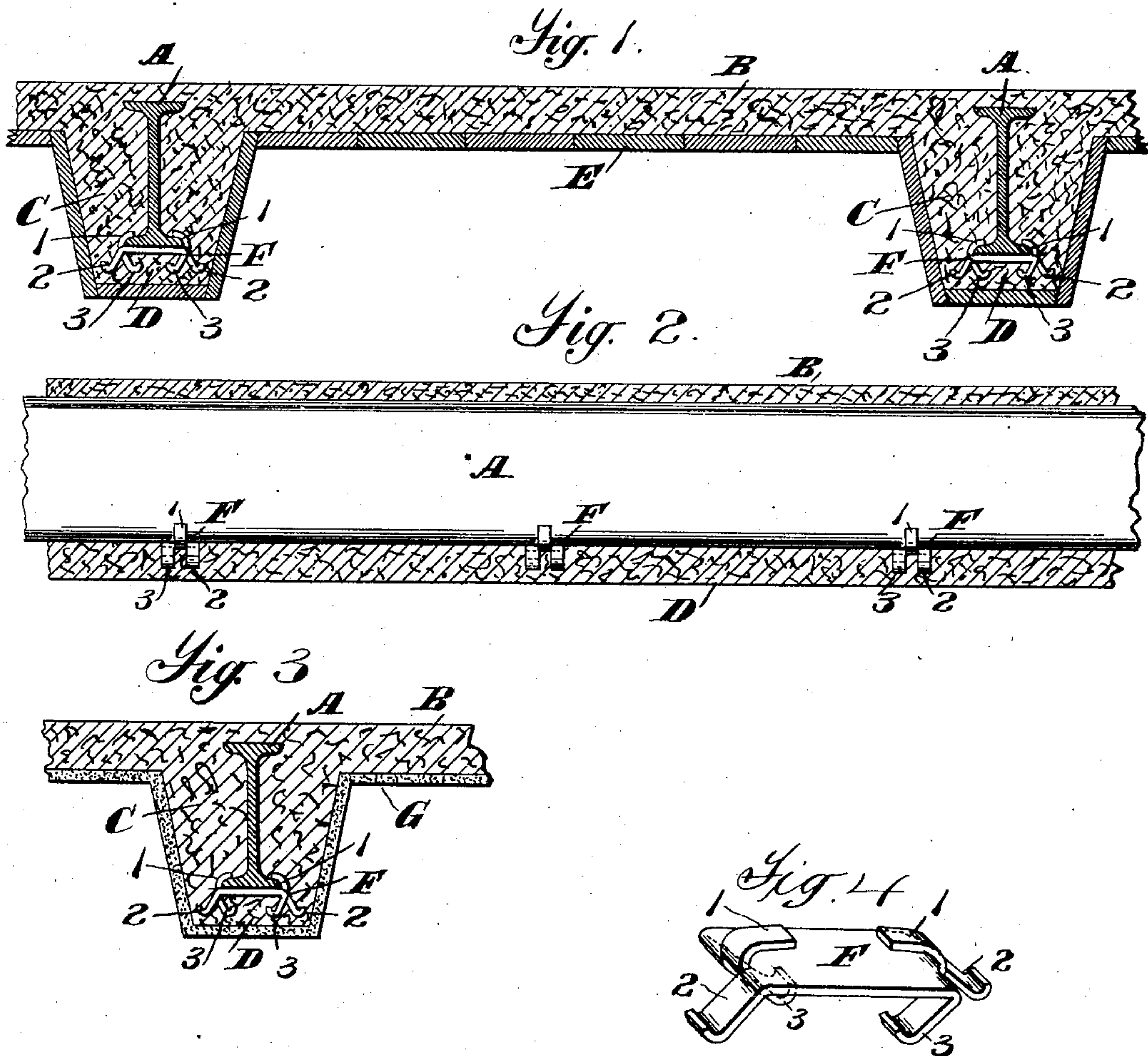


No. 786,289.

PATENTED APR. 4, 1905.

A. L. A. HIMMELWRIGHT.
CONCRETE BEAM PROTECTION.
APPLICATION FILED JULY 16, 1903.



Attest:
witnessed by
J. A. Graves.

Inventor:
Abraham L. A. Himmelwright
by Philipp Swyer Rice Kennedy
Att'y

UNITED STATES PATENT OFFICE.

ABRAHAM L. A. HIMMELWRIGHT, OF NEW YORK, N. Y., ASSIGNOR TO THE
NEW JERSEY WIRE CLOTH COMPANY, OF TRENTON, NEW JERSEY, A
CORPORATION OF NEW JERSEY.

CONCRETE BEAM PROTECTION.

SPECIFICATION forming part of Letters Patent No. 786,289, dated April 4, 1905.

Application filed July 16, 1903. Serial No. 165,787.

To all whom it may concern:

Be it known that I, ABRAHAM L. A. HIMMEL-
WRIGHT, a citizen of the United States, residing
at New York, county of New York, and State
of New York, have invented certain new and
useful Improvements in Concrete Beam Pro-
tection, fully described and represented in the
following specification and the accompanying
drawings, forming a part of the same.

The object of the present invention is to
provide an improved fireproof protection for
the under side of beams in concrete floor con-
structions. It is now common in fireproof
buildings to employ a layer of concrete on the
under side of the iron beams, which is filled in
with and forms a part of the floor concrete.
It has been found necessary in practice to pro-
vide some means for supporting this layer of
concrete, and it has proven difficult to provide
such means which will efficiently support the
concrete and at the same time permit the con-
crete to be filled in below the beams to the
centering in such a manner as to form a solid
integral layer of concrete. I have found that
the desired result can be secured by the use
of clips on the flanges of the beams provided
with portions projecting downward into the
layer of concrete and preferably hooked to
give a greater support for the concrete. I
have found that these clips may be placed at
a considerable distance apart, so that the con-
crete can readily be worked down under the
beam between and around the clips and as
there is no metal construction below the beams
except these separated clips a solid continuous
body of concrete thoroughly molded together
may readily be formed, so that with such solid
integral body of concrete the separated clips
furnish sufficient support.

The invention will now be described in con-
nection with the accompanying drawings,
forming a part of this specification, in which
a construction embodying the invention in the
preferred form is illustrated, and the features
forming the invention will then be specifically
pointed out in the claims.

In the drawings, Figure 1 is a section of a
concrete floor transversely to the beams and

showing the structure complete before re-
moval of the centering. Fig. 2 is a cross-sec-
tion of the structure shown in Fig. 1 with the
centering removed. Fig. 3 is a detail section
of the beam protection and a portion of the
floor, showing also the plaster finish. Fig. 4
is a detail view of the form of clip shown in
Figs. 1 to 3.

The beams A are the common flanged beams
and the floor is shown as consisting of the or-
dinary web of concrete B, with bodies of con-
crete C extending downward along the webs
of the beams and the beam protection of con-
crete D extending around and under the bot-
tom flanges of the beams. The wooden cen-
tering E (shown in Fig. 1) is the temporary
wooden centering used to support the concrete
while it is filled in and during setting and may
be of any suitable construction. The concrete
protection D for the lower flanges and bot-
tom of the beams is supported by the clips F,
placed on the beam-flanges at suitable dis-
tances, such as to permit the concrete to be
worked under the beam and around the clips
in filling in. These clips F may be of other
forms than that shown, but in order to sup-
port the concrete must be provided with arms
projecting into the concrete, and these arms
are preferably inclined outward or inward
and may be hooked, so as to provide a better
support for the concrete. The form of clip
shown will be found very efficient and may
be made cheaply from waste bits of metal.
These clips consist of narrow metal plates,
slit at their opposite ends, so as to provide a
pair of arms 1, which are bent upward over
the flange of the beams to hold the clip in
place, a pair of outwardly-inclined and hooked
arms 2 and a pair of inwardly-inclined and
hooked arms 3, which arms 2 3 are embedded
in the concrete and strongly support the latter.

In building the construction shown the
temporary centering E is first put in place,
and the concrete protection for the lower
flanges and bottom of the beams is first filled
in, being worked by any suitable tool down
into the space below the beam and around and
between the clips F, so as to form a solid in-

tegral body of concrete. A solid body of concrete surrounding and extending about the bottom flanges of the beams having thus been formed, the upper part C of the concrete about the beams is filled in and the rest of the structure completed as usual in such constructions. After the concrete is set the temporary centering E is removed, and the concrete may then be covered by a plaster finish G, as shown in Fig. 3, or the concrete may be left exposed, or a ceiling may be suspended below the beams, according to the character of the structure desired.

What I claim is—

1. In a concrete floor or similar structure, a beam protection consisting of a body of concrete extending around and below the bottom flanges of the beams and supported solely by the beams and clips arranged at intervals on the flanges and provided with arms extending below the beams and embedded in the concrete, substantially as described.

2. In a concrete floor or similar structure, a beam protection consisting of a body of concrete extending around and below the bottom flanges of the beams and supported solely by the beams and clips arranged at intervals on the flanges and provided with inclined arms extending below the beams and embedded in the concrete, substantially as described.

3. In a concrete floor or similar structure, a beam protection consisting of a body of concrete extending around and below the bottom flanges of the beams and supported solely by the beams and clips arranged at intervals on the flanges and provided with inclined hooked

arms extending below the beams and embedded in the concrete, substantially as described.

4. In a concrete floor or similar structure, a beam protection consisting of a body of concrete extending around and below the bottom flanges of the beams and supported solely by the beams and clips arranged at intervals on the flanges and provided with arms some of which are inclined downward and outward and others downward and inward from the beam flange and embedded in the concrete, substantially as described.

5. Beam-protection supporting-clip F provided with arms 1 for engaging the flange of the beam to hold the clip in place, and inclined arms 2, 3 on the opposite side of the clip from the arms 1, some of which inclined arms extend downward and outward and others downward and inward, substantially as described.

6. Beam-protection supporting-clip F provided with arms 1 for engaging the flange of the beam to hold the clip in place, and inclined arms 2, 3 on the opposite side of the clip from the arms 1, said arms 2, 3 being hooked at their ends, and some of said arms extending downward and outward and some downward and inward, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ABRAHAM L. A. HIMMELWRIGHT.

Witnesses:

C. J. SAWYER,
S. WINTHAL.