heard of a number of cases, in which doctors who have made valuable inventions in the construction of surgical apparatus, or of machinery for preparing certain kinds of herbs, or other axles, the shafts, the car wheels, or the transverse beam medical substances, and who intended to secure the benefits which passes quite across the street, should break no danger of their inventions by applying for patents on the same, were would arise from the breakage. Passengers need not walk if they insisted in patenting their inventions. The non-in-sofa, on which they ride from the pavement to the promenade. ventors argued that the mechanical inventions came under The model was constructed by Mr. Randall, the inventor, by the same head with professional suggestions, and had to be whom it is patented." surrendered accordingly.

It may not be out of the way to call your attention to another danger which threatens the community, although at present only that of the State of New York. The convention now assembled to revise the State constitution, has a bill under consideration which has the object of taking from the physicians the right to prepare and forward medicines, such a right being solely vested in the apothecaries. This is a blow aimed solely against the homœopaths, who have to prepare their own medicines, and who will by this act be banished from the State. For allopaths, this bill may be very beneficial, but if the convention should be short-sighted enough to adopt it, they will destroy a branch of the medical profession which is already very popular, and increasing in the number of its adherents very rapidly.

The Meteorograph an American Invention.

New York city.

MESSRS. EDITORS:-In your issue of January 11th, page 19, I have just read an extract from the Nation, describing partially an instrument called the Meteorograph, which is said to have been invented by Father Secchi, of Rome, and to have received a grand prize at the Paris Exposition. Doubtless, it was a very ingenious apparatus, and it has a very expressive name, but your correspondent had the honor to exhibit drawings, and explain the construction of an invention remarkably similar (except in its connection with a galvanic battery), at Advancement of Science, in May, 1854. Can the word, Meteo rograph, be found in any publication prior to newspaper reports of that paper?

The "Proceedings of the Eighth Meeting of the American Association "contain a partial description of this automatic meteorological register, page 224. It is there described as recording for every minute of time, night or day, for periods of one week, on each paper, the direction and force of the wind; the hygrometric, barometric, and thermometric state of the atmosphere; also, the time of the commencement, duration, and other phenomena of rain storms, as well as the quantity of water precipitated. A brief reference is. also made to this apparatus in the Annual of Scientific Dis covery for 1855.

I inclose a description of the invention, from the Ports mouth (Va.) Globe, of April 24th, 1854, written by the editor who examined the Meteorograph in operation.

Prior to the writer's invention (and he made the name as well as the machine) the most efficient anemometer was Os ler's, which was expensive and complicated, while this was described as "marvellously simple." A few cylinders, moved by a common eight-day clock, were covered with paper, on which the meteorogram was recorded as described, in the proceedings of the American Association for the Advancement of Science above referred to.

I send this communication for your consideration of the propriety of placing on record, in the widely circulated and carefully preserved columns of the Scientific American, the date and origin of the Meteorograph.

N. B. Webster. Kenansville, Duplin county, N. C.

Gold in Orange County, N. Y.

MESSRS. EDITORS:-Very soon I think we shall be overflowing with petroleum and rich in gold. A gold mine has recently been discovered in Cornwall, about five miles below Newburgh, in this county, by John L. Davis, of that place. A stock company, with a capital of \$100,000, has been formed, and preparations are being made for the working of said mine. Specimens of the quartz have been exhibited in this place. Whether it will amount to anything or not remains to be seen. The place where the gold was found is called "Bulter Hill," the place where the glass ore "Basalt" was extracted from. J. C. G.

Elevated Railroads.

Newburgh, N. Y.

In reply to several correspondents requesting us to give descriptions of elevated railways, we would state that nearly all of the plans that have lately been presented to the public are simply old devices revived. We have engraved and described many of them, as a reference to our back volumes will show. Here is one which we published in the SCIENTIFIC AMERICAN November, 1847—a little more than twenty years

" A number of inquiries have been made relative to Mr. Randall's invention, and as the model was exhibited lately we take this opportunity of giving some information regarding it. We have been informed that the model constructed by order of the Common Council of this city, is entirely of metal, and cost \$4,000 and two years labor. It weighs about three tuns, is seventy-six feet long and nine feet wide. It is to be erected only twelve feet above the line of curbstone. The passenger cars, which are to be propelled by stationary engines and an endless rope, do not stop to take in or let down passengers. This is accomplished by means of a tender, which passes along a side track, and by means of a brake, pressing -on a brake plate fixed to each car, the speed of the tender is got up to be equal to that of the passenger cars, before they are fastened to each other for the exchange of passengers. To prevent the cars from leaving the railway, each | ed as having been found in the Smoky Mountains.

car is confined by sixteen pulleys with vertical shafts, two to each of the wheels. It is also provided that if either the

The London Underground Railway.

and who was before connected with the construction of this work, we learn several items of interest. Thus, the engines employed are not, as is generally supposed, specially arranged for the suppression of smoke, etc.—in other words, of what is here known as the dummy pattern,—but are precisely of the usual form, with the exception of two points. In the first place, they are so arranged that the exhaust may be, at will, turned into the tank, in place of the chimney; and secondly, the furnace may be shut up air-tight at a moment's notice.

The plan of working them is as follows:—The road, we should premise, is not a continuous tunnel, but a series of alternate tunnels and open cuttings. In the open cutting the engines are run as on any other road; but as soon as a tunnel is reached, the exhaust is turned into the tank, the firebox shut tight, and the engine run through by the accumulated heat in the furvace and boiler. The cost of this road, it may also be interesting to know, was about \$4,000,000 per mile -- Journal of Franklin Institute.

Newspaper Change. Mr. Moses S. Beach has sold the New York Sun establishment to the Sun Printing Association, an incorporated com pany, and Mr. Charles A. Dana, formerly assistent Secretary of War, has become the Editor and Manager. The Sun is one the Washington meeting of the American Association for the of the oldest and best papers in the city, and has a daily circulation of over 50,000 copies. It has passed into the hands of an able management, and will long continue we trust brightly to shine for all. Mr. Beach continues as a large shareholder in the concern, but retires from active business.

The Weidenman Rubber Shoe Stay.

In No. 4, present volume, we published an engraving and description of a contrivance under the above title, which might possibly mislead the reader in one statement. Instead of the stay being introduced into the shoe in the process of manufacture, it is entirely independent of the shoe, and may be fastened into any rubber shoe by an eyelet and hook. Its advantages can be understood by a reference to the engraving.

Editorial Summary.

Poisonous Visiting Cards -There is a style of visiting cards introduced to the public some months since, under the name of crystallized, or "Mother of Pearl" cards, and from their unique and attractive appearance they have been very much admired. But a chemical investigation of the crystallized surface shows that its composition is quite as dangerous a poison as was used in the once popular enamelled cards, The fact is first brought to our notice from a foreign source. A writer from Munich to the Journal of Pharmacy asserting that these novelties had been imported from our country, and for a time enjoyed a great run of popularity, the demand far greater than the supply. But, unfortunately for the manufacturers, one of them fell into the hands of the Medical Director of the Sanitary Department of Munich, and an examination showed that a card two and a half inches wide and four inches long, weighing 331 grains, yielded as its crystallized coating 6.6015 grains of acetate of lead, a poison the more dangerous, especially to children, from its pleasant,

DETERMINING THE COLORS OF THE STARS.—To the astronomer this is a subject of much interest, and different observers vary greatly in their opinions in this respect as to particular stars. For the sake of a more definite and reliable means of determination, a simple contrivance has been recently invented, consisting of a series of vials filled with solutions of known tints, and attached to a revolving drum. A platinum wire is rendered incandescent by means of a galvanic battery. and as the vials are brought befere the light their colors can be distinctly seen at night, and by successive comparisons with that of the star the exact shade is found.

to erect a chalet on the summit of Mount Blanc, and estab- | ed to straddle a row of corn of a hight of more than five feet. lish therein a meteorological observatory, which will therefore be placed at an elevation of about 16,000 feet above sea level. He has hired two guides to spend the summer months in this desolate station, for the purpose of making observations. During the past twelve months this same savant has supported three guides in a chalet on the Col de St. Theodule, at an altitude of 10,500 feet, and the value of their meteorological observations has induced him to make a fresh experiment.

A STOCK COMPANY has been formed at Cornwall, on the Hudson, for the purpose of bridging the Hudson River from "Storm King" to "Butter Hill," the bridge to be of wire cable and strong enough to allow the passage of trains, perhaps for the Hudson River Railroad but more likely the Dutchess and Columbia cars, will take this route. The plan appears to be feasible and the people generally in favor of it.

A CORRESPONDENT writing from Mossy Creek, Jefferson County, Tenn, states that a New York Company is now erecting zinc paint works of an extensive character at that place, The ore is said to be all that could be desired. Tin is report-

MANUFACTURING, MINING, AND RAILROAD ITEMS.

In his annual message, the Governor of New Jersevvery justly places great importance upon the mineral wealth of that State, particularly its mines of iron and zinc. Lastyear more than 250,000 tuns of the richest iron were transported to market, an amount valued at the mines at one million threatened with immediate ejection from the medical society up the stairway but ascend by a screw shaft, containing a dollars. The zincmines yielded, during the same period, 24,000 tuns of ore, if they insisted in natenting their inventions. The non-in-sofa on which they ride from the payement to the promenade, all of which was manufactured into spetter, or zinc oxides, within the State. This product is more than half the yield of the United States, and exceeds the supply from all the British mines.

> The gathering of sponge among the BahamaIslands, for use in upholstery or, as noticed in another part of this paper, for textile material, has become From an English engineer now traveling in this country, fifty-seven vessels engaged in the trade, and recent sales were made of 12,500 strands of sheep-wool sponge at \$1.00 per strand.

> > The Paris correspondent of one of our daily papers writes that the street cars in that city run on flat rails, with wheels without flanges, the whole being kept in place by a tifth wheel, but a half inch thick, running in a grooved central rail, laid for the purpose. This additional wheel being attached to the carriage by a lever, can be raised at will by the driver, and the car runs off the track. This is done to turn out either for a car running in the oppositedirection on the same track (which saves a double track on a road but little used), or for another vehicle, or to run more conveniently on a down grade.

> > Quicksilver has recently been found in Macon county, Tenn., at a point thirty miles from the line of railroad from Cincinnati to South Carolina. The yield has been 7 ½ per cent, or 150 pounds of quicksilver to the tun. All that is required for separating the metal from the gangue, is simply retorting it.

> > The manufacture of leather is one of the most important national industries of Italy. The number of leather manufactories in the kingdom amount to 1,175, employing about 12.500 workmen, and producing about 282,346 cwt. per annum, to the value of 81,250,000. The art of making parchment is carried on to a large extent at Arpino and Sulmona, from whence are annually exported about 6,600 lbs.

> > It arpears that the Gatling revolving gun, illustrated and described in our columns, is to be very generally introduced into European armies. According to the Ausburg Gazette, the agents in Carlsruhe have received orders for one thousand of these guns. Of this number, 400 are designed for France, and 200 for Russia, the remain er being equally distributed between Austria, Italy, Belgium, and Holland.

Recent American and Loreign Latents.

Under this heading we shall publish weekly notes of some of the more sound went home and foreign patents.

RAILROD SWITCH.-J. B. Spurgin and T. A. Kirk, Kansas City, Mo. -This invention has for its object to furnish an improved railroad switch so con ucted and arranged that no switchman will be required; that two trains ean pass each other in motion upon the switch with safety. that trains may pass over the switch at full speed without danger of accident from false switching; and that the engineer by simply moving his train forward and backward can transfer it from one main track to the other or to the switch track as he may desire.

GLOBE VALVE.-H. H. Hendrick, Dayton, Ohio.-This invention consists in forming the valve of chilled or case hardened iron and so attaching it to the valve stem that the valve is self adjusting.

ADJUSTABLE SPIRIT LEVEL .- William J. Tate, New Haven, Conn .- This invention relates to a new spirit level which is so arranged that it can be reset, with great case when not quite correct.

ROLLING MACHING.—George Hastings, Jr., Wheeling, West Va.-This in vention relates to a method of constructing machines for rolling iron and steel into sheets or plates and for scouring the same for making nails and for

PUDDLING FURNACE.-William'Stevenson, Allegheny City, Pa.-This invention consists in an arrangement whereby the pig iron used in puddling furnaces may be heated by the heat generated in the furnace previous to being out in the furnace, thereby utilizing heat that would otherwise be lost and greatly facilitating and expediting the process of making iron.

TWEER IRON.-Lyman M. Bailey, Landgrove, Vt.-This invention relates to an improvement in what is known as the concave tweer iron for blacksmith's fires, and it consists in the arrangement of a valve whereby the fire may be regulated to suit the work in hand as may be desired.

DRAWER TRUSS .- Zalmon Taylor, New York city .- This invention relates to a truss for obtaining pressure on ruptures, whereby the inconveniences and objectionable features of the ordinary spring truss are overcome.

Ox YOKE .- Joseph Langenbach, Dorchester, Iowa. This invention relates to a new manner of arranging ox vokes so that they can be readily fitted and secured on thenecks of the animals and that they can be adjusted to fit large or smaller necks.

HANDLES FOR METAL TEA AND COFFEE POTS.—William Beliamy, Newark, N. J .- This invention consists in having the handle hollow or tubular and filling it with plaster of Paris which will keep the handle in a cool state

REAPER OR GRAIN HARVESTER.-J. B. McCormick, St. Louis, Mo.-This invention relates to a raking and a gavel-delivering attachment for reapers, whereby the cut grain is raked from the platform of the machine upon a tilting table which is operated in such a manner as to deliver the cut grain raked upon it to the binders. The invention consists in a new and improved means employed for operating the rake over an inclined curved or segment platform and in the use of the tilting gavel-receiving table also operated in a peculiar manner.

CORK SCREW.—George Twiggs, Birmingham, Eng.—This invention consists of the handle of the same, being provided in the center with a nut. fitting the screw thread on the sbank of the cork screw, so that by turning the han dle in one direction the nut will bear upon a shoulder on the bell or barrel of tho same, and thus draw the cork screw and any cork attached thereto up intosaid barrel or bell.

CORN CULTIVATOR.—Charles Rich and Oscar L. Neisler, Poughkeensie, N. Y .- This invention relates to a new agricultural machine, which can be used A DEVOTEE TO SCIENCE.—M. Dolfus Assuet has determined for cultivating corn, or for broadcast barrowing or tilling, and which is adapt-

> CHLINARY VESSELS -Wm H. Bennett, New York city consists in discontinuing the perforated bottom of the inner vessel of a cooking apparatus, so that it may not reach beyond the perforated inner wall of the vessel, to permit the space between the perforated inner and the outer wall of the vessel to be cleaned.

> SASE FASTENING.-C. M. Amsden, Wooster, Ohio.-The object of this invention is to hold the sash more firmly in place, and at the same time to secure a free and easy movement for it.

> COTTON PRESS. - Paul Williams, Winona, Miss. - This invention relates to an improvement in cotton presses, and consists in the combination of a lever having a long and short arm with a vertical screw, to actuate the same. whereby the follow block receives its motion from the shorter arm of the lever, and is torced down with great power. Other devices perfecting the whole render this press more simple than, and equally effective with, any cotton press heretofore known or used.

> WASHING MACHINE .- Benj. F. Stover, Ladoga, Ind .- This invention refers to improvements in machines for washing clothes, and consists of an inclined plane and curved surface, joined, over which a smooth roller is actuated, to gether with other parts perfecting the whole.

> CONSTRUCTING AND PROTECTING SUBAQUEOUS TUBES .- T. F. Rowland, Greenpoint, N. Y.—This invention consists in constructing and protecting subaqueous iron tubes, and it consists in encompassing the same with blocks of cement or tile, arranged or applied in such a manner that the water cannot come in contact with the iron tube, nor the tile or cement blocks become de tached from the tube.

Paper Pulp.—Hippolyte Emile Ballière, Hoboken, N. Y.—This invention relates to the manufacture of paper pulp, half stock binder board, papier maché, etc., and fibersfor textile fabrics ormaterials from bamboo, cane, and other vegetable and woody fibrous substances which have been previously disintegrated by the process embraced in the Letters Patent granted to H. S. Lyman of New York city, on the 3d day of August, A. D. 1858, and nowcommonlyknown as the "Lyman Steam Blowing Process," or by any other equivalent process or processes.

PLOW.—W. T. Howell, Alfred, N. Y.—This invention relates to an improvement in that class of plows which are commonly termed "shovel plows," and it consists in a novel and improved manner of attacking the blade or share to its standard, whereby a very firm attachment is obtained and one which will admit of the share being very readily applied to and detached from the standard.

PLOW.—D. W. Hughes, Quincy, Ill.—This invention is designed to reduce friction draft in plows and consists in dispensing with the ordinary land side substituting therefor a supplemental share which is placed at the rear of the front plow and has a reverse angular position to the latter, so that the lateral pressure exerted against one share in one direction, will compensate for that exerted against the other in an opposite direction. The invention further consists in placing the plows at the outer side of the wheels, so that both the latter will travel over unplowed ground.

AXLETREES.—Charles E. Buck, Racine, Wis.—This invention relates to an improvement in wooden axletrees for wagons, and it consists in the application of a rod to the axletree, whereby the axle is greatly increased in strength.

Flows Scoop.—Rufus S. Mitchell, Elizabeth, Ind.—This invention relates to an improved flour scoop, and consists in combining a sifter and scoop in

BOOT CRIMP.—J. Tipton and J. Carl, Malaga, Ohio.—This invention is an improved device for crimping leather for the manufacture of boots, shoes, etc., by which the operation can be performed more easily, quicker, and better than by the methods hitherto in use.

SELF-SUSTAINING HOOF EXPANDER.—John Tipton, Malaga, Ohio.—This invention is designed to expand the hoot of a horse in case of its contraction from corns, or other diseases of the foot, or from any other cause.

MACHINE FOR SAWING SHIP TIMBEF.—John L. Knowlton, Philadelphia, Pa,
—In this invention the saw is supported by a yoke which allows it to be inclined in any direction, vertical or horizontal, for the purpose of changing the direction or inclination of the cut. The yoke is attached to a carriage which feeds the saw to the log, the latter simply moving backward and forward in the same line for all the different cuts.

RAT TRAP.—John C. Guerrant and Benton J. Field, Leaksville, N. C.—This invention relates to a rat trap provided with a movable platform upon which the ratisands inorder to get at the batt, the pulling of which draws a top pin away from alever, which when thus released is actuated by a spring and through suitable connections made to suddenly jerk the platform from under the rat, which in falling into the trap, strikes a rod, which causes the spring lever to be again actuated, so as to restore the platform to its original nesition.

MACHINE FOR CUTTING DYE WOODS.—Onsville E. Pray, Portsmouth, N. H.—This invention relates to an improved machine for cutting dye woods into pieces or chips directfrom the log. The invention consists of a rotary drum provided with cutters at its periphery, and arranged in relation with an inclined trough containing a feed bar, which is operated by a rack and pinion.

DEVICE FOR FACILITATING THE NAILING OF LATH TO JOISTS OR WALLS.—Thomas Hill, New Centreville, Wis.—This invention relates to a device for facilitating the naiting of lath to joists or walls, and it consists in a novel construction and arrangement of parts, whereby a number of lath may be adjusted together and held in proper position, so that they may all be applied to the joists or wall at the same time, and nailed thereto.

MACHINE FOR MANUFACTURING SHEETLEAD AND LEAD PIPE.—Andrew Dow, Brooklyn, N. Y.—The object of this invention is to arrange a machine for making sheet lead in such a manner that the same can be easily converted into a machine for making lead pipe.

MACHINE FOR SAWING HOOPS.—Abraham Lutz, Orangeville, Ill.—This invention relates to an improved arrangement of springs and bearings in machines for sawing hoops from poles, whereby the pole is more easily and securely held in its proper position while being fed to the saw, and which improvement is applicable to ordinary sawing.

TRUSS, ABDOMINAL SUPPORTER. ETC.—Jules Lecocq, New York city.—This invention has for its object to furnish a simple, light, and effective truss, etc., which may be worn without annoyance or fatigue, and which will not chafe the body of the wearer.

STEEL TRAP.—C. P. Goss and Adrian Rais, Waterbury. Conn.—This invention relates to an improvement in the construction of steel traps for catching rats and other vermin, and consists in making a combined spring and bottom plate or support of the trap out of one piece of metal.

GOVERNOR.—Wm. L. Collamore, Warren, R. I.—This invention relates to a governor for steam engines and for other purposes where governors are usually employed. The invention consists in a novel application of a supplemental weight or weights to the ordinary ball governor, whereby the governor is rendered far more sensitive than at present and a material saving of steam and fuel effected.

ATTACHING OR SECURING SPRINGS.—Daniel Witt, Hubbardston, Mass.—This invention relates to a mode of securing or bolding springs, and is more especially designed for securing or holding in position upholstery springs and those which are applied to chairs, etc., etc. The object of the invention is to obtain a simple and economical means which will admit of the springs being readily attached to the fixtures designed for them, and which will firmly hold the springs in position.

FILLING SYPHON BOTTLES.—William Gee, New York city.—This invention relates to an apparatus for filling glass syphon bottles, those designed for holding liquids impregnated with carbonic acid gas, and which are provided with a faucet or valveto admit of the liquid being drawn from the bottles as required foruse. The object of the invention is to obtain a device for the purpose specified, which will admit of the bottles being charged or filled with the greatest facility, without material waste of liquid, and which will admit of being adapted for filling or charging bottles of different shapes or patterns and capable of being adjusted to suit the hight of different operators, so that a man or boy may use the apparatus.

DASHER.—Morgan O. Davis, Warrensburg, N.Y.—This invention relates to a new method of constructing dashers for churns, by means of which the butter is separated from milk in a much shorter time, and the same is more easily taken apart to be cleaned.

FENGE.—Daniel Kaufman, Boiling Springs, Pa.—This invention has for its object to furnish an improved fence, simple in construction, light, strong, and durable, and one which can be easily and quickly put together.

MACHINE FOR FILLING SAUSAGES.—Martin Feuerstein, Williamsburgh, N. Y.—This invention relates to a machine for filling sausages, and consists in the use of a cylindrical vessel into which the material to be filled into the skins is placed, and in which a piston is arranged, by which the contents are gradually forced downward.

COMBINEDHARROW, PLANTER, AND CULLIVATOR.—J. G. S. Garwood, Vermillion, Ill.—This invention has for its object to furnish a simple and convenient machine which shall be so constructed and arranged as to be easily adjusted for use as a harrow to prepare the ground, as a planter, to drop and cover the seed, and as a cultivator to cuitivate the crop.

CAGE COCK.—W. G. Thomas, Centralia, Pa.—This invention relates to an improvement in gage cocks for steam boilers, and consists in forming the same in several removable parts, so that the certain parts which may require repair can be taken off and repaired while there is steam in the boiler.

DEPETING MACHINE.—Thomas Walsh, and Augustin Walsh, New York city.—This invention relates to a new mode of dumping the contents of buckets of dredging machines, by means of having the buckets made in the form of a quadrant, with hinged arms attached to them in such a manner that they can be onened and closed at the pleasure of the operator.

MEDICAL COMPOUND.—James T. Stewart, Peoria, Ill.—This invention has for its object to furnish an improved tonic, stomach bitter, and, as a secondary effect, blood purifier, which is applicable to all cases of debility, and especially those resulting from and following ague and other maiarial fevers, and which may be taken freely and for a great length of time without producing headache or other unpleasant symptoms.

RAILROAD CLAMP.—John E. Watkins, Smithfield, Ky.—This invention has forits object to furnish an improved clamp for railroad rails, by means of which the end of the rails may be kept in line, both vertically and horizontally with each other, and which shall hold the ends of the rails firmly and securely, at the same time that it does not interfere with their contraction and expansion.

WASHING MACHINE.—Henry Helm, Pittsburg, Pa.—This invention relates to a method of constructing washing machines, whereby the same are more convenient, and clothes are more thoroughly and quickly washed.

CANDLE HOLDER.—S. J. Rockwood, Elsah, Ill.—The object of this invention isto construct a holder for a candle in such a manner that it will receive and hold candles of varying sizes, whether large or small in diameter, and without either cutting or wrapping up the candles.

HAND HOLE COVER FOR STEAM BOILERS.—Gilbert White, New York city.

—This invention consists in a peculiar modification in the application of the packing or gasket of a handhole cover for steam boilers, whereby a tighter or closer joint is obtained than hitherto; and the packing or gasket rendered less liable to become injured or deranged in applying the cover to the hole, and taking it therefrom.

ROTARY BLOWER.—P. H. and F. M. Roots, Connersville, Ind.—This invention relates to a new manner of constructing the shells of that class of rotary blowers and engines, in which two revolving pistons, whose peripheries are formed by arcs of different diameters, connected by suitable sides, are arranged. The invention consists in forming within the shell at suitable distances apart, projecting packing straps, against which the outer peripheries of the pistons work.

APPARATUS FOR FLOCK MACHINES.—Henry Turner, New York city.—This invention relates to a device for automatically feeding the fibrous material from which flock is to be made, from a box or other suitable receptacle to the grinding or tearing cylinder, and consists in arranging agitators in the aforesaid box or receptacle, by which the material is constantly stirred and fed to an endless apron, which is provided with cups, for carrying the said material to the hopper on the tearing cylinder. Plungers are provided on a crank shaft, which is arranged above the hopper, by which plungers the material is received from the apron, and delivered to the cylinder, and by which it is prevented from becoming clogged in the hopper.

VIOLIN.—Bambridge Bishop, New Russia, N.Y.—This invention relates to violins, bassviols, guitars, and other similar musical instruments, and consists in continuing the finger board over the sound board to the foot of the instrument, and in there fastening the end of the strings, whereby the finger-board is made to support the whole tension of the strings. And in combination with the above, the use of a supplementary bridge resting upon the finger-board in such a manner that the pressure of the strings upon the sound board bridge can be controlled without altering the pitch of the strings, or the hight of the sound board bridge, thereby giving the strings the pressure in the sound board bridge requisite to produce the most perfect tone, within the power and capability of the instrument, and the sound board is relieved of all contact from dead wood, and thus left freer for vibration, and consequently to give out a fuller, more even tone.

BUCKLE.—C. W. Martin, Mount Pleasant, Iowa.—The present invention relates to a buckle intended more particularly for use upon traces to harnesses of horses, the nature of the invention consisting in providing a means by which the chafing of the sides of the animalis prevented, and the possibility of the tongue to the buckle pulling and splitting out the trace, from the strain by the animal, is obviated.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know these who seek in formation from us; besides, as sometimes happens, we may prefer to address the correspondent by mail.

SPECIAL NOTE—This column is designed for the general interest and in struction of our readers, not for fratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisemets at \$100 a line, under the head of "Business and Personal."

All reference to backnumbers should be by volume and page.

- P. C., of R. I.—Strong nitric acid will set fire to turpentine charcoal powder, or sawdust. There is danger of fire if it is stored where it is liable to leak out on straw or shavings.
- J. H. T., of Pa., asks how to render leather hard without destroying its fiber. It can be done simply by saturating its substance with shellac dissolved in alcohol or glue applied quite warm, and not injure its fiber
- P. D., of Va., sends us a small package of shiny black grains and asks their nature. They are particles of the magnetic oxide of iron-such sand often contains gold, but where it is abundant, even if not auriferous, it is valuable, yielding iron of excellent quality. We have no doubt large deposits exist in this country which have not yet been reported.
- F. S. C., of Mass.—Bone and ivory may be softened by soaking in hydrochloric or acetic acid. The acid dissolves the mineral matter upon which the hardness of the material depends.
- J. W., of Mass., wishes to know how to prevent his flour paste from molding. Add a little creosote, carbolic acid, or bisulphite of lime. Neither or them will impair its adhesive qualities.
- P. J. P., of N. Y.—When the vapor of water is compressed it returns to the liquid form. A common rule for estimating the comparative volumes of steam and water is to reckon one cubic 100t of steam equal to one cubic foot of water.
- W. H. N., of N. J.—The French emperor has taken the initiative in the unification of coinage by minting gold coin stamped "5 dollars—25 francs."
- J. M. S., of Vt.—Sulphuric, nitric, and many other acids can be detected by dipping a piece of litmus paper in the solution suspected of containing the acid. If it is present the blue of the litmus paper will turn to red. The paper can be obtained of any druggist.
- A. C. D., of Pa.—White lead is not an acctate of lead; it is called carbonate of lead. The method usually employed in this country for its production is to expose very thin sheets of the lead, rolled loosely into cylinders, to the bot fumes or vapers of acids in closed receptacles. The acid vapors disintegrate the lead and the carbonate falls in the form of a paste or wetpowder. It is then washed to separate the acid and ground with all the carbonate falls in the form of a paste or wetpowder.
- M. S., of Conn.—Glycerin and nitro-glycerin are two entirely different substances. One is an emollient, useful in the toilet and in medicine. Nitro-glycerin is a highly explosive substance and dangerous, Glycerin is a thick, sirupy liquid, having but little color, no smell when pure, oily or sticky to the touch, and sweet to the taste. It is entirely in nocuous. Nitro-glycerin is the union of glycerin and nitric acid. Like many other comnounds it does not show the characteristics of either of its alcoholet.
- D. A. K., of Md.—Whiting, or Spanish white, is a preparation of chalk, merely ground fine and washed. French chalk or tailors' crayons is a variety of tale or steatite—soapstone—colored by any coloring matter to give it body and shade.
- A. J. K., of Wis.—Spanish gun barrels were formerly very highly valued, their superiority being attributed to the excellent iron which was made almost exclusively of stub nails and old horse or mule

- W. P. T., of N. H.—If you desire to give your brass levers density and hardness not obtainable by the quality of the composition, it can be done by hammering them after leaving the foundery. This will harden the brass and give it greater resistance to wear. It must be hammered when cold.
- J. B. P., of Mass.—"Suppose a hole be made through the earthfrom pole to pole, and a cannon ball be dropped in at one of the poles, what would be the course of the ball? One person maintains that the ball would go only to the center and there stop. Another that it would go beyond the center and then return; and that this movement or oscillation would be repeated, but gradually becoming feebler till the ball rested at the center. A third claims that if there were no obstruction or resistance, the ball would fall through to the opposite pole and would then return to the starting point; and that this oscillation from pole to pole would go on forever." The first philosopher is wrong. The second and third are about right. The question discussed is a very old one.
- F. R., of Mass—Patent drawings may be signed by an inventor or his attorney. . . The process for making parchment paper is correct, with sulphuric acid and water equal parts. Your failure is probably due to using an unsuitable paper, or to using the acids too warm.
- J. S. B., of Me.—The English monetary unit, the pound sterling equals in value 20 shillings, or 240 pence. Anciently 240 pence weighed a pound of silver; hence the origin of the term. Now, the equivalent weight of the pound is over three and one half Troy pounds. The signature, a pound sterling, is the initial letter of the Latin word "libra," a balance, the horizontal marks serving simply to distinguish this L from the ordinary letter. We have previously published a history of the dollar mark, and refer you back to that explanation.
- F. S. B., of Conn., asks "why in the case of streams near their debouchure into the sea, the effect of the changing tides is first noticed on the sides of the river, so that near both banks a rising tide gives two up-currents while the main body ofwater is still running down and so vice versa when the tide changes." The momentum of the greater body ofwater which is in and near the channel of the river requires a longer time to be overcome than is the case with the shallower parts of the stream.
- L. F. S., of N. J.—Entomologists divide the insect world into seven classes, the orthoptera, or insects having straight or longitudinal folding of their wings, and of which grasshoppers, cockroaches, and crickets are examples; the hymenoptera, or honey bearers, of which the bee forms a characteristic example: the neuroptera, or the order having, like the dragon fly, four membranous and transparent wings; the lepidoptera, insects with four membranoceous wings covered with fine imbricate scales like powder, as the butterfly; the coleoptera, or order to which the beette family belong, all having crustaceous shells which when shut form a longitudinal suture along the back, and cover the wing: which lie beneath; the diptera, having only two wings, and two poisers, as the house fly; and the aptera, or wingless insects.

Business and Lersonal.

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NEW_PUBLICATIONS.

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the places and loved them. The scene in the great church of Savona is
brought vividly before the reader, who will not easily shake off the impression it produces. We would recommend the reader to learn for himself the
unravelling of the plot and the final result. The story will repay perusal
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DAVID COPPERFIELD—By Charles Dickens. Cheap edition, paper, 25c. T. B. Peterson & Bro., Philadelphia, Penn.

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