W. H. AULT.

LONG SPAN SLAB.

APPLICATION FILED FEB. 5, 1921.

1,431,086. Patented Oct. 3, 1922.

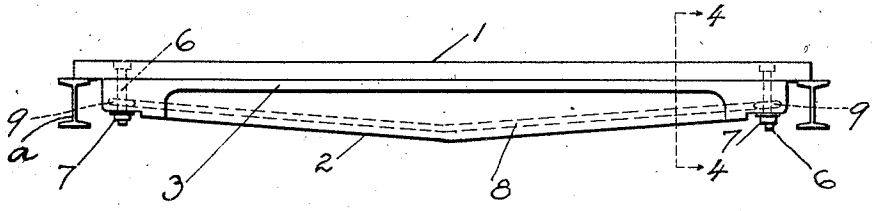


Fig. 1.

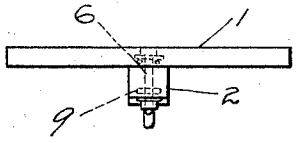


Fig. 2.

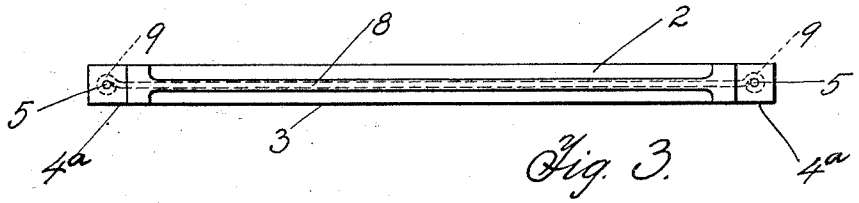


Fig. 3.

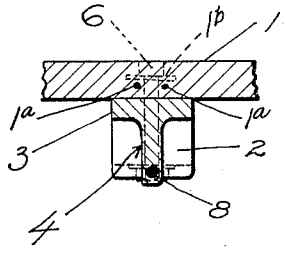


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM HERMAN AULT, OF NEW CASTLE, PENNSYLVANIA.

LONG-SPAN SLAB.

Application filed February 5, 1921. Serial No. 442,702.

To all whom it may concern:

Be it known that I, WILLIAM HERMAN AULT, a citizen of the United States, residing at New Castle, in the county of Lawrence and State of Pennsylvania, have invented new and useful Improvements in Long-Span Slabs, of which the following is a specification.

This invention relates to roofing slabs, and more particularly to what I term a "long span slab."

The primary object of the invention is to provide a slab of concrete or other suitable plastic material of comparatively great length having a reinforcing member associated with the slab in such manner as to effectually prevent sagging or breaking of the central portion of the slab. A further object is to provide a slab and a reinforcing member both of which may be constructed of concrete or similar material provided with simple and efficient means for securing the reinforcing member to the slab, the slab and reinforcing member being initially separate to facilitate shipping. A further object is to provide a reinforcing member of comparatively light weight which is so constructed and reinforced as to be capable of withstanding great strains. Further objects will appear from the detailed description.

In the drawings:

Figure 1 is a side view of a slab showing a reinforcing member constructed in accordance with my invention applied.

Figure 2 is an end view of the same.

Figure 3 is an underneath view of the reinforcing member.

Figure 4 is a section taken substantially on line 4—4 of Figure 1.

Slab 1 is formed of concrete in any known or preferred manner and is of uniform thickness, though it will be understood that any other type of slab preferred may be employed. This slab is adapted to be supported at its end portions upon I-beams *a* of a roof construction, in the known manner. At present concrete slabs employed for roofing purposes have to be comparatively short due to the fact that a long slab is subjected to such strains at its central portion as to ordinarily cause cracking or breaking of the slab. This necessitates placing the purlines or beams of the roofing construction comparatively closely together thus materially increasing the cost of construction in addition to the increase in time required to place the short slabs. By making the slabs of comparatively great length and providing means for reinforcing these slabs so as to prevent the sagging and breaking at the central portions I effect a saving in time and in the cost of construction of a roof. To reinforce the slab I provide a reinforcing bar 2 which extends substantially the full length of slab 1 and is secured thereto at each end. This bar is in close contact with the underface of the slab and serves to effectively reinforce the central portion thereof thus permitting a slab of great length to be used while eliminating breakage of the slab at its longitudinal central portion.

The reinforcing bar 2 is of substantially T-shape in cross-section, head 3 of this bar being in close contact with the underface of slab 1. Stem or body 4 of the bar is integrally connected at each end to head 3 by relatively large end blocks 4^a. Each of these end blocks is provided with an opening 5 for reception of a securing bolt 6 passed through slab 1 and through the end block, a nut 7 being threaded on the lower end of this bolt, and the head of the bolt being countersunk in the slab. As will be noted more clearly from Figure 1, the body 4 of bar 2 tapers from its central portion toward each end. A brace rod 8 is embedded within body 4 of the bar adjacent to and parallel with the lower edge thereof, this bar being of steel or other suitable material. The end portions of the bar extend into blocks 4^a and are bent about openings 5 so as to form eyes 9 which encircle these openings and effectively reinforce the blocks at these points. The eyes 9 also provide, in conjunction with bolts 6, anchors for the ends of rod 8, this rod being under tension and serving to greatly strengthen and reinforce the body 4 of bar 2. The bar constructed in this manner may be quickly and easily secured to the slab 1 and, because of its comparatively light construction and great strength enables a slab of much greater length than the slabs at present use to be employed for roofing purposes.

As will be noted more clearly from Figures 2 and 4, slab 1 is provided with reinforcing rods 1^a positioned beneath a washer 1^b embedded within the slab, bolt 6 passing through this washer. The washer and the rods serve to take up the strain to which the bolt is subjected and effectually prevent cracking or breaking of the slab at this point.

What I claim is:—

1. In combination with a roofing slab, a reinforcing bar of plastic material of T cross-section, the head of the bar being in contact with the slab, said bar being provided at each end with bolt receiving openings, a reinforcing rod extending through the body of the bad and provided at each end with elements extending about said openings, and bolts secured through the slab and the openings of the bar.

2. In combination with a roofing slab, a reinforcing bar of T cross-section, the head of said bar being in contact with the slab and the body of the bar tapering from its center toward each end, said bar being provided at each end with enlarged blocks connecting said head and body and provided with bolt receiving openings, a reinforcing rod embedded in the body of the bar and disposed in substantial parallelism with the lower edge thereof, the end portions of said rod extending into the blocks and about said openings, and bolts secured through the slab and the openings in said blocks.

3. A concrete bar of T cross-section provided at each end with an enlarged block connecting the body and the head of the bar, said blocks being provided with openings for reception of bolts for securing a slab to the bar, and a reinforcing rod embedded in and extending throughout the length of the body of the bar, the ends of said rod extending into the blocks and the rod being provided at its ends with eyes surrounding said openings.

In testimony whereof I affix my signature.

WILLIAM HERMAN AULT.