

## NEW INVENTIONS.

## Cast-Iron Interior Walls.

L. A. Gouch, architect, Harlem, N. Y., has shown us plans for cast-iron partition walls, which appear to be far superior in every respect, and can be put up for less than those of brick. They are formed of perforated plates bolted together, each of about one-sixteenth of an inch in thickness, and secured so as to make a partition of four inches in thickness, having an air space between, which will answer for ventilation, gas pipes, water pipes, and hot air pipes. These plates can be covered with plaster and made to resemble a hard-finish wall. These partitions will be fire-proof, and flanges are cast upon them for joists and beams of flooring and stairs. Such a partition can be taken down at any time, by merely unscrewing the bolts, and not like brick, mortar, and lath walls, it will be as good as ever, and can answer the same purpose a thousand times over, and last for a thousand years. The application of iron to architecture is an invention which should attract universal attention.

## Improvement in Knitting Machines.

Israel M. Hopkins, of Pascoag, R. I., has taken measures to secure a patent for an improvement in machinery for knitting various kinds of goods. One part of the improvement relates to a certain means of causing the locking bar to descend and lock the "sinkers" firmly, previous to the commencement of the retreat of the needles and the closing of their barbs by the presser bar, whereby, after the depressions of the thread are made between the needles by the sinkers, the passage under the points of the needles is more effectually secured, and thus any dropping of the loops in the knitting (not an uncommon evil) is prevented. Every time a row of loops is added to the piece that is being knit, there is an arrangement for drawing the thread tight at the selvage, and thus make a much better fabric.

## New Spoke Machine.

Anson Judson, Jr., of Unadilla, N. Y., has taken measures to secure a patent for useful improvements in machinery for cutting spokes for carriage wheels, and for articles of a similar nature. The nature of the improvements consist in cutting the stuff into the proper form for spokes by planing it longitudinally with a double set of revolving cutters which receive motion and cut with the grain of the wood. This machine is a spoke planer, as the stuff does not revolve. The cutters are so formed that as the stuff is fed in side guides, to direct the cutter stocks, that at one part the cutters by their form will plane nearly flat, and then as the work proceeds the rounding edges of the cutters are brought into action. The side guides to direct the cutters to act upon the stuff to be planed are of such a form that while the cutters revolve they are made to cut the several portions of the stuff to the required form. When one side of a spoke is finished, it is turned and the other side is submitted to the same action.

## Sawing Machine.

W. D. Carr, Senr., and W. D. Carr, of Corning, N. Y., have invented an arrangement of the cross-cut saw, by which it may be operated by a single man. The saw-frame or carriage is placed upon horizontal ways, which rest upon the block or log to be cut. The saw is fed to its work by means of weighted rods at each extremity, passing loosely through the carriage. A reciprocating motion is given by a crank and rod. Measures have been taken to secure a patent.

## Improved Capstan.

An improvement in Capstans has been made by P. C. Bryant, of Camden, Me., who has taken measures to secure a patent. The capstan may be used as a common capstan, and changed at once so that a far greater leverage can be obtained by interior gearing, but which, as a consequence, requires longer time in operation. This capstan, we believe, will be exceedingly useful, especially for vessels which have small crews, who sometimes have very heavy weights to elevate.—The capstan occupies no more room, and has the very same appearance as the ones in pre-

sent use; the machine which is added to effect the object stated, consists simply of some bevel pinions and one bevel plate wheel.

## Burglar Alarm.

D. C. McDougall, of Springfield, Mass., has invented a contrivance for the purpose of

sounding an alarm when a door or window is "tried" or attempted to be opened, which he terms a Burglar Alarm. The alarm is given by an explosion of a percussion cap, struck by a hammer ingeniously loosened by the motion of the door or window. Measures have been taken to secure a patent.

## FARMERS' HEATING AND STEAMING APPARATUS.

Figure 1.

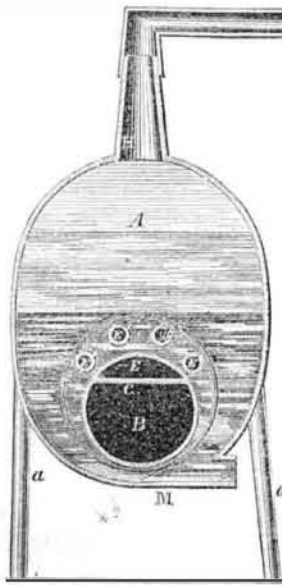
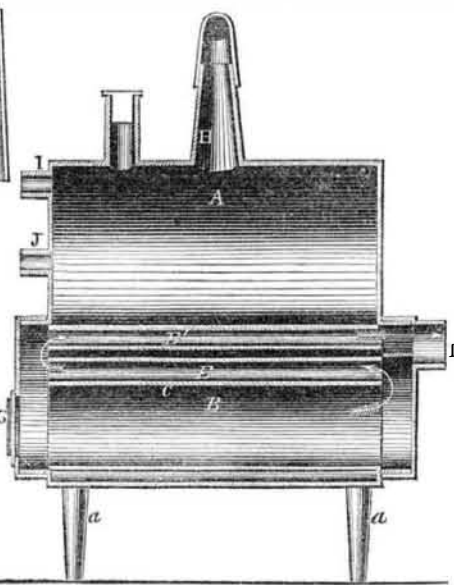


Figure 2.



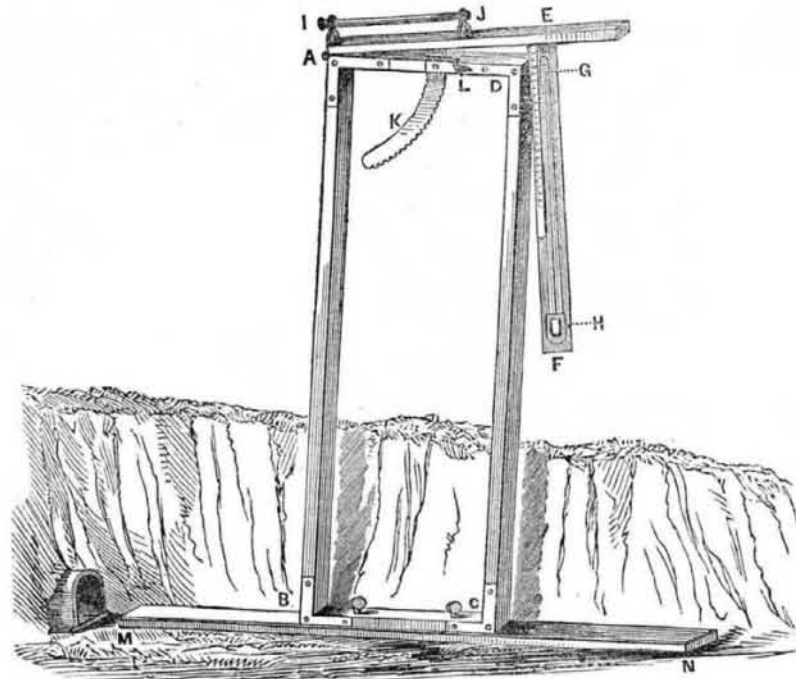
The annexed engravings are views of an improved apparatus for farmers for heating and steaming purposes, devised by Jesse Neal, of Hudson, Summit Co., Ohio.

Figure 1 is a vertical transverse section of the apparatus, and figure 2 is a vertical longitudinal section. The same letters refer to like parts.

A is an elliptical boiler or water chamber mounted on legs, a; B is the furnace; C is a partition, and E is a flue; E' E' E' E' are four tubes around the furnace flue. The heat passes from the fire in the directions of the arrows, thence out at the smoke pipe, D; G is the door of the furnace, through which the fuel is fed to the fire; H is a pipe which conveys the steam from the boiler by branch tubes to heat up vats of milk for making cheese, or for heating tubs of water, or boiling feed for cattle; I J K are test pipes for stop cocks; L is the safety valve; M is a blow-off pipe for running off the water when desired. This heating and steaming apparatus

as noticed by us last week is principally designed for farmers, especially those who make much cheese and butter, when the milk has often to be heated, and the cattle provided with steamed food. All the vessels, excepting this one, to be heated, even highly boiled, can be made of wood, and thus at but a small expense. This is one great advantage in employing a steam boiler for boiling other vessels. The steam pipes in the wooden vessels can be laid on the bottom and inserted into the one that branches from this boiler. Low pressure steam, perfectly safe, can be employed, and no more than seven pounds required to be placed on the safety valve. The boiler may be fed by a hand pump, or by a reservoir, consisting of a cask of water placed above the boiler at 7 feet, which will exert sufficient pressure to feed in when the steam is at 7 lbs. As stated by us before, Mr. Neal has applied for a patent, and more information may be obtained by letter addressed to him.

## INCLINOMETER OR LEVEL.



This engraving represents a simple instrument recently designed by W. Gillespie, of Torbanehill, Linlithgowshire, Scotland, for the purpose of facilitating the formation of a drain to carry off the water from the foundations of his house. The circumstances of the case demanded especial exactness and uniformity of slope, and the quantity of water to be removed was very considerable; for on going down 2½ feet, it was found that the house was actually standing on a hydrostatic bed. This accumulation of moisture was to

e discharged by a drain, sunk direct 5½ feet at the very door-step. Commencing at such a depth, it was, of course, essential to guide the slope with accuracy, so as to preserve the outfall at the other extremity; and it was evident that any misdirection might endanger the house by causing the unpleasant result of back-water. During the progress of the work, Mr. Gillespie being dissatisfied with its appearance, conceived the idea of this apparatus. The instrument is nothing more than a parallelogram of timber and a plummet, in

combination. The engraving shows it as pointing out the slope of a line of drain pipes. From the nature of the parallelogram, A B C D, it is obvious that the top, A D, must be parallel with the base, B C; and to show the deviation of the upper of these coinciding slopes from the level, the instrument is provided with the means of determining what the true level is. It has a duplicate top, A E, hinged to the angle, A. The other extremity of this duplicate top being a little protracted is formed into the well-known T-square by insertion through a slit (in which a slight range is given to accommodate the working of the implement) of a depending limb, E F, at right angles to A E. E F is graduated downwards for several inches in sixteenths of an inch. The face of the depending limb is likewise grooved for the reception of a plummet, G H, or pendulum of wire playing upon its graduated front. A quadrant, K, moved by turning the ratchet-pin, L, is employed to elevate or depress the duplicate top spar, A E, until the plummet rests from its oscillations, in exact accordance with a vertical line drawn from the face of the T-square. This shows the top spar, A E, to have been adjusted to the proper level. On the other side of the implement, behind the ratchet pin, will be found an inverted pinch or pressing screw, by turning which backwards, the implement is set, and the square top fixed on the horizontal or true level.

The limb, A E, being now upon the level, whilst the limb, A D, still continues to indicate the slope, the difference intervening between the level and the slope is necessarily denoted on the graduated scale, which being fixed upon the inner edge of the plummet style, measures the exact rate of slope to which the instrument is applied. I J is a light telescope for extending the range of the level. By means of it, the out fall or depth of slope can be determined throughout any distance within the scope of vision, and the heights of objects may be measured where their distances can be ascertained. M N is an extra base bar, protracting the slope, and giving the rate of it with greater certainty of precision.

We learn by the "Glasgow Practical Mechanic's Journal," in which the above instrument was first illustrated, that it is now in established use for road and drain making.

## State Room Railroad Car.

Messrs. Eaton & Gilbert, of Troy, N. Y., have built a beautiful car for the Hudson River Railroad, which is divided into state rooms of eight feet square. The car is 45 feet long and 9½ wide; each room is calculated for a family or a party, and is furnished with one sofa, four chairs, a looking-glass, and small centre-table. The panels are painted in landscape, the ceiling hung with silk, and the floor richly carpeted. The rooms are entered by a side passage, and each is well lighted and ventilated. There is a wash-room in the front part of the car. Altogether, it is designed to meet the wants for which separate state-rooms are provided on our steamboats. It is the first experiment of the kind, we believe, upon any railroad in our country, and it successful, more cars of the same kind will be provided for this line, and other railroads will also adopt them. We are doubtful about the experiment paying yet, but it will do so before many years pass away. A family or party will not pay an extravagant price for a separate room, when the journey is only for a few hours, but they will do so, if they have to travel for a number of hours at once.

## Railroad Verdict.

The Coroner's Jury, in the case of the Providence and Worcester Railroad collision, noticed by us last week, have brought in a verdict thus: "the said accident was the immediate result of culpable carelessness, inexperience, and want of judgment of F. W. Putnam, the conductor of the Uxbridge train." This man is quite young, had a poor borrowed watch, and had only \$30 per month of wages. The Company showing, by their liberality, the care they had for passengers' lives. The jury also decided that "the whole management of the trains on said road was bad, and that there was no necessity for one crowding upon the time of another." We hope the managers of this railroad will be made to pay for their mismanagement.