C. D. SARGENT.

EXCAVATING MACHINE.

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1,236,880.

Patented Aug. 14, 1917.

Fig. 1

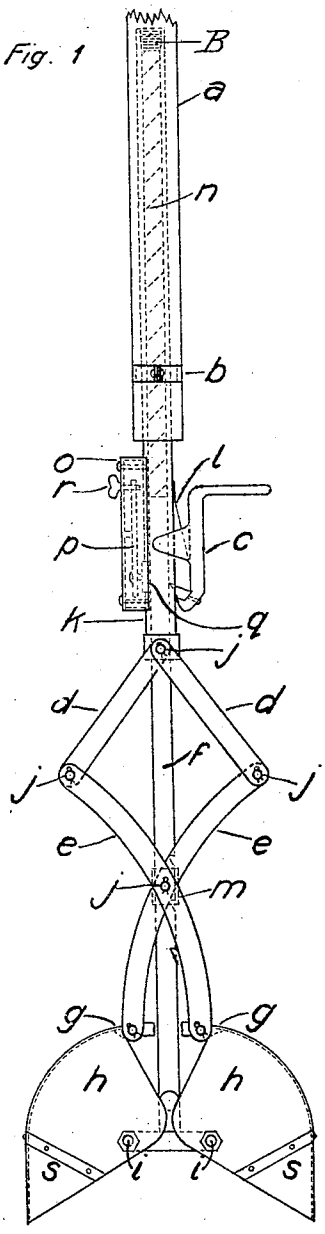


Fig. 2.

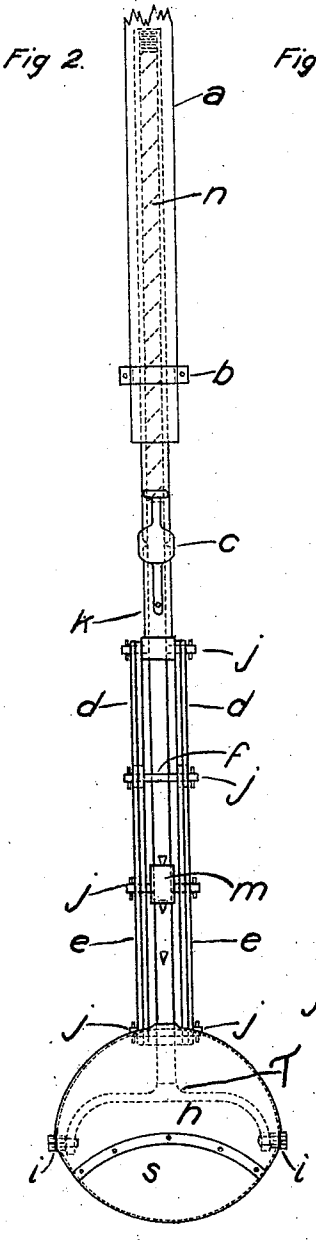


Fig 3.

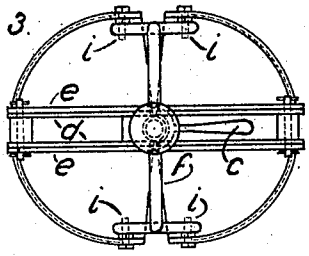


Fig. 4

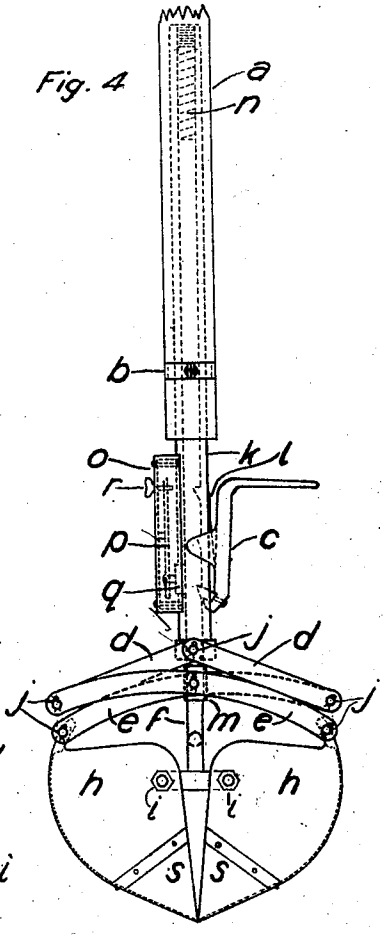
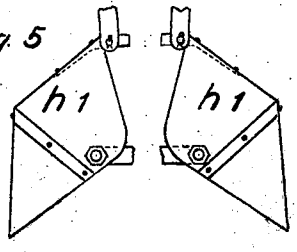


Fig. 5



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EXCAVATING-MACHINE.

1,236,880. Specification of Letters Patent. Patented Aug. 14, 1917.

Application filed August 1, 1916. Serial No. 112,631.

To all whom it may concern:

Be it known that I, CLARENCE D. SARGENT, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Excavating-Machines; and I do hereby declare the following to be a full and exact description thereof.

My invention relates to excavating machines, and consists generally stated, in the novel arrangement, construction and combination of parts, as hereinafter more specifically set forth and described, and particularly set forth in the claims.

To enable others, skilled in the art to which my invention appertains to construct and use the improvement, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a side elevation of my invention, showing the same in its normal position. Fig. 2 is a front elevation, showing the parts in same position as Fig. 1. Fig. 3 is a top view of the machine closed. Fig. 4 is a side elevation showing scoops closed. Fig. 5 is a detail view showing a modified form of scoop.

Similar letters refer to similar parts throughout the several views.

As illustrated in the drawings, K represents a tubular body. At the upper end of tubular body K is handle *a*. At the lower end of handle *a* is a slot made to telescope upper end of said tubular body K. Handle *a* is fastened to tubular body K by clasp *b*, or any other way desired. Handle *a* is straight, made of wood or any other material, plain or with raised ridges around the same. Lower end of said tubular body K, telescopes upper end of rod *f*. At lower end of rod *f*, is secured a cross-head. At each end of said crosshead, are two short crossheads, which are attached to each side of scoops *h h*, by hinge joints I I. Scoops *h h*, are connected to said tubular body K, by levers, rod provided with said crossheads, and toggle-joints. Center of levers *e e* are connected to fulcrum *m* by hinge joints *j j*. Said fulcrum *m* slides on rod *f* to guide levers *e e*. In the upper end of said tubular body K, is a threaded plug B. In said tubular body K, is a coil spring *n*. Upper end of said spring *n*, bears against said plug. The lower end of said spring *n*, bears against the upper end of rod *f*. Spring *n*, is under compression all the time; the compression of said spring *n*, between said plug and the top of rod *f*, holds scoops *h h*, open to give them more force to dig in the earth.

Box *o* is a governor which is fastened to tubular body K by bolts. Inside of box O is a flat spring *p* pivoted in the center. One end of said spring *p* is fastened to brake-block *q*. A slot is made in cylinder K to let said brakeblock *q* bear against rod *f*. At the other end of said spring *p* is a bolt and thumbscrew so attached to spring *p* as shown in the drawings, that by turning thumbscrew *r* one way or the other tightens or releases said brake-block, which presses against rod *f*, thus allowing said scoops to open quickly or slowly. On the other side of tubular body K, from box O, is pawl C, which is attached to said tubular body K by hinge joints, as illustrated in the drawings. Between said pawl C and cylinder K, is spring *l* which holds the hook, at the lower end of said pawl C, into notches in rod *f*. The upper end of pawl C, which protrudes, forms the handle of said pawl C. The rod *f* fitting and working freely within tubular body K, is capable of up and down movement. Rod *f* is provided with a crosshead. At each end of said crosshead, are two short crossheads, which are connected to each side of gripping scoops *h h* by hinge joints I I. Gripping scoops *h h* are connected to cylinder K by levers, rod provided with crossheads, and toggle joints.

The parts, with connections, between cylinder K, and scoops *h h*, are in such relation to each other that the downward movement of tubular body K, will force said levers into a more obtuse angle with each other, and by so doing will force the upper end of scoops *h h* farther apart, and the lower or gripping ends closer together. It will be seen that force applied downward to handle *a*, against resistance by the scoops *h h*—with the construction of the levers, rod provided with crossheads, and toggle joints, will cause the scoops *h h* to close. When scoops *h h* are closing, the hook at the lower end of pawl C, will catch into notches made in rod *f*, and hold scoops *h h*, closed until released. To open scoops *h h*, lift up on handle of pawl C, which will release hook of pawl C, from notches in rod *f*. Then said scoops will automatically open.

The operation and use of my invention are as follows:—The implement in its nor-

mal position, as Fig. 1, is open ready for operation. By bearing down on handle *a* it will force the scoops into the earth and they will fill with dirt. When scoops are closing the hook on pawl C will catch into notches made in rod *f*. The several notches in rod *f* are to hold scoops partially or fully closed. As, for illustration, if you want to pick up a stone, or anything that would prevent the scoops from closing, it will lock on to the object and hold fast until released. When you want to dump the dirt, or other substance, out of the machine, lift up on handle of pawl C. Scoops will then automatically open. In muddy digging, when mud sticks to scoops, turn thumbscrew to left to release scoops, to let them open quickly. By working quickly it will rap the mud off the scoops. By turning thumbscrew *r* to the right it will make the scoops open slowly. It will also force brake-block *q* against rod *f* and give scoops more force to dig in the earth. When digging, it requires a handle the same length as the depth of the hole you want to dig. The raised ridges on the handle form a firm grasp for the hands.

The scoops can be variously formed. One modified form is shown at *h' h'*, Fig. 5. It is also obvious that various other modifications and changes in the construction and design of the various parts of the device may be resorted to without departing from the spirit of the invention, or sacrificing any of its advantages.

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

1. An excavating implement of the kind described, comprising a handle having a tubular portion, a rod adapted to slide within said portion, a pair of scoops fitted to the lower portion of said rod, toggle levers having one end of the toggle arms fitted to the tubular part of said handle and the other end of toggle arms pivoted to said scoops, and a sliding fulcrum for the toggle on said rod, whereby depression of the handle will operate said toggle to close the scoops.

2. An excavating implement of the kind described, comprising a handle having a tubular portion, a rod adapted to slide within said portion, a cross head at the lower end of said rod, a pair of scoops pivoted to said cross head, toggle levers having one end of the toggle arms fitted to the tubular part of said handle and the other end of toggle arms pivoted to said scoops, and a sliding fulcrum for the toggle on said rod, whereby depression of the handle will operate said toggle to close the scoops.

3. An excavating implement of the kind described, comprising a handle having a tubular portion, a rod adapted to slide within said portion, a cross head at the lower end of said rod, a pair of scoops pivoted to said cross head, toggle members arranged to open and close said scoops, consisting in a sliding fulcrum on the rod, a fixed bearing on the tubular member and a pivotal connection with each scoop, in combination with a lock carried by said tubular member and having means to engage the rod when said toggle has been operated to maintain said scoops closed.

4. An excavating implement of the kind described, comprising a handle having a tubular portion, a rod adapted to slide within said portion, a cross head at the lower end of said rod, a pair of scoops pivoted to said cross head, toggle members arranged to open and close said scoops, consisting in a sliding fulcrum on the rod, a fixed bearing on the tubular member and a pivotal connection with each scoop, in combination with a lock carried by said tubular member and having means to engage the rod when said toggle has been operated to maintain said scoops closed, in combination with adjustable means carried by the tubular member and bearing on said sliding rod as a governor to control the sliding action of said rod, and the speed of opening or closing of the scoops.

5. An excavating implement of the kind described, comprising a handle having a tubular portion, a rod adapted to slide within said portion, a cross head at the lower end of said rod, a pair of scoops pivoted to said cross head, toggle levers having one end of the toggle arms fitted to the tubular part of said handle and the other end of the toggle arms pivoted to said scoops, and a sliding fulcrum for the toggle on said rod, whereby depression of the handle will operate said toggle to close the scoops, in combination with a threaded plug in said handle bearing upon a spring interposed between said plug and the rod.

In testimony whereof I have affixed my signature, in presence of two witnesses.

CLARENCE DUETT SARGENT.

Witnesses:
EARL A. SARGENT,
THOMAS J. HARDY, JR.

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