To all whom it may concern:

Be it known that I, WALTER C. HARLOW, a
citizen of the United States of America, and
a resident of Brooklyn, in the county of
Kings and State of New York, have invented
a certain new and useful Improvement in
Built-Up Articles, of which the following is
a specification.

This invention relates to built-up articles
whose surface portions are composed of sec-
tional shells, all or partly of metal, and to
the method of making the same.

The object is to cheapen and simplify the
manufacture of metal-surfaced objects, to
permit the employment of metal so thin as
ordinarily not to be self-supporting or not
sufficiently shock-resisting, and to do away
with the usual soldering, bolting, flanging,
or spinning-over processes usually employed
for uniting mechanically the several ele-
ments of the surface. To these ends the
articles constructed according to this inven-
tion have their surface regions formed of
thin, sectional, dis-united shells, and are
provided with heavy internal bodies of har-
dened plastic material, which serve as a key
for holding the several sections assembled in
their proper relative positions. It will thus
be seen that the composite body serves as a
support and reinforce for the sectional met-
surface; and the invention is therefore
sharply defined from that class of construc-
tions in which concrete or cement articles are
reinforced internally by metal.

My invention is applicable to the manu-
facture of a great variety of articles com-
pounded, at least in part, of metal, such as lamp
bases, telephone basons, pendent and bracket
light fixtures, ink-stands, urns, vases, and
other receptacles, and the like.

In the accompanying drawings are shown
several illustrative examples of the invention.

Figure 1 is a vertical longitudinal sec-
through a pendent light fixture constructed
after my invention; Fig. 2, is a like view of a
basket light fixture; Fig. 3 is a like view of
a base adapted to carry a desk telephone or
a portable electric light; Fig. 4 is a like view
of an ornamental pitcher or vase; and Fig. 5
is a like view of a base and font for an oil
lamp.

Referring to Fig. 1, the numerals 1, 2,
3, 4, 5, 6 and 7, indicate the several thin sec-
tional shells of metal composing the surface
portion of the pendent fixture, the number
and shape of these sections being governed
by considerations of convenience and the
effect which it is desired to create. 8 indi-
cates lateral tubes or conduits projecting
through section 4, and 9 is a globe which
may be carried by section 7. It will be seen
that the several sectional shells are dis-
united, that is they are not directly con-
nected one with another. A is the hollow
body of hardened plastic, which supports
the surface shells, and also the members 8,
and holds all of these in their proper relative
positions.

In Fig. 2, 11, 12, 13 and 14 are the sec-
tional metallic shells, and A the supporting
body as before. 15 is an internally threaded
busching held in the base of the body, and
16 is a pipe screwd therein.

Fig. 3 shows metallic shells 17, 18, and 19,
together with a threaded nipple 20, which
may be held in the upper end of the hollow
body A, of hardened plastic.

In Fig. 4 are found the sectional shells
21, 22, 23, and 24, supported by the body A
of hardened plastic. This view shows how
one of the metallic shells may be replaced
by a glass or porcelian one, shell 22 being
of vitreous or similar material. 25 is a
handle which may be bolted to section 21.

Fig. 5 shows a structure analogous to that
of Fig. 4, 26, 27 and 28 being metallic shells,
and 29 a shell of glass or porcelian. The
section 26 may have an internally-threaded
thimble 30 secured therein. 31 is the metal
lining of the oil font.

Referring to these several views, it will
be seen that the body A, in each instance,
serve in the nature of a key, locking the dis-
united shells in assembled position.

In making devices such as illustrated, the
superficial metal portions are stamped or
drawn in presses. They are then assembled
in suitable molds, which if necessary, may
be split or made in sections for easy removal
from the assembled articles. These molds
receive likewise any other portions of the as-
ssembled articles, which portions it is desired
to unite in an integral structure with the
metal portions. Examples of such parts are
the metal tubes 8, in Fig. 1, which carry
electric lamps at their ends; the tube 14,
Fig. 2, which may also be regarded as one
of the surface shells, carrying a lamp or
cluster of lamps at its end, also the inter-
ally threaded bushing 13; the nipple 20,
Fig. 3, on which an electric lamp socket may
be screwed; and the glass or porcelain shells 22 and 29 of Figs. 4 and 5.

When all the parts have been properly located, I pour in a suitable plastic compound which hardens on setting. I prefer for this purpose a substance which expands very slightly on setting, instead of shrinking like ordinary cement. A high degree of tenacity is also desirable. An example of a plastic composition which I may use is one made by taking substantially equal parts by weight of oxid of magnesia and crystallized chlorid of magnesia, adding water to form a paste, and stirring in suitable inert material, such as crushed stone or sand. Naturally, however, I am not limited to this formula. If necessary, I employ means to tamp the filling compound, in order to exclude air and obtain a maximum strength. If the article is to be hollow, I introduce either a removable core or a hollow form, preferably of papier mâché, which may be cheaply manufactured, and which has sufficient stiffness to resist the pressure of the composition during the tamping. If necessary, the cores may be made in sections. When the shells have been properly filled, the molds are set aside until the filling hardens, after which the molds are removed, leaving the article completely unified, without any of the usual mechanical means.

What I claim as new is:

A built-up, composite article consisting of sectional, metal shells too thin for structural strength, and a substantial body of cementitious material self-hardened in contact with and adhering to said metal shells and supporting and holding together said shells to constitute a metal jacket or surface.

Signed at New York city this 11th day of December 1907.

WALTER C. HARLOW.

Witnesses:

Edw. F. Reuter,
Geo. H. Howell.