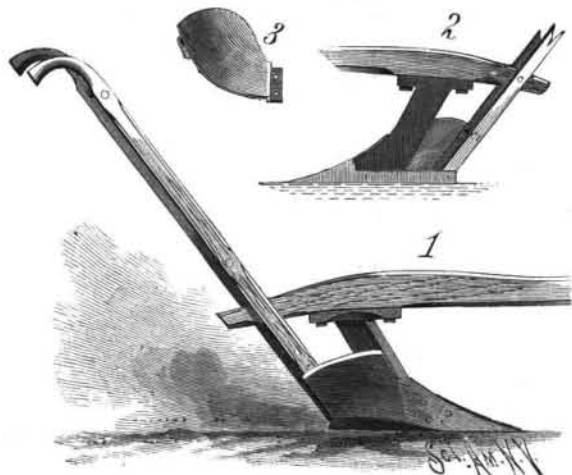


has been returned to a vertical position, the weights on the levers, G and H, will reset the parts, so that, by again moving the lever, an additional force may be applied to turn the wheels.

The braking mechanism consists of a rock shaft having arms carrying brake shoes. Rigidly connected to the shaft is a forwardly extending arm, L, which is coupled to the end of the lever, J. As the main lever is thrown to the right, the forward end of the arm, L, will be depressed, and the shaft rocked to carry the shoes against the wheels. The same mechanism operates brakes bearing against the rear face of the wheels.



NEVILLE'S COMBINATION PLOW.

Upon the main lever being returned, a weight carries the parts to their normal position. Further information concerning this patent, which is for sale, may be had by addressing the inventors, as above.

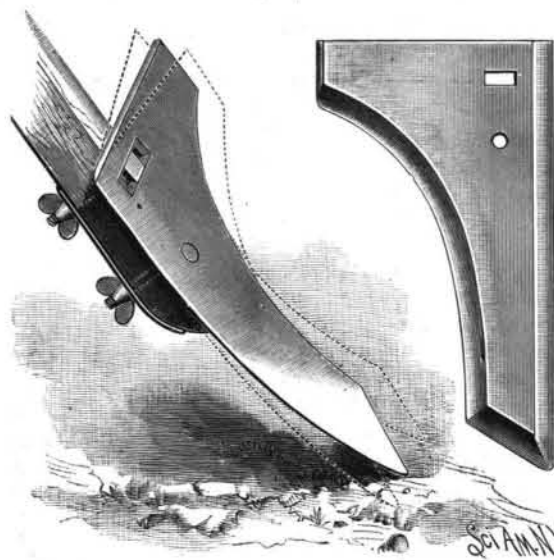
COMBINATION PLOW.

Upon the plow here illustrated either wooden or metallic mouldboards may be used interchangeably. The iron standard is bolted to the under side of the beam, there being a plate upon the upper end of the standard through which bolts pass. The standard projects downward and forward, and is provided with a flange, upon which rests the point, which is secured by a bolt and steadied by a rearwardly extending bar fitting in a recess in the standard, as shown in Fig. 2. Just back of the point is arranged a share, secured to the standard by bolts, and which projects upward beyond the flange upon the standard. The mouldboard, Fig. 3, has a flange fitting beneath the rear edge of the share, the extreme upper edge of the share abutting against a shoulder on the board. The handles of the plow are united by braces, one being beneath the beam; the landside handle is bolted to the rear end of the beam and to the rear end of the bar that steadies the point, while the lower end of the other handle is bolted to the mouldboard when the latter is made of wood. When the mouldboard is of metal, the lower end of the handle is stepped in a socket secured to the rear face of the board. Although a wooden mouldboard pulverizes the earth more thoroughly than one of metal, it is not always desirable to use the former, hence the need of a plow having interchangeable mouldboards.

This invention has been patented by Mr. S. S. Neville, of Burnsville, Miss.

CULTIVATOR TONGUE AND SHOVEL.

The engraving illustrates an invention which consists in a cultivator shovel, forming a combined tongue and shovel, capable of being adjusted laterally from a fixed



SANDERS' CULTIVATOR TONGUE AND SHOVEL.

center or pivot. The lower part of the blade, which is shown detached in the right hand view, forms the tongue part, while the upper portion forms the shovel. The straight vertical edge is beveled on its under surface to form a cutting edge, which adapts the blade to first plowing. The lower angular end is also beveled to form a cutting edge, and serves to work the earth

closer to the plant. The end being made slanting, a forcing action is exerted toward or from the plant. The outer edge is straight below, but spreads out laterally and upwardly in a curve, and is also beveled. This construction provides for the surface of the ground being cultivated without disturbing the roots of the plant. Above the curved portion the edge of the blade is rounded, the object being to prevent injury to the plant. The blade is secured to a standard by screw bolts arranged one above the other. One of these bolts rests in a countersunk seat formed in the sides of an oblong slot running in the direction of the width of the plate, to provide for the lateral adjustment of the latter from a fixed center formed by the other bolt. This adjustment of the blade, shown by the dotted lines, enables the operator to plow either close to the plant or away from it.

The blade may be used either with its straight side next the plant, as when the plant is small and requires the earth stirred close to it, but does not require the earth to be thrown toward it; or the shovel may be turned so that its curved edge will be presented to the plant, when the roots will be left undisturbed and the earth thrown toward it. The sharp cutting edges permit the shovel to be readily shifted while in the ground, and hence it can be more easily managed than if the edges were square and blunt.

This invention has been patented by Mr. James M. Sanders, of Morrisville, Ohio.

COMBINATION TOOL WRENCH.

This tool may be used as a hand and pipe wrench, wire cutter, wire nipper, screw driver, tack drawer, measuring rule, and for other purposes. The flat circular ends of the arms are connected by a rivet. On opposite sides of the rivet the circular ends are formed with notches, the outer pair of which form wire cutting edges, while the corners of the metal at the side of the other pair are rounded, to enable the arms to grasp wire for the purpose of stretching it without danger of cutting it. One arm is curved near its free end toward the other arm, and its extremity



SPARHAWK'S COMBINATION TOOL WRENCH.

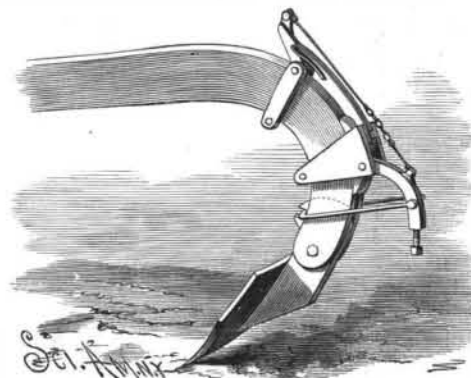
is provided with a chisel-edged angle hook, which is inclined toward the pivot. The other arm is thickened near its free extremity, curved outward and formed with sharp edged teeth inclined outwardly, and upon its extreme end is formed a screw driver edge. The inner faces of the arms are graduated into inches and fractions thereof, so that the device may be employed as a measuring rule. The hooked end is used for drawing nails and tacks and for engaging one side of a piece of pipe or a nut while being turned, the opposite side of the nut being engaged by one or more of the teeth on the end of the other arm. The screw driver is applied to a screw in the usual way, and the other arm may be employed as a lever for turning the screw. The arms fold compactly together, the screw driver edge coming directly opposite the edge of the hook. The outer corners of the arms are rounded, to permit of using the tool without injury to the hands, and also to prevent them wearing the pocket.

This invention has been patented by Mr. W. W. Sparhawk. Further particulars can be had from Mr. J. M. Marsh, of Scotia, Neb.

CULTIVATOR BEAM AND POINT.

The point shank is pivoted to the beam by a bolt. Attached to the beam is a spring, so arranged that it exerts a constant backward pressure upon the shank above its pivot. The spring thus holds the shank and point to their work until the pressure on the point overcomes the tension of the spring, when the point and point shank will spring backward and thereby lessen the pressure upon them. The lower end of the spring is attached to a yoke secured to the beam, and its upper end is held in a socket formed in a lever fulcrumed to a yoke on the beam, and is connected by a rod to a bent arm pivoted to the lower yoke. This arm is connected to the point shank by a coupling held in place by two lugs formed at the front edge of the

shank above the point. In case the pressure upon the point is more than equal to the tension of the spring, the point will move backward, the shank moving forward. This movement will draw the bent arm forward and the upper end of the lever downward, and thereby increase the tension of the spring which, upon the removal of the pressure, will return the parts to their original position. In case of over-pressure, the bent arm will strike the back of the shank, and thus lock the lever and shank, so that no injury can be done the spring. The distance the arm moves is regulated by a set screw in its lower end. Should the point enter the ground too deeply or strike an obstruction, the shank will yield, so that the point will automatically run more shallow in the ground, or pass the obstruction



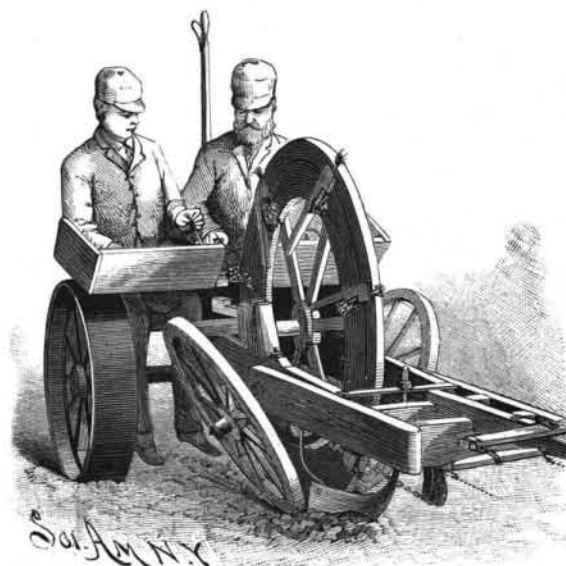
ADY & HAITH'S CULTIVATOR BEAM AND POINT.

without injury and without jerking the plowman or team.

This invention has been patented by Messrs. N. J. Ady and J. W. Haith, of Rockport, Atchison County, Missouri.

IMPROVED TOBACCO PLANTER.

The accompanying engraving illustrates a planting machine especially adapted for automatically setting tobacco plants, but also applicable for setting and resetting other plants or seeds. In the frame of the planter is journaled a large wheel which carries the plants to the ground. The forward end of the frame is supported by inclined wheels, which throw the earth back into the furrow and pack it around the roots of the plants. To the front of the frame is held the furrow-opening plow, which may be adjusted vertically to work at any required depth in the ground, and may be set nearer to or further from the plant-carrying wheel. The plow has a sharp nose portion to enter the ground easily, and has two rear wings which stand one at each side of the wheel to open a clean furrow somewhat wider than the tread of the wheel, and to protect the plant clamps, which are held to the right-hand side of the wheel rim. These clamps consist of clip blocks pivoted to lugs on the wheel, and pressed at their outer ends to or toward the wheel by springs. Behind the wheel is a plant-holding table having an opening, into one part of which the rim of the wheel enters, while in the other part is pivoted a plant-holding bed, upon which the plants are held in proper position to be seized by the clamps. To a hanger fixed to the frame is connected a plate, which is preferably elastic, against which the tails of the jaws of the clamps strike, to open them at the proper time for dropping the plants into the furrow. Another block, fixed to the frame, is so arranged as to open the clamp jaws as they rise to the table to grasp the next plant.



SIMMONS' IMPROVED TOBACCO PLANTER.

One of the clamps—the number of which is governed by the distance apart at which the plants are to be set in the ground—grasps a plant and carries it around forward until it is held root downward, in the furrow. The clamp then opens, its tail striking the block, and the plant drops into the furrow, when the inclined wheels roll the earth back into the fur-