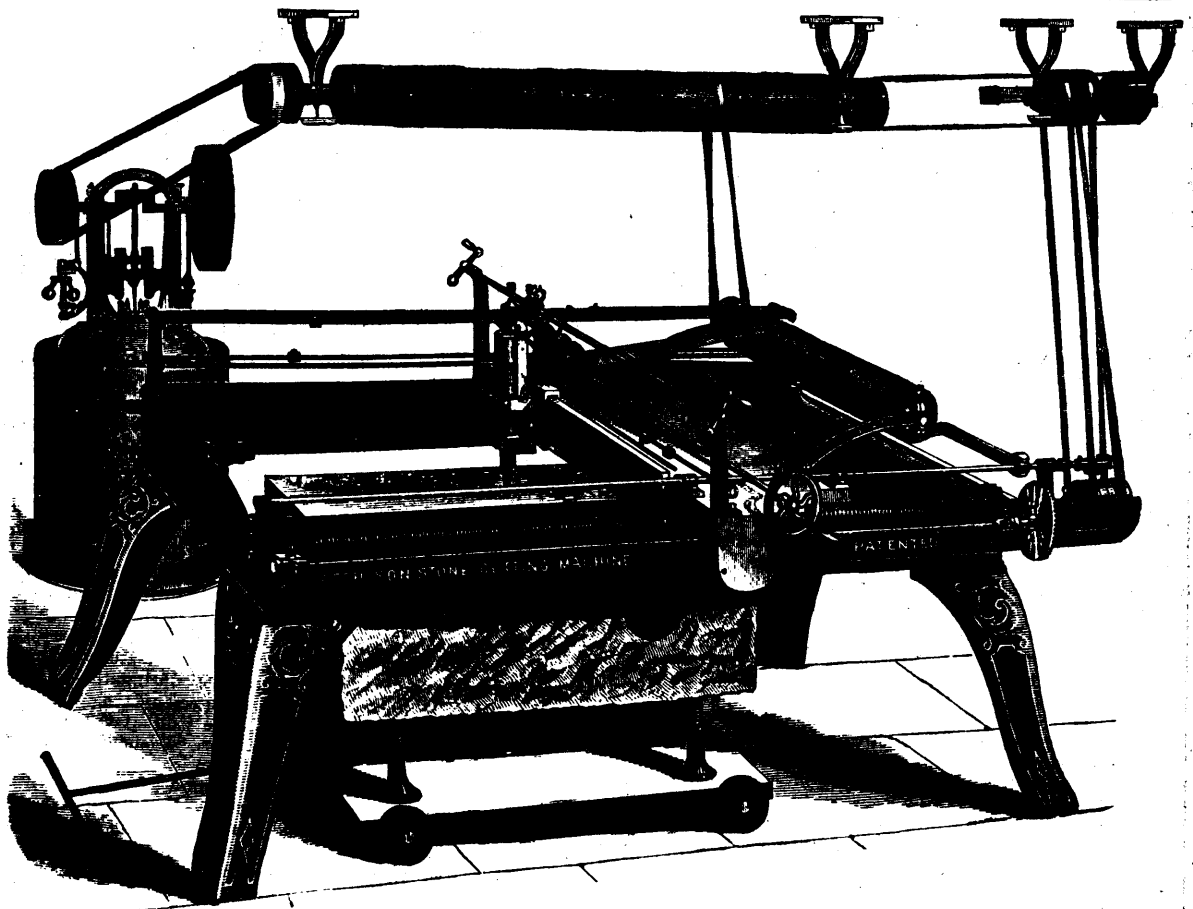




ATCHISON STONE CUTTING MACHINE.

REVOLUTION IN STONE CUTTING.

The introduction of machinery for cutting and dressing stone will effect a total revolution in that business. In place of the tedious and unreliable dressing by hand labor, which can only give satisfactory results when an expert hand executes it with great care, machines can now be procured which will perform the same labor with reliable accuracy, and at the same time great dispatch.

Among the machines of this class, we hold that the one to which we referred on page 36 of our late February number, which is known as the Atchison stone cutting machine, and of which we now give a representation on this page, stands foremost. It is adapted for cutting and planing granite, or any other kind of stone, to dress and finish the surfaces more satisfactorily either for building purposes or polished work, and it does this work in considerably less than half the time that it can be accomplished by the most expert hand labor.

The cutting tools are two in number, and are arranged in a strong head piece attached to a moving platen, similar to the iron planing machine. This platen, with the head piece, is made to move forward and backward over the stone, and the tools having a perpendicular, reciprocal, rotating motion, cut the surface at the rate of not less than 6,000 blows per minute. The rapidity of this motion is of great value in the use of the tools—the wear is less than one-half compared with hand work. The tools are semi-circular in shape at the edge, made of Jessop steel, and can be used constantly for at least forty-five minutes without changing, thus one set of tools will cut not less than 270,000 blows without re-sharpening.

The advantages of this machine are: 1st. That it is of simple construction, and therefore not liable to get out of order. 2d. It is very easily managed and requires but little care—so little indeed, that, 3d, one man can operate three machines and sharpen his own tools, which is easily done by the use of a die, a new and valuable method. 4th. They require little power to run them, one horse-power for each machine being amply sufficient. 5th. The

tedious process of sighting or measuring is dispensed with, as the machine cannot possibly work the surface irregularly or out of wind. 6th. The edges of the stone are always evenly and perfectly cut without "chipping." 7th. The slight cutting blows of the tools, produced by a peculiar motion, leaves the surface absolutely solid and free from "stunning," which is important for polished work. 8th. The principle upon which it operates is eminently adapted for ornamental work. 9th. The rapidity and accuracy with which such machines cut moldings, cornices, ornaments, letters, etc., on all kinds of stone, place them far above all other attempts thus far made in this direction, overcoming the supposed insurmountable obstacles in the way of making ornamental stone-work by machinery. 10th. Last, but not least, the great saving of time and the diminished wear of tools.

We are informed that the machine here represented is the result of four years' steady work, to improve the plan of planing granite by machinery, and the inventor, Mr. Atchison, of Boston, can look back with satisfaction on the labor spent in this direction, as it has resulted in enabling contractors and builders to accomplish in hours what heretofore it has taken days to do.

UTILIZING THE WASTE HEAT OF EXHAUST STEAM.—Mr. James Atkinson recently described before the American Society of Engineers a new apparatus for utilizing the waste heat of exhaust steam. This apparatus consists of a number of straight tubes screwed into a tube plate, which forms the base of an inclosed cylindrical vessel containing the tubes and the water to be heated. These heating tubes are closed at their upper ends, but are open at the bottom to the exhaust steam, for which a short direct passage is provided. Small circulating tubes draw any air out of the heating tubes which would prevent them being filled with steam. The latent heat of a portion of the exhaust steam is transmitted through the heating tubes to the feed-water which is forced through the heater, and passes into the boiler at a temperature of from 210° to 212°. It is claimed that this heater is perfectly free from back pressure in the engine.