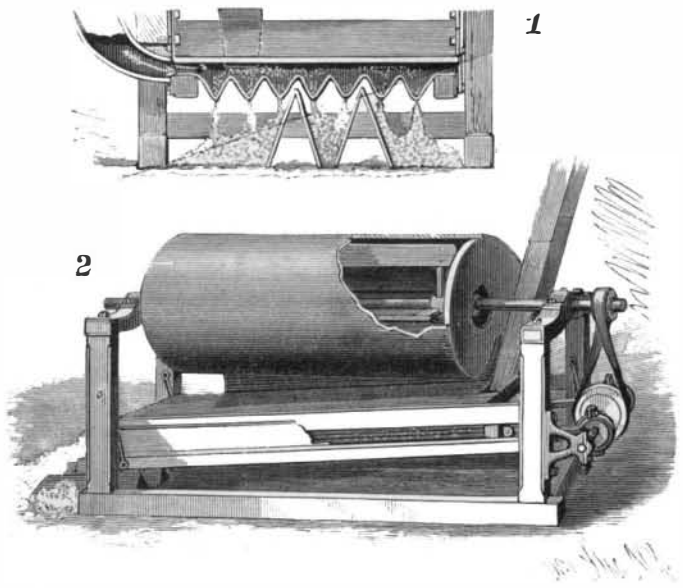
PURIFYING AND SEPARATING MIDDLINGS.

The extensive introduction of modern milling machinery has added greatly to the importance of all devices calculated to more thoroughly separate the products at the different stages in the processes of high and low grinding. The illustrations herewith show an improved purifier and separator, Fig. 2 giving a longitudinal sectional elevation, with part of the fan casing broken away, and Fig. 1 showing an end elevation. Beneath the fan, and supported in the same



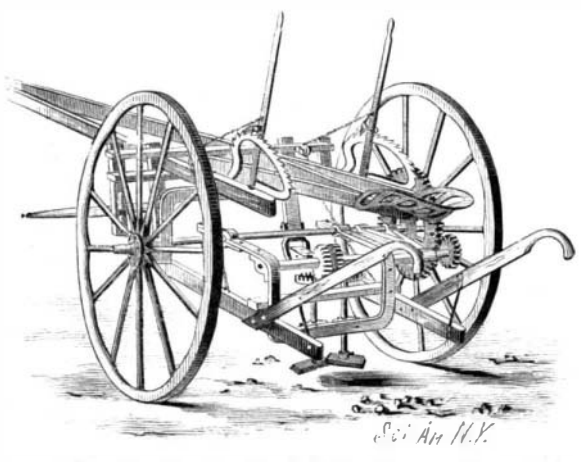
HOWARD'S MIDDLINGS PURIFIER AND SEPARATOR.

frame, is a longitudinally corrugated plate, with a downward inclination toward its tail end, and above this plate is another one, which can be adjusted closer to or farther from the corrugated plate, to regulate the effect of the blast of air. As the middlings are passed through the feeder, the corrugated plate is vibrated in connection with the air blast from the blower, spreading the middlings over the surface of the plate, while the vibrations cause the light, fluffy particles and the fine bran to rise to the surface, where they will be blown out by the air blast through the space between the upper and lower plates, while the heavier and more valuable parts will pass down the grooves and escape at their lower ends into any desired receiver, the more valuable portions being in the groove next the fan blower, and becoming less valuable in the grooves toward the other side of the machine. Beneath the lower end of the corrugated plate are placed angular division plates, to separate the products into such degrees of fineness or purity as may be desired.

This invention has been patented by Mr. Edward W. Howard, of Montevideo, Minn.

COTTON CHOPPER ATTACHMENT FOR CULTIVATORS.

Mr. Hans Henriksen, of Duarte, Cal., has patented an improvement in cutting attachments for cultivators which is intended more especially for use in the cotton field, and is so made that it can be adjusted to cultivate the plants and at the same time remove a certain proportion of them, or to be available as a simple cultivator, as may be desired. The mechanism, as will be seen from our engraving, is quite simple. A rod, placed in such a position as to be in line with the axes of the wheels, has the forward ends of the arms of a U-shaped bar pivoted to it in such a manner that the bar can be moved forward or back. At about the center, the bar is bent vertically downward, and, with the aid of the transverse bar joining its two arms, supports the bearings of two vertical shafts.



COTTON CHOPPER ATTACHMENT FOR CULTIVATORS.

To the upper end of the shafts are attached gear wheels, which engage with pinions on a horizontal shaft supported in bearings at the angles of the U-shaped bar. A pinion on the end of this shaft receives motion from a toothed wheel connected with the right hand wheel of the cultivator. Cutting blades are attached to the lower ends of the vertical shafts at their centers; and the arms of the blades being longer than half the distance between the shafts, will overlap slightly, but as one shaft is shorter than the other, the blades do not interfere. As the blades revolve, a diamond-shaped space is left between the intersections of the paths of each arm, in which the plants are undisturbed. Provision is made for adjusting the position of the vertical shafts and their actuating pinions, so that the blades will intersect more or less as it is desired to remove a greater or less number of plants. When the machine is to be used as a simple cultivator, the blades are replaced by small disks, which leave the plants undisturbed along the whole row.

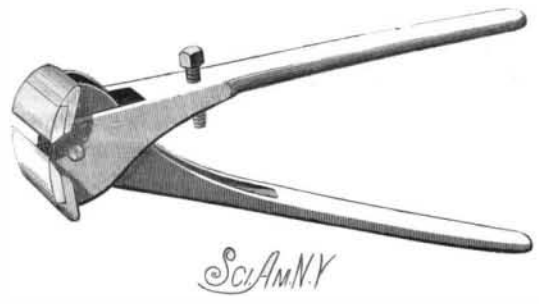
Both blades and disks operate under the surface to loosen the soil, and the depth to which they penetrate is regulated by the two levers shown on top of the machine. The arrangement of the device makes it both simple and effective.

White Herons.

Among the entertaining features of the State carp ponds are two white herons under domestication. Mr. Logan Terrell winged two of these snow white creatures, and has for some days kept them tied to a pole with a small cord. At times he takes the birds upon his arm, and conveys them to the edge of the large pond. Then, throwing in bits of cracker, he attracts myriads of shiners and roaches near the feet of the birds, who immediately begin to feed. One fish after another is caught between the beak and swallowed head foremost. It is strange that, as slick as a fish is, they never drop one. Each bird takes forty-five fish per day, the minnows being 4 inches long. Mr. Terrell wonders why any fish exist when such greedy foes beset them every day.—*Raleigh Register.*

CUTTING NIPPERS.

In the common nippers, where the rivet or wire to be cut cannot be passed between the sides of the jaws,

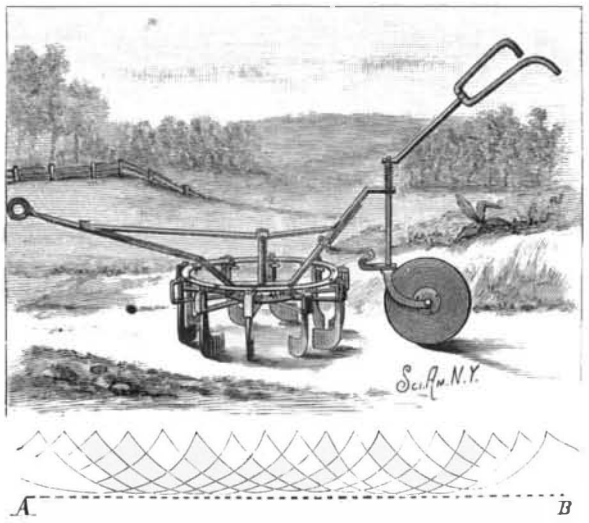


BROADBROOKS' CUTTING NIPPERS.

the cut is diagonal, and must be made at the ends of the cutting edges. The accompanying engraving represents nippers, the invention of Mr. Peter Broadbrooks, of Batavia, N. Y., which overcome this objection. The two jaw levers have their upper ends forked, and the prongs of one lever pass between the prongs of the other. The prongs are pivoted together by two rivets, one in each pair of prongs, or by a single rivet passing through all four prongs. The cutting blades are held by screws in recesses formed in the upper ends of the levers. In one lever is arranged a stop screw. As the pivoted ends of the levers are forked, an opening is formed between the sides at the pivots, thus permitting of passing a wire between the cutting blades and between the sides of the levers. The wire can thus be cut at the centers of the cutting edges and at right angles to the length of the wire.

REVOLVING CULTIVATOR.

The object of the invention herewith illustrated, which has been recently patented by Mr. John T. Campbell, of Rockville, Ind., is to facilitate and promote thoroughness in cultivating small plants, loosening the soil, and covering grain. The inner ends of eight radial arms are attached to a hub pivoted to the lower end of a short vertical shaft attached to the frame of the machine. The outer ends of the arms are bent upward at right angles and then inward, and in the ends are pivoted steel teeth whose lower parts are bent to the rearward and widened vertically. The sections of the teeth that pass through the upper and lower parts of the outer ends of the arms are made round, so that they will turn freely; and the sections between the upper and lower parts are made square, to correspond with the square eyes of short bars which are fitted loosely upon the square sections. To the radial arms are attached pins in such positions that the bars will strike against them when the teeth have turned so far in one direction as to bring the blades into radial positions, but will allow the teeth to turn freely in the other direction until the bars come in contact with the edges of the upright parts of the radial arms. When it is desired to have the frame revolve in the other direction, the bars are raised, swung over the pins, and

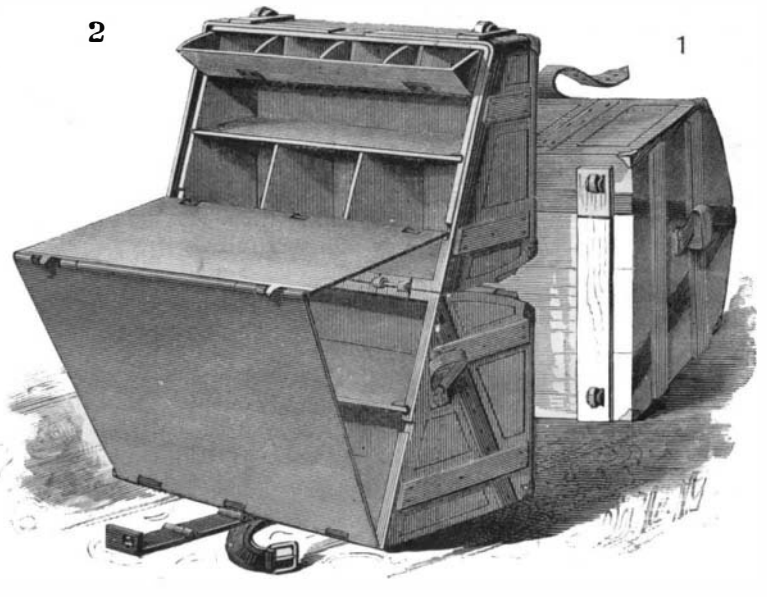


CAMPBELL'S REVOLVING CULTIVATOR.

dropped at the other side. The cultivator is made to move forward in a straight line by a circular rudder attached to a vertical rod, the lower end of which is pivoted in the rear end of a bracket secured to the rear inclined bar of the main frame. The handles by which the rudder is controlled, and the machine thereby guided, are attached to the upper end of the vertical rod. When the cultivator is drawn forward, that side upon which the blades are held from swinging back by the rods and pins will be held by the blades from moving forward, while the other side will move forward more quickly, the teeth describing curved lines (the diagram shows clearly the track made by the cultivator, the dotted line A B representing the row of plants, and the curved lines the paths of the blades), and their blades swinging back, and offering less resistance to the advance of that side. The curved forward sweep of the blades causes them to push all clods and lumps away from the plants and at the same time to thoroughly loosen the soil.

IMPROVED TRUNK.

This trunk is so constructed that it can be erected and adapted for use as a wardrobe, desk—as shown in Fig. 2—or table, or can be adjusted as a support for a mattress or other bedding. The trunk is formed of two sections, shown clearly in Fig. 2, hinged to each other; the plane on which the two sections are divided is diagonal, so that when the front section is swung up on the rear one, a wardrobe or box is formed, which increases in width and thickness from top to bottom, and is closed by lids hinged to each other. The rear section is provided with a horizontal partition dividing it into two compartments, and the front or upper section has two horizontal partitions. Vertical partitions form a



WULFF'S IMPROVED TRUNK.

series of compartments in the lower part of the upper section, for holding hats, shirts, or other articles. The upper part of the section is divided into pigeon holes, which can be closed by a swinging leaf formed with partitions corresponding with those making the pigeon holes, and dropping within them when the leaf is closed. The two lower horizontal partitions are hinged