

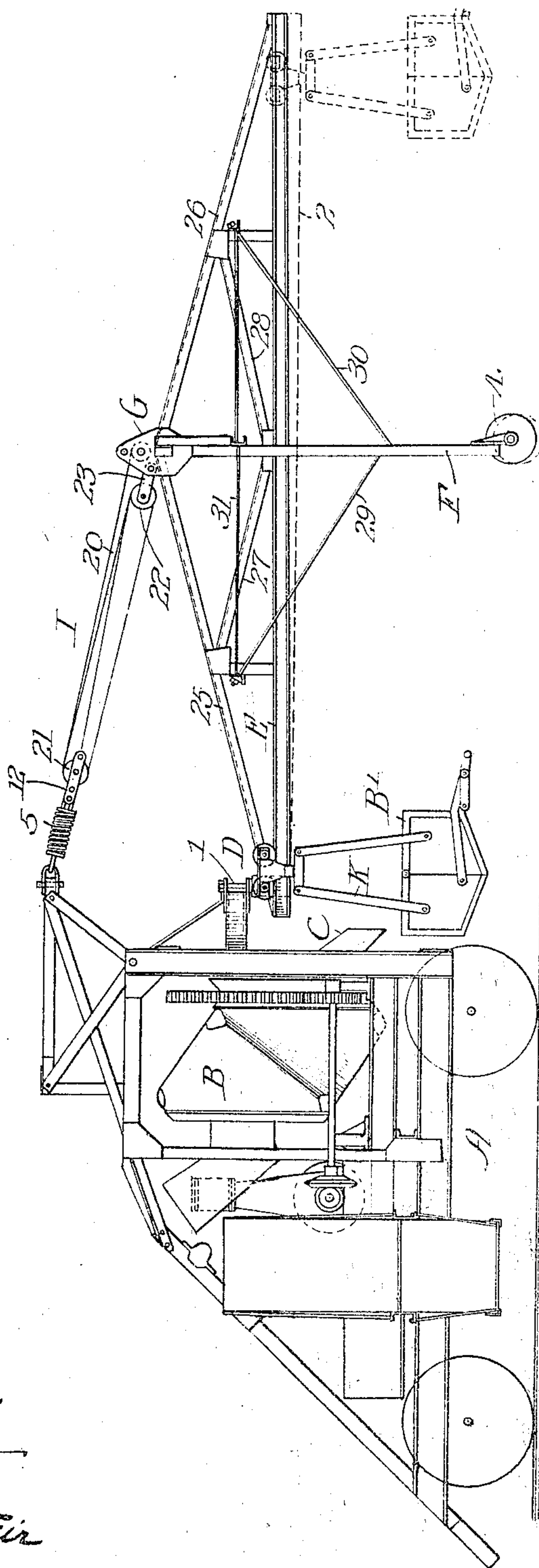
990,513.

C. E. BATHRICK.
MACHINE FOR USE IN STREET PAVING WORK.
APPLICATION FILED MAY 14, 1909.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 1.

Fig. 1



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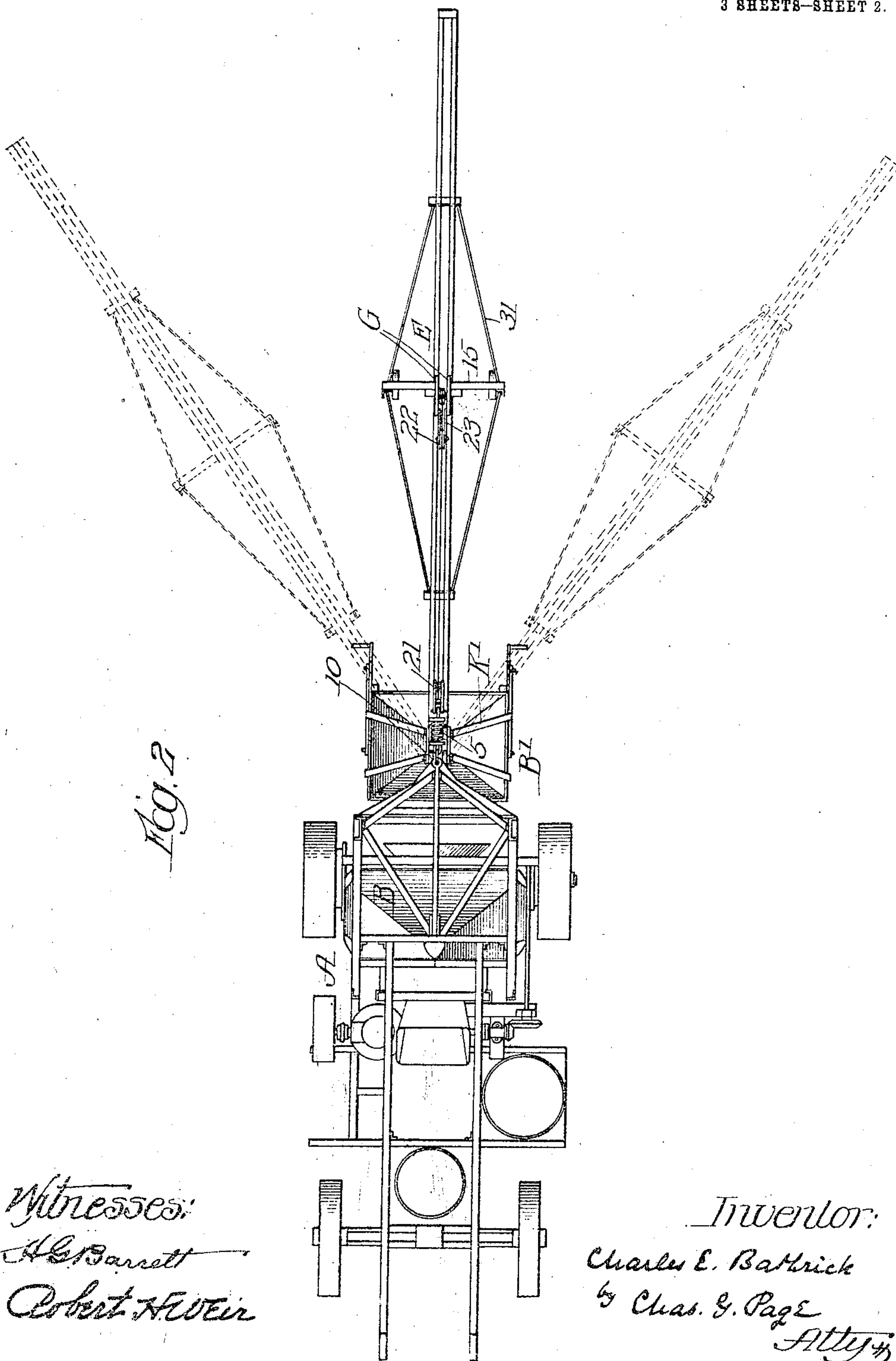


Fig. 2

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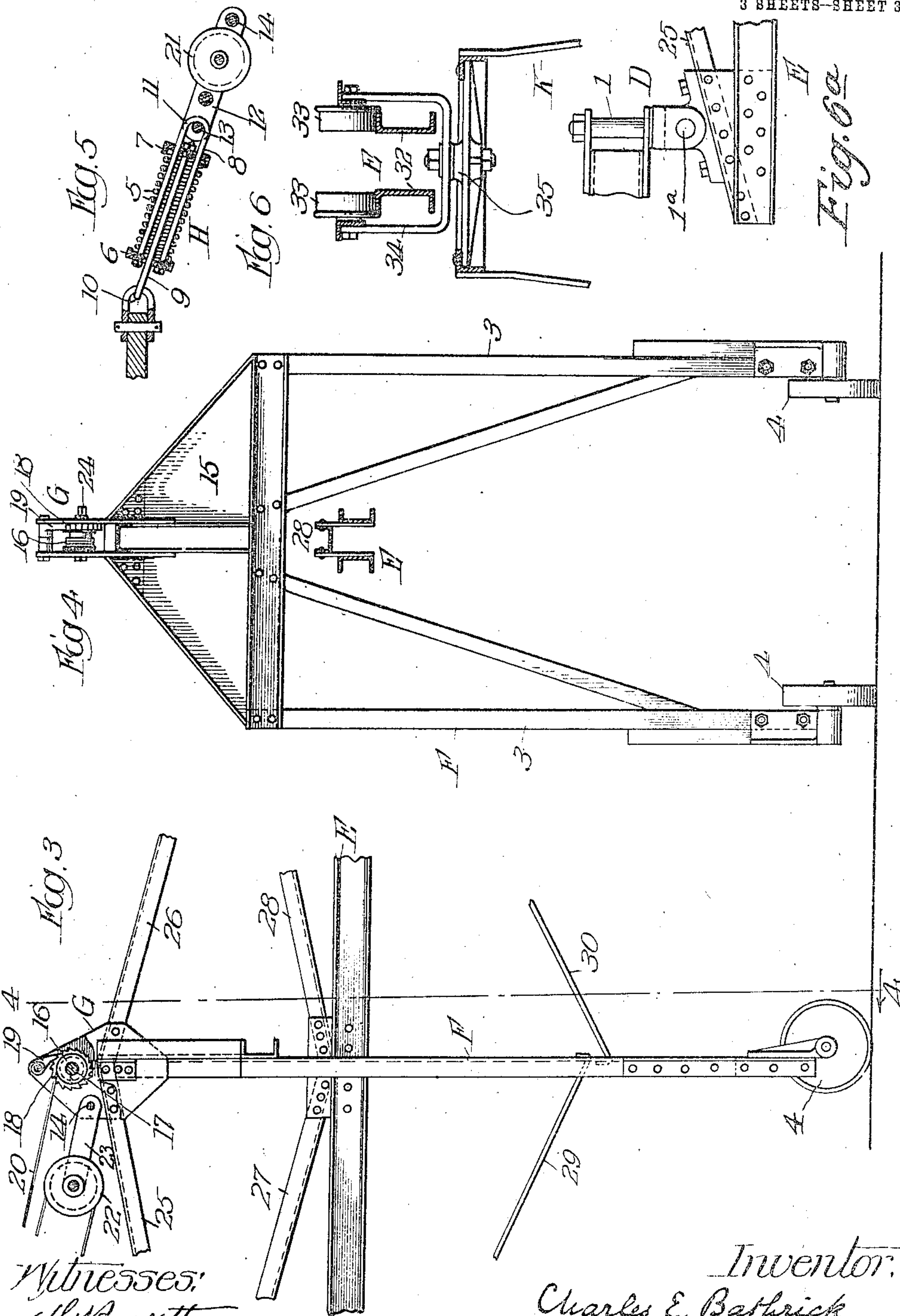
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR USE IN STREET-PAVING WORK.

990,513.

Specification of Letters Patent.

Patented Apr. 25, 1911.

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To all whom it may concern:

Be it known that I, CHARLES E. BATHRICK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Use in Street-Paving Work, of which the following is a specification.

My invention relates to an apparatus or machine for use in street paving work and comprising a carriage provided with a boom and a hopper or receptacle supported to traverse the boom and adapted to be moved into position to receive a batch of material, such as concrete from a mixer on the carriage, and when thus loaded, to be run out along the boom to a point for discharging its contents.

Objects of my invention are to provide conveniently manipulated and generally efficient means for the delivery of material from a portable mixer to any desired points along a street where such material is to be applied for paving purposes; to deliver the material from the mixer to any desired point across the street without laterally shifting the truck or carriage supporting the mixer, whereby progressive movement of the carriage along the street line will involve all necessary bodily movement on the part of such carriage to permit the employment of a comparatively long boom normally horizontal or substantially so and having a wide extent of lateral sweep whereby material can be delivered along a wide area of street surface; to provide means for temporarily propping up the boom when it sustains the weight of a loaded receptacle thereon, and to utilize the weight of such loaded receptacle as a means for primarily causing a temporary propping up of the boom; to automatically raise the boom propping means from the ground when the boom is relieved from the weight of a loaded receptacle, and to provide certain novel and improved details as hereinafter set forth.

In the accompanying drawings: Figure 1 is a side elevation of an apparatus embodying my invention. Fig. 2 is a top plan of Fig. 1, the lateral swing of the boom being illustrated by dotted lines. Fig. 3 is a detail view illustrating in side elevation a portion of the boom and certain adjuncts, on a larger scale than in preceding figures. Fig. 4 is

an elevation of the main portion of Fig. 3, the boom being in cross section on line 4 4 in Fig. 3. Fig. 5 is a detail on a larger scale mainly illustrating in section the spring device for upholding or floating the boom. Fig. 6 comprises a detail showing a section taken transversely through the boom and illustrating the trolley device for the hopper. Fig. 6a is a detail illustrating the double hinge connection between the boom and the motor truck or carriage.

In the drawings A indicates a truck or carriage which is understood to be provided with any suitable means for propelling it along a street, and which is also understood to be provided with any desired suitable means for operating a rotary mixer B for mixing up concrete or the like. With reference to the mixer B, it is only necessary to observe that it is mounted on the carriage and that the discharge therefrom is delivered by a chute or trough C into a receptacle or hopper B' when said receptacle or hopper is in position to receive a batch of material discharged from the spout or trough C which is supported upon the carriage. The receptacle B' is suspended from a boom E by means of a truck or trolley device D arranged to traverse the boom. When therefore it is desired to load the hopper, the latter can be brought under spout C as shown in full lines in Fig. 1, and it can then be run out along the boom as indicated for example in dotted lines in said figure. The inner end of the boom is connected with the carriage by a vertical pivot 1 which permits lateral swing on the part of the boom and the inner end portion of the boom is also connected with the carriage by a horizontal pivot 1' whereby the boom can be swung in a vertical plane, a suitable extent of up swing on the part of the boom being illustrated in Fig. 1 as shown in full lines, the desired extent of down swing on the part of the boom being in said figure indicated by dotted line 2. The boom is provided at a point between its ends with a supporting leg device F, and as best shown in Fig. 4, this supporting device is constructed with a couple of leg members 3, 3, having their lower end portions provided with small rolls 4, 4, which bear upon the ground when the boom is in its lowered position, as indicated by dotted lines in Fig.

1, and in full lines in Figs. 3 and 4, and which are raised above the ground when the boom is in the raised condition shown in full lines in Fig. 1.

5 The boom is normally maintained in the raised position, as or substantially as shown in Fig. 1, by spring means connecting the boom with the carriage A, so that when the hopper is back or near the carriage as in
10 full lines in Fig. 1, or when it is thus back and not loaded, the spring means will be sufficient to swing the boom upwardly from the position shown in dotted lines to the position shown in full lines in said figure, and
15 when the boom is thus raised to cause the caster wheels or rolls 4 to clear the ground. This leaves the boom free to be swung laterally about the vertical axis of pivot 1, so that while the carriage may be on the
20 middle longitudinal line of a street, the boom can be swung toward either side so as to permit the hopper when loaded to be run out for delivery to points at either side of the middle line of the street, the point of
25 delivery being determined by the extent of lateral swing on the part of the boom and the extent to which the trolley D by which the hopper is suspended is run out along the boom. In Fig. 2, these side movements on
30 the part of the boom are indicated in dotted lines, it being understood that the boom can be swung into either of said positions, at will. Although the wheels 4 may be ordinary
35 caster wheels, it is nevertheless desirable to normally maintain them off the ground, or to so maintain them when it is desired to swing the boom toward either side, whereby
40 it will not be necessary to provide for individual up-and-down bodily play of the wheels in accordance with irregularities of the street or road surface, and moreover, as the boom or beam is quite long and heavy, an arrangement such as illustrated is highly
45 preferable. When the hopper B' is in loading position as shown in full lines in Fig. 1, material such as concrete can be discharged from the mixer B into said hopper by way of the chute or spout C, and the trolley D can then
50 be moved along the boom in a direction away from the carriage A and to a desired extent, and as the trolley is thus run out along the boom, the weight of the loaded hopper will depress the outer end portion of the
55 boom as indicated by dotted line 2, whereby the small wheels 4 of the prop or supporting leg device F will be lowered until they rest upon the ground and thereby the said prop or leg device will suitably uphold the boom
60 which is thus weighted down by the loaded hopper. When the hopper is unloaded and returned toward its loading position, the boom will be raised by the floating spring means as soon as it has been relieved of the
65 weight of the load which served to depress it.

The floating spring device shown comprises a spring 5 arranged between the two plates or heads 6 and 7 (Fig. 5), the plate 6 being secured to the ends of a staple-shaped rod 8 which extends within the coil spring 70
5. The plate or follower 7 is adapted to slide upon and along the staple-shaped rod 8, and a similar rod 9 has the ends of its leg portions secured to the follower 7, the bent or eye portion 10 of the rod 9 being extended 75
outwardly through openings with which plate 6 is understood to be provided for such purpose, whereby the follower 7 can be moved along the rod 8 in accordance with the compression and expansion of the spring. 80
The bent end or eye portion 11 of rod 8 is flexibly connected with a link 12 by means of a pivot 13, and this link 12 is pivotally attached by pivot 14 with a plate or casing G, which is in turn secured upon the upper 85
portion 15 of the boom prop or leg device F. The casing G is provided with a pulley 16 mounted upon a spindle 17 and rigid ratchet 18, a pawl 19 being pivoted to the casing and arranged for engaging the 90
ratchet 17. The boom is connected with the tension spring device H by any suitable block and tackle device I, which comprises a cable 20 attached to the winding pulley or drum 16 and extending between and about 95
a pulley 21 on the link 12 and a pulley 22 on link 23 which is pivoted to the casing G, one terminal of the cable being secured to the winding drum or pulley 16 and its other terminal being secured to link 12 100
as in Fig. 1. The winding drum or pulley 16 is provided with an arbor 24, whereby it can be turned by any suitable key link 12 as in Fig. 1. The winding drum or pulley 16 is provided with an arbor 24, 105
whereby it can be turned by any suitable key or the like for the purpose of winding cable 20 on the drum 16 and thereby so increasing the spring tension of spring 5 as to raise the boom and maintain the same in a nor- 110
mally raised condition. When the carriage is to be propelled along the street with the hopper empty, the attendant can, if he so desires, release pawl 19 from the ratchet 18 whereby the boom will swing downwardly 115
of its own weight until the wheels 4 of the supporting leg device F rest upon and traverse the ground. The boom and leg device F are suitably trussed and braced by suitable truss-bars 25, 26, 27 and 28, as 120
shown in Fig. 1, and the leg device F is also further suitably braced by truss rods 29, 30 and 31.

As shown the boom comprises a pair of parallel channel bars 32 which are under- 125
stood to be rigidly secured together and which form tracks for the trolley wheels 33, 33, as best shown in Fig. 6, in which these wheels are pivoted or journaled upon a truck frame 34, which is understood to be swiveled 130

at 35 to the upper portion of a frame K, said frame being a pendant structure to which any suitable bucket or hopper B' is attached.

What I claim as my invention is:

5 1. In a machine of the class set forth, the combination of a motor truck or carriage provided with a mixer; a boom attached at one end portion to the motor truck or carriage by hinge connecting means permitting
10 the boom to swing laterally and also to have an up and down swing; a delivery hopper or receptacle for receiving material from the mixer and delivering the same at points more or less remote therefrom; a shifting
15 connection between the delivery receptacle and the boom and movable along the latter in order to shift the position of the delivery receptacle in accordance with need; spring means interposed in connection between the
20 motor truck or carriage and the boom and adapted to normally maintain the boom in level or substantially level position to provide a suitable track or way; and a prop or leg device attached and depending from the
25 boom, the prop or leg device being clear of the ground when the boom is maintained in level or substantially level position by the spring means, and being of a length to engage and bear upon the ground and sustain
30 the weight of the boom and the loaded receptacle when the boom is depressed by reason of its weight augmented by the weight of the loaded receptacle, the spring means being adapted to yield to an extent to permit
35 said depression on the part of the temporarily weighted boom, but opposing such depression with an increasing spring resistance suitable to restore the boom to its normal position after the boom has been suitably
40 relieved of the weight of the load thereon.

2. In a machine of the class set forth, the combination of a motor truck or carriage provided with a mixer; a boom forming a track extending out from the motor truck or
45 carriage and having its inner end portion attached thereto by hinge means permitting the boom to swing laterally and up and down; a delivery receptacle for receiving material from the mixer, a trolley connection movable along the track provided by
50 the boom whereby the said receptacle is suspended; a prop or leg device attached to and

depending from the boom; spring means interposed in connection between the boom and the motor truck or carriage and adapted to
55 normally maintain the boom sufficiently elevated to permit the prop or leg device to clear the ground, said spring means being adapted to yield with an increasing spring resistance and to an extent to permit the
60 boom to swing downwardly to an extent to permit the prop or leg device to rest upon the ground and support the boom when the weight of the latter is augmented by the weight of the receptacle in loaded condition.
65

3. In a machine of the class described, the combination of a portable support provided with a mixer and suitable for street service; a laterally and vertically swinging boom hinge-connected with the portable support;
70 a delivery receptacle, a trolley device adapted to traverse the boom which provides a track therefor from which trolley device said receptacle is suspended; a prop or leg device for temporarily upholding the boom
75 when the latter is depressed; and adjustable spring connecting means between the boom and the portable support, the range of adjustment of said adjustable spring connecting means being suitable for varying the
80 spring tension to an extent to permit the boom to swing downwardly when the spring tension is relaxed, and conversely to raise and maintain the boom in a relatively elevated position when the spring tension is increased by adjustment.
85

4. In a machine of the class set forth, the combination of a portable support provided with a mixer and a projecting boom which is attached to the portable support by hinge
90 connection permitting the boom to swing laterally and up and down; connection between the boom and the portable support comprising a spring, a block and tackle, and a device for winding and unwinding the cable of the
95 block and tackle so as to vary the tension of the spring; a delivery receptacle, and a trolley device arranged to traverse the boom and serve to suspend said delivery receptacle.

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