

IMPROVED ROAD SCRAPER.

The invention herewith illustrated is a convenient machine, recently patented, for scraping and leveling roads. It is especially suitable for removing the weeds and small obstructions on the carriage ways of cemeteries, public parks, gardens, etc., and, being actuated by horse power, will doubtless be found an efficient and valuable substitute for the slow and tedious work of the hand shovel hoe.

The apparatus is mounted, as shown, upon four wheels, the axles of which are connected together by the longitudinal braces, A A. At B are a number of peculiarly shaped bars, through eyes formed in the ends of which the forward axle, C, passes. These bars extend back to the rear of the machine, and their extremities are bent down so as to form an obtuse angle resembling a cultivator tooth. D is the rear axle cast with a number of pendent partition pieces, E E, which serve to keep the bars at a uniform distance apart. Attached by suitable standards to and above the rear axle is the rock shaft, F, the ends of which are bent to form arms, one of which is shown at G. To these arms, by rods, H, are fastened a transverse bar, not represented, which passes under the bars, B. In the socket on the rock shaft, F, is placed a lever, I, which is worked by the person using the machine.

When the device is in use, the ends of the scrapers rest upon the ground. The scraping teeth, it should be noticed, cover the entire surface, notwithstanding the bars, B, are separated by the partitions, E. As the machine is drawn along these scrapers tear up all grass or weeds, leaving the ground level and clean. In case, however, an obstruction is met, the bar, striking the same, will be raised by the contact and, having free movement, being only held by the forward axle acting as a pivot, will pass over the obstacle, and drop again by its own gravity to its former position.

The bars, B, are of varying lengths, and are arranged so that their rear ends form nearly a right angle. The pieces, J J, are a number of weights so arranged as to slide along the upper edges of these bars, and are held in any desired position by set screws. Their object is to give increased pressure to the scrapers at the ends of the bars when the machine is used on hard ground, and their effect is of course augmented or diminished as they are moved toward or away from the scraping portion.

The lever, I, being turned, operates the rock shaft, G, which, by the mechanism above described, raises the transverse bar, and with it the bars, B. By this means the man walking behind can throw the scrapers into or out of action at pleasure. Attached to the lever is a hooked rod which, catching in a projection on the rear axle, holds the lever down, and thereby keeps the bars raised when transporting the machine from place to place.

The advantages of this device, as a labor-saving invention, are sufficiently obvious to need no further description. It seems to be an implement in every way efficient and adapted to the wants of gardeners and those having private roadways to keep in order.

Patented through the Scientific American Patent Agency, October 8, 1872. For further particulars address the inventor, Michael M. Brunner, Superintendent, Rosedale Cemetery, Orange, N. J.

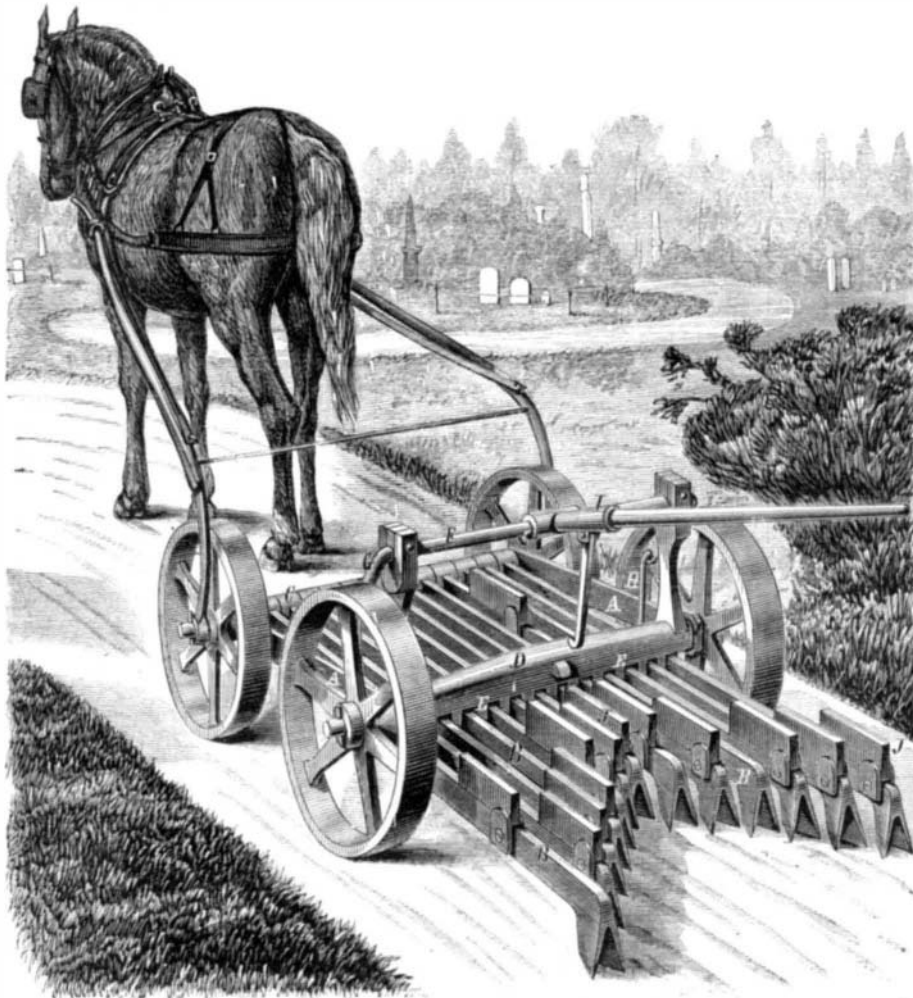
AUTOMATIC CAR COUPLING.

The principal objection which holds good against a large proportion of the automatic car couplings that have been devised is a want of simplicity, a multiplicity of parts which, by their expensive construction and difficulty in operation under disadvantageous circumstances, neutralize the advantages of the invention. The apparatus which we herewith illustrate, is the least complicated arrangement of its kind that has come under our notice, and, from an inspection of the working model, we are inclined to consider the claims of its inventor, as to its effectiveness, well founded.

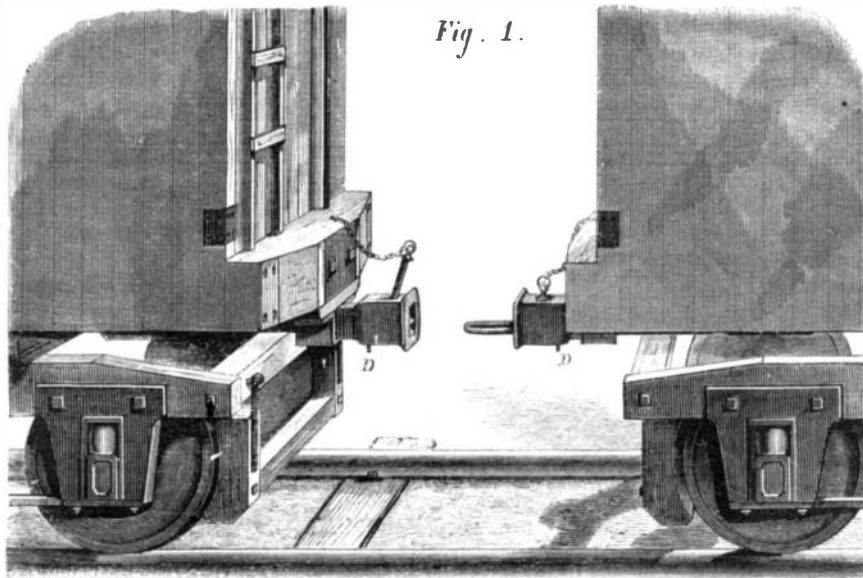
In general appearance it is very similar to the device in ordinary use. The mode of connection is the common link, either straight or, if adapted for cars of different heights, goose-necked, and a simple pin. Fig. 1 shows the device attached to two freight cars, and in Fig. 2 it is represented in section. The bumper may be divided into any suitable number of compartments. In the present case it is divided into two by the partition, A. At the rear of the hole, in this partition, through which the coupling pin passes, is formed a recess, B, in which the end of the pin rests, as shown, and is thereby supported while the cars are being run together. C is a bent lever pivoted within the bumper at the rear of the partition, A. When the end of the coupling pin is placed in the recess, B, it pushes the upper arm of this lever back, swinging the lower arm forward. As the cars meet, the link enters the bottom compartment of the bumper, strikes against the lower arm of the lever, pushing it back, thereby causing the upper arm to move forward, strike against the pin, and

push it out of the recess. The pin then naturally drops into its slot and through the link.

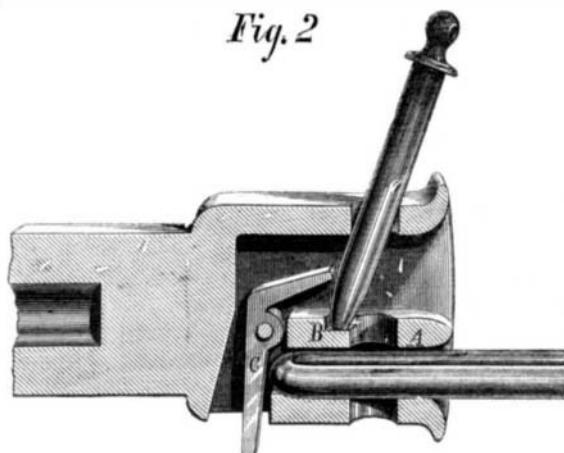
Fig. 1 is more especially designed to show the position of the device just before coupling, and also to indicate that the invention, with the exception of the downward projecting

**BRUNNER'S ROAD SCRAPER.**

ends of the levers, D D, occupies no more space and, indeed, is hardly distinguishable from the old fashioned coupling. To uncouple freight cars, a chain may be carried from the pin to the roof, by which the pin can be easily withdrawn. One of the principal advantages of the apparatus, other than those already stated, is the facility with which it may be gradually introduced on a road, as new cars supplied with

**NORTHROP'S AUTOMATIC CAR COUPLING.**

it can be readily attached to old cars on which the common coupling is used.



Patented through the Scientific American Patent Agency, June 11, 1872. Further information may be obtained by addressing the inventor, Mr. Samuel G. Northrop, Wilmington, N. C.

Artificial Tortoiseshell.

According to the *Art Journal*, the appearance of tortoiseshell may be given to horn by brushing it over with a paste made of two parts of lime, one part of litharge, and a little soda lye, which is allowed to dry. This is the same as the Indian hair dye, and acts by forming sulphuret of lead with the sulphur contained in the albumen of the horn, producing dark spots, which contrast with the brighter color of the horn. Artificial tortoiseshell is made by melting gelatin with various metallic salts. The greatest comb manufactory in the world is in Aberdeen. There are thirty-six furnaces on the works for preparing horns and tortoiseshell for the combs, and no less than 120 iron screw presses worked by steam. Forty years ago ladies' back combs—which were larger than ladies' bonnets are now—were made in England and the United States for the Spanish Peninsula and South American markets. They were often a couple of feet wide, encircling two thirds of the head, and from six inches to one foot high on the back, the top being wrought in open work; to these the Spanish ladies attached their veils. As much of the work was done by hand and with the saw, and the polishing was entirely manual, the prices were high, averaging \$15 to \$20. Tortoiseshell was much used to decorate furniture by the Romans. According to Pliny, Carvillus Pollio was the first to apply tortoiseshell to ornamental purposes. The fashion for this style of decoration increased; and in the days of Augustus, the patricians ornamented their doors and the columns of their rooms with this substance. At one time tortoiseshell was used for making watch cases, but the art seems to have fallen into desuetude, although the results of attempts to resuscitate it were shown at the London Exhibition last year.

Precautions in Using Gas Machines

The following suggestions, for the use of gas machines in which light and inflammable hydrocarbons are employed, are from the instructions to insurance agents recently issued by the New York Board of Fire Underwriters:

The vault or house in which the gas is manufactured should be at least twenty-five feet distant from the main buildings. Stop cocks should be placed on both the gas and air pipes near the machine in the vault; also on the gas pipe near the place where it enters the building, and on the air pipe near the air pump, when the pump is in the cellar or building. The vent pipe and filling pipe must be so arranged that one cannot be opened without opening both. All the main gas pipes leading to the premises lighted should have an inclination toward the gas machine so as to return all the condensation that may take place in the pipes. The latter should be thoroughly tested before the gas is turned on. The vent should be open and the air pump shut off while filling the machine with fluid. Never allow a light to be used in or near a gas house or vault. No barrels containing gasoline or other fluid, or from which gasoline has recently been emptied (yet full of vapor) should be allowed to be kept in any cellar, barn, shed, or outbuilding where other property is stored, or where there is a liability to use a fire or a light. Great caution should be exercised in the selection of a trustworthy apparatus, and that a competent person be sent to put it up. There are many machines in the market made of poor material and in the cheapest possible manner, the manufacturers of which, by false representations, make large profits. Never allow a machine to be placed in the cellar of a dwelling, as it is apt to greatly endanger the lives and property of the occupants.

Norwegian Narrow Gage Railways.

Another link in the narrow gage railway system of Norway has been completed, in the Christiania-Drammen line, which was opened on the 7th of October last. This railway is 32 miles in length, and is connected at Drammen with the 3 feet 6 inch line, running to Handsfjorden, 56 miles in length, and with it making a continuous line 88 miles long, besides the branch to the silver mines at Rougsberg, 17½ miles, opened in 1872, and another to the Lake of Krødem, 16 miles. Owing to the exceptional difficulties in construction, the Christiania-Drammen Railway has been the most expensive of all the narrow gage lines yet built in Norway. The total cost for the 32 miles was \$35,000. For the whole of its length, the line runs through a most beautiful and picturesque country, and will command a large and yearly increasing tourist passenger traffic.

PROFESSOR CORNWALL, of Columbia College, N. Y., has, by means of the spectroscope, detected a notable amount of indium in various samples of zinc blende from New Hampshire and other States.