the diagonals to pass through. For this purpose, and to
give them the stiffness their great length renders neces-
sary, without too great an expenditure of materials, they
may be formed, when of considerable length, as shewn in
Fig. 24, Pl. 4.

The middle or cast iron portion is in two, or may be in
4 pieces, and connected and stiffened by the 4 small bent
wrought iron bolts b.b, &c., (two only appearing in each
view,) passing through flanges formed for that purpose,
and strained out in the middle by a plate as seen at a,
interposed between the two cast iron parts forming the
main body of the vertical. The castings may be tubular,
or of a x formed section; if very long, the tubular form
will be preferable.

The Cancelled Truss without vertical Struts.
(See Fig. A, p. 14.)

LXI. This truss may be constructed of iron, with cast
iron cylinders and horizontal chains, the same as when
the vertical strut is used, and the description relating to
those parts need not be here repeated.

The verticals ob and ig, and the two diagonals oe and if;
(the track being along ah,) should be wrought iron, and
so connected as to act by tension only. Of the other diag-
onals, those which act mainly by thrust, may be formed
of cast and wrought iron as shewn in Fig. 25, Pl. 5. ab is
a view as it would appear when looking lengthwise of the
truss, and cd, when taking a side view. It has a cast iron
portion with a H formed section, a hole in the centre for
the other diagonal, ef, to pass through, and 4 wrought iron
rods, each running from the centre (where they receive
the diagonal ef through an eye or loop made for that pur-
pose,) to the end; i. e., two to each end. Those terminat-
ing at the upper end b or d, have an eye to receive the
transverse pin connecting the diagonals with the cylinders.
Those terminating at the lower end, pass through the chain
pin, and are secured by screw nuts.