

COMBINATION IN WOOD CUTTING-MACHINES.

Combination of functions, like automatic action, is often misapplied in machine construction, especially in machines for working wood; so long has wood work been performed by hand, and so recent has been the introduction of machines, that it is difficult to do away with the impression that machines are but an adjunct or auxiliary to hand labor, and that a machine which is capable of doing almost anything, and can be called in to assist when needed, is a good thing.

Without assuming that it is not proper and right in some places to have combined or universal machines, it must be maintained that the greatest amount of labor saving is effected by separating, rather than in combining, functions in this way. There is little saved except the framing, and perhaps a countershaft or two, while the capacity of each is impaired, often but one part being capable of being used at the same time.

There are only two sets of conditions that call for the combination of several functions in one machine for wood work; one, in the case of a very small shop, where *one man* can perform all the machine work; the other case, that of a very large shop, where one man can do the irregular jobs without disturbing the standard machines. In these two places, a machine that will saw, mould, tenon, mortise, etc., is a useful and proper machine, but for regular manufacturing purposes the object should rather be to separate than to combine them.

The large number of machines of this class made, especially in England, leads us to conclude that their sale is created to a large extent by the impression that the purchaser gets a number of machines condensed into one, and at a reduced cost.

The author was once called upon in America to examine and pass an opinion upon a machine which per-

formed all the various operations of making a carriage wheel. He recommended that it be placed in a carriage manufactory for experiment, where it performed in a perfect manner all that was claimed for it, but the inventor was astounded when the manufacturer told him that he should require at least *twenty-four* machines for his shop, or if he would separate it into some *eight* parts, *three* machines would answer the same purpose. In other words, if the inventor would undo what he had done, separate what he had combined, he would leave the art where he found it, without having added anything. Thousands of pounds in money and time are continually being spent by mistaking "combination" for "invention." The novelty of performing two or more things with the same agent is quite deceptive, and we are apt to mistake for useful that which is only novel.

The courts have done something to correct this idea of invention in combinations, by holding that one or more of the elements in a combination must be new, in order that it shall be subject-matter for a patent. Yet patents are continually being allowed in cases where all the elements are old, as they must of necessity be, unless consisting of new mechanical movements which are not likely to be developed by the class of inventors who patent combination machines.

A machine, that is arranged to do several different things, is generally supposed to do but one at a time, hence the more functions it has, the greater the proportion of that part or parts which are idle. Now machines to pay must not stand idle, they must run, run fast, and run continuously; they must have room in which to handle material, and not be encumbered with parts that have nothing to do with the portion at work.—*Richards' Wood-Working Machines.*