Again—By connecting the two mean results we shall have 6 ton 8 cwt plus 3 cwt = 6 ton 11 cwt = weight borne by the other supporter.

Answers to Problems for Young Mechanics.

By J. Mc I. junr.

$\frac{380}{15} = 25\frac{1}{3}$ feet per minute. Velocity of weight.

$25\frac{1}{3} \times 100 = 2533\frac{1}{3} \div 220 = 11\frac{17}{33}$ tons power required.

3rd— $\frac{90 \text{ lbs} \times 200 \times 40}{20 \times 60} = 600$ lbs the weight drawn.

4th— $\frac{24 \times 16 \times 8 \ 1000}{16} = 192000$ lbs $\div$ 2240 $= 85\frac{5}{7}$ tons the pressure of water.

A side of any vessel sustains a pressure equal to the area of the side multiplied by half the depth, the sides and bottom of a cubical vessel sustains a pressure equal to three times the weight of water in the vessel.

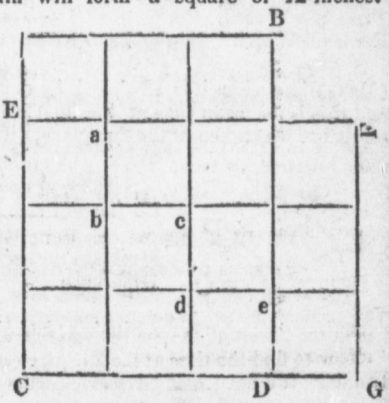
Solutions to Mr. Owens' Questions.

By our Correspondent H. Mc. I.

No 1—$\frac{4}{5} \times \frac{5}{5} = \frac{9}{5} : 12 :: \frac{4}{5} \cdot$ 5 h 20 m the time past noon.

2nd. By the 14th of Euclid's, 2nd Book. Make the square equal to the rectangle, and per 14th of 6th the sides are reciprocally proportional.

Let A B C D. be the breach 12 inches square, and E F C G the board or plank 16 by 9 inches. To cut the board into two sections which when united again will form a square of 12 inches. I begin at a, and cut from a to b from b to c, c to d, d to e, e to D. There are now two sections, by placing them so that G will be on e, and a on A will form the square required. Demonstrations: from the nature of proportionals if C D be a multiple of G D, E C will be a like multiple of E A, and when this is the case, the problem may be done as in the foregoing manner. It is easy, however, to conceive that when C D is not a multiple of D G the problem is impossible.



Joseph Owens is in possession of an *approximate formula* by which the section may be cut under any circumstances and the error be *indefinitely* small. The want of room sufficient for its insertion has prevented its appearance in this; but it will in all probability appear in next year's Almanack—Ed