

## RECENT INVENTIONS.

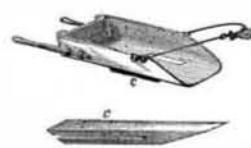
## Improved Button.

Mr. William H. Ward, of Topeka, Kan., has patented an improved button, shown in the accompanying engraving. This button consists of a fastening made of a strip of thin flexible metal having angular slots cut in one end and rolled into cylindrical shape, an eyelet in which the fastening is secured, and a back. The back has a central perforation through which the eyelet and clasp are passed and secured by spreading their inner ends. The face of the button is secured to the back in the usual manner, and is constructed with a depression which fits into the end of the eyelet and fastening, and assists in forming a firm and compact button. The eyelet forming the stem of the button is made so as to allow the face of the button to rotate. Mr. Ward has also recently patented improved pliers for attaching the buttons to garments.



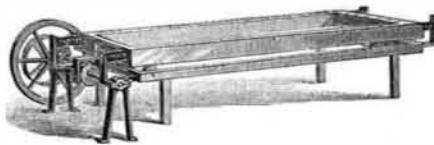
## Earth Scraper.

We give an engraving of a novel earth scraper which combines maximum lightness, strength, and economy of construction. The body of the scraper is made of one piece of sheet metal, which is cut out in the flat, by suitable dies, and afterward bent into proper shape, and the joints are locked together by hooked shaped flanges, one edge being turned outward and one inward, and the two are then engaged, and rolled or otherwise flattened, forming a firm lock joint. The handles are attached to the scraper body by open rings riveted to the sides of the scraper in which they are clamped. Two metal shoes, c, are applied detachably to the bottom of the scraper. The shoes are tapered toward their rear ends, and have side grooves. Wings are formed by slitting the bottom of the scraper lengthwise and crosswise, and bending the portions thus outlined downward at an acute angle. The shoes are attached by inserting their rear ends between the edges thus formed, and are then forced back until they come in contact with the ends of the grooves.



## Separator for Starch.

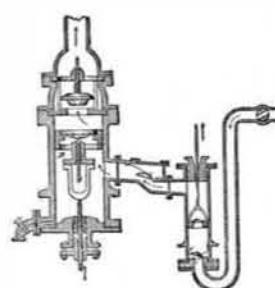
A device for separating starch from the other portions of ground corn has been patented by Messrs. William T. Booth and Alexander H. Bell, of New York city. The supporting frame has longitudinal side rails on which friction rollers are sustained in bearings. Above this frame is a frame which carries a sieve, and is guided and supported by irons on its under side, that slide upon the friction rollers. The frames are so inclined as to insure forward movement of the material upon the screens. At the upper



end of the supporting frame is a shaft, a balance wheel, and an eccentric driven by a pulley. On the screen frame is fixed a yoke that extends over the eccentric, and at the upper and lower ends of the screen are spiral springs attached to each end of the frame, to cause the arms of the yoke at all times to be in contact with the eccentric. The ground material fed to the upper end of the screen is agitated and moved forward by the motion, and the fine particles of the starch fall through the meshes of the sieve, and the refuse passes off at the lower end.

## A New Feed Pump for Steam Boilers.

An improved pump for supplying steam boilers with hot water at a higher temperature and with a greater uniformity of pressure than is practicable with feed pumps of ordinary construction, has been patented by John Houpt, of Springtown, Pa., and is shown in the accompanying cut. A vertical pump cylinder is provided with a piston, B, reciprocated by a piston rod attached to a crank shaft. The piston is annular in form, and a relief valve is seated downward therein, and is guided in its vertical movement by a pendent stem. In the upper part of the cylinder is located the discharge valve, which seats downward, and has a vertical guide stem, around which is a spiral spring, that operates to press down the valve when the piston reaches the limit of its upward stroke. A hot water supply pipe having a check valve is located between the feed pump (above described) and a feed water heater or other source of supply. Between such heater and the check valve is placed an auxiliary force pump, whose cylinder is a continuation of the connecting tube. Its piston is reciprocated, simultaneously with the piston, B, and in the same direction, and at the bottom of the cylinder is a check valve.



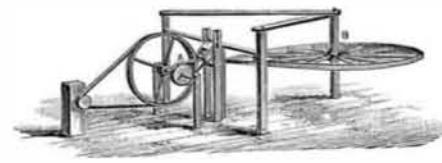
## Heel Plate for Boots and Shoes.

We give herewith an engraving of an improved heel plate for boots and shoes, patented by Mr. Edward C. Gardner, of Abington, Mass. The metal part of the heel plate is made with a flange around its circumference and is depressed at the middle. The flange has a smooth wearing surface, and the depressed part has ornamental projections formed on its surface to keep leather filling in place. The filling has its edges shaped to correspond with the shape of the inner side of the flange, and holes formed through it correspond with the studs and holes for nails.



## A Novel Horse Power.

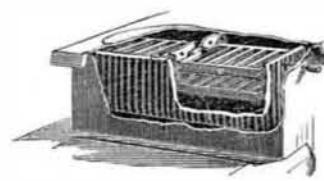
Among recent inventions we find an improved horse power for driving cotton ginning and other similar machines, that is simple, durable, and cheaply constructed, and has less friction than machines for this purpose now in use. The device is shown in the annexed engraving, in which A is a horizontal shaft journaled in two posts, and B is a vertical king post to which the main power wheel is secured, and it is revolved by horses attached to a lever secured to the post below the power wheel. Upon the shaft, A, are fixed two



pulleys, one larger than the other, and it receives its motion from the main power wheel attached to the post, B, by a belt a, that passes over the small pulley and communicates it to the ginning or thrashing machine, by means of a belt passing over the larger pulley and a small pulley on the machine. The belt is guided from the power wheel to and over the small pulley on the shaft, A, by one horizontal and two vertical rollers, over and between which it passes, and the belt is kept tightened by a swinging belt tightener, which is provided where it comes in contact with the belt with a roller. The above device has been patented by Mr. Thomas A. Brewer, of Oliver, Ga.

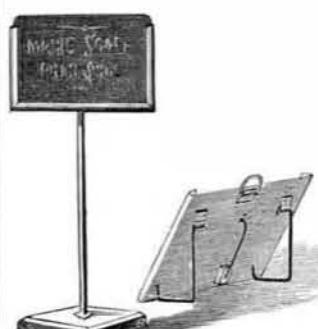
## An Improved Stove Grate.

Mr. George M. Brill, of New Baltimore, N. Y., has lately patented an improvement in stove grates, the object of which is to allow a small fire to be used in a stove when a large one is not required, and also to allow the fire to be brought close to the top of the stove, when desired. The stove grate is made in two parts, and is connected only by a rigid pivot which is of sufficient length to allow the grate to receive a division plate for confining the fire to one part of the fire box. This division plate has a number of holes through it for the passage of air to keep it from being unduly heated. Upon the outer ends of the grate are formed pivots which work in bearings in the end plates of the fire box, one of which is extended and squared to receive a wrench for shaking or dumping. When the division plate is inserted a fire can be built upon either half of the grate. In case it is required to have a fire near to the top of the stove, an auxiliary grate can be used, the pivots of which work in bearings in the upper part of the fire box. The improvement is shown in the accompanying cut.



## Show Card Holder.

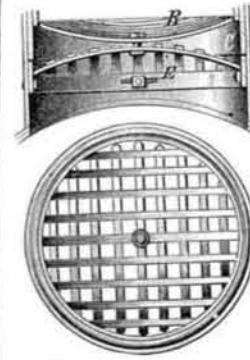
A novel device for holding price and show cards has recently been patented by Mr. Will. C. Rood, of Quincy,



Ill., and is shown in the accompanying engraving. A frame is provided on its front side, at its lower edge and ends, with grooved flanges, behind which a sign or show card may be passed and retained. At the rear side, near its bottom edge, the frame has a socket for receiving the upper end of a standard, the lower end of which fits in an aperture in the top of a base. At the upper edge of the rear side, a ring is attached, by which the frame may be suspended from a nail. The frame is also provided with rectangular hooks, that swing in loops attached to its rear surface, by which it can be held in an inclined position, or if desired the hooks may be turned up and used for suspending the frame. A pin is attached to the back of the frame near its middle which projects downward, and by which the frame, may be secured to articles to be marked.

## Spark Arrestor.

An efficient and durable spark arrester, that is easily attached to and detached from the smokestack of a locomotive, has recently been patented by Mr. John L. Kantner, of South Easton, Pa., and is shown in the accompanying engraving.



Inside of the smokestack is placed a concavo-convex grate, formed of parallel bars attached at their ends to a rim. This grate fits into the upper part of an outer rim, C, and has guide pins which enter vertical slots in the rim. The rim, C, is fitted into the smokestack, and rests against the rim of the lower grate, E. This grate is also concavo convex shape, and is formed of parallel bars attached to a rim formed with slots, to receive bolts that secure it to the stack. The alternate bars of the grate terminate at a distance of half an inch from the rim. The grates are placed with their convex sides toward each other, and are secured to each other at their centers by a bolt. With this construction, the incandescent pieces that are carried up the smoke stack will be broken, by striking against the grate bars, into such small pieces as to be rendered incapable of doing damage; those not broken falling back into the chamber, to be again thrown up until they are broken.

## Parasites of the Fly.

A microscopical discovery, which may prove highly important in a sanitary point of view, has been made by Thomas Taylor, M.D., microscopist of the Department of Agriculture. About a year ago, while dissecting out the proboscis of a common house-fly, Dr. Taylor discovered minute snake-like animals moving quickly from the proboscis. Continuing his experiments from time to time since then, he found that house flies are very frequently inhabited by these animals. He has found them generally in the proboscis of the fly, although sometimes they are found in the abdomen, and he thinks that since flies are carriers of these minute snake-like animals, they may in like manner be conveyors of contagious germs, much smaller bodies. These animals measure about eight one-hundredths to one-tenth of an inch in length, and about two one-thousandths of an inch in diameter. They are classed under the *Nematoidae*, genus *Anguillula*. They are much larger than trichinæ or so called vinegar eels. Mr. Taylor has found as many as seven of these animals in the proboscis of one fly, and three more in the abdomen, ten in all. Sometimes none are discovered, sometimes one only, but frequently four are seen. Their presence is usually indicated by a rolling movement in the anterior portion of the proboscis. When this is observed, if a drop of water be placed upon it, the animals will readily leave the proboscis and take to the water. They are frequently observed passing in and out of the proboscis, to and from the water, as if the proboscis was their natural home. A power of 25 diameters is sufficient to observe their general movements, but for examinations of their structure from 250 to 500 diameters is necessary. They are perceptible to the naked eye in certain light. Mr. Taylor proposes to make the experiment of feeding flies on trichinæ meat to test the possibility of trichinæ or the eggs of trichinæ being taken up by flies.

## A Lecture on Capsicum.

A curious scene occurred a few weeks ago at the lecture room of a well known school of pharmacy, says the *Monthly Magazine*. The room was pretty well filled, and the lecture was on *capsicum* and other stimulants.

"Capsicum," said the professor, "is well known to you all; you have, no doubt, often gathered it in your botanical excursions with my learned colleague who occupies the chair of botany in this institution. You all know that when the pods are properly dried and reduced to powder, they produce our ordinary cayenne pepper. They also yield a tincture which is often used as an adjunct to medicines when it is desirable to stimulate the mucous membrane of the digestive organs. Cayenne pepper itself has been used with some effect in the treatment of delirium tremens, and a moderate dose of it given on going to bed has been known to cut short a violent attack of cold or ague. The active ingredient of the capsicum pods, as before observed, is soluble in alcohol; little is yet known about it."

The lecturer had got to this point of his discourse when it was suddenly interrupted. One of the laboratory students was desirous of seeing the active principle contained in the tincture, and had been for some minutes evaporating a little of it over a spirit lamp. The fumes of the alcohol carried up into the air of the lecture room a notable quantity of *capsicaine*, and everybody began to sneeze most violently, including the professor. In about two minutes it was quite impossible to stay in the room, and the place was rapidly evacuated by about forty pharmaceutical students amid a perfect volley of sneezing and laughter. The professor who had just observed that with regard to capsicaine "little was known about it," was made more intimately acquainted with it at that moment than he desired!