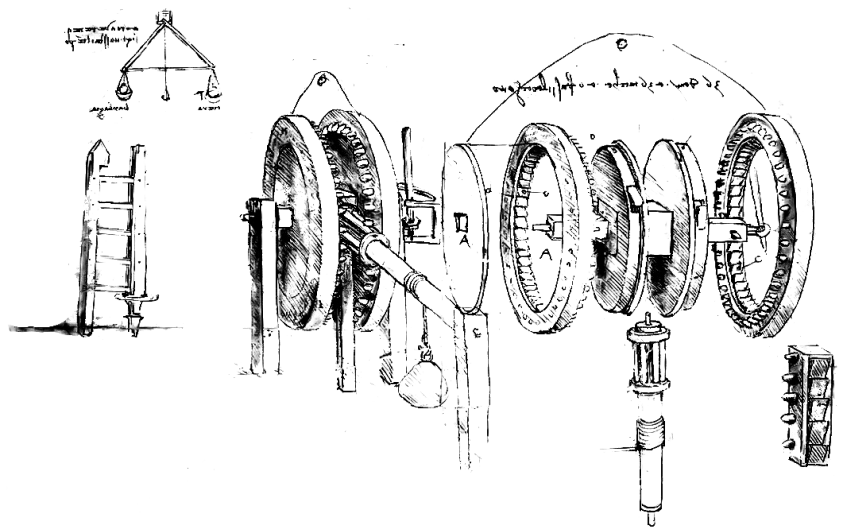




# IN LEONARDO

Leonardo moreover gives a particular attention to the cogwheel, focusing on the teeth profile and carefully classifying it in different kind of movements produced by the different combination of cogwheel, pegs wheels and reels. He underlines the advantages originating from the clever use of pulleys, above all to facilitate the lifting of heavy weights. Strictly linked to the movement transmission is the study of friction and the solution through bearings still valid today.

The simple lubrication is not enough to solve the problem of the pieces consumption, Leonardo tries to solve it, in the beginning, shaping the axis to reduce the consumption, then with metal friction prevention bearings (an alloy of copper and tin) and at the end with several sphere bearings, which foreshadow those, used today. Leonardo suggests using the crank-piston rod mechanism to transform a rotary movement in an alternate movement, as in the coil in the automatic wrapping machine in the Madrid first code.



Leonardo makes this analysis of machines organs from the last decade of '400. He considers the machine as the result of the assembling activity of a series of elementary disposals. Leonardo shows not only to know simple machines (such as the winch, the lever, the pulley, the wedge and the screw), but also to have deepened the function and specificity to use them on complex mechanisms which, through different movement transmission systems, permit the automatic development of following operations.