This invention relates to improvements in the  
construction of fireproof buildings; and  
more particularly to fireproof roof decking  
thereof, the units or sections of which may be  
machine fabricated, ready for their application  
to the roof framing of the structure.  

It is a specific object of this invention to  
provide relatively long, narrow, metal roof-  
ing units or sections, comparable to the  
planks or boards commonly used for roof  
decking, and means for joining the ends of  
the several deck members to prevent local  
deflection when a load, such as a man’s foot, is  
concentrated at the end of one of the deck  
members.  

A further object of this invention is to  
provide a fireproof roof decking that may be  
applied rapidly and cheaply to the roof  
framing of a structure, whether the framing  
be of metal or wood, without the use of spe-  
cial tools, bolts, rivets, or any of the ex-
censive conventional attaching means.  

A still further object of the invention is to  
provide a roof decking which presents a  
smooth, rigid and stiff, exterior surface that  
may readily be insulated and waterproofed.  

With these and further disclosed objects,  
my invention consists in the novel construc-
tion, combination and arrangement of parts  
hereinafter more fully described, and illus-
trated in the following drawings, in which:  

Figures 1 and 2 are end views showing sec-
tions or units of the completed roof deck, em-
bodying the features of the present invention,  
with a variation thereof in respect to the  
spine reinforcement or support.  

Figure 3 is a perspective view of the rein-
forcement shown in Figure 1.  

Figure 4 is a perspective view of the rein-
forcement shown in Figure 2.  

Figure 5 is a perspective view of the fric-
tion spring clip used to attach the flange of  
the deck unit or section to the purlin or truss  
of the building.  

Figure 6 is a perspective end view showing  
detail the strip used for starting the roof  
decking next to a parapet wall.  

Figure 7 is a perspective view of a roof  
decking unit or section.  

Figure 8 is a top plan view showing the  
deck unit in Figure 7 fastened to the purlin.  

Figure 9 is a sectional view on line 9—9 of  
Figure 2.  

Figure 10 is a detail perspective view show-
ing the adjacent ends of deck units separated  
and the reinforcement bridge of Figure 4 in  
place.  

In the drawings, in which similar reference  
characters, and numerals designate cor-
responding parts in all figures, A represents  
a starting strip laid first against the parapet  
wall B or lined up to any position marking  
one edge of the roof.  

This starting strip A is formed with a  
double flange 1 at its upper surface 2 which is  
flush, substantially, with the deck surface 7,  
when laid. It is formed also with a vertical  
flange 3 which rests against the parapet  
B, and with a lower horizontal flange 4 which  
(i) is provided at intervals with holes 5 so that  
it may be nailed to wood roof purlins C or  
trusses; or it may be fastened by a friction  
spring clip D to a steel roof framing. It is  
formed further with an upstanding flange 6  
	to protect the edge of the flange 4 from be-
coming bent in handling.  

The starting strip A provides a straight  
starting line for laying the roof deck proper.  
A succession of deck units or sections E, as  
shown in Figures 1, 2 and 7, make up the roof  
deck. Each unit or section E consists essen-
tially of a strip of steel formed with a com-
paratively narrow exposed surface 7, and,  
at one edge, with an offset 8, preferably, and  
a vertical flange 9 with a horizontal or base  
flange 10 parallel with the top surface 7.  
Each unit E is formed, at the opposite edge,  
with a double flange 11, adapted to fit into  
the offset 8 of the adjoining unit E, a vertical  
flange 12 with a lower horizontal or base  
flange 13 parallel with the upper surface 7 of  
the deck E, and an upstanding vertical flange  
14 to protect the flange 13. The opposite sides  
of the deck units E are, moreover, com-
plementary. The units are laid just as planks  
might be laid so as to fit into one another  
with their end joints offset or staggered. The  
deck units E are designed for use on steel  
framing, primarily. They are fastened to  
the framing, as shown in Figures 1, 2 and 8.
by driving on any suitable number of friction spring clips D at an angle of about 45 degrees to the base flanges 13 and to the purlins or steel framing C; but holes 15 may be provided at intervals in said deck units E when it is desired to nail them to a wooden frame. All work, it is to be noted, is performed from the top, making it unnecessary to reach underneath or to use scaffolding.

As shown in Figures 1 and 7 the butt or end joints 16 and surfaces of the deck units E are reinforced in the same plane by triangular devices F shown in Figures 1 and 3 which are located transversely beneath the surface 17 of deck units. As shown in Figures 1 and 3 the body portion or member 17 of each device rectangular, is provided with two, triangular, vertical, upstanding flanges 18, and extends beyond the edges of the said flanges so that its projecting lip 19, at one side, extends into the double flanges 11 of butting deck units, and its projecting ledge 20, at the opposite edge, rests on the base flange 10. Each upstanding flange 18 is provided with a matching groove 21 and an edge 22 of vertical flange 18 which register with offset 8 and flange 9, respectively, of each butting unit. Every flange 18 thus supports the end joint 16 and the end surface 7 of each unit.

A variation in the form of reinforcing device or plate, located transversely beneath the surface 7 of butting deck units, is indicated in Figure 4. The body portion or member 23 of each plate G, as shown in Figures 2 and 4, is rectangular, lies flat against the underside of the ends of butting roof deck units E, is provided with two, rectangular, vertical, depending flanges 24, and extends beyond the edges of the said flanges 24, so that its projecting lip 25, at one side, extends into the double flanges 11 of butting deck units, its turned down inclined leg 26 rests at its opposite side on the base flanges 10, and the depending flanges 24 stiffen its upper surface.

Each body member 23 thus supports an end surface 7 and the end joint 16 of butting deck units.

The deck roof proper, laid as described and illustrated, may be waterproofed by the direct application of any of the well known roofing compounds or prepared roofings. The waterproofing material is cemented directly to the steel decking. To insulate the roof against heat losses, a layer of insulating material may first be cemented or otherwise fastened to the decking and the waterproofing then applied over the insulation.

I have described the principle and construction of my invention together with the distinct views which I now consider to represent the preferred embodiment thereof; but I do not desire to limit myself to the minor details above shown and described, as other modifications of the invention will doubtless suggest themselves to those skilled in the art.

What I claim is:

1. In combination, a plurality of sheet metal deck units having associated top walls, and reinforcements for said top walls located transversely beneath the same and having portions at their ends interlocking with portions of the units below said top walls, said reinforcements being thereby supported against the top walls to reinforce the same.

2. In combination, a plurality of sheet metal deck units, each comprising side walls, and a top wall supported by the side walls, and a reinforcement for the top wall located beneath the same and secured at its ends to the side walls.

3. In combination, a plurality of sheet metal deck units, each comprising side walls, and a top wall supported by the side walls, and a reinforcement for the top wall located beneath the same and having its ends interlocked with the side walls and thereby supported.

4. In combination, a plurality of associated sheet metal deck members, each comprising side walls and a top wall supported by the side walls, and a reinforcing member for the top wall located beneath the same and between the side walls, said member being interlocked with the upper portion of one side wall and the lower portion of the other.

5. In combination, a plurality of associated sheet metal deck members, each comprising side walls and a top wall supported by the side walls, and a reinforcing member for the top wall located beneath the same and between the side walls, said member being interlocked with the upper portion of one side wall and having offset stiffening flanges disposed transversely to the top wall.

6. In combination, a plurality of associated sheet metal deck members, each comprising side walls and a top wall supported by the side walls, and a reinforcing member for the top wall located beneath the same and between the side walls, said member having its ends interfitting with the side walls and having substantially vertical flanges located between the interfitting ends.

7. In combination, a plurality of associated sheet metal deck members, each comprising side walls and a top wall, the side walls being formed respectively to provide a tongue on one side of the member and a groove in the opposite side, said side walls thereby having grooves formed in the inner sides of the side walls, the tongue of one member entering the groove of the other member when the members are assembled into a deck structure, and a reinforcing member for the top wall located beneath the same and between the side walls and having its ends engaged in the grooves in the inner sides of the side walls.
8. In combination, a plurality of associated sheet metal deck members, each comprising side walls and a top wall, the side walls being formed respectively to provide a tongue on one side of the member and a groove in the opposite side, said side walls thereby having grooves formed in the inner sides of the side walls, the tongue of one member entering the groove of the other when the members are assembled into a deck structure, and a reinforcing member for the top wall located beneath the same and between the side walls and having its ends engaged in the grooves in the inner sides of the side walls, said member having strengthening flanges that extend transversely of the top wall.

9. A reinforcing member for deck units having grooves comprising a plate having end portions for engaging in the grooves of the deck unit, and spaced offset longitudinally disposed side flanges terminating short of the said end portions.

10. In combination, a pair of sheet metal deck units located end to end and each comprising side walls and a top wall supported by the side walls, one of said side walls being formed with an outset longitudinal tongue, the other side wall having an inset longitudinal groove, forming grooves in their inner sides, and a reinforcing member that bridges the joint between the units and comprises a body plate having its ends engaged in the inside grooves of the side walls and having offset side stiffening flanges.

11. A reinforcing member for deck units having upper and lower grooves, comprising a plate having oppositely extending ends located at different heights for engagement respectively in the grooves, and spaced longitudinally disposed reinforcing flanges terminating short of the said ends.

In testimony whereof I affix my signature.

HERBERT E. WHITE.