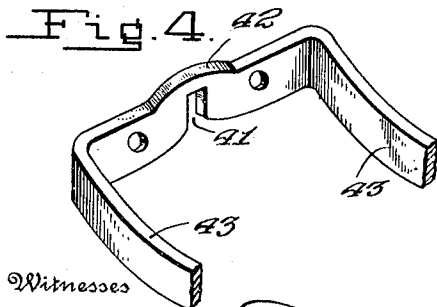
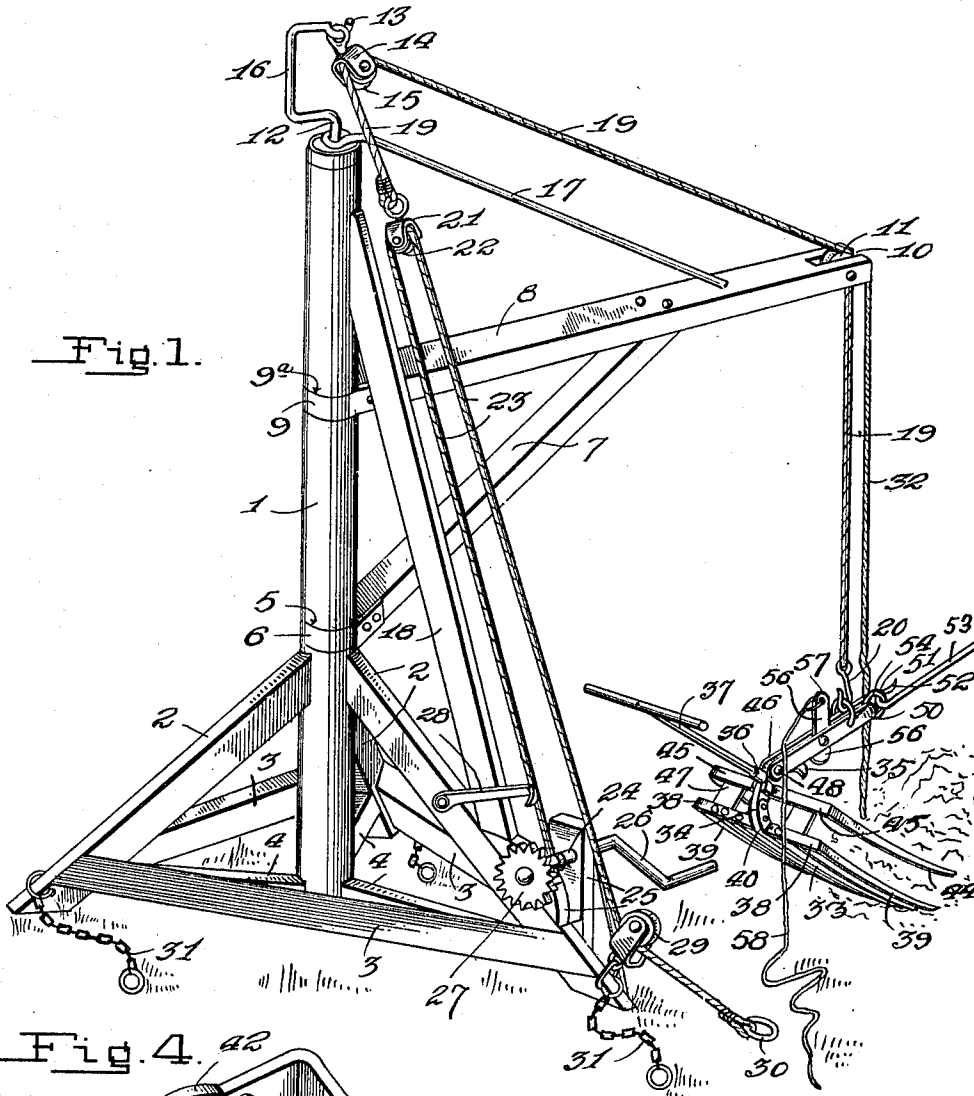


A. J. BRADLEY.
 MANURE FORK AND LIFTING DERRICK.
 APPLICATION FILED APR. 12, 1910.

993,145.

Patented May 23, 1911.

2 SHEETS-SHEET 1.



Witnesses

Everett Lancaster.
 H. Joseph Doyle

Inventor
 Abner J. Bradley.

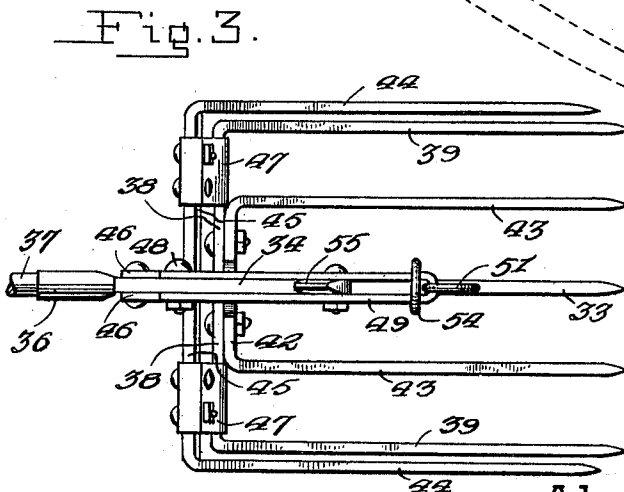
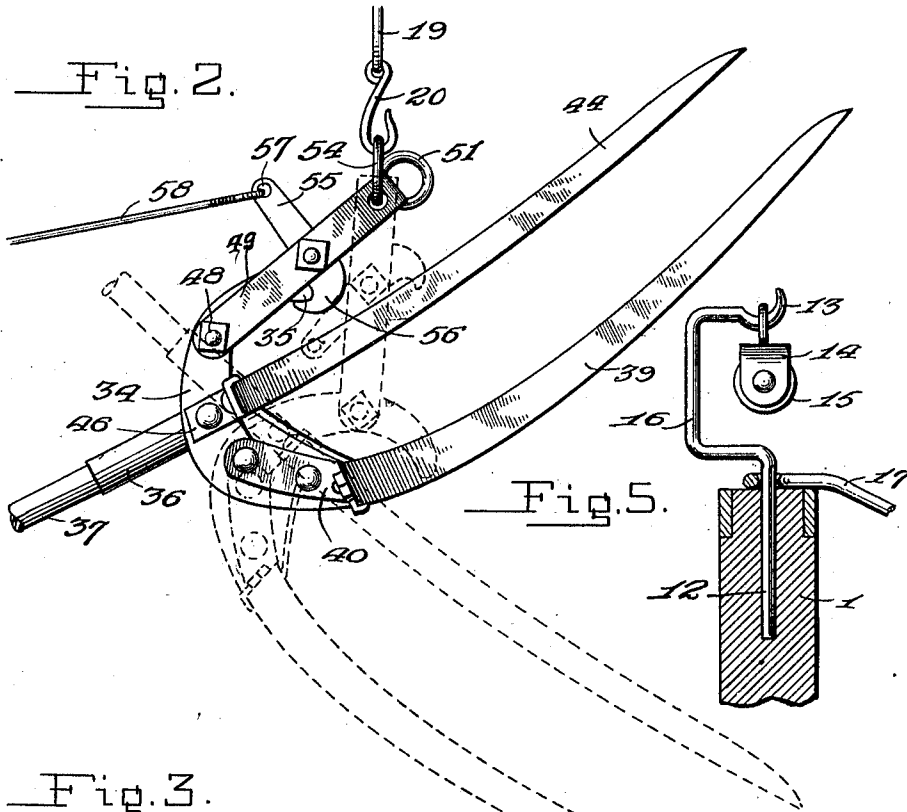
By E. E. Vrooman,
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UNITED STATES PATENT OFFICE.

ABNER J. BRADLEY, OF PETERSBURG, NEBRASKA.

MANURE-FORK AND LIFTING-DERRICK.

993,145.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed April 12, 1910. Serial No. 554,930.

To all whom it may concern:

Be it known that I, ABNER J. BRADLEY, a citizen of the United States of America, residing at Petersburg, in the county of Boone and State of Nebraska, have invented certain new and useful Improvements in Manure-Forks and Lifting-Derricks, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to the subject of handling material such as manure, and the principal object of the same is to provide a novel shoveling fork and a cooperating derrick, the fork being adapted to be drawn into a pile of manure by animal power to receive its load, and the derrick, through a cable connection with said fork, being adapted to lift and swing the fork so that the load may be delivered to a wagon or other places at a distance from the pile of manure.

With the above and other objects in view, the invention consists of a novel derrick, a novel shoveling fork that has a hoisting cable connection with the derrick so that the fork may be readily raised by the cable and swung by the derrick, the fork being provided with novel dumping means which normally retain the fork in position so that its load will not be dumped, but which may be manually operated to cause an automatic dump of the fork.

In carrying out the invention as generally stated above, it will be understood, of course, that the essential features thereof are necessarily susceptible of changes in details and structural arrangements, one practical and preferred embodiment of which is shown in the accompanying drawings, wherein:—

Figure 1 is a perspective view of the improved manure handling apparatus. Fig. 2 is a side view of the improved shoveling fork. Fig. 3 is a top plan view. Fig. 4 is a fragmentary perspective view of one set of the tines of the fork. Fig. 5 is a fragmentary detail vertical sectional view of the upper portion of the derrick standard.

Referring to said drawings by numerals, 1 designates a vertical derrick standard

which is supported by the inclined brace legs 2 which radiate from the lower portion of said standard, said legs being connected by the base members 3. Inwardly projecting horizontal arms 4 connect the lower portion of legs 2 with the base portion of said standard. At a point above the upper end of legs 2, standard 1 is provided with an annular guide groove 5 in which a clip 6 is rotatably mounted, the ends of said clip being fastened to opposite portions of the lower end of an inclined brace beam 7 which has its upper end fastened to the outer portion of a crane arm 8. Said crane arm 8 has a clip 9 fastened to its inner end that engages an upper annular guide groove 9^a of standard 1. The outer end of arm 8 is bifurcated, as indicated at 10, and a grooved pulley 11 is rotatably mounted in said bifurcated end.

The upper end of standard 1 has a rod 12 projecting therefrom, the free upper end of which is provided with a hook 13 from which a swiveled pulley housing 14 depends, said housing having a grooved pulley 15 rotatably mounted therein. Rod 12 has its intermediate portion 16 offset to provide clearance space for the swinging movement of pulley housing 14. A brace rod 17 has one end loosely hooked around rod 12, the other end of said rod 17 being fastened to crane arm 8. An elongated inwardly inclined brace bar 18 has one end fastened to one of the legs 2 and its other end fastened to the upper portion of standard 1. Said bar 18 is in the path of movement of crane arm 8, and obviously limits the swinging movement of said arm, as well as serving as a brace for standard 1.

A cable 19 passes over standard pulley 15 and crane arm pulley 11, the outer end of said cable provided with a hook 20, and the inner end of said cable which depends from pulley 15 has a swivel connection with a pulley housing 21 in which a pulley 22 is rotatably mounted. A second cable 23 passes over pulley 22, one end thereof being attached to a winding shaft 24 rotatably mounted in bearing 25 at the base support of standard 1, said shaft having a handle

26 at one end for rotating the shaft and a ratchet wheel 27 at the other end which is engaged by a pawl 28 pivoted to one of the legs 2, to normally prevent reverse movement of shaft 24. Cable 23 also passes over a pulley 29 swiveled to the base of one of the supporting legs 2 and has its free outer end provided with a ring 30 to which a draft animal may be hitched.

10 A chain 31 is connected to each leg 2 which provides means whereby the hoisting derrick may be anchored.

The outer end of crane arm 8 is provided with a cable 32 by means of which said arm may be manually swung upon its pivotal connection with standard 1.

A shoveling fork is used in connection with the described derrick to transport material, said fork being composed of a central tine 33 the inner end of which is upturned, as indicated at 34 and overhangs the inner portion of said tine the upturned end terminating in a pendent latching lip 35. At its rear, the upturned end of tine 33 is provided with a socket 36 for the reception of a handle 37. The rear of the bottom of the fork is formed by the inwardly projecting right angular end portions 38 of the two outer tines 39, said angular end portions terminating in the ears 40 that are riveted or otherwise rigidly fastened to the upturned rear end of center tine 33. Center tine 33 is straddled by the slotted portion 41 of the body 42 of the intermediate tines 43, said body 42 being rigidly fastened to the angular end portion of tines 39. A pair of upper tines 44 are arranged above and substantially parallel with tines 39 by means of their angular rear ends 45 which are provided with ears 46 that are rigidly attached to the upper portion of the upturned rear end of central tine 33. As will be obvious, upper tines 44 serve as guards to prevent material slipping over the sides of the fork, and the rear angular ends thereof cooperate with the similar portion of the lower outer tines 39 to prevent material falling from the rear of the fork. The angular end portions of the upper tines and the lower outer tines are connected by the brace plates 47, which serve as an additional safeguard against the material slipping from the rear of the fork, as well as to support the upper and lower tines in relatively spaced relation. The overhanging upturned end of central tine 33 is provided with a pivot bolt 48 the projecting ends of which have the ends of the parallel bars 49 pivotally mounted thereon. Said bars are preferably formed of a single length of material that is doubled to provide the ends that are pivotally mounted on bolt 48, and the loop 50 in which a ring 51 is mounted. Said ring 51 is adapted

for engagement by the end hook 52 of a draft bar 53, by means of which animal power may be connected to the fork to draw the same into a pile of manure. A ring 54 is carried by said bars adjacent their end loop 50 with which the hook 20 of cable 19 engages to hoist the fork.

A latching lever 55 is pivotally mounted between bars 49, the head 56 of said lever being adapted to be rocked to engagement with latching lip 35 to lock bars 49 to the fork so that said fork may be elevated by means of cable 19 and held with the free ends of its tines projecting on an upward incline. The lever 55 has one end projecting above bars 49 through which an opening 57 is formed. A cable 58 is fastened in said opening by means of which lever 55 may be rocked to disengage its head 56 from latching lip 35 to permit the shovel to drop to the load-dumping position indicated by dotted lines in Fig. 2 of the accompanying drawings.

In operation, the fork is drawn into a pile of material by means of power applied to draft bar 53, and after being loaded, lever 55 is fastened to latching lip 35, and by rotating winding shaft 24, cable 23 will be wound thereon, by means of the pulley connection 22 of cable 23 with cable 19, the latter cable will elevate the fork. When elevated, the fork may be swung away from the pile by means of arm 8, and its load dumped by releasing lever 55 from lip 35. As will be obvious, when manually elevated by means of shaft 24, the ring 30 at the outer end of cable 23 will bind against pulley 29, or, if desired, said cable may be suitably anchored. It will also be understood that animal power may be applied to cable 23, the animal being hitched to ring 30.

What I claim as my invention is:—

1. A shoveling fork comprising a central tine provided with an upturned overhanging rear end, outer tines parallel with said central tine and provided with angular rear ends that are fastened to the rear end of the central tine, intermediate tines parallel with the central tine and provided with a connecting body that straddles the central tine and is fastened to the angular end of the outer tines, upper guard tines provided with a connecting body that is fastened to the upper portion of the rear end of the central tine, and mechanism carried by the upturned rear end of the central tine for controlling the said fork.

2. A shoveling fork comprising a body provided with an overhanging latching lip, parallel bars formed of a single length of doubled material having the ends pivotally connected to said lip, a draft ring in the loop end of said bars, a hoisting ring con-

necting said bars, a latching lever carried by said bars and normally engaging said lip, and means for releasing said lever.

3. A shoveling fork comprising a body, an
5 overhanging lip projecting from the rear thereof, parallel bars pivotally connected to said lip, a draft ring carried by said bars, a hoisting ring connecting said bars adjacent said draft ring, a latching lever pivotally

mounted between said bars and normally 10 engaging said lip, and means for releasing said lever.

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

ABNER J. BRADLEY.

Witnesses:

A. T. CRISS,

J. WILSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
