

UNITED STATES PATENT OFFICE.

FRED H. DANIELS, OF WORCESTER, MASSACHUSETTS.

CONCRETE-FLOOR STRUCTURE.

No. 871,568.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed June 2, 1906. Serial No. 319,841.

To all whom it may concern:

Be it known that I, FRED H. DANIELS, of Worcester, Worcester county, Massachusetts, have invented a new and useful Concrete-Floor Structure, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figures 1, 2, 3 and 4 are vertical sections of concrete floor structures showing different embodiments of my invention.

The purpose of my invention as distinguished from that set forth in my pending application Serial No. 318,687, filed May 15 25, 1906, is to provide a floor structure of reinforced concrete in which the reinforcement is so applied as to afford the maximum strength. The reinforcement consists of 20 wires, or wire fabric stretched over supporting beams, and brought down and tied from below between the beams, before putting on the concrete, so as to form approximately catenary curves.

25 In the forms of Figs. 1 and 2, the wires or fabric 2 is laid directly on steel beams or steel strips or bars 3, resting on the floor beams 4, and embedded in the concrete 5. The beams 4 are surrounded by the concrete 30 beams 6 which are preferably formed with tapering lateral surfaces 7 in order to give a shorter floor span, and increase the carrying capacity of the floor. In the form of Figs. 3 and 4, the fabric 2 extends above the 35 beams 4.

When one of the bays or sections between the floor beams is heavily loaded, the floor, which is a continuous girder for the whole length of the building, is liable to buckle upwardly in the next bay if there is less load thereon. This would produce a tension in the top portion of the concrete of the unloaded bay, which would be liable to crack. To prevent this, I employ the wire fabric 8 forming another layer extending through the 40 lower part of the floor.

In Figs. 1 and 3 the ends of the fabric sections 8 are buried in the concrete at the bases of the floor beams; while in Figs. 2 and 4 the 50 ends are embedded near the tops of the floor beams. In all cases the central portion of the added fabric layer is tied to the upper reinforcing layer between the beams and

preferably at the center of each bay. This added layer ties down the main reinforcement at the centers of the spans, and acts as a reinforcing tension member, which prevents the weakness above described.

Various modifications may be made within the scope of my invention as defined by 60 the claims, since

What I claim is:

1. A concrete floor structure having beams, and a metal reinforcement having both compression and tension members, the same consisting of upper flexible reinforcements embedded in the concrete and extending over the beams, and lower flexible reinforcements tied to the upper reinforcements at the central portion of the floor span, substantially 70 as described.

2. A concrete floor structure having metal beams embedded in the concrete beams which extend below the intermediate portions of the floor structure, and a metal reinforcement for said concrete structure having both compression and tension members, the same consisting of upper flexible metal reinforcements embedded in the concrete and extending over the beams, and lower flexible 80 reinforcements tied to the upper reinforcements at the central portion of the floor spans, and having their end portions carried downwardly into the concrete beams, substantially as described. 85

3. A concrete floor structure having metal beams embedded in the concrete beams which extend below the intermediate portions of the floor, supporting members resting on the metallic beams, and a metal reinforcement for said concrete structure having both compression and tension members, the same consisting of upper flexible reinforcements extending over the upper edges of the supporting members and near the floor surface at such points, and lower reinforcements tied to depressed portions of the upper reinforcements at the central portions of the floor spans, substantially as described. 95

In testimony whereof, I have hereunto set 100 my hand.

FRED H. DANIELS.

Witnesses:

A. F. BACKLIN,
THOS. MACDUFF.