gravity when the shovel is loaded, drag cables secured to the sides of the bottom, pulleys on the body portion over which the drag cables pass, guides on each side at the forward end of the body portion, each guide comprising an angle iron formed with radial slots, the horizontal portion of the angle iron being beveled at the lower edges and formed with openings above said bevel portions, and bolts for securing the guides to the body portion.

4. An excavating shovel comprising a body portion open at its front end, a fixed shear at the forward end of the body portion and adjacent the open end thereof, a movable bottom in the bottom portion, means for operating the bottom, angle-shape gages on the forward sides of the body portion in advance of the front end of the fixed shear, each gage comprising a base and an outwardly extended flange, the lower edge of the outwardly extended flange being beveled to determine the depth of the cut of the shear, the base having slots, and bolts passing through said slots and the sides of the body portion to adjustably mount the gages.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROGER HOLMES.

Witnesses:

EMILY F. CAMP,
JOHN IMIRIE.