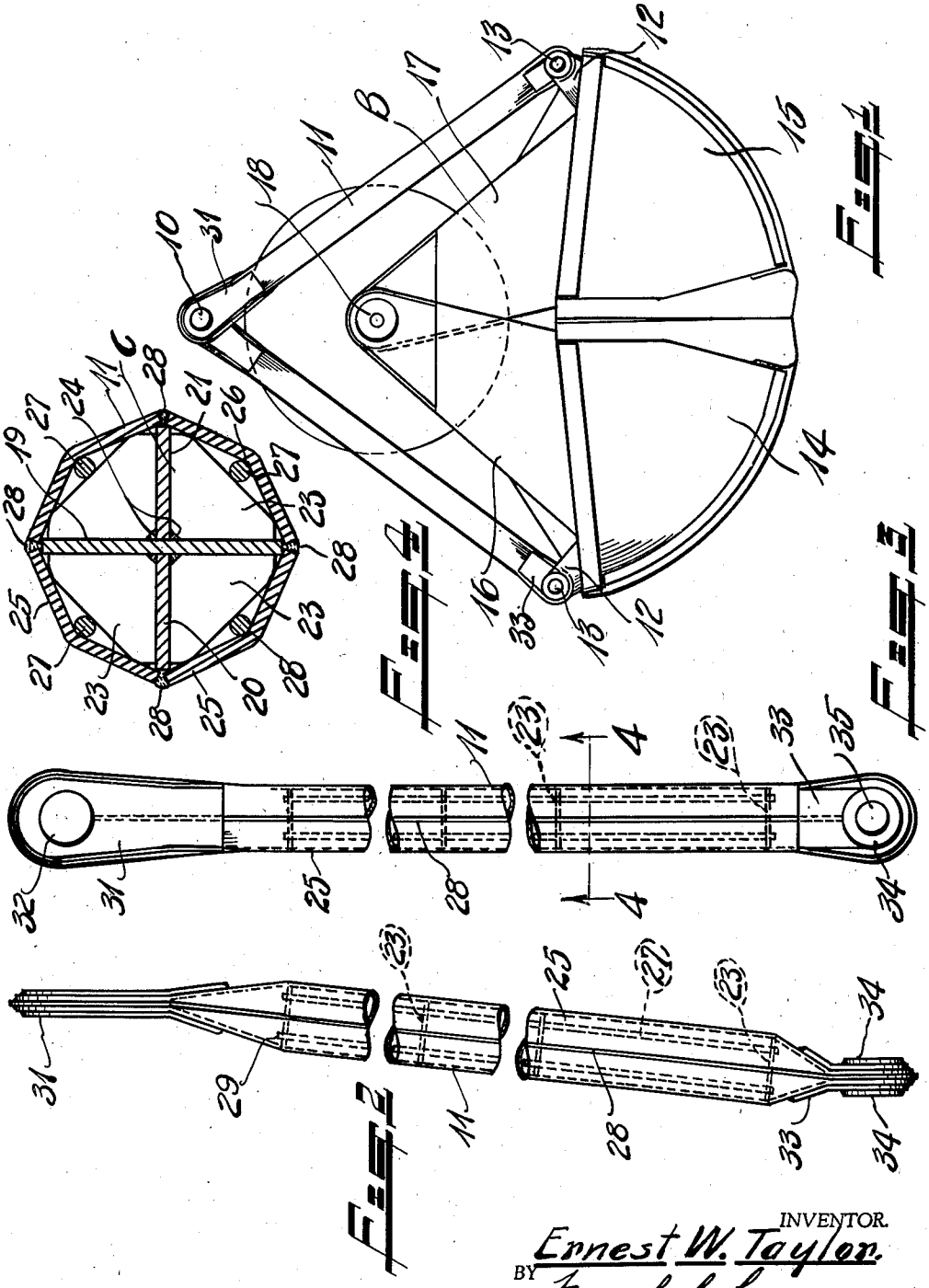
Feb. 24, 1942. E. W. TAYLOR 2,274,507

EXCAVATING BUCKET STRUCTURE

Filed April 3, 1941



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Patented Feb. 24, 1942

2,274,507

UNITED STATES PATENT OFFICE

2,274,507

EXCAVATING BUCKET STRUCTURE

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Application April 3, 1941, Serial No. 386,586

6 Claims. (Cl. 37—184)

This invention relates to bail arms for buckets and more particularly to a fabricated bail arm which will be comparatively light in weight, yet of ample strength for the purpose required, and which will not easily crush, bend, or twist when subjected to the impacts and heavy shock in ordinary use.

The bail arms of buckets of the class described are usually subjected to heavy shocks, impacts, and rough usage due to the fact that the material handled by the buckets is usually transferred into or from railroad cars, boats, bins, or piles surrounded by retaining walls or other enclosures, and in swinging the bucket in and out of such places, the bail arms swing against the edges of the openings or walls of the cars or enclosures, and inasmuch as the bucket proper is of considerable weight when empty, and may carry a ton or more of material when loaded, it will be obvious that if the bucket swings against any obstacle, either when empty or loaded, that a considerable force is exerted, so much so that the bail arms are frequently bent and twisted sufficiently to necessitate replacement, or cause their removal and straightening before they can be again put into use. This requires considerable time and labor and ofttimes cessation of work; and I have, therefore, perfected a very rigid and substantial, fabricated bail arm which is light in weight, which is so constructed that it will not crush or bend when subjected to the rough usage above referred to, and which can be readily manufactured and assembled.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts, hereinafter more fully described, illustrated in the accompanying drawing, and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportions, and minor details of construction, without departing from the spirit, or sacrificing any of the advantages of the invention.

In the drawing:

Fig. 1 is a side elevational view of a clamshell bucket with my improved bail arms in place thereon;

Fig. 2 is an enlarged front elevational detail of one of the bail arms;

Fig. 3 is a side view; and

Fig. 4 is an enlarged transverse sectional view taken on the line 4—4 of Fig. 3.

Referring now to the drawing in which I have shown the preferred embodiment of my invention. B indicates a clamshell bucket of conventional design including a head pin 10 to which the upper ends of the bail arms 11 are pivotally connected in the usual manner. The lower ends of the bail arms are formed substantially similar to the upper ends and are pivotally connected to the corner brackets 12 by means of pins 13, these corner brackets being mounted on scoop members 14 and 15 respectively, in the conventional manner.

Spade arms 16 and 17 extend upwardly from the scoops 14 and are pivotally connected to the hinge pin 18 in the usual manner, and I do not deem it necessary to show or describe the bucket or bucket operation in detail as it forms no part of the present invention, which is broadly directed to the bail arms proper.

Each bail arm includes a spider-shaped center or core C comprising an elongated flat bar 19 and having bars 20 and 21 respectively, welded to the opposite sides thereof, the inner edges of these bars 20 and 21 being placed in facial contact with the center section of the bar 19 and are welded thereto to form the core, said bars forming radially projecting, evenly spaced fins disposed at angles of ninety degrees (90°) with relation to each other.

Segmental plates 23 are provided at vertically spaced points as shown, and are welded at points indicated at 24 to secure the members 19 and 20 in spaced relation and form a rigid core structure.

A plurality of elongated outer bars 25 forms the outer shell of the bail arms, and these are of pre-determined width, being bent on the longitudinal center line 26, and a rod 27 is welded to the inner face of each bar at the point of bend, said rod abutting against the outer edge of the segmental plates 23 when the bail arm is assembled, the outer edges of the bars extend over the outer edges of the core bars or fins, and these edges are then welded on the line 28 to provide a rigid arm which will be comparatively light in weight, yet possessed of great strength and rigidity.

The ends of the bail arms are disposed at a slight angle with reference to the main body and are preferably flat to facilitate attachment and forming a bearing area, the rods 27 terminating at the point 29 and the core bars 20 and 21 have their end sections tapered as at 30 to eliminate sharp corners or bends, the upper end sections of the bars 25 which form the outer shell being cut and flattened accordingly, and in addition, the reinforcing strips 31 are placed in facial contact with these bars 25 and are welded

thereto as shown, this flatted end section is then bored as at **32** to accommodate the hinge pin **10**, as clearly shown in Fig. 1 of the drawing. The lower end of each bail arm is formed substantially similar to the upper end, a reinforcing bar **33** being placed in facial contact with the strips **25** and is welded thereto, and plate disks **34** are then welded to the reinforcing bars **33**, the flattened end section being bored as at **35** to accommodate the pin **13** as usual.

The body of the bail arms will thus be substantially octagonal in shape, they will be very rigid, will not crush or bend, and are comparatively simple to manufacture.

From the foregoing description it will be obvious that I have perfected a very simple, practical, and substantial bail arm for clamshell buckets and the like.

What I claim is:

1. A bail arm for a clamshell bucket comprising an elongated fabricated core X-shaped in cross section to form radiating fins, vertically spaced segmental plates disposed between said fins and welded to said core, and pre-shaped bars welded to the core fins and forming an outer shell for the bail arm.

2. A bail arm for buckets comprising an elongated cylindrical body terminating in flat end sections, said body section comprising an elongated center core X-shaped in cross section to form radially disposed fins, vertically spaced segmental plates disposed between said fins and welded thereto, and bars forming the outer shell of the bail arm with the edges of the bars welded to the outer edges of said fins, and openings in the flatted ends of the arm.

3. A bail arm for buckets comprising a center core formed with radiating fins, a plurality of vertically spaced plates disposed between said fins and welded thereto, a plurality of bars forming the outer shell for said core, rods welded to the center section of the bars, the edges of said bars being welded to said fins and to each other with the rods in engagement with edges of said plates.

4. A bail arm for a clamshell bucket comprising an elongated body terminating in flat end sections, said body comprising an elongated core formed with radiating fins, vertically spaced segmental plates disposed between said fins and welded thereto, a plurality of elongated bars forming the outer shell of said bail arm, and elongated rods secured to the inner face of said bars and interposed between the bars and the outer edges of the segmental plates, with the edges of said shell bars welded to said fins.

5. A bail arm for buckets comprising an elongated fabricated center core formed with radially extending fins, means for securing said fins in spaced relation, bars angularly-shaped in cross section forming the outer shell of the arm, with their edges welded to the outer edges of the fins and to each other, rods welded to the inner surface of the angularly-shaped bars and disposed between said shell and spacing means, and openings provided in the end sections of said arms.

6. A bail arm for buckets comprising an elongated, substantially tubular body terminating in flat end sections, said body comprising a winged core formed of a flat bar having laterally projecting wings welded thereto, vertically spaced plates disposed between said wings and core bar and welded in position, bars forming the outer shell of the body with the edges of the bars welded to the outer edges of the core bar and wings, the ends of said wings and shell bars being tapered to form a flat end section and bearing area for a hinge pin, and reinforcing strips welded to and forming part of said end sections.

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