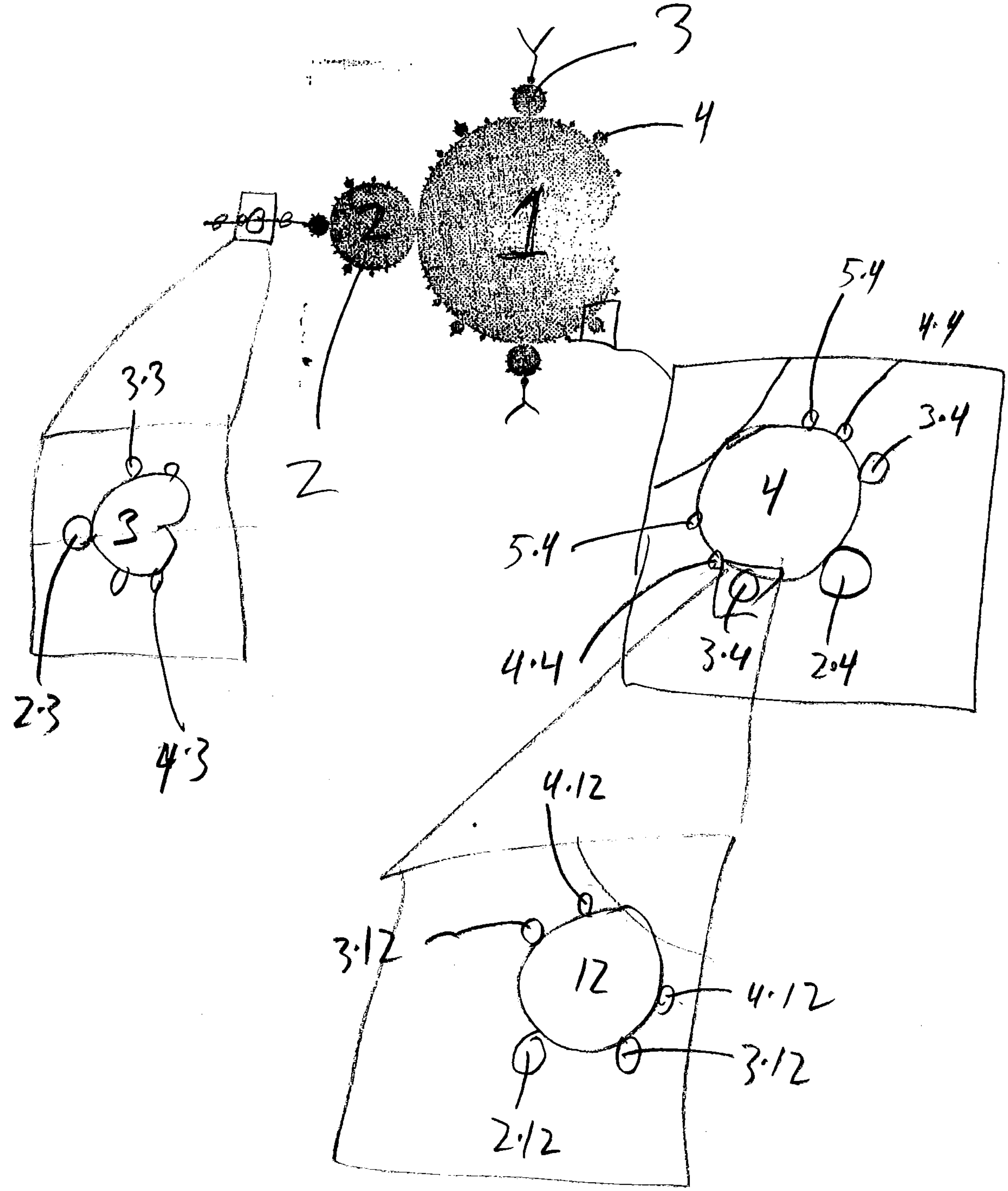
1
2
3
4
2
3·3
3
2·3
4·3
5·4
4·4
3·4
4
5·4
4·4
3·4
2·4
4·12
3·12
12
4·12
3·12
2·12

Doubling map $D(x) = \begin{cases} 2x & \text{for } 0 \le x \le 1/2 \\ 2x-1 & \text{for } \frac{1}{2} \le x \le 1 \end{cases}$

$D\left(\frac{1}{3}\right) = 2 \cdot \frac{1}{3} = \frac{2}{3}$

$D\left(\frac{2}{3}\right) = 2 \cdot \frac{2}{3} - 1 = \frac{4}{3} - 1 = \frac{1}{3}$ $\quad \frac{k}{2^2-1}$

$\left\{\frac{1}{3}, \frac{2}{3}\right\}$ form a 2-cycle for D

$D\left(\frac{1}{7}\right) = \frac{2}{7}$

$D\left(\frac{2}{7}\right) = \frac{4}{7}$ $\quad \left\{\frac{1}{7}, \frac{2}{7}, \frac{4}{7}\right\}$ form a 3-cycle for D $\frac{k}{2^3-1}$

$D\left(\frac{4}{7}\right) = \frac{1}{7}$

$D\left(\frac{3}{7}\right) = \frac{6}{7}$

$D\left(\frac{6}{7}\right) = \frac{5}{7}$ $\quad \left\{\frac{3}{7}, \frac{6}{7}, \frac{5}{7}\right\}$ form another 3-cycle for D

$D\left(\frac{5}{7}\right) = \frac{3}{7}$

4-cycles are formed from fractions of this type $\frac{k}{15}$ $\quad \frac{k}{2^4-1}$

5-cycles are formed from $\frac{k}{31}$ $\quad \frac{k}{2^5-1}$