

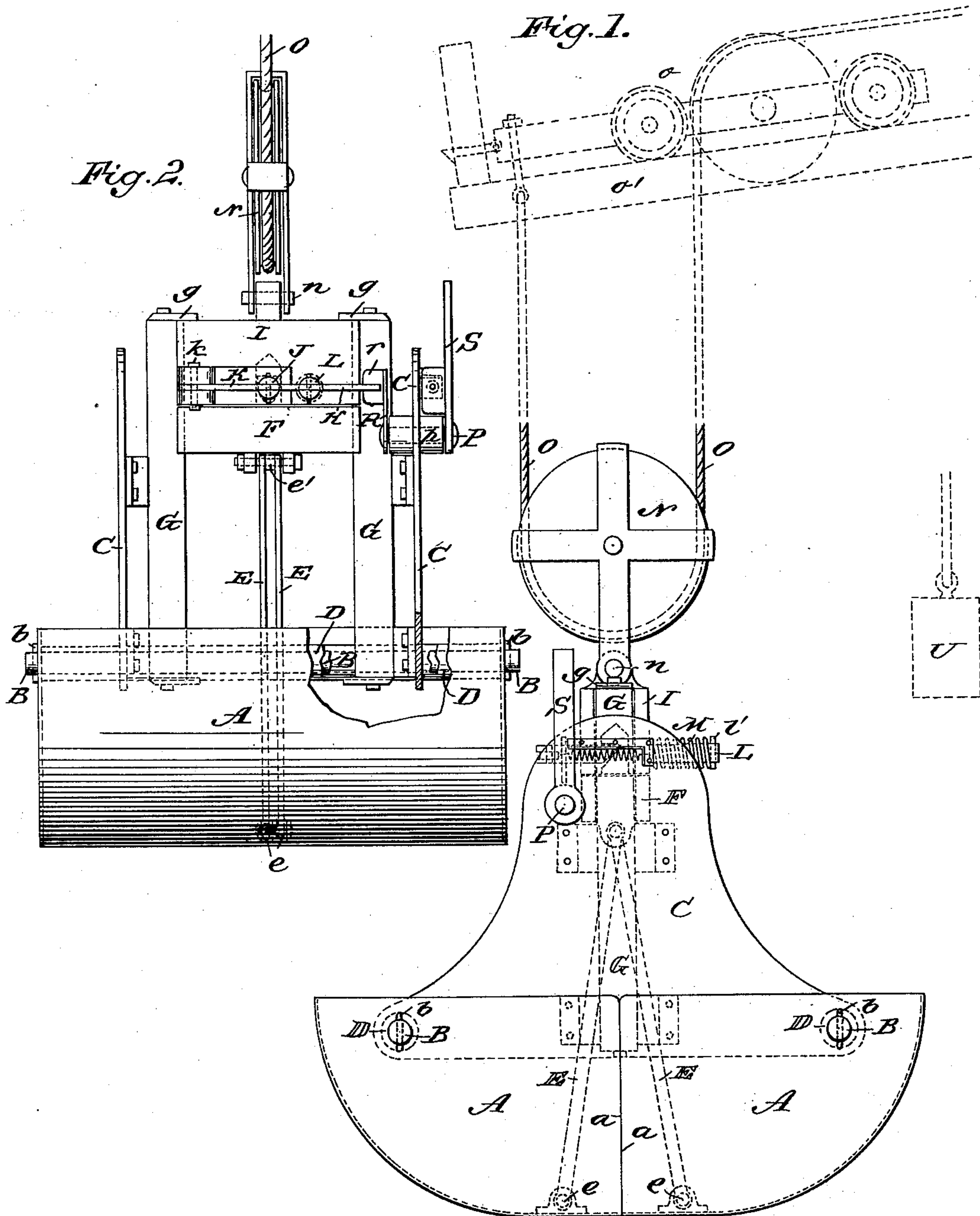
(No Model.)

2 Sheets—Sheet 1.

F. B. BARROWS.
COAL SCOOP.

No. 376,424.

Patented Jan. 17, 1888.



WITNESSES:

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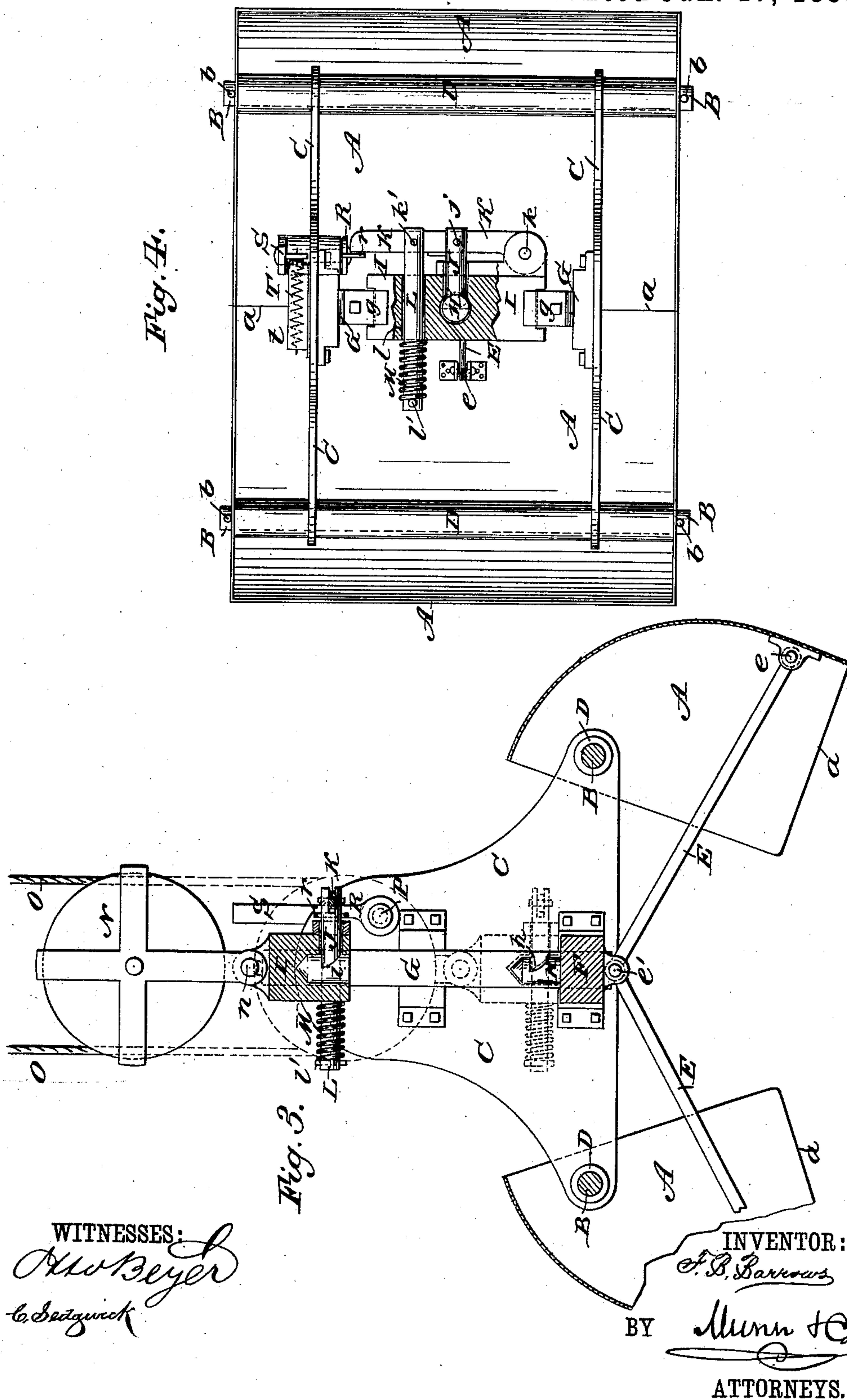
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UNITED STATES PATENT OFFICE.

FREDERICK BALCH BARROWS, OF DULUTH, MINNESOTA, ASSIGNOR TO HIMSELF AND DENNISON BILLINGS SMITH, JR., OF SAME PLACE.

COAL-SCOOP.

SPECIFICATION forming part of Letters Patent No. 376,424, dated January 17, 1888.

Application filed March 23, 1887. Serial No. 232,091. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK BALCH BARROWS, of Duluth, in the county of St. Louis and State of Minnesota, have invented a new and Improved Coal-Scoop, of which the following is a full, clear, and exact description.

My invention relates to scoops adapted more especially for automatically loading, carrying, and discharging coal, grain, or other substances, and has for its object to provide an effective and durable scoop of this character.

The invention consists in certain novel features of construction and combinations of parts of the scoop, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved coal-scoop, with the overhead track and carriages suspending it, shown in dotted lines. Fig. 2 is an end view of the scoop, partly broken away. Fig. 3 is a central sectional side elevation of the scoop in open condition, as when dumping its load, and partly broken away, and with parts indicated in different positions in dotted lines; and Fig. 4 is a plan view of the scoop, partly broken away and in section.

The scoop proper is formed of two parts, A A, open at their inner sides and meeting at their inner edges, *a a*, when the scoop is closed. These parts A A are pivoted on or by heavy steel pins B B to two plates, C C, to which are fixed tubes D D, through which the pivot-pins B B pass. The pins B pass through the opposite side walls of the parts A, and are retained in place by pins or cotters *b*, passed through them outside of the scoop-walls. The tubes D D extend from one side wall of the scoop parts A to their opposite side walls, thereby forming stays both to the sides of the scoop-sections and to the frame-plates C C, and holding the plates in parallel planes to give proper support to the guides on which slide the cross-heads connected to the hoisting-rope, as presently explained.

To the bottoms of the parts A A, at their centers and near their meeting edges *a a*, are pivoted at *e e* the lower ends of two bars, E E, the upper ends of which are pivoted on one

bolt, *e'*, held to lugs on the lower end of a cross-head, F, which is adapted to slide on guides G G, fixed to the opposite frame plates C C, and at its top the cross-head F has a tenon, H, which has a side notch, *h*, and is adapted to enter a socket, *i*, in an upper cross-head, I, which is also adapted to slide on the guides G, and has fitted in it a bolt, J, which is adapted to automatically catch into the notch *h* of the lower cross-head tenon H to lock both cross-heads F I together. The bolt J has a pivotal connection at *j* with a trip-lever, K, which is pivoted at *k* to lugs on the upper cross-head, I, and is connected pivotally at *k'* to one end of a bar or rod, L, which is fitted to slide in a hole, *l*, in the cross-head, and at the opposite side of the cross-head a spring, M, is placed on the projecting end of the rod L between the cross-head and a pin, *l'*, in the rod. The spring acts normally to draw the bolt J inward into position for locking with the tenon H of the lower cross-head. The upper cross-head, I, is connected by a pin, *n*, to the straps of a sheave or pulley, N, and a hoist rope or cable, O, rove in the sheave suspends the entire scoop from an overhead carriage, *o*, running on tracks *o'* for conveying the scoop to desired places for loading and discharge; or the scoop may be suspended by the sheave and cable N O, or otherwise, from a derrick arm or boom, or any other swinging or traveling support.

In a suitable bearing, *p*, on one of the frame-plates C is journaled a short shaft, P, to one end of which is fixed a trip-arm, R, having a plate, *r*, which normally stands behind the free end of the lever K, and to the other end of the shaft P is fixed an arm, S, which normally stands upright and parallel with the arm R, in which positions the parts R S are held by a spring, T, which is fitted in a case, *t*, fixed to the plate C, and is connected at one end to the case and at its other end to the arm S, which it draws to a stop against the spring-case *t*, or it may be a pin or other projection on the plate C. The arm S is adapted to strike a weight, U, suspended from the overhead track *o'*, or any other suitable stop, at the place where the scoop is to dump its load.

Overhanging plates *g g*, fixed to the tops of the guides G G, support the emptied scoop-

body A A from the top of the upper cross-head, I, and may also form stops to limit the upward movement of this cross-head about at the time the edges *a a* of the parts A A of the scoop 5 come together.

The operation is as follows: After the scoop is dumped of its load, its two parts A A will be held by the lowered heavy cross-head F and the rods E E in the position shown in Fig. 3 10 of the drawings, and when the scoop is carried back over the coal-heap for reloading it will be lowered to the coal, on which its edges *a a* will rest, and the hoist-rope O will be slackened to lower the upper cross-head, I, until its bolt 15 J locks with the lower cross-head, F, as indicated in dotted lines in Fig. 3; and as the hoist-rope is drawn upon both cross-heads I F will be lifted together and the bars E E will close the scoop as it fills itself and the edges 20 *a a* of the parts A A come in contact, and the filled scoop may be raised and run off or swung to the place of discharge, where the arm S will strike the weight U, or equivalent stop, and withdraw the bolt J from the notch *h* of the 25 tenon on the lower cross-head, F, and allow this head to fall as the scoop opens to discharge its load. Immediately the scoop opens, the springs M and T will reset the bolt J, its lever K, and trip-arm R to normal positions to allow 30 sliding of the cross head I as it is again lowered to load the scoop. The spring M is made quite stiff to offer considerable resistance to compression for easing the shock of quite violent contact of the trip-arm S with the trip 35 weight or stop U as the bolt J is withdrawn, and thus prevent injury to the parts, and also assure the prompt and positive return of the latch-bolt to normal position.

It is obvious that this scoop may be used to 40 advantage for lifting and conveying other substances besides coal, as it may be used for handling sand or grain or for excavating purposes.

Having thus described my invention, what I 45 claim as new, and desire to secure by Letters Patent, is—

1. A scoop made with two body parts or sections pivotally connected to a supporting-frame by means of bars or pins fitted to the 50 walls of the scoop-sections and passed through tubes fixed to the supporting-frame and fitted between opposite side walls of the scoop-sections, substantially as herein set forth.

2. The combination, in a scoop, of two body 55 parts or sections, A A, a frame comprising opposite plates C C, tubes D D, fixed to the plates and fitted between opposite side walls of the parts A A, and pivots B B, passed through the side walls of the parts A A and also through 60 the tubes, substantially as shown and described.

3. The combination, in a scoop, of two parts or sections, A A, a frame comprising plates C C, tubes D D, fixed to the plates and fitted be-

tween opposite side walls of the parts A A, pivots B B, passed through the side walls of 65 the parts A A and through the tubes, guides G on the plates C C, a cross-head fitted on the guides, and rods E E, pivotally connected at one end to the cross-head and at the other end to the parts A A of the scoop, substantially as 70 shown and described.

4. A scoop made with two parts, A A, pivoted to a frame or support having guides provided with stops *g*, two cross-heads fitted to 75 slide on said guides and adapted to latch together, rods connected pivotally to the lower cross-head and to the scoop-sections A A, and operating to load and close the scoop as the cross-head is drawn upon, and a trip device 80 adapted to unlatch the two cross-heads by contact with the weight or stop at the place of discharge, substantially as herein set forth.

5. The combination, in a scoop, of two parts, A A, pivoted to a frame or support having 85 guides provided with stops *g*, two cross-heads, F I, fitted to slide on said guides, rods E E, connected pivotally to the lower cross-head, F, and to the scoop-sections A A, and operating to load and close the scoop as said cross-head is 90 drawn upon, said cross-head F having a tenon, H, notched at *h*, and the cross-head I having a recess receiving the tenon and provided with a spring-actuated latch-bolt, J, adapted to lock 95 the two cross-heads together, and a trip device arranged with the latch-bolt and adapted to disengage the bolt to release the lower cross-head by contact of a weight or stop at the place of discharge, substantially as herein set forth.

6. The combination, in a scoop, of two parts 100 or sections, A A, pivoted to a frame or support having guides provided with stops *g*, two cross-heads, F I, fitted to slide on said guides, rods E E, connected pivotally to the lower 105 cross-head, F, and to the scoop-sections A A, and operating to load and close the scoop as said cross-head is drawn upon, the cross-head F having a tenon, H, notched at *h*, and the cross-head I having a recess receiving the 110 tenon H, a spring-actuated latch-bolt, J, adapted to lock the two cross-heads together, and a trip device comprising a lever, K, pivoted to the cross-head I, and pivoted, also, to the bolt J, a bar, L, also pivoted to lever K and provided with a retracting-spring, M, a 115 shaft, P, pivoted to the scoop-frame and provided with an arm, R, adapted to withdraw the bolt J, and a spring-drawn arm, S, fixed to shaft P and adapted to strike a weight or stop 120 at the place of discharge of the scoop to disengage the bolt from the lower cross-head, substantially as shown and described.

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Witnesses:

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