DREDGE BUCKET CONSTRUCTION

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4 Claims. (CI. 37-191)

The invention relates to chain dredge buckets
and has reference more particularly to an in-
proved dredge bucket comprising separable parts
and including a hood portion provided with a de-
pending annulus and a base portion having an
opening for receiving the annulus.

In the manufacture of chain dredge buckets
it has been the practice to cast the buckets in
the form of solid or integral castings of man-
ganese steel. In the casting of large structures
radical changes exist in the metal sections from
top to base so that foundry difficulties are often
encountered. For eliminating such difficulties in
the casting of large bucket structures the inven-
tion contemplates making the hood portion of
the bucket separate from the base member and in
providing special features in the design of the parts
whereby they can be conveniently fitted to-
gether. More particularly, as contemplated by
the invention, the base member will be provided
with a circular opening for receiving a depend-
ing annulus formed on and integral with the hood
portion and which is adapted to fit in the base
opening for releasably securing the parts in as-
sembled relation.

Accordingly, an object of the invention is to
provide an excavating bucket of separable con-
struction which will comprise a plurality of parts
in order to avoid foundry difficulties in the cast-
ning of the parts and wherein the same are so de-
signed as to have interfitting relation for join-
ing the parts to comprise an assembled unit.

Another object of the invention is to provide
a separable chain bucket construction with the
hood and base portions being interchangeable to facilitate assembling in the field or replacement
of the parts.

With these and various other objects in view,
the invention may consist of certain novel fea-
tures of construction and operation, as will be
more fully described and particularly pointed out
in the specification, drawings and claims appen-
ded hereto.

In the drawings which illustrate an embody-
ment of the device and wherein like reference
characters are used to designate like parts—

Figure 1 is a side elevational view illustrating
a separable two-part dredge bucket constructed
in accordance with the invention, certain por-
tions being shown in section to clearly illustrate
structural details;

Figure 2 is a side elevational view of the hood
portion of the bucket; and

Figure 3 is a top plan view illustrating struc-
tural features of the base portion.

Referring to the drawings, the chain dredge
bucket selected for illustrating the invention es-
sentially consists of a hood portion 10 compris-
ing the excavator body of the bucket and a base
portion 12 to which the hood is releasably se-
cured. The hood comprises a cup-like structure
having a substantially continuous bounding wall
generally designated 13, a front portion 14 and a
rear portion 15. In cross section on a transverse
approximately horizontal plane the inside con-
tour of the hood is substantially elliptical, the
inside wall 16 forming the rear and the bottom
of the bucket and merging with the side walls
of the same which terminates at 13.

To cooperate with the hood 10 there is provided
a removable member forming a separate lip 18.
The lip is customarily cast in manganese steel as
is also the base and hood portions, and the con-
tour of the lip is such as to coincide with the
marginal wall 13 of the hood. The lip is thus
crescent-shaped in plan, being preferably fabri-
cated in one piece and is provided with inside and
outside flanges 20 and 21, respectively, for strad-
dling the marginal wall of the hood portion. For
a more particular description of the straddling
flange structure for the lip 18 reference is made
to my Patent No. 2,258,546 of January 14, 1941
entitled Excavator. Said lip in the vicinity of the
rear portion thereof is provided with a plurality
of apertured bosses 22 which cooperate with simi-
lar bosses 23 formed integral with the hood por-
tion. Fastening bolts 24 extend through aligned
apertures of the bosses respectively and function
to securely fasten the lip to the hood portion with
provision being made for conveniently releasing
the lip for purposes of repair or replacement.

A circumferentially extending ledge or wall 25
is integral with the hood portion 10 having loca-
tion adjacent the bottom of the hood portion.
Said wall 25 on each side of the hood portion is
provided with a plurality of slots 26 for receiving
fastening bolts to be presently described in detail
and this slotted section of wall 25 is reinforced
by vertically extending ribs 27 having location on
the exterior of the hood portion and which merge
with the wall 15 thereof.

In accordance with the invention the hood and
base portions of the bucket are separable, the
hood portion having a depending annulus indic-
ated by numeral 28, Figure 1, and which de-
pends from the wall 25, being integral therewith
and integral with the wall 16 of the hood as
shown in Figure 1. The depending annulus 28
may be reinforced by ribs such as 30 having loca-
tion within the open bottom of the same. It will
be observed that the bottom surface of wall 25 and the exterior surface of depending annulus 28 are both machined to provide smooth surfaces which are accordingly designed to have a close fit with cooperating surfaces provided by the base portion 12. Details of the base portion will now be described.

Since chain dredge buckets are adapted to have articulated relation with other buckets to form an endless perimeter or the base portion as shown in Figure 1 has cast integral therewith a rear boss 31 which is pierced at 32 for receiving the back eye bushing 33. The rear boss 31 is located centrally with respect to the longitudinal center line of base portion 12 and said boss is somewhat less in width than the overall width of the base. The front is accordingly provided with a pair of front bosses 34 which are pierced to provide front eyes 35 and which receive a pin for the purpose of articulately connecting adjacent buckets. It will be understood that the pin will extend through the front eyes 35 and through back eye bushing 33 of the adjacent bucket with the pin being journalled by said bushing which accordingly takes the wear during operation of the chain conveyor.

An addition to the base plates of the base portion 12 includes a substantially horizontally disposed top wall 36 which is machined to provide a flat surface complementary to that provided by wall 25. Also wall 36 includes a depending wall 37 which is circular in extent to define an opening of a size for receiving the depending annulus whereby the hood and base portions may be joined in assembled relation, securing means for releasably securing the said portions in assembled relation, and reinforcing means for the base portion including a rib integral with the base portion and extending substantially diametrically of the opening below the same.

4. An excavator bucket, in combination, a hood portion providing a dredging bucket and having a depending annulus, a base portion having an opening for receiving the depending annulus whereby the hood and base portions may be joined in assembled relation, securing means for releasably securing the said portions in assembled relation, reinforcing means for the base portion including a rib integral with the base portion and extending substantially diametrically of the opening below the same.

5. An excavator bucket, in combination, a hood portion providing a dredging bucket and having an outwardly extending bottom wall, an annulus depending from said bottom wall centrally of the same, a base portion having a flat top wall and side walls, said top wall having a center opening for receiving the depending annulus and said bottom wall of the hood portion and the top wall of the base portion having cooperating machined surfaces for a close fit when the portions are assembled, securing means for releasably securing the said portions in assembled relation, and reinforcing means for the base portion including a transverse rib joining the side walls. Pouring channels disposed partially diametrically of the opening below the same.

6. An excavator bucket, in combination, a hood portion providing the bucket proper and having an exterior of generally spherical shape, an annulus integral with the hood portion and depending from the bottom thereof, a circumferential wall extending laterally outwardly from the hood portion at the junction of the annulus therewith, vertically disposed ribs on the exterior of the hood portion for joining and reinforcing the circumferential wall with respect to the hood portion, a base portion having a flat top wall and side walls, said top wall having a center opening for receiving the depending annulus to unite the hood and base portions in assembled relation, said top wall and said circumferential wall having cooperating machined surfaces for a close fit when the portions are assembled, securing means extending through aligned openings in said circumferential wall and top wall for releasably securing the portions in assembled relation, and reinforcing means for the base portion including a transverse rib joining the side walls and extending substantially diametrically of the opening.
4. An excavator bucket, in combination, a hood portion providing the bucket proper and having an exterior of generally spherical shape, an annulus integral with the hood portion and depending from the bottom thereof, a circumferential wall extending laterally outwardly from the hood portion at the junction of the annulus therewith, vertically disposed ribs on the exterior of the hood portion joining and reinforcing the circumferential wall with respect to the hood portion, a base portion having a flat top wall and having side walls so disposed that the top wall extends laterally beyond each side wall, said top wall having an opening located approximately centrally thereof between the side walls for receiving the depending annulus to unite the hood and base portions in assembled relation, said top wall and said circumferential wall having co-acting machined surfaces for a close fit when the portions are assembled, and securing bolts extending through aligned openings in said circumferential wall and top wall for releasably securing the portions in assembled relation, the openings in the top wall for the securing bolts being located to the outside of the side walls respectively in the laterally extending sections of the top wall.

THOMAS C. WHISLER.

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