$\frac{15 \times 7.500}{1,000 \times 12} = 96.4 \text{ square inches;} \text{ which divided by depth (d), in inches, gives thickness } (t), = 7 \text{ inches nearly.}$

Or the formula $t = \frac{2W}{1,000da}$ gives the required thickness directly. But in this case, $l$ and $d$ must express length and depth in inches, since the co-efficient of $d$ (1,000) refers to square inches of section. Otherwise, the co-efficient must be multiplied by 144 to make it refer to the square foot of section; in which latter case the value of $t$ will be obtained in feet.

In the case of beams to sustain rail road track, we may let $l' = \text{length of beam exclusive of the portion between rails, and } W = \text{weight upon the 2 rails. If } l' = 120'' \text{ and } W = 25,000\text{lbs.}, \text{ and } d = 14'' \text{ the above formula becomes, } t = \frac{120 \times 25,000}{1,000 \times 14^2} = \frac{3,000,000}{196,000} = 15.3 \text{ in.}$

**Three Panel Truss.**

CLIX. A three panel truss bridge of wood may be constructed upon the plan shown in outline by Fig. 7. The main braces $ab$ and $a'b'$ may connect with the chord in the same manner as in the two panel truss described in the last section, and illustrated by Fig. 60; while the upper end may be square, and the whole bevel to form the angle $abb'$, given to the member $bb'$. Or, the bevel may be upon both members; in which case the saddle plates at $b$ and $b'$ should extend over the joint, so as to throw a part of the weight directly upon the brace. In case the bevel be all upon $bb'$, the saddle need not bear upon the brace.

The counter braces in the middle panel may box into the chord and the horizontal $bb'$, in the manner shown in Fig. 62, either by the black or the dotted lines; the upper end of the counter toeing against the