

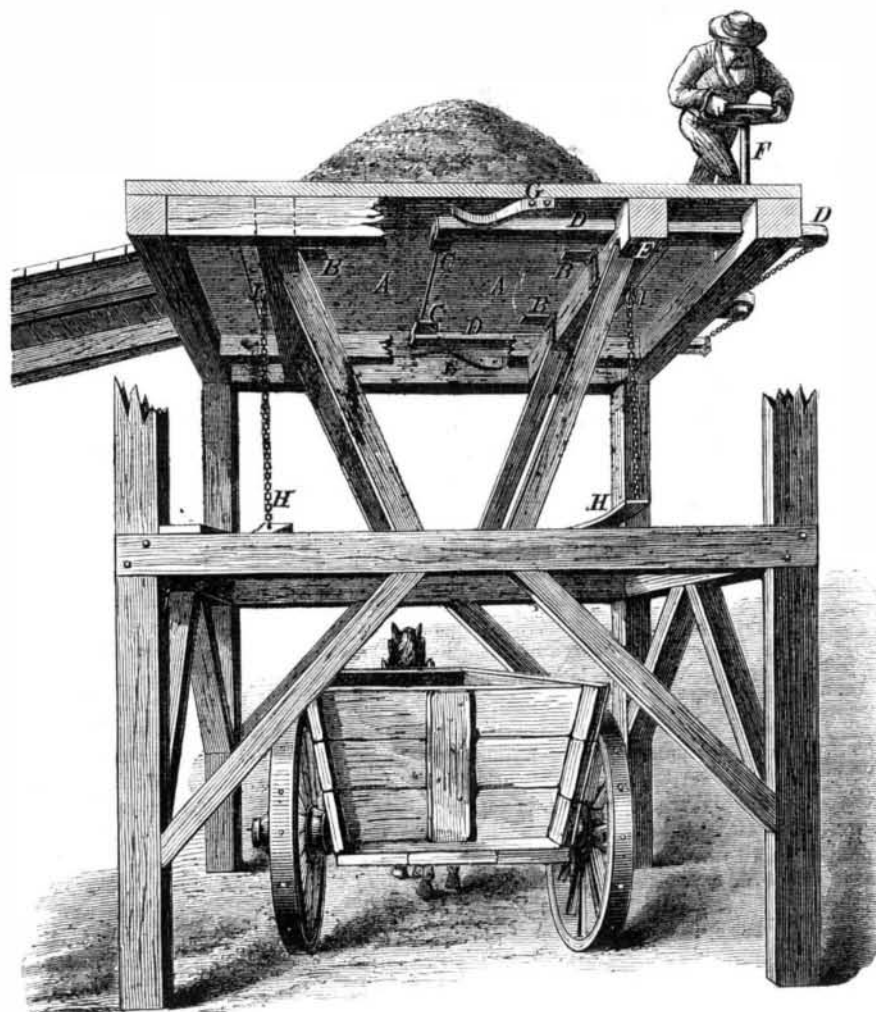
**CART LOADER.**

The object of the invention represented in our engraving is to obviate the hand labor of throwing the earth removed in grading down hills, excavating cellars, or making roads, into carts or wagons, and to substitute therefor a convenient means of discharging the scrapers or other first receptacles directly into the vehicle.

The frame of the device is of wood, and portions are broken away in the drawing to show parts otherwise obscured. A A are two trap doors in the upper platform, which are hinged at B, and which, when horizontal, are supported by props, C C. These props are attached to levers, D D, which are pivoted at E. To the outer ends of the levers are fastened chains which communicate with an upright shaft, F, surmounted by a hand wheel. G G are springs pressing against the levers, D, and serving to hold the props under the trap doors.

The earth is transported to the upper platform and then dumped, and the receiving cart is placed directly under the doors. The operator then turns the hand wheel so as to wind the chain around the shaft, F, thereby pulling aside the props, C. The weight of the load then pushes down the doors, falls through, and is deposited in the cart. The doors are then returned to their place by the action of the springs, H, through the chains attached to them, at I, and are thus kept closed unless opened by a superincumbent weight. As soon as the chains are removed from the shaft, F, the props will be re-applied under the doors by the springs, D. Any convenient means may be employed to transport the load to the upper platform, either by wheelbarrows or through suitable machinery.

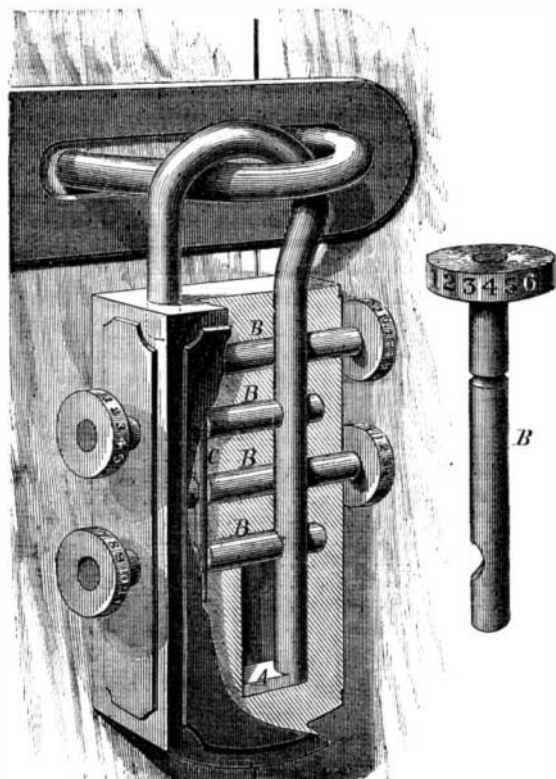
Patented through the Scientific American Patent Agency, February 11, 1873. For further information address the inventor, Mr. Jesse Atkinson, Cameron, Milam county, Texas.



**ATKINSON'S CART LOADER.**

**COMBINATION PADLOCK.**

Mr. Joseph Kittle, of East Bend, N. C., is the inventor of the new combination padlock, represented in our illustration. The device consists in a box and staple, the latter made with arms of unequal length, as shown. Upon the end of the long arm is formed a toe, A, which works in a recess in the body to prevent the staple being drawn out any further than is necessary to allow the short arm to be passed through the thing to be locked. B B are a number of rods which are inserted in transverse holes in the box in which they are swiveled in the vertical piece, C. In the side of the long arm of the staple, at points where it crosses the rods, B, when it is pushed in, are formed semicircular notches, which correspond with similar indentations in said rods.



When all the rods are turned so that their notches are toward the long arm, the staple is unlocked and may be readily drawn out as far as the toe, A, will permit. This, however, cannot be done unless the operator knows how to make the proper adjustment, for it is evident that unless each rod is placed in exactly the proper position, the staple will continue to be held. To afford a means of indication, a disk marked with numbers or letters is attached to the outer end of each rod, by turning which, so as to bring one of the marks which is opposite the notch in a previously known position, the rod may be correctly placed.

Patented through the Scientific American Patent Agency, Feb. 18, 1873.

**A Lightning Catastrophe.**

J. P. says: "The strangest effect of lightning that ever fell under my observation happened on March 31, 1873. About 4 P. M., the sky was covered with broken and detached clouds, somewhat charged with electricity, giving off occa-

sionally what I will call rando shots, sounding like the firing of cannon; a few drops of rain fell at the time. I was walking in the field with a bundle of small apple trees under my arm, when a vivid flash of lightning occurred, producing, as I thought, a rattling noise on the twigs of the trees under my arm. I turned round, but saw nothing unusual. In a few seconds a heavy report of thunder took place from about a quarter of a mile distance, passing over head near to where I stood, but so high that I was quite sure it did not come to the ground. I was soon called to come to the house; when I got there I found a colored man, in my employ, in a kneeling position on the ground and unable to stand up. From him I learned that, when the flash took place, he was walking through the yard near a large spreading elm with a wooden pail (with iron hoops and a wire bale) filled with water in his left hand. He felt a strange sensation, and staggered round in a circle; unable to let go of the pail, he found that his fingers would not open. All this took place before the report. He staggered along for about twenty steps, and then set down his vessel he knew not how. His left side received the heaviest part of the shock; he was not able to work the remainder of the day, but next morning he had nearly recovered. From the observations of myself and others, it is clear that the electricity did not come to the earth. Am I right in supposing that there were currents of electricity ascending from the earth to the clouds, and that this man had become charged with the same and consequently received a shock when it left him? A similar thing has happened to others in cases when the lightning struck. Is it the case that ascending currents are active when lightning strikes the earth?"

**The Canal Navigation Problem.**

E. B. says: In your article on canal navigation, volume XXVIII, page 97, you speak of the desirability of improvements in the manner of working boats. I would suggest that the main propelling power be exerted by the screw in the stern, but that two smaller screws be placed at the bows working independently. By working one of the bow screws, faster than the other, or by working one forward and the other backward, the boat may be readily turned. Boats should certainly follow each other in trains when possible, as a dozen boats in a train would meet with very much less resistance than as many singly.

**Water Lined Cupolas.**

E. T. B. states that cupola furnaces with water linings have been used in California for smelting ores of the carbonate and oxide of copper with very economical results; but the decline in the price of copper put a stop to the business. The furnaces would slag up about four inches thick and remain so, requiring no other lining; and very little steam was made, except above the melted part of the charge.

**MONSTER CANNON.**—Herr Krupp is to send to Vienna two cannons, which are the largest yet produced at his factory. Both are of bronze; one is 22.1 feet deep, interiorly, 4.8 feet in diameter, and weighs 41.8 tons; and the other is 13.2 feet in length, 4.9 feet in diameter, and weighs 50.5 tons.

**Colored Dresses--An Item for the Ladies.**

It is not often that we find scientific items of any especial degree of interest to the members of the fair sex who may, perchance, glance over our pages; but now we believe we have got one which must be simply absorbing. Probably, madame or miss, you are the possessor of a summer dress, made from some white diaphanous material; and it may also be imagined that during your shopping you have inspected goods of similar nature, only of varying colors, from which you have purchased sufficient material to construct a number of those bewildering garments, in comparison with the intricacies of which the most elaborate works of modern engineering furnish no parallel. Now, a learned German professor has invented a plan whereby your single white dress may be changed as often as you desire to any color you may fancy, and this in your own laundry, so that hereafter the money which you would devote to several robes of varying hues may be entirely saved, while you may appear daily, if you choose, in toilettes of totally different complexion.

The process is very simple, and consists in merely coloring the starch used in the "dyeing up." Suppose a white dress is to be tinted a beautiful crimson: three parts of fuchsin, an aniline color which any chemist can readily procure for you, are dissolved in twenty parts of glycerin, and mixed in a mortar with a little water. Then ordinary starch, finely pulverized, is stirred in, and the thick mass obtained is poured out and dried on blotting paper. The powder thus obtained is used just the same as common starch, and so applied to the fabric. When the latter is dry, it is slightly sprinkled and pressed with a moderately warm iron.

By means of other coloring materials, mixed as above described, any desired tint may be obtained. We should counsel, however, an avoidance of damp localities, and strongly deprecate going out in the rain, as we doubt the "fastness" of the dye, and would not be at all surprised to behold the garment shortly assume a rather streaked and zebra-

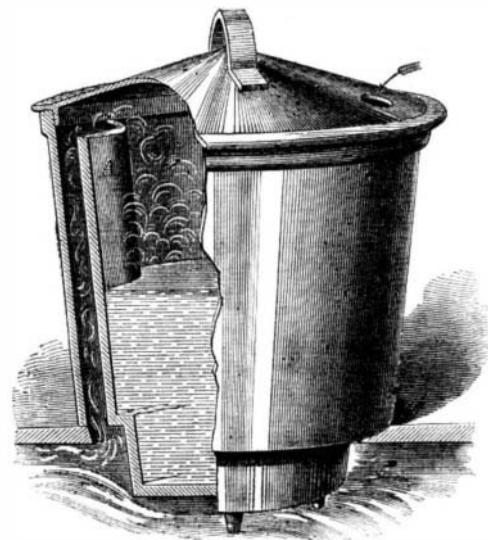
like appearance.

**Noisy Sewing Machines.**

A. C. B. sends the following hint to the owners of sewing machines: Having a Wheeler & Wilson, which I thought made more noise than necessary, although it is one of the most quiet, I examined it and found that one half the noise proceeded from the recoil of the feed works after making the stitch. In five minutes I filed a dovetail in the end of the feed and inserted a thin slip of soft wood, which entirely kills the sound. If any one else wishes to reduce the rattling of their sewing machines to a minimum, let him try my plan.

**CULINARY BOILER.**

Mr. Israel Kinney, of London, Canada, is the inventor of the novel form of culinary vessel represented in our illustration. The object sought is to provide a means of conducting away vapors arising from the cooking article, so that they will pass into the stove and up the chimney, and thus not be disseminated through the house. This is effected by casting the side wall of the pot with a vertical recess, ex-



tending down from the top to the bottom, following the offset made by the pit. The outer edges of the recess, down to the plane of the offset for the pit, are formed with flanges to receive a sheet metal slide, A, which closes the recess and preserves the circular form of the vessel, and at the same forms a flue. The vapors rising are drawn down through the latter, and thence into the stove. This improvement is applicable to all vessels used in cooking. Patented August 27, 1872.

**SACCHARINE MATTER IN MUSHROOMS.**—A. Muntz says that mushrooms yield a sirup, readily crystallizable, which presents all the properties of the sugar obtained from the manna of the East.