

### IMPROVED MACHINE FOR PICKING MILL-STONES.

The accompanying cuts illustrate an invention for picking the stones of grist-mills by machinery.

It consists in giving the pick or chisel a hammer motion, and, at the same time, furnishing it with guides by which it may be pushed along so as to cut curved or straight grooves, either radii or ordinates, as may be desired. Fig. 1 is a perspective view of the apparatus, Fig. 2 a vertical section, and Fig. 3 a plan view as seen from above. Y is the chisel secured in the arbor, X, at the end of the arm, V. The arm, V, passes through the head, U, and is held in any position in which it may be placed in the head, by means of a round-toothed pinion and pawl, operating as a very efficient friction brake. The head, U, is slipped upon the rocking-bar, L, which, by rocking, imparts the hammer motion to the chisel. The bar, L, is rocked by means of the arm, N, the end of which rests upon the cam, F, which is so shaped as to gradually carry up the end of the arm, and then allow it to drop perpendicularly. The adjustable spiral spring, Q, presses the pin, i, upon the arm, N, and gives an increased rapidity to the hammer motion.

In order to adjust the force of the blow, the cam, F, is slipped loosely upon the shaft, E, so as to permit a vertical movement of the cam; the cam being rotated by means of a lip in its bore which fits into a groove in the shaft; thus, the cam, resting upon the inclined plane, T, may be raised or lowered by pushing forward or withdrawing the inclined plane, which is done by turning the screw, S. The several parts of the apparatus described are supported on a base, D, which is connected with the plate, C, by means of the shaft, E, and of the thumb screw, e, moving in the curved groove, d, in such manner that the base, D, may be turned about the shaft, E, as a center. The plate, C, is fastened to a collar about the spindle, B, in the middle of the stone, which collar is secured to the stone or its bushing. The rocking-bar, L, is supported in a frame, J K K, which slides horizontally in a groove in the base, D, and this motion, together with those of the bar, V, one through the head, U, and the other along the rocking-bar, L, and the movements of the base, enables the chisel to be brought to all parts of the stone. Fig. 3 shows the mode of cutting grooves in the lines of sines or ordinates; for cutting one groove in the head, U, is pushed along the rocking-bar, L, and when one groove is finished, the bar, V, is slid through the head, U, a distance corresponding with the distance apart of the grooves. For curved lines, the head, U, is furnished with a swivel, whereby the bar, V, may be swung to give the desired curvature.

The patent for this invention was issued August 30, 1859 (through the Scientific American Patent Agency), to R. D. Nesmith, of Franklin, N. H., who will be pleased to attend to any inquiries for further information in relation to it, which may be addressed to him as above.

### IMPROVEMENTS IN TANNING WANTED.

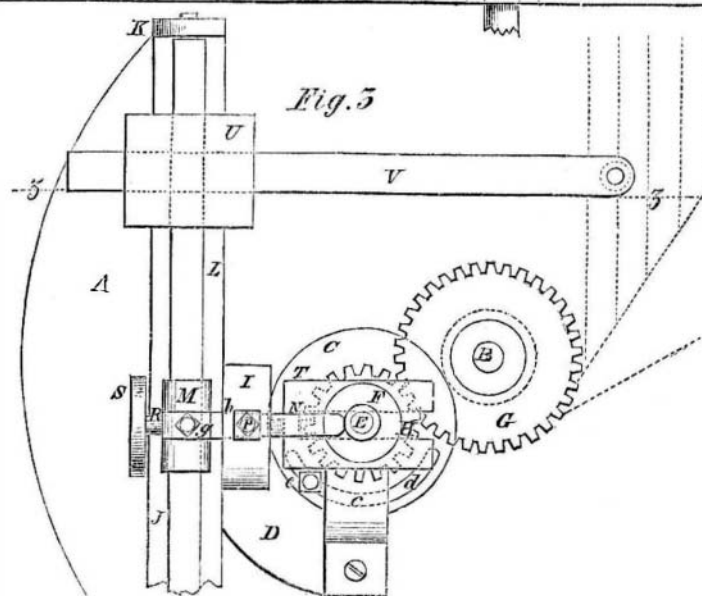
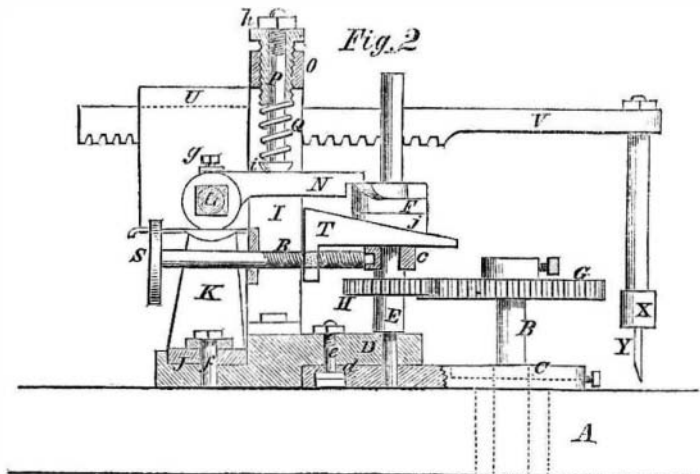
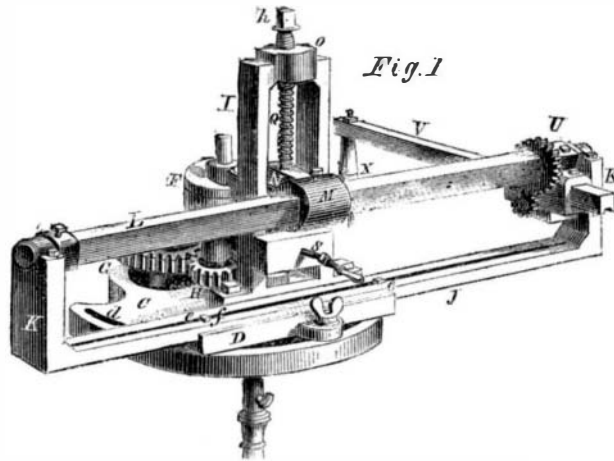
In a recent lecture delivered by the Hon. Gideon Lee, and published in the *Shoe and Leather Reporter* he gives some very useful hints on the nature and principles of the tanning art. We will quote some of his remarks, because they deserve to be disseminated throughout the length and breadth of the land:—

"The whole process of converting raw hide into leather was once supposed to be merely mechanical. Chemical

affinity and chemical combination were not known, and but rarely suspected, in the formation of leather. The French chemists, about 40 years ago, first discovered, and the English and American chemists have since confirmed the fact, that the formation of leather is distinctly chemical. It is now believed to be the chemical union of two

ering causes put together. The still prevailing idea is at least with a large portion of the tanners, that the tannin merely fills up the open pores of the hide, as mechanically as the mason's mortar fills the interstices of a wall, or as the shoemaker's threads or pegs fill the awl-holes.

### NESMITH'S MILLSTONE-PICKER.



distinct principles or elements; the one being the long-known animal gelatine, which constitutes the body and substance of all raw hides and skins; the other, the more recently discovered vegetable substance, the identity of which was first ascertained and made known to

ical operation; it is the creation of a new substance, by means of the chemical union of two pre-existing elementary substances. The chemical affinity of these two elementary substances, when both are in a state of solution, or in a state of approximate solution, and the suddenness of the union, when no obstacles intervene, almost surpasses description. In confirmation of this powerful affinity, it is related of one of the French experimenters, while the dispute ran high as to the predominance of the mechanical or chemical powers in this manufacture, that having prepared a warm solution of glue in one vessel, and a solution of tannin in another, and pouring the two into a third, he was in ecstasies at the result, when the instantly-rising vapor carried to his olfactories the strong odor of leather. It is believed that the chemical proportions of these elementary constituents (pure glutin and pure tannin), in forming such union, would naturally be about 46 of tannin to 54 of gelatine, both being in a state of solution. It would seem to be a fair corollary, then, that unequal quantities only would unite, and the excess of either would remain a separate residuum; and if this theory be correct, if nearly equal quantities be the ruling law of this chemical combination, it would seem another fair conclusion that each pound of perfectly dried hide should make nearly two pounds of leather—that is, it should incorporate or combine with itself nearly an equal weight of tannin. I have expressed the opinion, that if we could bring the tannin into immediate contact with every part and particle of the prepared hide at once, interior and exterior, our gain in weight would be about 80 per cent.; and that, in the necessary delay during the several months' process, a portion of the softened hide, which is kept in a state of divorce from the object of its strong and natural affinity, utterly goes to waste or loses its capacity ever to unite with the tannin, or it imperceptibly becomes extinct. Some portion, however—and, in some instances, a large proportion—of this waste of gelatine occurs in preparing the hide before it comes to the handler."

In these extracts we have related the science and practice of a distinguished tanner; and he clearly informs the public (especially the tanning public) the present defects in that art. Here, then, is a field for improvement—a broad, open and inviting prospect for experiment and invention.