

## New Inventions.

## Capt. Taggart's Aerial Propeller.

Captain John Taggart has arrived in this city, and is at Dunlap's Hotel, Fulton street, with his aerial propelling apparatus, the same with which he made his ascent at Lowell on the last 4th of July, and with which he made an ascent at Boston. We have examined his apparatus, and we believe it to be the most simple and effective that has as yet been brought before the public. He employs a little car, which is shaped like a small boat, and has it suspended in the usual way below the balloon. Attached to this car there are two propeller fans, one on each side, which are shaped nearly like a volute, and these he can set to any angle, by their having pinions on their inner ends, which can be moved round on two stationary side gear wheels, and in any position they can be driven by a crank inside of the car. As they are easily set at any angle, they are managed to guide the balloon in any direction—up, down, and to any side. It is not intended to go against the wind, but to take advantage of the currents, and to move in any direction to a favorable from an adverse current. The aerial voyage which the Capt. made from Lowell, was something of a circular journey, for he went up, off, and came home again the same evening without stopping at any half way house above, to take a luncheon.

## Improved Saw.

Mr. J. H. Tuttle, of Seneca, Ontario Co., N. Y., has invented a new and useful improvement on saws, for which he has taken measures to secure a patent. The improvement is in the teeth—their construction and arrangement; it is not a rasping saw, but a grooving and planing one. Two fleame teeth are made at the usual distance apart, with their points set opposite to rip two fine grooves, and then behind two such teeth there is one set straight, which shaves out the wood between the two rip grooves. This is the way the teeth are arranged along the whole length of the blade. It may be supposed from the great age of the saw, that improvements on it have long been exhausted, but it often happens that these are just the kind of things on which great improvements are made now and then:—the steam engine of Hero was two thousand years old before any improvements were made on it; and it is only within the past century that the plow—the old time-honored plow—was raised from rude barbaric construction and form to its present scientific and princely position among machines. The proof of the value of any improvement, is its practical test—its use. This saw has been fairly and fully tried along with others of the common construction, and it has been stated that one man can do as much work with it in the same time as two with the old kind.

## Recent Foreign Patents.

**PROPELLING.**—We learn by the London Patent Journal that a Frenchman named Alexandre Hediard, has recently taken out a patent in England for propelling, by laying down two horizontal cylinders, and making their pistons act alternately at the stern of the vessel, by hollow concave surfaces against the water to propel the vessel forward. The principle is old.

**ARTIFICIAL FUEL.**—James Tarling, of Bayswater, England, has taken out a patent for a new fuel, which is made principally with refuse tan bark: to one bushel of old bark, previously dried, one quart of tar or one pint of resin oil is added, and the mixture well stirred. This may be compressed into blocks in a mould—this part is old, excepting the mixture of resin oil.

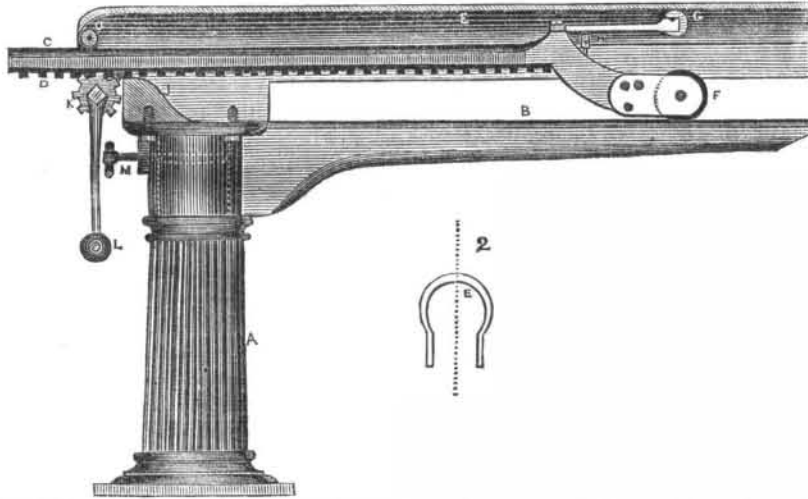
**TOBACCO PIPES.**—Wm. E. Staite, of London, has patented some improvements on pipes for smoking tobacco. He forms a lower chamber below the tobacco bowl, to receive the oil and condensed vapors of the tobacco, and prevent them from being drawn along the shank: the smoke passes through a diaphragm to the mouth of the smoker. The condensing chamber is moveable and easily cleaned. This is an invention which we recommend to our German friends.

## Improved Process of Casting.

We observed, says the Baltimore Sun, at the "Vulcan Works" the screw for the Steamer Monumental City, cast in one piece, 12 feet in diameter, weighing nearly four tons, which we learn was cast at that establishment by a new process invented by the proprietors, Messrs. Murray & Hazlehurst, assisted by their intelligent and experienced founder, Mr. James A. Bruce. These screws have heretofore been made by moulding from a wooden pattern, which was difficult to form correctly to the

desired shape, and liable to warp from contact with the wet sand used in moulding. The improvement consists in dispensing with the use of a pattern altogether, and by means of guides and strikes, the mould is formed with mathematical accuracy, besides insuring a smoother and cleaner casting. The casting we saw was the sixth made by this process, the first having been made in January last. We mention this, as we observe that these screws are now cast in New York without a pattern.

## TINSMITHS' IMPROVED GROOVING MACHINE.—Fig. 1.

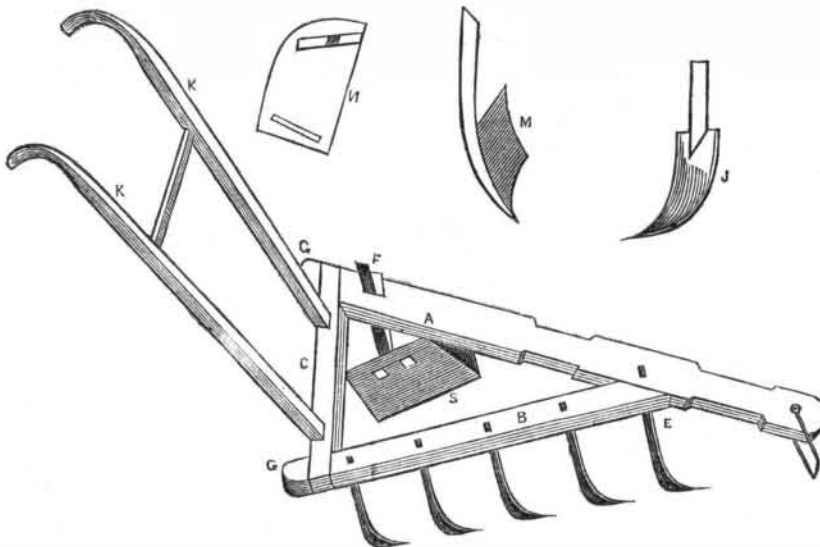


Mr. A. W. Whitney, of Woodstock, Vt., a well known inventor and manufacturer of tinman's tools, is the inventor of this improvement and he has taken measures to secure a patent for the same. This engraving is a vertical elevated section showing the interior: A is a pillar which is secured to the bench by screws passing through the flange which constitutes its base; B is the bed for laying on the sheet of tin to be acted on by the grooving roller; C is the rack bar with a rack, D, on it to be operated by the pinion, K, which is actuated by the crank handle, L. On the extremity of the rack bar is the grooving roller, F. G is a small friction roller attached to the rack bar by a strong steel spring. The tension of this spring, to press down on the grooving roller, F, is regulated by a set screw, H. By raising this screw the pressure is increased. E is a tube—we see its interior. Fig. 2 is an outline of its form and the dotted line shows where fig. 1 is taken. The grooving roller is therefore guided on every side to prevent all side motion. In the machine the tube, E, comes down somewhat farther than represented—near to the axis of the roller, F. O is a small friction roll at the other end of the rack bar, to keep it from rising, and

I is a shoulder, on the head of which the teeth of the rack rest and slide, to keep it steady, and not hang on the teeth of the pinion, K. In the old machines the rack bar did not move in a tube. This arrangement makes the tool very compact, and gives it a very steady operative motion.

Another new feature about it, is the facility with which its position can be changed. The whole of the top part is constructed on a collar which fits around an axis of the upper part of the pillar, A, as shown by the dotted lines; this forms a socket joint, and allows the operative parts described, to be swung round to any position. The set screw, M, (shown passing in by the dotted lines) fastens the top part of its pillar axis to retain the whole firmly together. By unscrewing this set screw, the working parts are allowed to be moved round, and by screwing it up, the whole is fastened again. This arrangement makes this instrument very convenient and handy to work, and will enable a workman to perform more work in a given time—such as from week to week. This tool has been generally admired. It is now exhibiting at the Fair, and is for sale by J. M. Bruce & Sons, 186 Water street, this city.

## AKIN'S COTTON CULTIVATOR.



This Cotton Cultivator is the invention of Mr. Sam. W. Akin, of Spring Hill, Maury Co., Tenn., and secured to him by patent on the 20th of March last year. A, is a beam 4 feet long, B, is an angling beam 2 ft. 10 in. and made longer in proportion for rows over three feet wide. C, is a cross beam, it is attached to the beams, A, B, by screws or otherwise at G. K, K, are the handles, they are let into the cross beam C. The teeth are set into the

angling beam, B, the fore tooth through both beams A and B at E, set at equal distances apart, two feet two inches to the hind tooth in the angling beam B, for rows three feet wide, and in proportion for wider rows, five teeth; the fore tooth 15 inches long, falling off one inch each tooth, making the hind tooth four inches shorter than the fore tooth, raising the fore end of the beam so as to range with the gear on the horse; making each tooth run

the same depth into the ground, and making the draft lighter by bringing it nearer to the horse than it could be if the teeth were of the same length. Two feet two inches from the fore tooth, E, to the hind end of the mortice of the letter, F, where the scraper, S, and the adjustable plow, M, are fastened in by a wedge. The proportioning the teeth, making one inch difference in length, so as to make the fore tooth 4 inches longer than the hind tooth, is the most important part in constructing the Cultivator, by giving each tooth, the scraper and plow the same pitch or depth, causing the cultivator to run level performing well, with ease both to man and horse. The teeth may be either cast or wrought iron; he prefers wrought iron one inch square, flattened down two inches broad, sharp at the point, to prevent old grass from gathering on them, bent like a coulter. Each tooth plows its own furrow. If they were all the same length when the draft of the horse was brought upon them, the hind teeth, plow and scraper, as the case might be, would run too deep for the fore teeth, and could not be made to perform the work at all, as no two teeth would run the same depth, and the scraper would not do, as it could not be made to scrape, as it being behind would run too deep and would take more dirt from the cotton than it would bear. While arranged in this proportion, the plowman can take just as much or little as is necessary to cultivate the plant. Another advantage in proportioning the teeth in this way is, the depth can be regulated by altering the gear on the horse, making his traces longer or shorter; while, if they were all the same length, the horse would be too far from the cultivator, which is a great disadvantage in driving out at the end of the rows; while on the other hand, the horse is drawn up close to the cultivator, which makes his draft lighter. N is the board which keeps the dirt from falling on the cotton. It is fastened to the sloped end of S, and fastened to the beam, A, by a T headed screw bolt. The board is about 6 inches wide. The scraper, S, is a plate about 8 inches broad laid with steel, and it is from 12 to 14 inches long and is constructed to be set nearer or further from the row. The adjustable plow, M, is of a diamond form welded on a bar to fasten in the beam at the mortice, F. It is bent to turn the dirt like a mould board all one way; J, is a coulter plow made to fasten at F, like M. The operation of the Cotton Cultivator says Mr. Akin, is, first to harrow and scrape the cotton at the same time, using the scraper until the cotton wants hilling. He then removes the scraper and board that prevents the dirt from falling on the cotton and puts the adjustable plow in their place, runs round the cotton in the same way, harrowing and hilling, performing the same amount of labor with one hand and horse that it takes two hands and horse to do the usual way. When a harrow is used by itself, and a plow has to follow, the same saving in tending corn, by using a bull-tongue, J.

We have seen a great number of certificates from Southern gentlemen relative to the good qualities of this implement. More information may be had by letter addressed to Mr. Akin.

## Improved Grinding and Pounding Machine.

Mr. Wm. Frost, of this city, has invented a machine upon a new principle of operation, for grinding, pounding and mixing ores, &c., and for which he has taken measures to secure a patent. Mr. Bagley, the Gold Pen manufacturer, is a partner in this invention, and it is supposed that it will supersede all other ore grinding machines now in use. It may be said to consist of "a wheel within a wheel;" the outside one being a revolving cylinder, its inside forming the bed, in which may revolve any number of smaller cylinders, or wheels, with smooth or corrugated surfaces, which will have two motions—one as it were on their own axes, and the other with the outer revolving cylinder. Its action is good, and it is capable of grinding the hardest quartz into powder in a short time, or any other substance. It is also capable of mixing paints, and is excellent as a rice huller, when the interior wheel is made with beetles on its periphery, to jog into openings in the interior bed.