

April 28, 1936.

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2,039,183

PRECAST CONCRETE ROOF DECK SLAB

Filed March 21, 1934

Fig. 1.

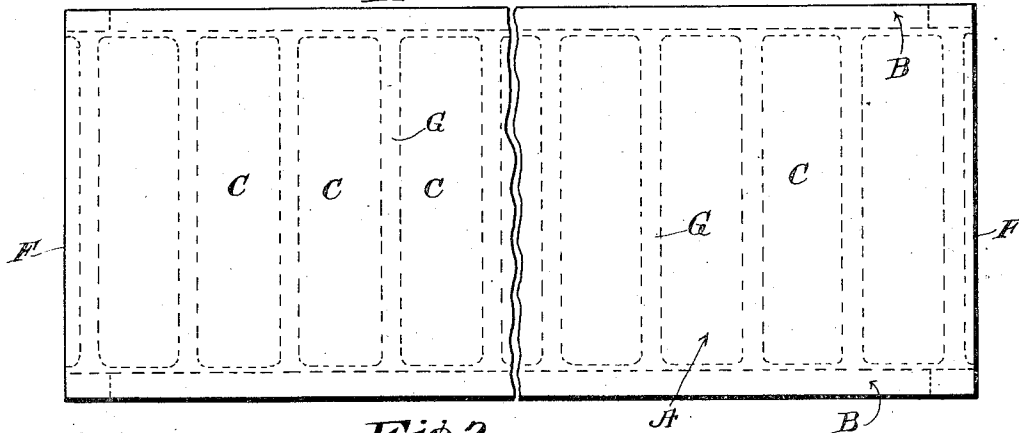


Fig. 2.

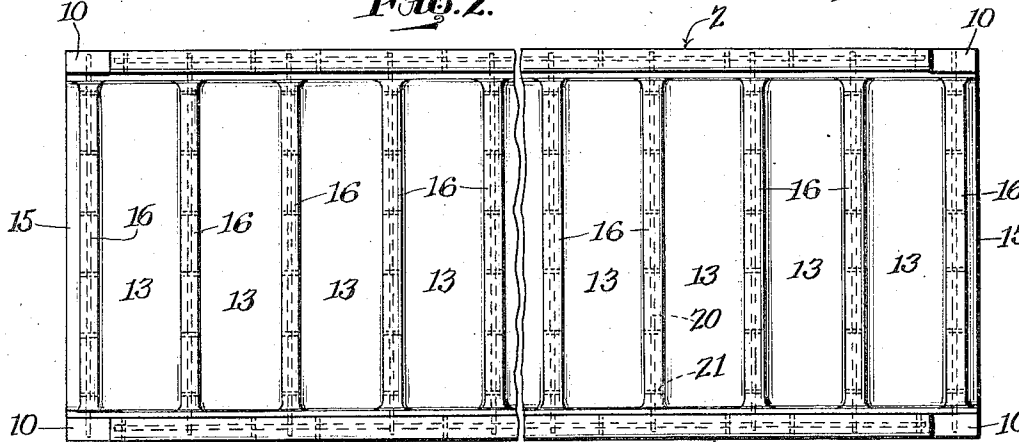


Fig. 3.

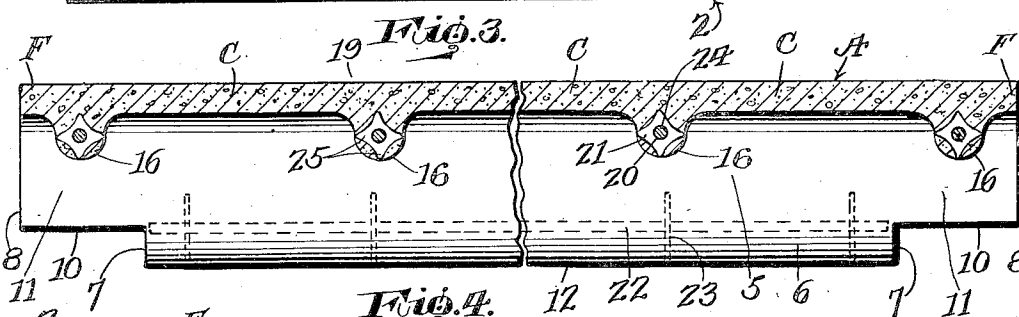
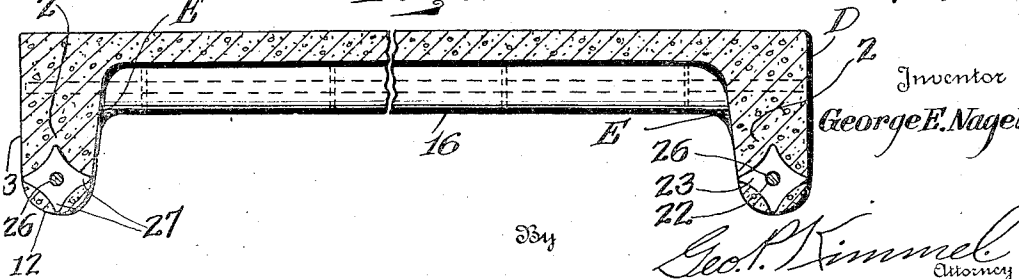


Fig. 4.



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2,039,183

PRECAST CONCRETE ROOF DECK SLAB

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Application March 21, 1934, Serial No. 716,725

1 Claim. (Cl. 72-122)

This invention relates to a pre-cast concrete roof deck slab.

As is well known, the roof deck slabs now in general use are of similar dimensions and manufactured from light-weight aggregates to reduce the weight thereof about 50% or approximately 12# per square foot thereof. It is also well known that roof deck slabs now being used have the web thickness thereof 1" minimum.

This invention has for its object to provide, in a manner as hereinafter set forth, a slab of the class referred to formed from regular gravel or stone aggregates having its weight per square foot thereof within 12#.

A further object of the invention is to provide, in a manner as hereinafter referred to, a slab of the class referred to having its web so formed as to provide spaced parts thereof of reduced weight and thickness of $\frac{1}{2}$ ", its over-all thickness of $1\frac{1}{2}$ ", and its web of increased strength transversely.

A further object of the invention is to provide, in a manner as hereinafter set forth, a slab of the class referred to formed from regular gravel or stone aggregates, its weight per square foot thereof within 12#, and its web of increased strength transversely.

A further object of the invention is to provide, in a manner as hereinafter set forth, a slab of the class referred to having transverse ribs in its web for reducing the weight and the thickness of the web between the ribs to $\frac{1}{2}$ "; its over-all thickness increased to $1\frac{1}{2}$ ", which in turn increases the strength of the slab transversely and whereby the slab can be formed from regular gravel or stone aggregates and still keep the weight within the 12# per square foot.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a pre-cast concrete roof deck slab which is simple in its construction, strong, durable, compact, reinforced, thoroughly efficient in its use and comparatively inexpensive to manufacture.

To the above ends essentially, and to others which may hereinafter appear, the invention consists of such parts, and such combination of parts, which fall within the scope of the invention as claimed:

In the drawing:—

Figure 1 is a top plan view of the slab broken away,

Figure 2 is an inverted plan view of the slab broken away,

Figure 3 is a longitudinal sectional view, upon

an enlarged scale of the slab and broken away, and

Figure 4 is a transverse sectional view, upon an enlarged scale of the slab and broken away.

Owing to the construction of the slab, the material forming the body thereof may have as a part thereof regular gravel or stone aggregates and obtain the object sought and obtained by this invention. It is to be understood that light-weight aggregates may be employed as a part of the material forming the body of the slab, but preferably regular gravel or stone aggregates will be employed as it cheapens the cost of construction.

The slab is pre-cast from the desired material having embedded therein spaced longitudinal reinforcing bars, spaced transverse reinforcing bars and spaced chairs for each bar. The bars and chairs, as well as their positions will be hereinafter referred to.

The slab comprises a body A having its upper face smooth and uninterrupted throughout. The body A includes a pair of spaced parallel side portions B of like form and a series of spaced parallel rectangular portions C of like form. Each portion B gradually increases in width from its bottom to its top and has a flat vertical outer side face D. The portions C which are of less thickness than the height of portions B, are disposed transversely of the slab and have their ends merge into the inner sides of the portions B above the lower end of the latter. Below the portions C the portions B are formed with inclined inner side faces E. The inclination of the face E of each portion B is inwardly from its lower to its upper end. The body A also includes at each end thereof a narrow transversely extending oblong portion F of the same thickness as and aligning with the portions C. The portions F having their ends merge into the inner sides of the portions B above the lower ends of the latter. The body A also includes a series of spaced transversely extending parallel portions G arranged between the portions C and between the outer portions C of the series of portions C and the portions F. The portions G have their ends merge into the inner sides of the portions B above the lower ends of the latter and are disposed lengthwise with respect to the portions C and F. The width of portions G is less than that of portions C. The height of portions G is greater than the thickness of portions C and F. The upper faces of the portions B, C, F and G are flush with each other. The body A also includes a pair of spaced oppositely disposed vertical de-

pending side flanges 2 of like form integral with the lower ends of, forming continuations of and corresponding in length to that of said portions B.

Preferably the thickness of each portion C will be $\frac{1}{2}$ "', that of each portion B $1\frac{1}{2}$ "' and which in turn will increase the strength of body A transversely. Preferably the combined thickness of a portion B and the flange 2 integral therewith will be $3\frac{1}{2}$ "'.

Each flange 2 is formed with a vertical flat outer side face 3 flush with and forms a continuation of face D. Each flange 2 is also formed with an upstanding inner side face 4 which inclines from its lower end in a direction towards the longitudinal median of body A and forms a continuation of face E. Each flange gradually increases in width from its bottom. Each flange 2 consists of an upper portion 5 corresponding in length to that of the portion B with which the flange is integral and a lower portion 6 of less length and height than that of portion 5. The portion 6 has the ends 7 thereof spaced equidistantly from the ends 8 of portion 5. The bottom edge 9 of portion 6 is rounded. The bottom edges 10 of the end parts 11 of the portion 5 are squared.

The setting up of the body A with the portions B, C, F and G, in the manner as referred to, provides the lower face of body A with a series of spaced parallel transversely extending rectangular cavities 13 above the bottoms of the portions B, a pair of spaced parallel transversely extending oblong recesses 15 above the lower ends of portions B, and a series of spaced parallel transversely extending ribs 16 above the bottom of portions B. The recesses 15 are arranged at opposite ends of body A and are open at their outer sides. Each rib has a rounded bottom and it gradually increases in thickness upwardly.

The transverse reinforcing rods are designated 20 and the chairs of a set of spaced chairs for supporting each rod 20 are indicated at 21. The longitudinal reinforcing rods are designated 22 and the chairs of a set of spaced chairs for sup-

porting a rod 22 are indicated at 23. The chairs 21 of each set are embedded in parallel spaced relation in a rib and each chair 21 has an axial opening 24 and a series of tapered portions 25 having their outer ends flush with the periphery of a rib. Each bar 20 extends through the openings of the chairs 21 of a set and is of a length to extend into the parts B of each set. The chairs 21 position the rods 20 at the longitudinal center of the ribs. The chairs 23 of each set are embedded in parallel spaced relation in lower portion 6 of a flange 2 and extend into the lower portion of the stretch 5 of the flange. Each chair 23 has an axial opening 26 and a series of tapered portions 27 having their outer ends flush with the periphery of upper portion 5 of a flange 2. The chairs 23 position the rods 22 at the longitudinal median of each of the lower portions 6 of the flanges. The rods 22 are of less length than either of the lower portions 6 of the flanges.

As is well known, steel I-beam purloins support the deck slabs, after which a built up roof of paper and asphalt is applied to the top surfaces of the slabs. With respect to the slab in accordance with this invention, it has reduced ends to enter between the flanges at one side of the beam. The reduced end portions are provided by setting up the stretch 5 of greater length than the stretch 6 of each flange 2.

What I claim is:—

A pre-cast concrete deck slab comprising a rectangular body formed at each side with a depending portion and on its lower face with parallel spaced ribs star-shaped spaced supporting elements embedded in and having their pointed parts flush with the sides and bottom of said portion, reinforcing means extending through the said elements, spaced supporting members mounted in and having pointed parts flush with the sides and bottom of the ribs, and reinforcing means extending through said members and into and transversely of the said depending portions.

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