

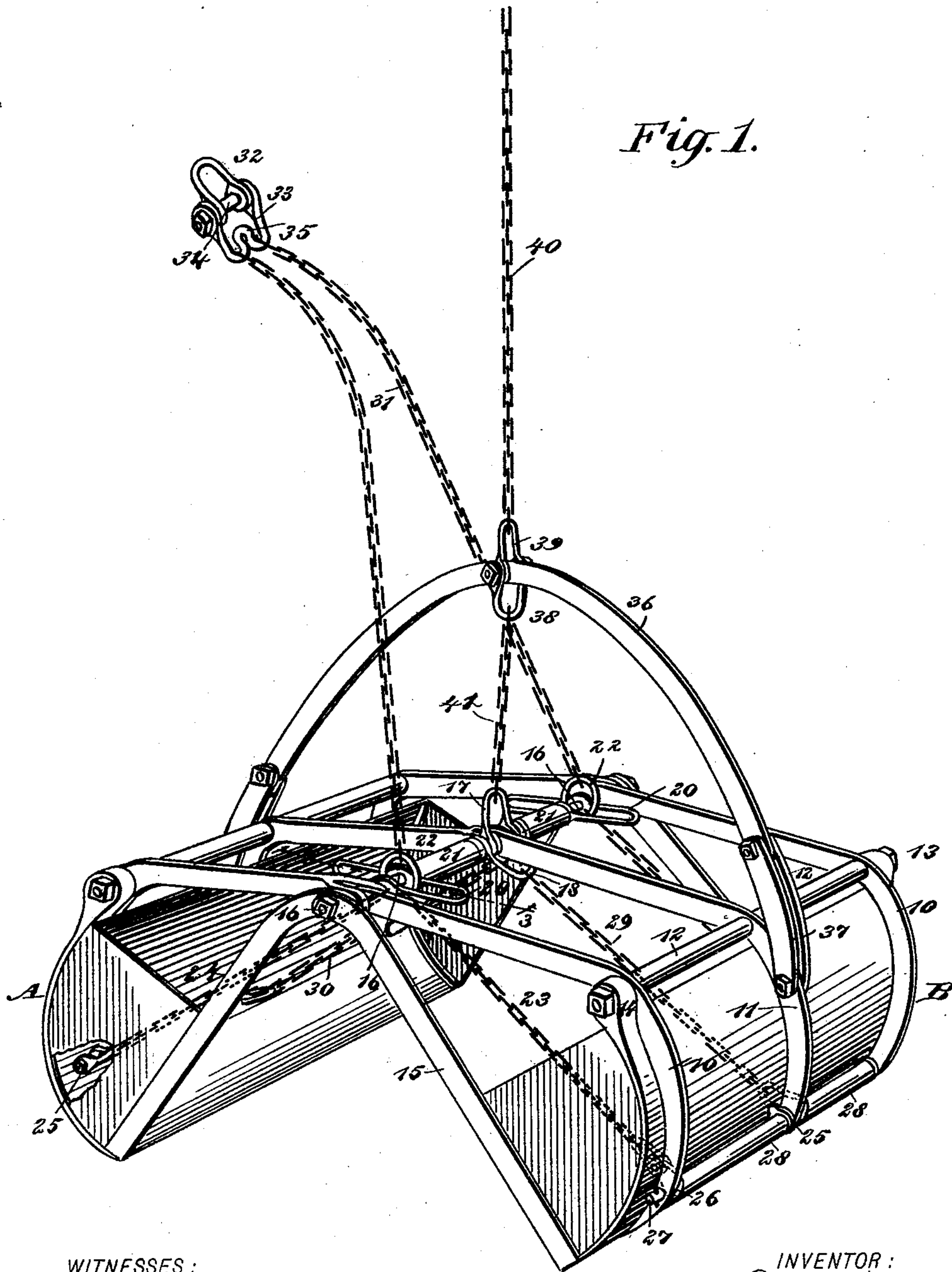
(No Model.)

2 Sheets—Sheet 1.

J. A. QUINN.
DUMPING BUCKET.

No. 500,426.

Patented June 27, 1893.



WITNESSES:
J. M. Griswell.
C. Sedgwick

INVENTOR:
J. A. Quinn
BY *Munn & Co*
ATTORNEYS

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Fig. 3.

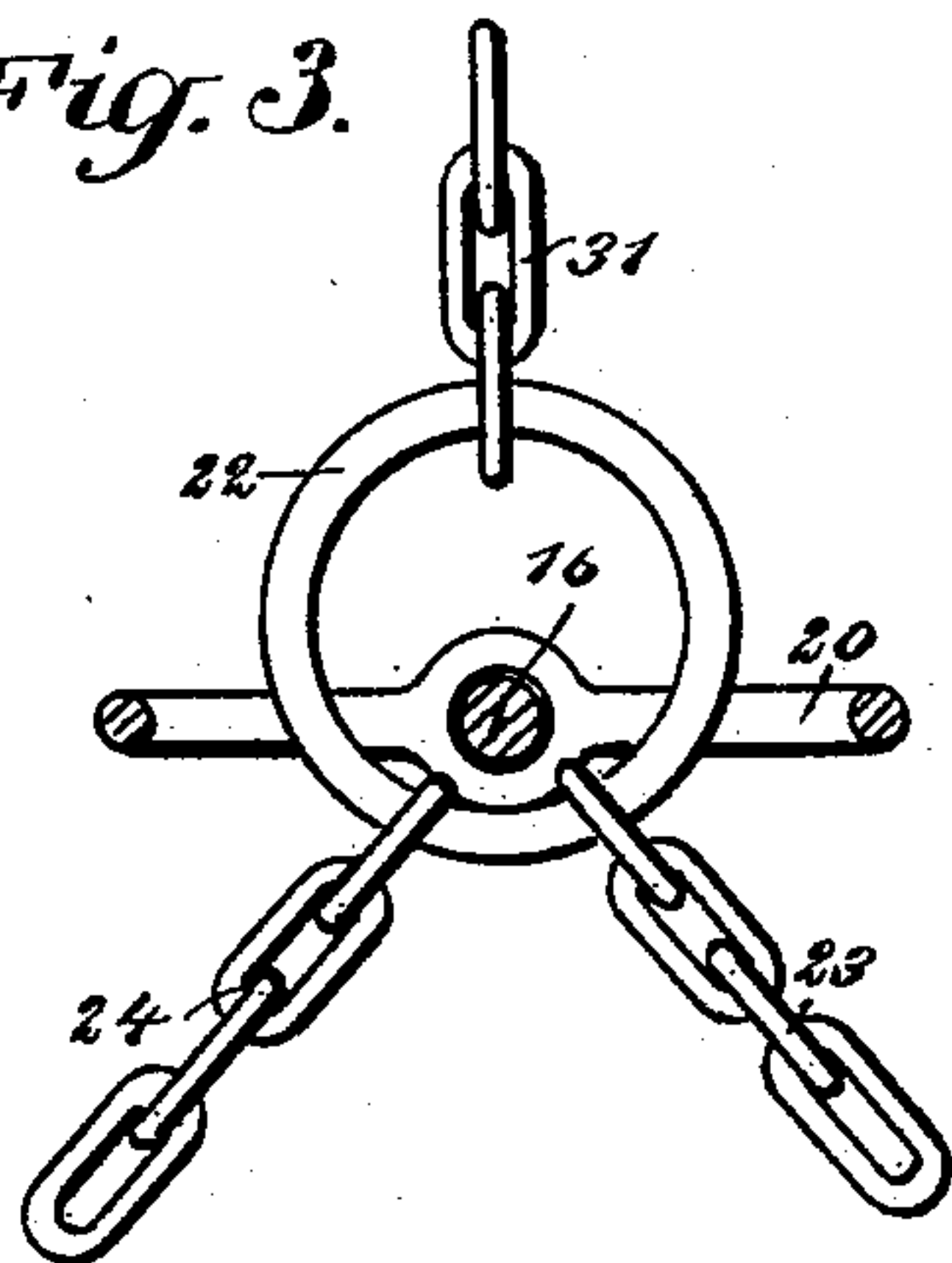
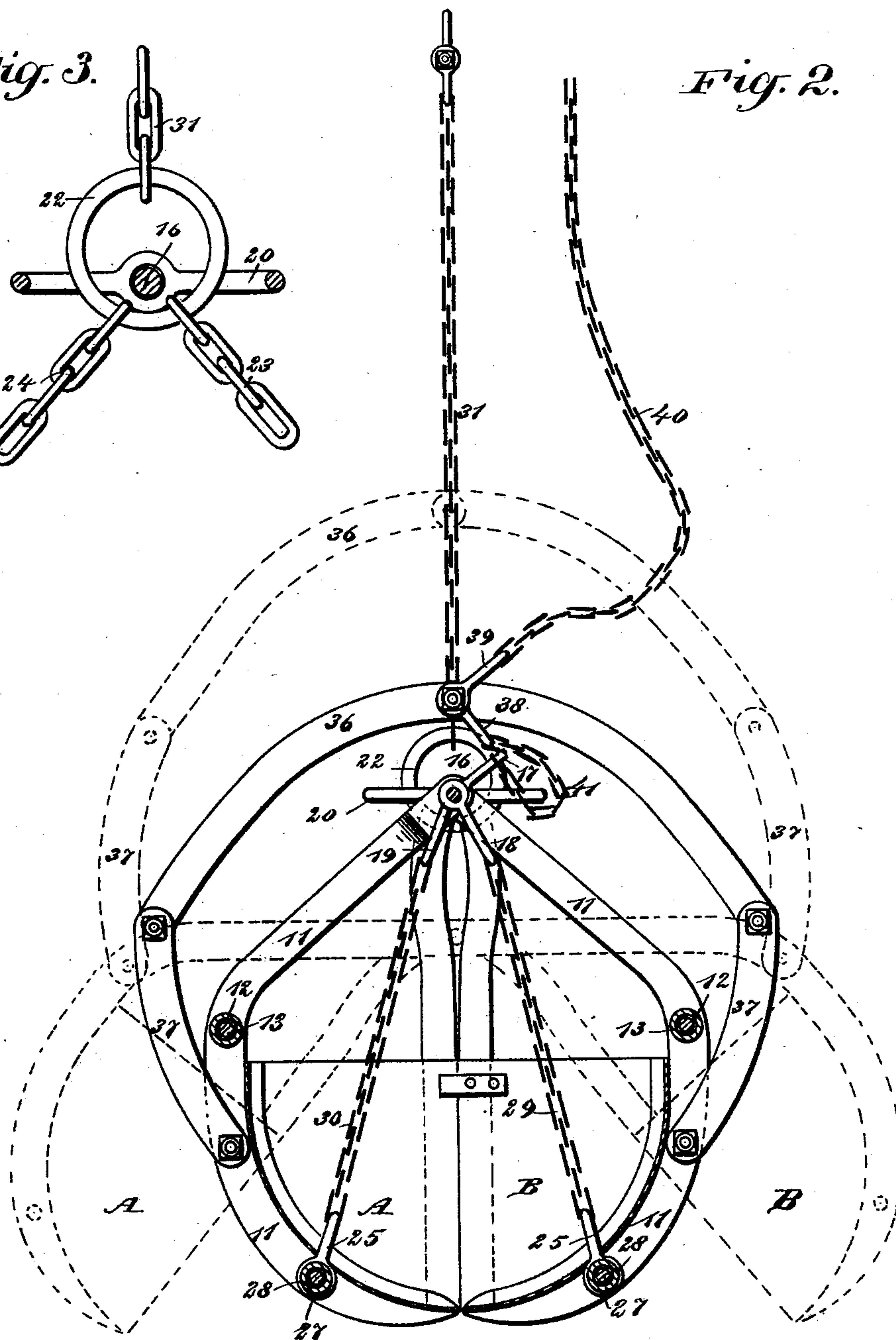


Fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES A. QUINN, OF BROOKLYN, NEW YORK.

DUMPING-BUCKET.

SPECIFICATION forming part of Letters Patent No. 500,426, dated June 27, 1893.

Application filed January 14, 1892. Serial No. 418,093. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. QUINN, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful
5 Improvement in Dumping-Buckets, of which the following is a full, clear, and exact description.

My invention relates to an improvement in dumping buckets, and has for its object to
10 provide a bucket adapted for hoisting coal and other material, and dumping the material into vessels or receptacles placed to receive it at a predetermined time.

A further object of the invention is to provide a dumping bucket in which all of the
15 lifting strain will be removed from the pivot of the sections of the bucket, thus permitting the bucket to open and to close with a minimum degree of friction.

Another object of the invention is to so construct the bucket that it may be opened in
20 an expeditious and convenient manner, and closed as easily as opened, and further to relieve the pivot pin or shaft from all tension from the guide chains and the chains through
25 the medium of which the bucket is opened and closed.

It is a further object of the invention to construct the bucket in a simple, durable and
30 economic manner.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

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

Figure 1 is a perspective view of the bucket
40 open. Fig. 2 illustrates in positive lines a central vertical section through the bucket in its closed position, and in dotted lines it illustrates its open position; and Fig. 3 is a transverse section taken practically on the line
45 3—3 of Fig. 1.

The bucket comprises mainly, as is usual in buckets of this class, two scoop sections A and B, the inner edges of the sections being
50 straight and their outer side faces cylindrical, so that when the scoop sections are brought

together their inner edges will be in close engagement, as shown in Fig. 2.

The scoop sections are constructed of metal, preferably of iron, and are provided at each end and at the center with reinforcing arms, 55 the outer ones being designated by the reference numeral 10 and the inner by the numeral 11. These arms are firmly secured upon the outer or cylindric surfaces of the scoop sections, and extend inward beyond the upper
60 edge thereof, the projecting portions of the arms being curved upward, as is also best shown in Fig. 2.

The scoop sections are further provided or reinforced by sleeves 12, located between the
65 arms 10 and 11, in engagement therewith slightly above the upper edges of said scoop sections, and with rods 13, which are passed through apertures in the arms and through the sleeves, the rods being provided at their
70 extremities with nuts, or with a nut at one end and a head at the other. The rods in addition to passing through the arms and through the sleeves are also passed through projections or knuckles 14, formed integral with the
75 upper edges of the scoop sections at their ends.

At each end of each scoop section adjacent to its inner edge, a pivot arm 15, is firmly secured. These arms extend upward, and at
80 their upper extremities are curved in direction of each other, and the two scoop sections are pivotally connected by a pivot bolt 16, which passes through the upper ends of the pivot arms 15 when the arms at each end of the scoop section are overlapped, as shown in
85 Fig. 1.

The upper extensions of the brace arms 10, are pivoted upon the pivot bolt 16, this bolt being made to pass through the upper extremities of each of these arms, and to that
90 end, as illustrated in Fig. 1, the upper extension of the brace arms attached to one scoop section is bifurcated, and the corresponding portion of the arms secured to the other scoop section enters between the members produced
95 by the said bifurcation. The center brace arms 11, are likewise pivotally connected with the pivot bolt, the construction at their upper extremities being similar to that of the outer arms. A loop or link 17, is located at the cen- 100

ter of the bucket, extending over the center arms at their pivoted connection, and the said link is pivotally mounted upon the pivot pin 16, being adapted to extend upward therefrom, and two links or loops 18 and 19, are likewise pivotally mounted upon the central portion of the pivot bolt 16, at the side of the center of the upper loop or links 17. The loops or links 18 and 19 extend downward beneath the pivot bolt in opposite directions, being inclined in direction of each scoop section, as is shown best in Fig. 2.

A guide link 20, is pivotally mounted upon the pivot bolt adjacent to the inner faces of the outer brace arms 10, as is clearly shown in Fig. 1, and sleeves 21, are mounted upon the pivot bolt, extending from the guide links 20, to the outer of the lower links 18 and 19. Thus the pivot bolt is exposed only at the space contained between the sides of the guide links 20, and at these points the pivot bolt is surrounded by a loosely fitting ring 22.

Each ring 22, has connected therewith the upper ends of two chains, designated respectively as 23 and 24. These chains at their lower ends are attached to the inner faces of the scoop sections A and B, and this connection is usually effected through the medium of open links 25, pivotally connected to bolts 26 passed through the outside through apertures in the concentric faces of the scoop sections, the said bolts being pivotally mounted upon shafts 27, one of which is secured to the outer face of each scoop section near the lower edges thereof, and is passed through the lower portions of the brace arms 10 and 11; and between these arms the shafts 27, are provided with loosely mounted sleeves 28, which serve as friction rollers in the event this portion of the bucket should strike the side of a vessel or other surface.

Two chains 29 and 30, are located at the center of the scoop sections, the lower end of one of the chains being attached to each of the scoop sections, and the upper ends of said chains are connected with downwardly-extending loops or links 18 and 19. The attachment between the lower ends of the chains 29 and 30, is effected in practically the same manner as the attachment of the chains 23 and 24, but the open link instead of being connected with a bolt and the bolts pivoted upon the fixed shafts 27, said open link is carried directly through apertures in the side or cylindrical faces of the scoop sections to a pivotal connection with the shafts, as is best shown in Fig. 2.

The central chains 29 and 30, are simply guide chains, but the outer chains 23 and 24, act to close the scoop sections one against the other. This is effected by drawing upward upon chains 31 connected at their upper ends in any suitable or approved manner, and one of the chains at its lower end is attached to each of the rings 22. The preferred connection for the upper ends of the chains consists of two open links 32 and 33, pivotally con-

nected by a bolt 34. The lower link to which the chains 31, are attached, is provided with a central inwardly-extending tongue 35, and the chains connect with the link at each side of this tongue.

It is one of the prime objects of this invention to remove from the pivot bolt of the scoop sections all strain or tension when tension is exerted upon the closing mechanism, and to leave the said pivot bolt perfectly free from all pressure no matter how the scoop sections are manipulated.

With respect to the operation of the closing mechanism, tension is brought directly upon the lift chains 23 and 24 through the medium of the rings 22, and these rings are never in engagement with the pivot bolt as the length of the chains 23 and 24 is so calculated as to prevent a contact, and the guide loops 20, serve to prevent the rings 22 from having more lateral movement than is absolutely necessary.

The opening mechanism is constructed as follows: A bail 36, is pivotally connected at its ends by links 37 with the central brace arms 11, the attachment being effected between the links and the arms somewhat below the upper edges of the scoop sections. This bail has fitted to its central portion two open links 38 and 39, one adapted to extend upward and have connection with a length of chain 40, while the other extends downward and is connected by a length of chain 41 with the upwardly extending open link 17 mounted upon the pivot pin.

In the operation of the bucket, when its sections are closed to carry coal or other material, the lifting of the bucket is effected through the medium of the two chains 31, connected with the closing chains 23 and 24. When the bucket has been carried to the point where it is purposed to discharge its contents, tension is removed from the chains 31 and is brought to bear upon the chain 40, whereupon the bail will be elevated, as shown in dotted lines, Fig. 2 and in positive lines, Fig. 1, and as the bail is elevated the scoop sections will be forced apart to their full open positions, permitting all of the contents to drop from the bucket, and the extent to which the bucket sections are opened is regulated by the length of a chain 41. This chain when first attached is of a length sufficient to permit the scoop sections to open to the widest required extent, and if afterward it is desired to lessen the distance between the scoop sections when opened this result is effected by simply looping up the chain so as to shorten it, which act may be readily accomplished by disengaging the upper link of the chain from the open link 38 and connecting with the latter one of the intermediate chain links. The bucket is lowered in its open position, shown in Fig. 1, and when brought into engagement with the material it is adapted to receive, tension is again applied to the closing chains 31, and the scoop sections will be brought to-

gether, the bucket at the same time being filled by the closing action of the scoops.

It will be observed that this bucket is exceedingly simple and durable in construction, as well as economic, and that, as heretofore stated, no strain whatever is brought to bear upon the pivot bolt of the scoop sections, so that the sections may be opened and closed under all conditions with equal facility.

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

1. In a dumping bucket, the combination, with the scoop sections thereof, and a pivot 15 pin or bolt uniting said sections, of rings surrounding the pivot pin or bolt, chains connecting the rings with the scoop sections of the bucket, said chains being of a length to maintain the rings out of engagement with the 20 pivot pin or bolt when upward tension is exerted upon said rings, whereby when the bucket is elevated no strain is brought to bear upon the pivot pin, substantially as described.

2. In a dumping bucket, the combination, 25 with the scoop sections thereof and the pivot pin or bolt connecting said sections, of rings loosely fitted around the pivot pin or bolt, closing chains connected with the rings and with the carrying portions of the scoop sections, the said chains being of such length 30 that the rings are held out of engagement with the pivot pin or bolt when upward tension is exerted upon the rings, lift chains connected with the rings, and guide links mounted 35 ed upon the pivot pin or bolt and surround-

ing the said rings, whereby lateral movement of the latter is limited, substantially as and for the purpose set forth.

3. In a dumping bucket, the combination, with the scoop sections thereof and a pivot 40 pin or bolt connecting said sections, of a bail having link connection with the outer side surfaces of the scoop sections, an open link pivoted upon the pivot bolt or pin, and a chain connection between the bail and the open link, 45 the connection being an adjustable one, whereby the upward movement of the scoop sections may be limited as desired, substantially as shown and described.

4. In a dumping bucket, the combination, 50 with scoop sections, the pivot pin or bolt connecting said sections, rings loosely surrounding the pivot pin or bolt, closing chains attached to the rings and to the scoop sections at their inner faces, the said chains being of 55 such length as to maintain the rings out of engagement with the pivot pin or bolt when upward tension is exerted upon the rings, and guide devices carried by the pivot bolt surrounding the rings, of a bail, a link connection 60 between the bail and the outer surfaces of the scoop sections, an open link pivoted upon the pivot bolt or pin, and an adjustable chain connection between the open link and the bail, substantially as shown and described. 65

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