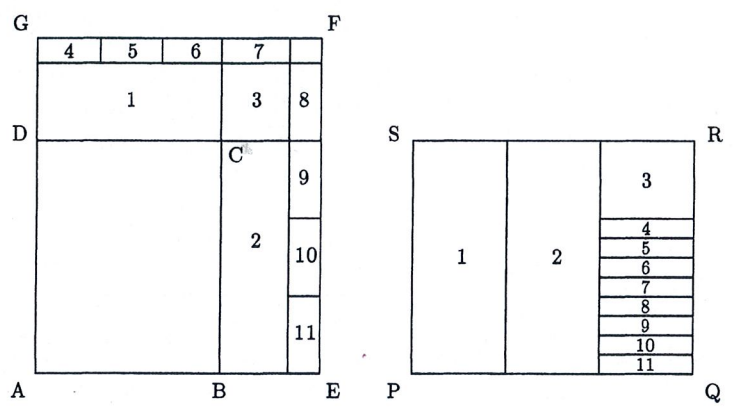


Concentrating on inscribing a circle in a square and its companion effort to square the circle in Vedic altar geometry, Apastamba obtained an accurate value for $\sqrt{2}$. Circumscribing a circle about a square with side $a = 1$, Apastamba found $\sqrt{2}$ to equal the original measure of 1 plus its third and its third times one-fourth less than a thirty-fourth of the last term. In unit fractions this equals $1 + 1/3 + 1/(3)(4) - 1/(3)(4)(34)$, or 1.4142156..., which is accurate to five decimal places. According to B. Datta, Apastamba reached this approximation by a geometric procedure for doubling the square. It requires dividing a second identical square into three equal parts and adding the first two parts to the original square, almost doubling it, and then adding parts from the third section of the second square as indicated in the drawing here:



How doubling the square may have prompted the Indian approximation of $\sqrt{2}$