# NEW INVENTIONS.

### Invention for Cutting Butter out of Tubs.

Mr. Nathaniel Woodbury, of Salem, Essex Co., Mass., has taken measures to secure a patent for an invention to cut butter out of tubs, which invention consists in providing a rectangular box having a narrow knife which traverses over one of its ends, said knife being operated by two levers having their fulcra on two of the sides of the box or case. There is a piston within the box having suitable rods, which project through the one end of the box, and by these the piston is operated. The implement is used by forcing the end of the box or case into the butter the required distance, the piston having been previously raised or drawn back, and then operating the levers so that the knife traverses across the end of the box, cutting the butter, and thus detaching the butter that is within the box or case from that which is within the firken or butter tub. The box or case is then withdrawn, and the butter within is forced out upon a plate or salver by means of the piston.

### Improved Loom for Weaving Piled Fabrics.

Mr. Samuel Richardson, of Claremont, Sullivan Co., N. H., has taken measures to secure a patent for a good improvement in Power Looms for weaving piled and looped fabrics. The improvements chiefly relate to the peculiar construction and to the mode of operating the pincers which draw and insert the wires, which are placed between the ground and pile warps, for the purpose of raising the loops that form the pile. The loom is for weaving Brussels carpets, and with a loop cutter connected, the velvet piled carpets are produced by it.

### Improvements in Fire-Boards.

Mr. Charles Richards, of New Brunswick, Middlesex Co., N. J., has taken measures to secure a patent for an improvement in operating fire-boards, the nature of which invention consists in operating or raising and lowering the fire-board vertically, said fire-board being placed immediately in front of the fire-place, and having balance weights attached to it by cords which pass over suitable pulleys. The fire-board is so arranged as to pass, when raised, between the mantel and a part of the chimney in a recess.

### New Smut Machine.

Mr. Thomas B. Woodward, of Kensington, Philadelphia, has taken measures to secure a patent for an improvement in Smut Machines. The machine has a perpendicular ventilating revolving cylinder, said cylinder being formed by securing between two horizontal circular discs a series of vertical fluted columns. In connection with the cylinder, a perforated curb is employed having ribs on its inner surface. The revolving cylinder, with the curb, scours the grain, and a fan blows out the smut and dust. The grain passes from the cylinder in blast spouts where the current of air separates the unclean from the clean grain, which is rendered very clean indeed.

### To Prevent Accidents by the Breaking of Railroad Car Axles.

A. L. Finch, of New Britain, Hartford Co., Conn., has taken measures to secure a patent for an improvement to prevent accidents arising from the breaking of axles of railroad car wheels. The improvement consists in enclosing the axles in tubes, so that when an axle breaks it will be prevented from dropping down and working loose.

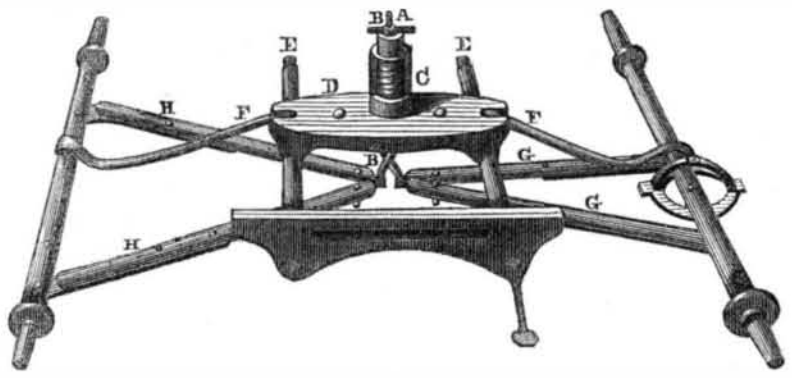
### Wilson's Stone-Dressing Machine in Tennessee.

A company has been formed in Nashville, Tenn., which has purchased the patent of Wilson's Stone Cutting Machine, which has been illustrated in our columns. They have purchased a quarry and are about to commence operations on a grand scale. We are glad to hear of this.

### Magnetic Forces.

Prof. Faraday delivered a lecture before the Royal Institution, London, on the 23rd ult., on a method of measuring the force of magnetic powers with precision and certainty. He cited the general law, that the magnetic action is inversely as the square of the distance, but this did not hold true for very small distances. By passing a horizontal needle about a magnet from one pole to the other, he showed that at every point it formed a tangent to the curve If iron filings be strewed about a common cylindrical or rectilineal magnet, they will assume the form of curved lines abutting on the magnet at each end, and having their greatest distance from it in the production of a line through the equatorial axis. If a metallic wire be laid along in the direction of these lines there will be no electrical action, but if laid across these lines either perpendicularly or obliquely, a current of electricity will pass, and this current can be measured precisely by the Galvanometer. He considered the earth as one great source of magnetism, and assumed that the magnetic lines of 62° enter the globe, and make a complete circuit, the direction of them being shown by the vertical dip of the needle. He asserted that if this were so, magnetic action would be displayed, if these lines were intersected. By his experiments he demonstrated that this was the case.

## IMPROVEMENT IN HANGING CARRIAGE BODIES.



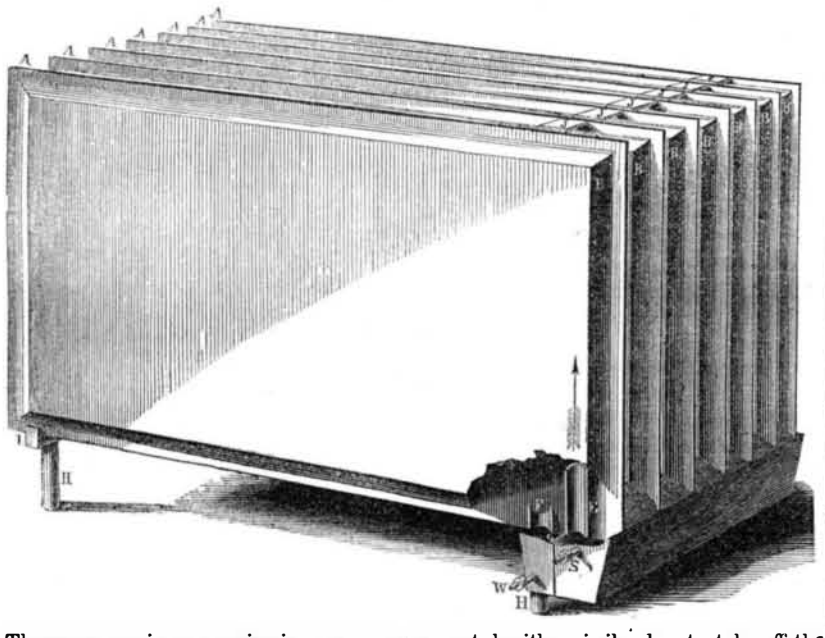

The accompanying engravings illustrate an improvement in Hanging Carriage Bodies, which was patented on the 22nd day of last July, by the inventor, Mr. John Jones, of Clyde, Wayne Co., N. Y., the inventor of the machine which printed the letter on page 166, this Vol., Scientific American.

A is a handle nut; B is a rod passing through the spring, C, and attached to the bars, H H and G G, the upper end passing through the nut, A, by means of which the body is raised or lowered and the strength of the spring graduated. D is a bar on which the lower end of the spring rests; the ends of the bar resting by suitable bearings on the cross bars, E E, secured to the bars, H H and G G, these being attached by joints to the hind axletree and fifth wheel; the stays, F F, are attached by joints to the bar, D, and the upper side of the axletree; I is a malleable supporter or hang-iron which is bolted to the body, having on its back or inside sockets fitting on the cross bars, E E. The guard-iron and step form a part of this casting. The centre of the bars, E E, and the joints where the stays, F F, are attached to the bar D, are equal distances apart with the joints above and below the axletrees, which keep the lower bars and stays, F F, parallel with each other; and also keep the axletrees in their true set whatever may be the weight in the buggy or position of the body.

Thus a light, cheap, and strong arrangement is produced, and the stationary reach and heavy springs dispensed with.

Any information respecting the manufacture or interests in the rights, can be obtained by addressing the inventor, or A. T. Soule, Agent, Clyde, Wayne Co., N. Y.

## HEAT RADIATOR, AND CONDENSER.




The accompanying engraving is a perspective view, with a small portion of the shell removed, of the apparatus of Mr. A. S. Lyman, of this city, for heating apartments by steam, and for an exterior condenser for steam engines.

A B is a flat box radiator, composed of a number of narrow metallic chambers formed of thin plates; S is a steam chest; E is a passage from this chest to the radiator, to admit the steam from the exhaust pipe of a steam engine, or steam from a boiler; F is another passage to carry down the water formed by the condensed steam, which is produced by the radiation of the heat. This keeps the radiator free from water; W is a water receptacle; J represents braces fastened to one radiator chamber, A, and sliding on the other. They are placed in the spaces, B. Being so placed they allow for the expansion of the metal. H H are legs of the apparatus. The steam pipe enters a steam box, and passes into each chamber, A, by a small pipe, and the water pipe is connected with a similar box to take off the water in a similar manner to that by which the steam is admitted. The steam and water passages are not subject to be thrust out laterally, nor are the joints subject to be strained by any expansion. I is a guide to retain the joints in their proper position. The radiators are made of any size, either of sheet iron or 14 oz. copper sheating. Each chamber is placed within half an inch of the other. 16 radiator chambers occupy a space of only 12 inches wide. In one cubic foot of space there are 32 superficial radiating feet.

The steam passes from the boiler, or exhaust, into the chamber by the pipe, S, and upwards by the passages, E (one shown), as indicated by the arrow. The condensed steam being heavier passes down through the pipe, F. The whole radiator chambers are filled and heated with steam before any steam escapes by the passage, F. The room in which this apparatus is placed is heated by the air, which absorbs the heat from the metal, then rises as it is rarified, and its place is supplied by a continual current of the colder air, until the room is of a very pleasant temperature.

We have one of these apparatus for heating our office; the steam being supplied from the exhaust pipe of the steam engine belonging to the establishment of the New York Sun, which steam, before it was thus applied, passed out as waste to the atmosphere. The radiator occupies but a very small space, but it exercises a potent influence, with a small quantity of waste steam, to heat a very large space. The unequal expansion of the joints of radiators has been a frequent source of trouble heretofore; this evil is obviated in this radiator.

This radiator can be put into a chimney in place of a grate, and it can be made to look quite ornamental. It is used by Mr. Lymar, in his own house, the steam being generated by a common boiler placed on a kitchen range. It can be put up and maintained at a very small expense, and can be used by every family. Rooms up stairs can be kept warm by the waste heat from a cellar kitchen, without any danger, for the steam used is all low pressure.

This steam heat radiator may also be employed as a condenser for steam engines, to return the condensed steam as pure distilled water, by the application of salt water on the outside, thus making it a water regenerator, very valuable for steamships. Four feet of surface is required for each horse power with the average temperature of the applied water at 90° below the steam (132°). The box is totally immersed in the water, and the pipes, S and W, made as large as the exhaust pipe of the steam engine. The water pipe is turned down after it leaves the condenser and enlarged or made of considerable length, so that its cubical contents equal one half or more than one half the cubical contents of the cylinder.

In many places the water is very illy suited for steam boilers, as it forms incrustations very rapidly in the inside of boilers; in such places a condenser may be exceedingly suitable, to feed the boiler with pure water, by using the hard water only for condensing the steam inside of the condenser. Respecting the qualities of this apparatus as a radiator, we have had ample experience, and can speak in very favorable terms about it.

More information may be obtained by letter addressed to Mr. Lyman, at Brooklyn, N. Y.

### Perpetual Motion.

After years of mathematical labor and mechanical results, Prof. Willis, of Rochester, has completed, and has now in constant operation, a self-winding clock, which determines the seconds, minutes, hours, weeks, months, and years of time with unfailing accuracy, continuing in constant motion, by itself, never requiring to be wound up, never running down, but moving perpetually so long as its components exist. So says the Rochester Democrat, but many such clocks have been invented. In pure mathematics there is no friction, but in mechanics there is. If Prof. Willis has made a machine, which operates without friction, then he has made an ever-going clock, and therefore its *parts* will never wear out; the wearing of parts is a sign of friction, consequently it will stop some day.

### Writing Machine.

The Aberdeen (Scottish) Herald states that a Dr. Dewar, of that city, has invented a machine, at one end of which reporters' short-hand notes are placed, and at the other end of which, a few yards off, they are produced at the ordinary rate of speaking, in clear, bold, long hand, ready to be put into the hands of the printer.

The said paper has printed a speech which was written out by this machine, and says that four columns of the London Times may be produced, comfortably, in a couple of hours, by one reporter; whereas, under the present laborious and cumbrous plan, nearly eight hours would be consumed in the task by an ordinary reporter.

The propeller steamship S. S. Lewis has been sold for $150,000.

The only way to encourage improvements in the arts and sciences is to afford full protection to every man for his improvement.