LEONARD'S DYNAMOMETER.

This is an instrument for ascertaining and registering the draft of prow, mowers, ruppers, wagons, carriages, &c., and, as its name signifies, it is a measurer of motive power.

At the present time, when every State and County are holding their agricultural fairs, we would call their special attention to this instrument, which would be so valuable an aid to them in deciding the relative merits of the implements, machines and cattle subjected to their judgment for approval or the reverse.

It consists in a small cast iron box, A, having a handle firmly fixed to the back, by which it is attached to the object whose draft is to be ascertained, and another handle in front, to which the horse, or other motive power, is attached, as seen at B. This handle is fastened to a plate having two hooks, C, on it, with which the springs, D, are connected, the other ends of them being firmly fixed to the back plate of the box. The front handle and plate, carrying the springs, which are regulated to the mechanism of the machines, are supplied with two guides, E, running between friction collars, &c., thus keeping the whole steady during the strain; these are, so to speak, the power receivers.

Now to describe the measurers, which perfectly characterize this dynamometer from others. F is a leather disk mounted in brass, which is rotated by a strong marine clock underneath—not seen in our engraving. G is a traveling wheel, which moves up and down the disk, and receives motion from it; it works in a dadoed milled, so that it can move back and forth, and still, when turned by the rotating disk, communicate motion through the train of gearing, H, to the indicating hand, I, and face. Fig. 2 shows an enlarged view of the periphery of this traveling wheel, which is furnished with a number of little wheels, set at right angles to itself, so that it can move with ease along the disk, and ensure a perfect motion. Fig. 2 is an indicator, which is placed outside the box on the lid, and is operated by the projecting arms, J, K, Fig. 1, showing the back of it. This shows the greatest strain that has been on the machine during the testing.

It is evident that if the traveling wheel, G, be exactly in the center of the disk, F, it will remain at rest, but the further it is pulled from the center of the periphery the quicker it will move, and by the gearing, H, give a faster motion to the hands, I, they being so graduated that with 100 lbs. strain on the springs, the traveling wheel will be pulled out so far as to cause them to move one space of the dial, say from 0 to 1.

The operation is as follows:—The handle at the back of the box is attached to the prow carriage, or other article to be drawn, and the horse, or other motive, hooked on to the handle, B. The clock is then wound up within a hole in the base of the box, and the time is allowed to pull for one minute and then stopped. The outside register, E, will give the greatest strain that has been exerted on the springs, and the indicating hands will tell the draft of the work. If, for example, the large hand has moved from 0 to 1, then 100 lbs. strain has been exerted; from 0 to 2, then 200 lbs.; and so on. If, however, an average strain, you pull for about a quarter of an hour, and by comparing the time with the number noted, you obtain the average strain required, is the motive power of your horse, or other machine.

The different modifications which this machine can assume, will allow it to be used to test the power of steam engines, and mill gearing, and to register the speed of vessels at sea. It is also applied as a water and gas meter.

This is the invention of Mr. W. B. Leonard, Corresponding Secretary of the American Institute, at whose Fair in the Crystal Palace it is on exhibition. Patented December 19th, 1854.

Any further information or particulars may be had of John Sherry, manufactuer, Sag Harbor, N. Y., or Leonard & Clark, 11 Flatt street, New York.

The British East India Company.

According to recent and authentic documents, this company now rules, directly or indirectly, an empire of 500,000 square miles, with a population of more than 160,000,000. The nominal money capital of the company is set down at $80,000,000, and its annual resources are estimated at $135,000,000. The salaries of the principal officers are: Governor General, $125,000—perquisites, $200,000; Members of Governor's Council, $45,000; Judges, 600 to $800; Collectors and Magistrates, (45 in number) $8,000 to $13,000; Inspectors, $2,000 to $4,000. The said salaries of the Indian officers are the pay of the native soldiers, being eleven cents per day.

The standing military force of this powerful company is about three hundred thousand men, European and natives—the flower of the British army. The department of the topographical engineers is entitled to the credit of its skill and efficiency, and has done much for the material development of the country.

Railroads completed and in progress, now span the whole extent of the empire, from Calcutta to the Cape, open a brilliant prospect for the future, and are a magnificent indication of the future. There are also in operation at the present time more than four thousand miles of the magnetic telegraph, with which connection will soon be made along the southern coast of Arabia, and through Egypt, submerging the Red Sea, with the Mediterranean Lines, thus communicating directly with the whole of the western world. There is special current attached to this company, at this moment, growing out of the terrific rebellion now fast emerging in India, for upon the company devolves the momentous duty of stopping the progress of the insurrection, and the heavy responsibility of its consequences.

Z alte and Pearson.

W. Root, of Marietta, Ga., has sent us an ingenious little model of an apparatus for holding periodicals, &c. It is very simple and can be made by any of our subscribers for holding the loose numbers of the Scientific American, or any other journal which they think worth preserving. It is simply a curved brass bar, or an old book back of sufficient size will answer the purpose, and in the top and bottom of the back should be nailed two wide strips to form a loop inside the cover; around each of these loops, from one to the other, a number of strings are tied, and behind these strings the number of the journal is slipped, so that they are held as firmly as nearly so as a bound book.

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STEAM GENERATORS-Julien F. Belleville, of Nancy, France: I claim the combination and arrangement of the parts connected therewith, consisting of tubes in which water or other liquid is heated, and the circular bed plate, the parts connected therewith, and the general disposition and arrangement of the steam generator, and the parts connected therewith, consisting of tubes in which water or other liquid is heated.

MACHINES-Lafayette Stewart, (assignor of all right, title, and interest in and to the said invention) of New York City: We claim the method described in our patent for an arrangement of such devices in connection with the wind wheel, substantially as described, in combination with the wind wheel, substantially as described.

MAKING TOASTS—Alfred H. M. Smith, of New York City: I claim, first, the method of making toast by means of a boiler constructed and operated substantially as set forth, and secondly, the invention of using the boiler constructed and operated substantially as set forth in combination with a burner, substantially as set forth.

MACHINES—William Doane, of New York City: We claim the general disposition and arrangement of the parts connected therewith, consisting of tubes in which water or other liquid is heated, and the circular bed plate, the parts connected therewith, and the general disposition and arrangement of the steam generator, and the parts connected therewith, consisting of tubes in which water or other liquid is heated.

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NOTE.—In the above list of patents issued last week, theValidate this patent and reprint the claim(s) not covered by the previous issue. The publication of the text is hereby postponed until the next issue.
New Inventions.

Improved Taps for Railroad Cars.

The number of accidents which yearly occur on our railroads, the amount of human life lost and property destroyed, have become a most serious consideration with all who ever do or are likely to travel, and each one in their own way tries to think of a plan whereby these accidents (many of them the result of carelessness) can be avoided. Let us recapitulate the amount of two accidents of somewhat recent occurrence. On the Camden and Amboy Railroad, near Burlington, and also on the North Pennsylvania Railroad, near Gwynedd. The wounded and suffering passengers were compelled to linger a long time within the wrecked cars, jammed between broken timbers until some means on hand could be devised to extricate them from their perilous and painful condition. In the latter case referred to, the wrecked cars having been burned, a number of persons were burned to death before the means were at hand to break open the cars, and let the sufferers out. These occurrences are painful in the extreme, and if we cannot at present invent, discover or contrive a method either of preventing accidents or of holding some one individual responsible for the lives of the persons in a train of cars, we can at least attempt to alleviate the horror of accidents when they do happen.

The subject of our engraving is a proposal for attaining this end, and is simple in its construction, being nothing more than an improvement in the making of the roof of cars. The ordinary roof is part and parcel of the car, and in case of accident there is no means of exit through it, should the doors be jammed up, and should the cars go over a drawbridge, or any way fall into the water, the travellers must die the awful death of drowning, but with this roof it is not so, as it could be lifted off and give them a chance of escape. This roof is made of light material in a convenient cylindrical form, and is capable of being detached from the car by the slightest disturbance of the car by the force of gravity.

Figure 1 shows a view of a car with the roof lifted off, it is attached longitudinally by means of a groove in the side of the car in which the edges fit, and in which it can slide up and down. Figure 3 shows the method of attachment at the ends; it is a section through the fastening apparatus. It is a rectangular piece fitting on the end of the car. A is a circular piece forming part of the roof, from the upper part of which (inside the car) projects the piece, O N, having a rod joint at Q, only capable of opening upwards, and round at W, on this end, a pulley, F V, is free to swing to and from the side of the car, and a piece, R, curved to the arc described by V, is fastened to the under side of the piece on the car, as shown in Figure 4. Figure 5, on one occasion when it represents an excellent device. One can expect that the roof of the car has been instantly taken off, giving the passengers a place of exit; the other car has dived into the water, the roof has bent and slid off and forms a boat, in which the passengers can rest until aid is brought to them. The operation is as follows:

Suppose a car to be in the act of capsizing, the pendulum swings beyond the limits of the plane, R, and the roof is unfastened and slides off; or suppose that one end sinks down through a broken arch, or down an embankment, the pendulum, F V, describes (by means of the rule joint, O) the arc marked in the dotted crosses, B, B, and the hoppers, E B, are capable of moving either nearer to, or further from each other. C is the leading wheel, and C a cast pulley on its axle, which by a strap over it, and the cone pulley, B E, gives motion to the operating device. D D are the trailing wheels mounted on the square shaft, E, which is kept in position by an adjustable bracket, F, so that it is capable of a vertical motion, and the wheels, D D, can be moved to correspond with the hoppers, J J we have brackets to support them.

In Figures 2 and 3, E is the inside hopper shell, which is shaped (as seen in Fig. 2) that it presents a flat face between the sides of the hopper and the distributing wheel, M, with collars on its edge. N N is a screw by whose means E E are brought nearer together, or the reverse, and O is the scraper which only allows a certain amount of seed to pass under it in the perforations of M. S S are the hollow shanks and diggers, and T T, Fig. 1, the guiding handles.

It was patented last week, and it will be found in our List of Claims on another page.

The inventors are Aaron D. Gould and Albert F. Flanners, of New York, N. Y. It has recently secured an English patent through the Scientifc American Patent Agency, for an improvement in rollers for unloading, and other processes of analogous character, which consists in making them of boxes of the common Indian corn. The advantages of such rollers are, that they retain their cylindrical form better, are less affected by wet, and wear smoother than those made of cotton, paper, wood, or other material commonly used.

The rollers are made of an iron state, or only very slightly unwound, and placed in bands in an upright cylindrical vessel, having a stuck or end set upright in its center, and packed and pressed together to form cylindrical masses, each having a hole in its center. A suitable number of these cylinders being obtained, the shaft for a roller, having an iron collar fast near one end, is driven through as many as its length will contain, and the whole are then submitted to pressure in a direction parallel with the axis of the shaft's, more cylinders being placed on the shaft as those previously placed on are compressed sufficiently to make room for them, until the shaft has received a sufficient number. When the rollers are thus compressed together in a compact and solid mass, another collar is placed on the shaft, and secured to confine them, and the exterior of the mass of fibers is turned off in a lathe, to bring the roller to a cylindrical form of proper size, in the same manner as other calendering rollers are turned, and the roller is then ready for use.

Acknowledgements.

We are indebted to the Russell Helton Co. for a copy of the Commissioner of Patents' Reports on Agriculture for 1856.

Hon. Thomas H. Whiting, M. C., for New York, has our thanks for his generous contributions to our library in the shape of valuable reports.

Scientific American.
...throw off, but to catch, retain, and restore to the main cylinder those fibres which, under the suction, are cast away and lost. The end being thus different, the mode of action is accordingly altered. The rollers, not in opposite, but in the same direction, and this is as necessary to the object to be effected as are the contrary movements of the object operated upon by Daniels & Dewey. It may be said that this is a slight change, and one which might not have been accomplished, had the inventors not been supplied with the idea that the motion will be the material selected for the frame.

The opposite movements to the object operated upon by Daniels & Dewey cannot continue long, and that a better day for the wool-mart, mechanic, and manufactu­er may thus be had, a better day to the manufacturers of wool, and a more happy day to the country,
Each class of machines for similar purposes, the Illinois is suitably the best ever yet held by the American exhibition, namely, that of Arad Woodward's Machinery. The laying of rope required long objects, two of these machines combine the worth, of which quantity cost a series of strand flyers being placed one above another, and twisting several of them together in another, a rope from strands as well as from yarn, and the advantage of being arranged to make strands from the yarn and forming them into a practical shaft of which passes down through the grooves of the yarns which are run and kept at a proper tension. It has also one or more spools, and, having limited one rope from strands as well as from yarn, and is compact and simple in construction. As is lost the necessary labor to take hold of the great amount of combustible materials used--tar and grcss--it appears to us that as soon as short machines can be placed at the ropewalks, they will ultimately supersede, at least in many cases, the long rope-walk machinery now in use.

Wood Planers.

A compact and neat planer adapted for piccers and cabinet-makers, to reduce short lengths of boards, planed, etc., to any desired thickness, is exhibited by H. L. Smith, of Lowell, Mass. It is built on the Woodward principle, with rotary cutter and feed pressure, capable of planing stuff twenty inches wide to any thickness. The feed table is raised and lowered by a screw, and the index and pointer indicates its exact distance in inches and fractions from the cutter; and as the lower feed roll is attached to the upper, it follows that the board can be felled exactly and conveniently to be cut to any degree of roundness it may be desired to attain. As it is well adapted for laying rope into ships, it can be operated with a very small space, and produces excellent work. This planer is of large dimensions, and is made in this machine, at the rate of five spools or bolls per day, the point coming in contact with A, and the end is twisted out in the form of a hook, and thus to clench itself as shown in Figs. 2 and 3. Fig. 3 shows a single spike thus driven. The point can be made to turn itself in any desired direction, to avoid running out of the thumb, or to avoid contact with any other spike or bolt, by simply touching the point with the hammer, and giving it a slight bend in the desired direction before inserting it.

Corpus Christi, Texas.

A correspondent, Mr. R. S. Howard, of Alamo, N. Y., the inventor and patentees of the Drudging Machine described and engraved on page 804, Vol. 11, Scientific American, has sent us a communication in regard to Corpus Christi and its adjacent country, from which we conclude the following:--"This country is just filling up with emigrants of all the most desirable kind, as they pay for their land in advance. Cattle of the finest description are easily reared in this region with no more care than simply marking them and turning them loose somewhere where they can. Horses are scarce, but the almost spontaneous production of the salt, although from their reviving habits they are not yet of so fine a quality as the cattle. The settlers make water holes by digging up the savannas, which fill with rain, and they never remain stagnant in the hottest weather. The climate is genial and healthy breeze blows from the sea during the warm months. The country is being opened up with the greatest rapidity. The mail runs from the nearest port to the Pacific is Corpus Christi, Texas. As we have been informed this port is being made into a regular mail route, and whilst the time taken in going by water was sixty days, the time by land is now only fifteen days. There is a great amount of export and import commerce, and it is a very important town.

New England is a magnificient structure when completed. The magnitude of the project is estimated that the extension will cost $7,000,000. The total cost of the entire building is estimated to be $100,000,000. The Capitol at Washington is to be a work of great architectural beauty.

Munich--The building boom of modern Turquists are preparing to fight the general government. Rumor says that Brigham Young is armed for treason, and hurried off to Washington for trial. We hope this may prove true.

Coal Mines.--A large party of men have commenced to work the San Diego coal mines. It is thought that in a short time these mines will yield a better quality of anthracite coal than is now sent to California from Pennsylvania and New York.

A Rich Inventor.--Mr. Noots, patentee of an improved yellow metal for slitting of ships, recently died in England, and left personal property, wholly irrespective of his real estate, amounting to $30,000.

Earthquakes and Gold.--Gold countries seem to be as full of earthquakes as of precious metals. New mines have been opened up in California, and another earthquake has visited that country.

Beekeeper.--A practised aprian recommends that all beekeepers take care of their bees during the winter, giving a small vent for the air. They live on one-third less food by so doing.

Pennsylvania.--The steamer "Tung king," valued at $200,000, has arrived at this port on the 4th inst. with treasure to the amount of $1,268,734.

The Twenty-ninth Annual Fair of the American Institute.

Each week seems to bring increasing suc­cess to the Fair. The crowds of spectators, scenes, floors and galleries of which are greatly crowded with admiring visitors who, if we may judge by the effect of the literature and pictures that comprise some of the most interesting parts of the exhibition, are formed of many out of the ordinary set of visitors and gentleman, and a very great number of ladies and gentlewomen. "That is the best way to see them," as one visitor said, "for one by one you can be directed to see them all." And it is admitted by all who can obtain a leisure evening.

The illumination of the Palace is effected through the glass of the building; and if figures do not lie, 159,200 cubic feet of gas are burned in the gas, which quantity cost $379. There are over 25,000 linear feet of gas-pipes employed throughout the structure.

So far as the number, variety, ingenuity, mirth, judicious arrangement and display of the various exhibits is concerned, the present is in-de­spitably the best ever yet held by the American Institute in this city. We are happy to learn that the receipts and average receipts, the latter, as we understand, are much above last year's.

There are three machines for making rope on exhibition, namely, that of Arad Woodward's, of Hartford, Conn., Thomas Bonne, of Brooklyn, N. Y., patented July, 1856 (Illustrated on page 160, Vol. XII, Scientific American), and W. R. Dutcher, of Franklin streets, this city, and Messrs. Ball & Fitchburg, Mass., by the Fitchburg Foundry Company. The third rope machine, that of W. R. Dutcher, is vertical, and, like Woodward's, combines two separate operations, making a rope and forming it into a rope at one operation. The nature of this improvement consists in a self-adjusting principle, with rotary cutter and feed pressure. It is capable of planing stuff twenty inches wide to any thickness. The feed table is raised and lowered by a screw, and the index and pointer indicates its exact distance in inches and fractions from the cutter; and as the lower feed roll is attached to the upper, it follows that the board can be felled exactly and conveniently to be cut to any degree of roundness it may be desired to attain. As it is well adapted for laying rope into ships, it can be operated with a very small amount of space, and produces excellent work. This planer is of large dimensions, and is made in this machine, at the rate of five spools or bolls per day, the point coming in contact with A, and the end is twisted out in the form of a hook, and thus to clench itself as shown in Figs. 2 and 3. Fig. 3 shows a single spike thus driven. The point can be made to turn itself in any desired direction, to avoid running out of the thumb, or to avoid contact with any other spike or bolt, by simply touching the point with the hammer, and giving it a slight bend in the desired direction before inserting it.

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The accompanying engravings represent a very simple and cheap mode of securing a spike or nail when driven through timber. It is the invention of Mr. Horatio Bates, of this city, and was secured by Horatio Bates, of this city, and was secured by Loren P. Waldo, of the Supreme Court of Connecticut, who are now hearing the case in Hartford.

Coal and Whiskey.—At a recent convention of whiskey makers held in Cincinnati, O., it appeared that twenty-three establishments daily produce 14,000 hundred gallons of brandy; in round numbers, over 5,000,000 gallons a year. This is being used to destroy disease. Thousands, by using the whiskey thus made, find themselves and children; urging for want of the grain of which it is made.

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or copal varnish, and the emery then dusted on and allowed to dry. The better your preparation, the better your results."

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**RIMES**—ICH RIVER—A steam-driven turbine for the purposes of steam power.

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The advantage of this seed planter over the numerous that are in operation is shown and will be understood from the following description and engravings, of which Fig. 1 is a perspective view of the whole, Fig. 2 a section of the seed-planting device, and Fig. 3 an enlarged view of the furrower and presser. A represents the main frame, on which the whole device is mounted; B the driver's seat; C the large front wheel that supports the frame, and gives motion to the seed box, either by a strap or gearing. D are the seed boxes, provided with slits, e, and divided into compartments, as seen at Fig. 2, e, which compartments tend to force the seed to the periphery of the box, and send it through the holes, d. There are also sides, f, on the outside.

**William's Patent Seed Planter.**

The general description of the Gulf Stream is that of a vast and rapid current ocean, issuing from the basin of the Mucian Gulf and Caribbean Sea, doubling the southern cape of Florida, pressing forward to the northeast, in a line almost parallel to the American coast; touching on the southern borders of the Banks of Newfoundland, and at some seasons partially passing over them; thence, with increasing width and diffusion, traversing the whole breadth of the Atlantic, with a central direction towards the British Isles; and finally passing the Gulf of St. Lawrence, the Bay of Biscay, on our own shores, and on the long line of the Norwegian coast. Its velocity in physical characters is preserved throughout the many thousand miles of its continuous flow; the only change undergone is that of degree. As its waters gradually cool, with those of the surrounding sea, their deep blue tint declines, their high temperature diminishes, and the speed with which they press forward abates. But, taking the stream in its total course, it well warrants the name of a "river in the ocean." This sheet of, in truth, singularly appropriate to this vast current, as constant and continuous in its course, and so strangely detached from the great mass of ocean waters, which, while convulsively and suddenly to give path to its first impulse, are yet ever pressing upon it, gradually impairing its force and destroying its individuality.

The maximum of velocity where the stream quits the narrow channel of Bimini—which compresses its gales from the Gulf—is about four miles an hour; off Cape Hatteras, it is more than doubled; and, at half this half, and an gradual abatement of force is continued across the Atlantic. The temperature of the current undergoes a similar change. The highest observed is about 85° F. Between Cape Hatteras and New-Boundland, though lessened in amount, the warmth of the stream in winter is still 20° or 30° above that of the ocean through which it flows.—**Edinburgh Review.**

**The Tamarind.**

It is the fruit of a tree (Tamarindus indica) growing in the East and West Indies to the height of 30 or 40 feet. When the fruit is ripe the shell or epiphray is removed, and the fruit placed in layers in wet, sandy soil, being then poured over it. Another plan is to put alternate layers of tamarind and powdered sugar in a stone jar, import both new and preserved. Tamarind pots are from 5 to 6 inches long, and more or less curved; they consist of a dark, brittle, brown external shell, within which is the acidulous, sweet, pulpy, brown interior (the useful part) penetrated by strong fibres. Within this is a thin membranous coat enclosing the seed brown seeds. The pulp always, in nutritive and refrigerant, and in full doses is a laxative. "An infusion of tamarind," says Parke, "forms a very pleasant draught, as does also tamarind wine." Infusion of anna with tamarind is a useful laxative.

**The Artificial Whale.**

*Artificial Whale.—* The Legislature of New York has incorporated a company to build a ship called Commodore Perry, for carrying to the Barbary and South American coasts, and returning with the remains of the American steamer off Los Angeles. In announcing the THIRTEENTH Annual Volume of the **Scientific American,** which commenced on the 21st of September, the Editors and Publishers are happy to announce the increasing number of subscribers and friends with whom their Journal has gained one hundred per cent in weight by a further extension of its purview. The Journal is well known, and its friends and subscribers for the past year have to announce to the public that it has been a lively medium of communication and the best means by which scientific and mechanical matter is transmitted to the public at large. It is the aim of the Editors to supply practical information relative to the various branches of science and engineering, and to the most recent and practical applications of the principles of science in the useful arts. Scientific American is a popular encyclopedia of scientific and mechanical matters, and the most complete tabular index of scientific and mechanical subjects. Scientific American is a valuable and inexhaustible mine of information to the mechanic, manufacturer, and other practical men. It is the aim of the Editors of the Scientific American to present all subjects through a practical and popular form. They will also endeavor in every number to supply the public with the most recent and practical applications of science, and to make the Journal thearena where American mechanics may obtain the latest information for their respective pursuits. Publications in the Scientific American are selected to assist the mechanic and manufacturer in his various pursuits. It is the aim of the Editors to supply practical and useful information to the public. The Sailing Directions will be published under the care of the best and most experienced navigators. "By order of the Board of Directors of the Scientific American, who are turning out all the improvements of the year."

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TO MECHANICS, MANUFACTURERS, INVENTORS AND FARMERS.

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