

J. BERLIAT.
MIXED REINFORCED CONCRETE CONSTRUCTION WITHOUT COFFERING.
APPLICATION FILED FEB. 19, 1917.

1,241,187.

Patented Sept. 25, 1917.
2 SHEETS—SHEET 1.

Fig.1.

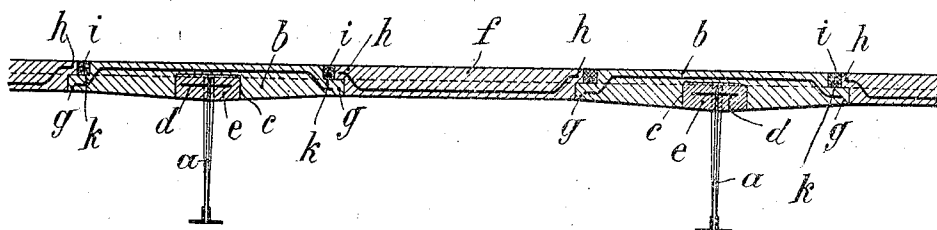
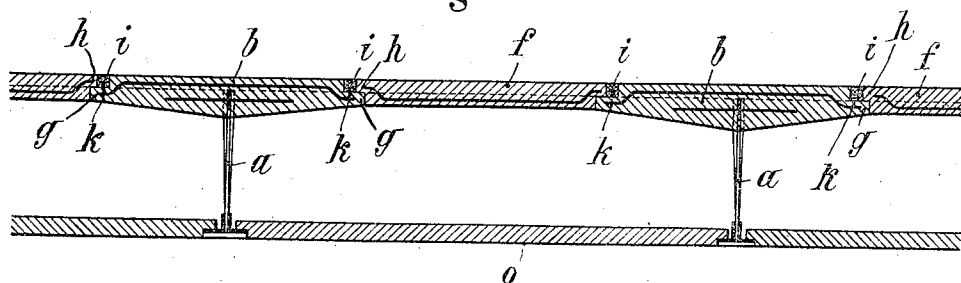


Fig.3.



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2 SHEETS—SHEET 2.

Fig. 2.

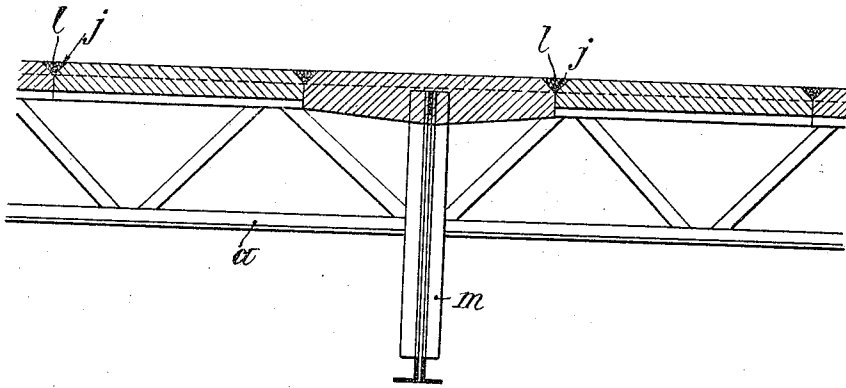
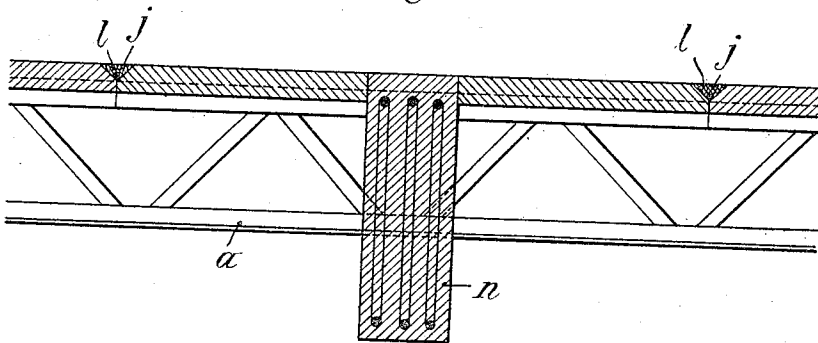


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH BERLIAT, OF GRENOBLE, FRANCE.

MIXED REINFORCED CONCRETE CONSTRUCTION WITHOUT COFFERING.

1,241,187.

Specification of Letters Patent. Patented Sept. 25, 1917.

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To all whom it may concern:

Be it known that I, JOSEPH BERLIAT, residing at Grenoble, France, have invented new and useful Improvements in or Relating to Mixed Reinforced Concrete Constructions Without Coffering, of which the following is a specification.

This invention relates to a system of construction in reinforced concrete or cement, that does not require any coffering and does away completely with concrete or cement in the parts exposed exclusively to tension.

In the accompanying drawing given merely by way of example:

Figure 1 is a cross-section of a reinforced concrete floor built according to the invention,

Fig. 2 is a longitudinal section corresponding to Fig. 1,

Fig. 3 is a cross-section of a modified construction of the floor, and

Fig. 4 is a longitudinal section corresponding to Fig. 3.

The floor is built with elements prepared beforehand and comprising joists and plates.

The joists *a* could be exclusively metallic and in the form of lattice (Figs. 1 and 2), but do not comprise an upper sole; the latter is replaced by elements *b* of reinforced concrete of given suitable length which are joined by a butt joint *in situ*. Each element *b* comprises, throughout the whole of its length and in the center, a recess *c*, and on the elements being assembled, these recesses *c* form a conduit for receiving an armature *d* of the joist *a*.

Into the conduit formed by the recesses *c* is poured concrete *e* in order to cover the armature *d*, and when this concrete has set, it binds together the various elements of the joist, and the said joist can be put in place in the usual way.

The upper sole of the joist which is exposed to compression, is replaced by the elements *b* of reinforced concrete, and all the parts exposed to tension are exclusively metallic.

The space between the joist *a*, or more correctly between the upper elements *b* of the different joists are filled by plates *f* of reinforced concrete, having the desired width and the same length as the elements *b* with which they are flush in order to form a horizontal plane, very flat. In order to facilitate the putting in place of the plates *f*, the elements

b are provided at each side with slots *g* into which are placed the tongues *h* of the plates.

On their four sides, the elements *b* and the plates *f* are provided with grooves, which, on the said parts being assembled, form small conduits *i* and *j* which intersect each other at a right angle and receive small armatures *k* or *l* sunk in cement, so as to insure perfect connection of the whole.

It is obvious that in certain cases, the upper elements *b* of the girders could be cast direct on to the said girders, in molds having the length of the same, if this is considered necessary. This case is shown in Fig. 3.

The assembling of these girders *a* could be made either with girders *m* of the same type, exclusively metallic, or with girders *n* of reinforced concrete (Fig. 4).

The accompanying drawing merely shows the application of the mixed construction to the building of floors; but obviously it could also be applied with the same advantages to the building of terraces and roofs of any kind, including even sloping roofs. For the latter application, the molding must provide on the upper face of the elements *b* and *f*, projections replacing lattice, so as to enable tiles to be laid. In this construction a lower set of slabs *o* is provided in which the feet of the joists *a* are embedded for supporting the roof proper.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

A reinforced concrete construction of the character described, comprising in combination, metal girders, rectangular elements of reinforced concrete constituting the upper sole, prepared beforehand, assembled *in situ*, arranged above said girders and having grooved edges, reinforced concrete plates connecting said elements and resting on the grooved edges of the same, said grooved edges being filled with concrete, and bars for reinforcing said concrete, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH BERLIAT.

Witnesses:

THÉODORE MULLER,
VICTOR HUMBERT.