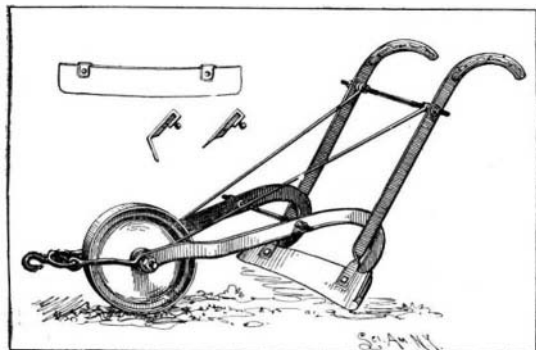




**ADJUSTABLE SURFACE CULTIVATOR.**

A surface cultivator which can readily be adjusted to various widths between rows, and to which cultivator teeth or small plows may be quickly attached when it is desired to cultivate the ground more deeply, forms the subject matter of an invention recently patented by Mr. W. S. Neal, of Brewton, Ala. This device is adapted to be moved by a single horse and guided by hand. With the shovel blade attachment it will be found particularly useful in removing any vegetation in its path, and will likewise destroy any crust which may have been formed on the top of the ground after a rain, for example. The shovels used in



**ADJUSTABLE SURFACE CULTIVATOR.**

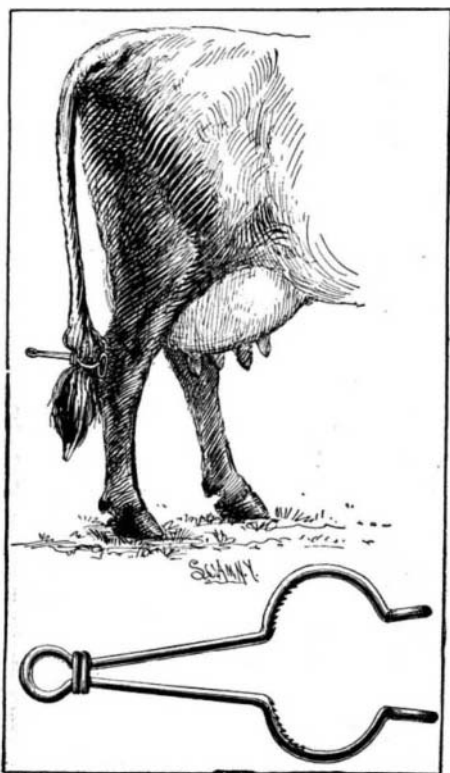
this implement are detachable, and of varying sizes suitable to the width of the space between the rows to be cultivated. The ends of the shovel blade extend backward at an angle to the body of the blade, so as to shovel the soil laterally among the plants in the drill and cover up any little vegetation that the blade cannot reach without cutting the plants. Another type of blade also is provided, which will be found useful for certain conditions. This blade, as shown in the engraving, is rounded at the lower corner of each end, so as to prevent injury to the plants.

These blades are sufficient for ordinary surface work, but when deeper cultivation is required, cultivator teeth may be attached to the shovel blades, as shown in the sectional views. These teeth are of various sizes and shapes to suit different requirements. Some of the blades employed may be turned backward, others downward, and others again may be made with turned ends. The object of turning the teeth backward is to shovel the dirt in the drills among the plants.

The implement is very effective and of a simple construction. It is also very light, and by its use plants may be readily kept under required cultivation.

**DEVICE FOR PREVENTING THE SWITCHING OF COWS' TAILS.**

The annoyance of having a cow's tail suddenly switching into one's face while milking, may now be



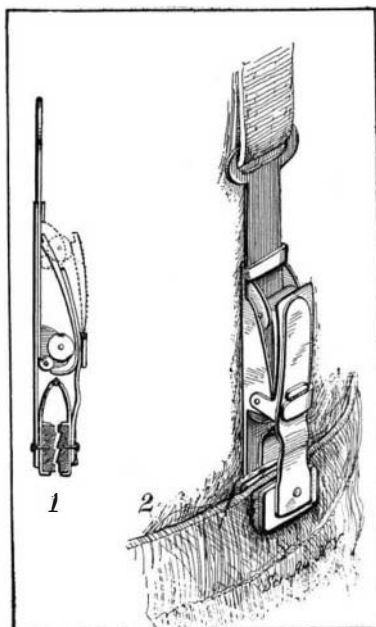
**CLIP FOR COWS' TAILS.**

prevented by applying a small clip to the pestering member and securing it to one of the legs of the animal. This clip is the invention of Mr. David McLellan, of Bowsmont, North Dakota, and consists,

as illustrated, of a section of spring wire bent to the shape of a pair of tongs. The arms of the clip are bowed out in semicircular shape near their extremities, and the ends are formed into elliptical eyes. A ring encircles the straight portions of the arms, and may be pushed forward to squeeze the arms together. In applying this device the bushy part of the tail is slipped into the clip, which is then pressed firmly against the animal's leg with the eyes upon opposite sides. The ring is now pushed forward, forcing the spring arms together. The tail is thus tightly held between the leg and the semicircular portions of the clip, which are roughened to prevent slipping. The semicircular portions fit over the tendon of the leg near the upper shin joint, and the eye portions sink into the hollow between the tendon and the bone. The device can be very quickly applied or removed, and will effectually prevent the undesirable switching of the animal's tail, thereby saving the milker from much annoyance and securing cleanliness of the milk.

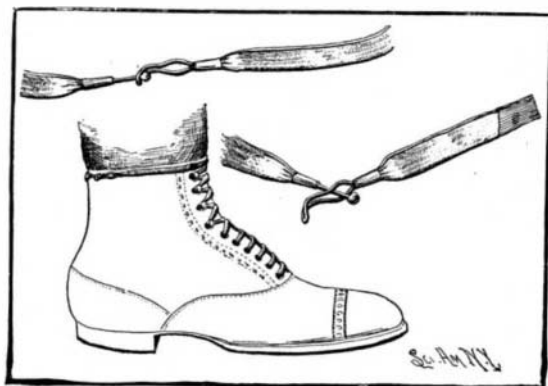
**TWO SIMPLE FASTENING DEVICES.**

A new method of fastening one's shoe-laces is provided by the invention which we illustrate herewith. It consists of a pair of simple fasteners secured to the ends of the shoe-laces, whereby they may be wrapped about the ankle and readily fastened together. In order that the laces may fit any ankle, they are provided at the ends with elastic strips two or three inches long. This arrangement permits yielding of the ties with the movements of the foot. The invention offers the additional advantage of facility in unfastening the laces and security as well as facility in the fastening of the same.



**FASTENER FOR TROUSERS.**

Mr. Edward L. Pitts, of Jerome, Ariz., who invented this novel shoe lace, is also the inventor of a simple means for attaching a garment to a supporter without the use of buttons or the like. The device is especially adapted for use on suspenders, to afford a ready means for securing the trousers. It consists of a pair of jaws hinged to a pair of levers. An operating slide is adapted to slide between these levers in such a manner that when drawn back it will force the forward ends of the levers together, closing the jaws on whatever fabric is placed between them. The slide is fastened to the supporter or suspender, and the arrangement is such that, obviously, the greater the weight imposed, the more firmly will the garment be grasped and held by the jaws. On account of this hinged connection between the jaws and the levers, perfect freedom is permitted in the movement of the garment; also the area of cloth grasped by the jaws



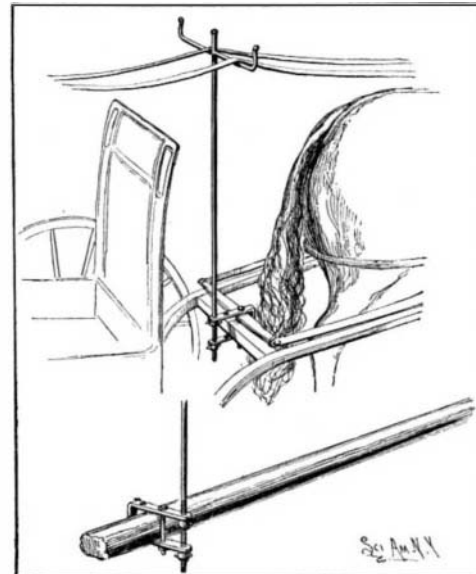
**FASTENER FOR SHOE-LACES.**

is so great, comparatively, that a strain which would tear off a button may be safely imposed upon them. When it is desired to release the garment from the grip of this device, the operating slide is moved forward, thus permitting the levers to swing to open position.

A powerful company has been organized, made up of moneyed men of Toledo, Ohio, and Buffalo, N. Y., for the purpose of starting a plant to make radiators of pressed steel according to a new process which has been briefly described in these columns. The location of the new plant has not yet been finally determined.

**REIN SUPPORT.**

A device which adds greatly to the comfort and safety of driving has recently been invented by Mr. W. S. Neal, of Brewton, Ala. It consists of a simple support which can be readily attached to a vehicle to prevent the reins from getting beneath the tail of the horse. The device also does away with the necessity of constantly holding the reins up, since the weight of the reins passing over the support will keep them taut. The driver is thus at liberty to rest his hands on his lap. The support comprises a rod, provided with a cross-piece at its upper end on



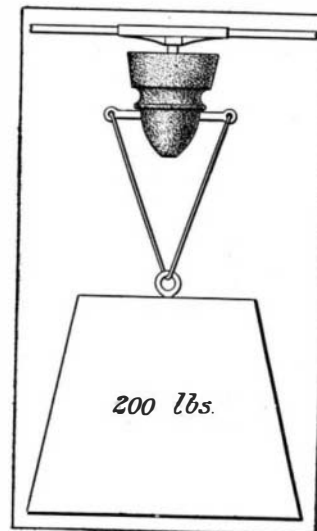
**REIN SUPPORT.**

which the reins are supported, and at its lower end it is threaded into a clamp which secures it to the vehicle. This threaded connection permits the device to be adjusted to any convenient height, where it is secured by lock nuts. When applied to a one-horse vehicle, the rod takes the place of the bolt which ordinarily holds the cross-bar and single-tree together. When applied to a two-horse vehicle, the clamp is slipped around the tongue, or it may be attached to the single and double trees of the vehicle in the same manner as applied to the cross-bar and single-tree of a one-horse vehicle.

**A NEW INSULATING MATERIAL.**

The gradually decreasing supply of gutta percha, and the expense of vulcanite, porcelain, and glass insulating materials, have prompted many inventors to devise compositions which will fulfill the rigorous requirements imposed by the transmission of electrical energy at high voltages. Of the many new insulating materials which have been introduced of late is one which bears the name "Electrose," the invention of Louis Steinberger, of the Electrose Manufacturing Company, 127 North Tenth Street, Brooklyn, N. Y. Very careful and exhaustive tests of electrose made by experts in electrical engineering, would seem to show that the substance is a most admirable insulating material. The compound has been especially prepared to meet the requirements of electric railway, light, and power insulation. It is very hard, dense, tough, and strong, of a brownish hue, resembling somewhat that of certain varieties of oak. The compound is cast in the various forms which are required, so that the drilling and working necessary for some of the materials formerly used for electrical work are no longer necessary.

Elaborate tests which have been carried out by the engineer of the Niagara Falls Power Company and by Prof. Sheldon, of the Brooklyn Polytechnic Institute, give some idea of the resistant qualities of this new material. The Niagara Falls engineer found that a cap with an embedded bolt arced across at 30,000 volts; a round-top, straight line hanger arced across at 11,000 volts; a square foot of the material one-quarter of an inch in thickness arced around at 80,000 volts; an 8-inch round column arced around at 100,000 volts; as did also an 8-inch hexagonal column. None of these specimens was punctured, with the exception of a ball insulator, which was punctured



**TEST OF AN ELECTROSE INSULATOR.**