Orloj Cog: Solution

Observe $1 + 2 + 3 + 4 + 3 + 2 = 15$. Up to this and beyond we have:

1	1						
2	2						
3	3						
4	4						
5	3	2					
6	1	2	3				
7	4	3					
8	2	1	2	3			
9	4	3	2				
10	1	2	3	4			
11	3	2	1	2	3		
12	4	3	2	1	2		
13	3	4	3	2	1		
14	2	3	4	3	2		
15	1	2	3	4	3	2	
16	1	2	3	4	3	2	1
17	2	3	4	3	2	1	2
18	3	4	3	2	1	2	3
19	4	3	2	1	2	3	4
20	3	2	1	2	3	4	3	2

Moreover, notice after segmenting the sequence up to $n = 15$, the sequence is back at its first term of 1. Thus, to segment terms of the sequence to sum to any n beyond 15, we may first include the next 6 terms of the sequence (which is the period, so any 6 consecutive terms sum to 15) and then include whatever comes next that was used to segment the earlier value of $n - 15$.

Any sequence with the same property (that it can be segmented to get the sequence of whole numbers) is called a **Šindel sequence**. If the sequence is periodic with period p, and the sum of its first p terms is s, then we need only check the first $(s - 1)/2$ terms to conclude it is a Šindel sequence.