Scientific American.

well known, has no resisting power, on account of its brittleness, and it therefore took a short time only to knock off this material with the crowbars, so as to arrive at the inner plate of Chatwood's safe. The same operation was repeated on this latter, and at 5.05 P.M. a ridge was opened, through which the ashes and other powdery substances forming the protection against fire, commenced to fall out. It took half an hour more to open up a crevice at the side of the door, through which the paint of the interior could be seen, yet the peculiar construction of the bolts prevented all possibility of widening that breech, and the work had to be re-commenced at the other side. The progress with Mr. Herring's safe was of a different character. The box was fastened inside the safe by an angle-iron girder, which had to be cut through to get access to the front plate of the door. Behind this the box itself consists of a thick front plate, tied to the back plate by a great number of steel bolts, about one inch diameter each, and riveted in with countersunk heads. Behind the front plate there in a construction somewhat resembling the plan of the Chalmors' target, viz, a series of steel plates put on edge, and having their interspaces filled with franklinite iron, which is very nearly the same material as the German spiegel, only made of American ore. The connection between the front and back plate of Herring's box came out to great advantage under these circumstances, since the smallness of the surface exposed to the attack, and the close proximity of the strengthening points, afford no proper working space nor leverage for the tools. This, however, is easy enough with so small a box as that inclosed in Mr. Herring's safe, while it is doubtful whether a larger safe of the same make would allow anything like the proportionate strength of connections. At 5.50 P. M. the workmen on both sides were allowed to rest, and operations were re-commenced at 6.35. At 7.15 the outer plate of Herring's box was thrown off, and wedges were immediately inserted to force open the rest of the door. Daylight was immediately afterwards visible in the small box of Herring's safe and it would have been possible to remove small valuables, such as coins, from this chest through the erevice made. The want of a larger wedge was felt towards the end of this operation, and the suggestion was made to allow Mr. Chatwood's men one wedge similar to those which were used on the other side. This however was not carried out, as Mr. Chatwood's safe had been broken into and the block of wood removed from it at this time, 7.25 P. M., the men having removed the side plate entirely, and cut a hole into the thin sheet-iron plate which forms the inside skin. The hole was just large enough to insert the hand and pull out the small wood block, but there was no access to any one of the drawers in Chatwood's safe, nor would it have been feasible to get at the block if it had been placed in the inside chest without expending a very considerable amount of further time and labor. Mr. Herring's safe being by this time so nearly destroyed that it appeared to be the work of a few minutes only to force the small box open, it was resolved to complete this operation on the following day. The trials were consequently adjourned at 7.40 P.M.

#### PARIS, August 14.

The jury met at 11 o'clock this morning, and, after deliberation, called upon Mr. Chatwood's men to complete their work, which was done in three minutes. This is only one of a series of tests which these safes are to undergo, and it will be acknowledged by every competent man that it was not of a very scientific character. The resume stands simply as follows: The two safes were both "third-class bankers' safes' according to the maker's catalogues. They had each a small separate compartment inside the safe proper. Mr. Chatwood deposited his wooden block in his safe proper, making no use of the inside chest. Mr. Herring deposited his wooden block in the small chest within his safe. Mr. Chatwood's men were skillful, but unacquainted with the exact construct tion; Mr. Herring's men showed less manual dexterity, but an intimate acquaintance with the construction of Chatwood's safe. The tools of the English workmen were proper burglar's tools, while the tools of the American workmen were boiler-maker's implements of full size, and incomparably heavier than the others, including even the sledge-hammer given to the English workmen at a later hour. Under these conditions Herring's safe was opened in 29 minutes, and the contents of it thrown out to the public. Chatwood's safe proper had a hole made in its side in 4 hours 35 minutes working time. Herring's small box inside the safe was completely broken open within 4 hours 43 minutes working time. Chatwood's small box inside the safe was not opened at all in this trial.

page 268, last volume, that Mr. J. S. Diehl had been commissioned by Government to proceed to Europe and Asia, for the purpose of investigating the modes of manufacturing the wool from these goats, and now we have to report his progress. Writing from the Paris Exposition, he believes from all he can learn and see, that the raising of goats and manufacture of their hair and wool may be carried on more successfully in the United States than in Europe. He finds that nearly all the raw material from Asia and Russia is carded, combed, and spun in England, and then sent all over the Continent to be further manufactured. The American specimens of hair were pronounced by judges in Paris, Leeds, Hamburg, and Vienna, fully equal to the best imported. He writes : "I am fully satisfied that we can make the raising of these sheep a success, and their wool more valuable than any hair fleece or fabric now known."

CAOUTCHOUC.-This barbarous appellation is a corruptionit certainly cannot be called an improvement-of the South American Indian name cahuchu. Although ill-named, the industrial demands for the substance have become so important that experiments have been made in Brazil for cultivating the tree which furnishes the supply, in the same way as the quinquina has been grown in the Himalaya. For preserving the gum in a liquid form, as it comes from the tree, the liquor is filtered, then mixed with about oneeighteenth its weight of strong ammonia. On being poured out and exposed to a temperature of 70 to 100° Fah. the sult abroad. Twentyestablishments in France produce yearly 500,000 tuns. ammonia which preserved it from the action of the oxygen, evaporates, and leaves the gum shaped to correspond with the containing vessel.

\$10,000 REWARD.—An English gentleman, who retains his incognito, but who is guaranteed by the chairman of the London Hospital, promises to bestow two thousand pounds sterling, on any person who before July 1st, 1868, shall have discovered any means by which in all, or nearly all cases, pain can be both permanently and completely annihilated, as it is now extinguished for a short time by anaesthetics. The means must be easy of application, not dangerous, and of moderate cost. In case this discovery is not made by that date, one half the above amount will be awarded for any kindred discoveries of minor importance, but yet of great service in the relief of pain. If the reward is accepted, the process must not be patented but given freely to the medical world at large.

THE EGYPTIAN LOTUS, is a fine aquatic plant sacred to Osiris and Isis, and regarded in Egyptian delineations as ders. signifying the creation of the world. The only place where it is known to grow spontaneously in this country is in a pond in Middlesex county, Conn. The origin of the plant in this spot is not known, but here it flourishes in great perfection. The leaves, slightly resembling those of the pond lily, are nearly round and about two feet in diameter. The flower bud is long and pear shaped, white and slightly resembling the magnolia, when not unfolded.

PACIFIC TELEGRAPH PROJECT.-The Californians are seriously agitating the subject of laying a submarine telegraph from San Francisco to China and Japan, via the Sandwich Islands. Soundings made some years ago, prove the existence of a true telegraphic plateau extending from the California coast to Honolulu, quite as marked as the one between New Foundland and Ireland. The San Francisco Bulletin thinks the proposed plan is feasible, and is confident that it will be carried out.

FAST TRAVELING .- It is contemplated, on the completion of a new railroad from London to Liverpool, to run express trains which will surpass anything yet realized in railway traveling in any country. The whole distance between these stations-over two hundred miles-will be run without a single stoppage, and the time occupied will be four and a half hours, the speed being at the extraordinary rate of eightyone miles an hour.

THE BEGINNING OF THE END.-As noted several weeks since in this journal, the Paris Exposition closes Nov. 1st. The materials of the palace and park, it is announced, will be shortly offered for sale, to be delivered as follows: The aqua rium, trees, shrubs, and vegetable soil, on the 1st of November, and the iron work of the building by degrees, as the articles are removed, and at the latest on the 1st of January, 1868. A rumor which prevailed some time ago of the building beng sold to Russia

THE ANGORA AND CASHMERE GOATS.-We mentioned on the Italian, and in all probability hearly five years more will be required before its half will be finished.

#### MANUFACTURING, MINING, AND RAILROAD ITEMS.

The Bessemer steel works at Troy will soon be able to turn out fiftytuns of steel per day. Most of the steel is cast in ingots weighing several hundred pounds each. Smallcastings in sand are full of blow holes, but are claimed to be twice as strong as similar ones made of cast iron. The company are preparing to make steel railroad rails, and in Vermont, works are being erected formanufacturing steel locomotive tires.

The Ohio and Mississippi company are making arrangements for laying a third rail from St. Louis to Odin, making a narrow gage track, so that by the coming fall, cars will be enabled to run through to Cairo and Chicago without change.

It is said that upwards of five thousand different articles in common use are manufactured of the ordinary willow,

An inclined railway is to be built at Bahia, Brazil, for facilitating travel and the transportation of freight from the lower to the upper city. Heretofore both passengers and freight were carried over the steep bluff of one hundred and eighty feet high, dividing the city, on the backs of negroes.

Years since, black walnut furnished the most available fencing stuff in Ohio, and was generally used for that purpose. This year the shipment of black walnut lumber as a valuable wood from Toledo, from the opening of navigation, amounted to one hundred and twenty-five cargoes, aggregating 19,677,300 leet.

A paragraph has been circulating among our exchanges that a rubber belt thirty-six inches wide, one hundred and eighty-two feet long, and weighing 1,007 pounds, was the largest in the world. In another column we refer to a belt to which this distinction really belongs, this one being of three inches greater width, and three feet longer.

The manufacture of artificial fuel from consolidated coal-dust although commercially unsuccessful in this country has met with a very different re-In Belgium seven manufacturers turn out 400,000 tuns, while in other countries the product, though less, is very considerable.

Mining is being prosecuted in New Hampshire with good success. A mine in Lisbon has yielded \$4000 in gold since January, and 417 tons of "dressed copper " have been taken from a mine in the same vicinity.

Learning experience from the lesson of last winter, the Pacific Railroad Company have roofed over ten miles of track in the mountain regions of California, as a protection against a blockade of the road by the heavy snows of these elevated regions.

It is reported that nearly all the rolling mills at Pittsburg will be started in the course of the next two weeks, and that the prospect of business in the fallfor the manufacture of iron is good. The workmen who were formerly on strike at Pittsburg having compromised their difficulties, are ready to go to work again.

The next great gold field of the West, is believed to be the neighborhood of the Black Hills of Dakota, now known from actual demonstration to possess the precious metal in great profusion. These hills also it is said, contain silver, copper, and coal. The fine timber growing there, is unsurpassed in the world, and will prove of inestimable valuewhen these regions are settled by a mining population.

The largest steel works in this country are located on the Susquehanna river, near Harrisburg. The steel trade is said to be very dull in England, and even the Bessemer Steel works are reported to be in want of new or

To the Rhenish Railway company is due the credit of first introducing a rail nine inches high, with the design of doing away entirely with sleepers which in Europe forms quite an item in railroad repairs. The nine-inch rail rests upon a bed of plates which are covered with five inches of gravel and on topis a two inch layer of earth well stamped down so that the top of the rail projects only an inchabove the surface. The two lines of rails are con nected every three feet, so that the track resembles a ladder lying on the ground and half buried in it.

The work on the Kansas Pacific railway, west of Fort Hays, has been abandoned, on account of the Indians. The work on the Platte route is still going on rapidly.

It is estimated that in the first five months of 1867, there were imported into this country iron and steel worth \$10,495,110-including 53,462 tuns of pig iron, 23,512 of bar, and 62,577 of railroad.

Fourteen cashmere goats have arrived at Mineral Point, Wis., the only ones now in the State. The animals are the property of a company, and have een imported at an expense of \$2,500.

California capitalists are taking much interest in a proposed railroad from Marysville in their State, to Portland, Oregon. A survey of the southern end of the line has been begun. The route is through the Sacramento valley over an unbroken plain. The valley is one of the most fertile regions in the state, the first forty-two miles being a succession of harvest fields. The estimated cost of this end of the line for eighty miles, is only \$12000, per mile. The serious difficulties will be found further north.

# Becent American and Lorcign Batents.

Onder this heading we shall publish weekly notes of some of the more promi-nent home and foreign patents.

HORSE HAY FORK .- Charles D. Blinn. Port Auron. Mich .- This invention consists in constructing the prongs with a socket for the reception of the removable handle, and in the combination and arrangement of the loop or ring toggle and ropes, with each other and with the prong.

PORTABLE CRANE FOR LOADING WAGONS, ETC.-Amos Leitner, Hopewell, Ohio.—This invention has for its object to furnish a convenient portable m chine for loading wagons, etc.

CORN HUSKER.-Daniel Williams, Saginaw City, Mich.-This invention has for its object to furnish a simple, cheap, convenient, and effective machine for use in husking corn.

WASHING MACHINE-John Worden, Normal, Ill-This invention has for its object to furnish an improved washing machine, simple in construction, quick and effective in its operation, which will not wear or injure the clothes

## Editorial Summary.

MONT CENIS RAILROAD.-A cable telegram states that the first train passed safely over this Alpine railway on August 28th. Descriptions of the road and notes of progress made in its construction have appeared from time to time in these columns, and in the present issue our foreign correspondent "Slade," restates these facts. The line over the mountains is forty-eight and a half miles in length. The tunnel, if ever finished, will furnish a route between the termini of the roads-St. Michel on the French side and Susa in Italy-six and a half miles shorter.

FOR THE NORTH POLE.—Preparations for the French expeless than one-fourth of the work, was completed. For the next six months ending June 30th, more work was done than on dition in search of the north-west passage are progressing on a most formidable scale. M. Lambert, who heads the expeany half year since the commencement of operations in 1857. The number of meters excavated on the Italian side was dition, proposes to go into the sea of Polymia. as the French 453; on the French side, 321; making the total length of call it, from Behring's Straits, and he has studied out a plan by which he pretends to be sure to attain his object. The excavations at that date 7,109 meters, or four and two fifths of English miles, leaving three and one-tenth miles yet Emperer has shown his confidence by heading the list of subto be dug. Progress on the French side has been slower scriptions with a sum of \$10,000.

was erroneous

THE TELEGRAPH.-It is officially announced that the Prussian government intends to extend the telegraphic system to every town with a population of one thousand five hundred. The extension will first commence in the province of Saxony.

In noticing the "Victory Kerosene Lamp" last week, we omitted to say that the engraving and description, with the address of the manufacturer, is to be found on page 144, in our paper of Aug. 31, last page of advertisements.

### The Mount Cenis Tunnel,

At the beginning of the present year 6,335 meters, a little

and which can be manufactured at a comparatively small expense.

SPRING.-Edward C. Lewis, Auburn, N. Y.-This invention has for its object to furnish an improved manner of centering the leaves of springs and keeping the ends of the outer leaves in place upon the inner ones.

S FLOATING FLEXIBLE FENCE .- John Pitcher, Mount Vernon, Ind .- This invention has for its object to furnish an improved floating fence, so constructed and arranged that it will adjust itself to the varying depth of the water and which shall be so flexible as to yield and not offer a rigid resistance to the water, while at the same time maintaining the same general position.

COTTON SEED PLANTER.-J. C. Tobias, Helena, Ark.-This invention relates to a new and improved device for planting cotton seed, and it consists of a revolving toothed wheel and a revolving toothed shaft placed within a suitable hopper, and used in connection with an adjustable slide at the bottom of the hopper, the latter being mounted on wheels and connected with a harrow, furrow opener, and a coverer, all arranged in such a manner as to insure the proper planting of the seed and the covering thereof with earth.

HORSE RAKE.-A. W. Coates, Alliance, Ohio.-This invention relates to a new and improved combination and arrangement of parts, whereby a very simple horse rake is obtained, one which will operate perfectly and be capa ble of being manipulated with the greatest facility.

COMBINED WASHER, WRINGER, AND TABLE .- James Whitney, Bristol, Vt.-This invention has for its object to furnish an improved machine by which clothes may be washed quickly and thoroughly, without wearing or tearing them, by which they may be conveniently wrung out when washed, and which, when not in use for washing purposes, may be used for a work table

WASHING MACHINE.—A dolph F. Kuhlman, Dubuque, Iowa.—This invention has for its object to improve the construction of the washing machine patented by the same inventor, August, 7, 1866, and numbered 56,955, so as to make it simpler in construction and more effective in operation.

MACHINE FOR CUTTING BERRY BOXES.—Charles Colby, South Pass, ill.— This invention relates to a new and improved machine for cutting wooden strips for the manufacture of berry boxes. The invention consists of a reciprocating frame placed between suitable guides and provided with a knife for cutting the strips from the bolt and with an adjustable bed containing slitting or grooving cutters, and also provided with supports underneath for sustaining the strips while being cut from the bolt; all being so arranged that the desired work may be performed in a rapid and perfect manner.

TRACE BUCKLE.-R. J. Baker, Madison County, Wis.-This invention relates to an improyement in trace buckles, and consists in a double tongue, hung upon a central crank shaft which drops the two tongues at the same time, vertically into two holes in the trace for holding it fast, and life out of the holes at the same time to allow the trace to be adjusted or withdrawn from the buckle.

PUMP.-N. H. Sebby, Charleston, S. C.-This invention relates to the hanging of the wheel and its arrangement or attachment, within the casing of the pump.

MEDICAL COMPOUND.-O. W. Blanchard, Delavan, Wis.-This is a medical compound especially intended for the cure of consumption.

PAD BREAK AND CRIMP.—Hiram H. Beers, Toulon, Ill.—This invention relates to a self-adjusting pad break or crimp, for pad trees employed in the manufacture of harnesses.

GRATER.—Henry Stone, Williamsburgh, N. Y.—This grater is intended more particularly for grating stove blacking or polish, which is manufactured in solid lumps or cakes.

GASOLINE HEATING APPARATUS.—Jacob D. Spang, Dayton, Ohio. Patented August 27, 1367.—In this invention a new form of casoline burner is used and a new device is employed for utilizing the heat of such burners and concentrating it upon particular points where the apparatus to be heated is situated.

GRUB AND STUMP PULLER.—Isaac H. Palmer, Lodi, Wis.—This invention relates to a new and improved machine for pulling grubs and stumps from the ground and consists in producing a powerful leverage by means of pivoted standards supported upon wheels the lower ends adjusted by means of suitable chains near togetheror further apart and whereby their upper ends are elevated or depressed.

AMALGAMATOR.-George B. Field, New York City.-In this invention the pulverizing roller has a backward and forward motion through the segment of a circle in an amalgam chamber of the proper form. The amalgam chambers, settling chambers, rollers and agitators, are so constructed and arranged that they will occupy a less space than in any amalgamator now in use. All the parts except the rollers and bottom of the amalgam chambers may be made of wood at a trifing expense, and the rollers and bottoms of the chambers may be made of stone or metal.

ROLL FOR ROLLING STEEL-FACED RAILS.—Samuel S, Potter, Wyandotte, Mich.—The peculiarity of this invention consists in means for making the steel occupy the uppersurface and sides of the head of the completed rail as also sufficient of a core to give it stamina. The means employed for this purpose are rolls with peculiar grooves by which a portion of the iron is crowded or pressed back giving the steel a certain prominence or projection from the yet imperfect head or upper surface of the rail or that surface which will eventually occupy that position. The rail is passed through between the rolls in the succession of openings formed by their counterpart grooves. It is modified by each transit and up to a certain point the process does not differ from that in common use.

NURSERY LOUNGE.—S. Buttenheim, New York city.—This invention relates to a lounge, in which everything, almost, is contained which pertains to the comfort of a nursery. Within it are arranged a bureau, a writing desk with shelves, a folding table, an easy chair, and a night chair, of which either can be used at a time, or more at once, as may be desired. All these devices can be concealed, so that only a common lounge will be visible.

WASH BOARD.—Lucien de Golia, Batchellersville, N. Y.—This invention relates to a new wash-board, which is provided with two corrugated surfaces, the one being formed in wood, the other in zinc. The object of the invention is to make one board answer all requirements, all kinds of garments to be washed, and so all notions as to the best kind of wash-boards; so if there are two parties in a house differing in opinion as to whether the metal or wooden wash-board is the best, this invention will satisfy both.

MATCHES.—Emory Andrews and Wm.Tucker, Fiskdale, Mass,—The object of this invention is to dip the matches before cutting. In order to effect this purpose, cards are prepared equal in width to the length of the matches to be produced, and of any desirable length. One edge of each of these cards isscolloped or notched so as to form a series of points or teeth, which can be dipped in the snlphur vat, in the explosive compound, and after the cards have thus been dipped, they are exposed to the action of suitable cutters, and the matches are ready for use.

WRENCH.—Theodore D, Christopher, Madison, Indiana.—This invention consists in combining a screw and ratchet wrench in such a manner that while the jaw is firmly held by a catch bar working in the ratchet, the jaw can be adjusted with the greatest nicety by the screw and nut.

**REFRIGERATOR.**—Anthony B. Sweetland, Fitchburg, Mass.—This invention consists in constructing the same with revolving shelves and in providing for the admission and discharge of air in a peculiar manner and in the general construction and combination of parts.

WATER CLOSET RECEIVER.-W. Smith, San Francisco, Cal.-This invention consists in constructing the receiver in two pieces and bolting them together whereby I am able to do away with the wastespace behind the pan and to save much expense in carting.

GRIDDLE.—Edwin A.Jeffery, Trappe, Maryland.—This invention relates to a new and improved method of constructing griddles for baking cakes, and it consists in making the griddle in two separate parts one of which parts is reversible and the other stationary.

RINGS FOR RING SPINNING.—Henry G. Hall, Fayetteville, N. C.—This invention relates to an improvement in the construction of rings for ring spin spinning whereby the inside ring may be exactly adjusted or centered so that the spindle shall run perfectly true.

DEVICE FOR CATCHING ANIMALS.-W. L. Hopper, Monmonth, Ill.-The object of this invention is catching hogs and other domestic animals by a device that catches one leg and holds it fast.

MACHINE FOR CLEANING BRASS TURNINGS AND FILINGS.-Julius Jonson, Baltimore, Md.-This machine was tested by a Board of Engineers at the Washington Navy Yard, August 3, 1867, and the following is an extract from the report made to the Chief of the Bureau of Steam Engineering.

"The machine is strictly correct in principle and very simple in its construction occupying but little space and functioned at a very small cost about ten cents der diem. The patentee has ingeniously fitted a series of electro magnets' in a revolving cylinder, and so arranged the stops as to break the currents and discharge the particles of iron in one box while the brass is received into another, these performing the duty for which the finachine was intended, viz.: to separate the iron from the brass trimmings."

WASHING MACHINE.-Dr. E. Beckwith, Sonth Pass, Ill.-This invention relates to a new washing machine which is adapted for washing coarse as well as fine articles in a very effectual and satisfactory manner. The machine is particularly intended to wash the articles when the same are rolled into a cylindrical form and is made in shape of a cylindrical shell within which a roller is eccentrically arranged so that between the corrugated surfaces of the shell androller the articles to be washed are thoroughly rolled and pressed.

SADIRON.—James Gray, Newark, N. J.—This invention relates to a new manner of securing a solid sadiron to a shield formed on the loose ends of thehandle supports so that the handle is always kept cool and so that it can be easily taken off the iron and attached to the same for the purpose of making one handle available for many irons,

BRANDING BARRELS.—George St. George, New York city.—The object of thisinvention is to prevent frand being practiced against the government by liquor dealers in the way of refilling whisky barrels which have not had the old brand marks thoroughly erased or cut out. These empty branded whisky by barrels are purchased by distillers and wholesale liquor dealers from retail or small dealers and refilled and sold as legitimately branded whisky. The fault lies with the inspectors, who in many cases do not thoroughly erase the old brand marks, the operation being to rapidly performed and the facility for cutting out the marks not being very good. This invention is designed to obviate this difficulty, and it consists in having one of the heads or other part of the barrel constructed with raised or prominent surfaces, formed by grooves or otherwise, on which surfaces the brand is made or cut, and which raised surfaces may be readily chipped off when it is desired to remove the brand mark.

COMPOUND.-J. F. McCafferty, Forest, Ohio.-This compound is intended to be used in beehives to free them from moths and so retain them, without the least danger of injury to the bees.

STRAW CUTTING MACHINE.—Wm. Schreck, Des Moines, Iowa.—This inventionrelates to an improvement in the construction of machines for cutting straw, hay, etc., for feed for animals.

MASHAND BEER COOLER.—Charles Schenck, Manheim, Baden, Germany.— This invention relates to a new apparatus for cooling mash, beer, and other liquids, in which the liquid is poured upon a revolving disk, from which it is thrown by centrifugal power against the inside of a cylinder which revolves in a direction opposite to that in which the disk is rotated. The liquid thrown from the disk is spread and is deposited upon the inner wall of the cylinder in a thin sheet and flows down in a spiral ring along the cylinder. A current of cool air is, by a fan, which is arranged in the cylinder and which revolves with the disk, thrown against the liquid as the same flows down in the cylinder, and rapidly cools the same.

CLOTHES PIN.-H. T. Bootell, Springfield, Vt.-This invention relates to a new and improved clothes pin of simple and ecconomical construction which admits of being readily adjusted to the line so as to secure the clothes thereon, and effectually prevent the same being casually detached from the line.

SEWING MACHINE.-W. S. Hill, Manchester, N. H.-This invention relates to certain improvements in the single thread or chain stitch sewing machine, and it consists in a novel feed mechanism, the mode of operating the looper and a general arrangement of parts, whereby a very simple and sufficient machine of the kind specified is obtained.

RIDING ATTACHMENT FOR HARROWS.—James M. Freeman, Belleville, N. Y. This invention relates to a new and improved riding attachment for harrows, whereby the driver, instead of walking behind or by the side of the harrow, may ride on a convenient seat and havemuch better control over the team and implement than heretoiore.

BALING PRESS.-J. H. Godwin, Scotland Neck, N. C.-This invention relates to a new and improved press for compressing articles or substances into a small compass for baling. The invention consists in a novel construction and arrangement of the parts composing the press, whereby several advantages are obtained.

DEVICE FOR ELEVATING ICE.—Henry Little, Middletown, N. Y.—This invention relates to a new and improved device for elevating ice from the river, pond, or lake where it is cut, into the ice house contiguous thereto, and is an improvement on a device for the same purpose for which letters patent were granted to this inventor, bearing date of May 21st, 1867. The present improvement consists in the application of a curved platform to the lower end of the screw elevator, and in the employment or use of a sectional raising and falling bearing to the lower part of the frame of the device, whereby the adjusting or placing of the cut or floating ice on the screen is greatly facilitated.

MAGEINE FOR FILLING RUTS AND LEVELING ROADS.—John W. Minor and David P. Ward, New Bedford, Mass.—This invention consists in attaching to a suitable frame a pair of coulters or shares, and a pair of scrap ers, and a heavy roller, whereby the ridges in the road are cut up and the earth loosenen and scraped with the rut by the scrapers, and the earth is rolled down level by the heavy roller.

BELLS.—Andrew Jusburg, Galva, Ill.—This inventionconsists in constructing the bells of a metallic composition hereinafter named and so forming the bells that there shall be different tones or sounds from bells of the same size and weight although formed of the same metal.

BED SPRING.—George B, Markham, Plymonth, Mich.—This invention relates to an improved bed spring and consists of several wires having one end of each formed into a loop or eye, each wire is then passed through a spiral spring and the straight end of each passed through the loop in the other. The straight end is then curved round into an eye to receive the loop attached to the slats.

SHEEP  $k_{\Delta 0}$  K.-J.S. Beals, Alabama Center, N.Y.-This invention consists in such an arrangement of the feed board and the board which is hinged thereto, that with a small amount of boards, and with a simple construction of the parts, the same and better results can be obtained, than with other sheep racks now in use.

FOLDING DOOR BUTT.-B.F.Barker, San Francisco, Cal.--This invention consists in forming a butt in such a manner that it shall be a three-leaf hinge, folding together from a single butt, working alternately as the door swings back and forth from the center.

DUST BRUSH.--Ellis Thayer, Worcester, Mass.-This invention relates to a dust brush in which the bristles or hair are secured to a block, which is reversible on the holder, so that both ends of the brush may be used, and so that the brush need not be useless because one end is used up, while the other is still good.

PLOW.-L. L. Sloss, South Union, Ky.--This invention has for its object to furnish an improved means, simple, durable, and effective, for connecting or coupling shovel or other plows together for convenience in seeding small grain, and in cultivating corn, cotton, etc.

COTTON SCRAPER.-T. T. Fleming, Memphis, Tenn.-This invention relates to a new and improved implement for cultivating cotton. scraping the earth from the standing or growing plants, and it consists in constructing the scraper in such a manner that the blade or share is prevented from penetrating too deep into the earth, and also prevented from sliding laterally out of its proper course.

FENCE.—Benjamin Force, Mount Pleasant, Iowa.—This invention relates to a new and improved fence of that class which are commonly termed "portable," and are designed to be readily put up and taken down. The object of the invention is to obtain a simple, strong, and durable fence of the class specified, one which will be better braced than hitherto, and which will admit of being properly supported without having its stakes sunk into the ground.

## 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 those who seek information 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 instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisemets at 50 cents a line, under the head of "Business and Personal."

IF All reference to back numbers should be by volume and page.

A. T., of Kansas, lives at a place 1,800 feet above the ocean level. He says: "We are setting a steam mill on a bank 31 feet above low water and 100 feet from the stream. We purpose setting the suction pump at the mill 8 feet below the surface of the ground which gives it 23 feet to suck the water and 8 feet to lift it to the heater. Will this plan work?" The plan will not work. You gain nothing by setting the pump 8 feet below the surface; you do not in that way lessen the force required to raise the water to the top of the bank 31 feet. We see no escape out of your difficulty but cutting a deep trench over the bank or setting a pumping apparatus at the water. A simple suction pump cannot be depended upon to raise water 31 feet even at the sea level.

E. M., of Tenn.—No solvent of plumbago is known, but you may make a very intimate mixture of it, with mineral substances and viscid liquids. Plumbago is one of the most durable substances known.

- S. T. N.—Cotton seed oil is manufactured on a large scale in New Orleans, and is used for lubricating and for soap. . . . Platinum may be deposited on copper without much difficulty by the battery, but the deposited metal is not so dense, nor is it so little affected by corrosive substances as the hammered metal.
- A. F., of Va.—Kaolin is simply a very pure species of clay, silicate of alumina. The purest natural silica or silict acid, is crystallized quartz, but white sand is sometimes found nearly as pure. Kaolin and silica are used for porcelain and pottery, and silica, white sand, in addition, is in demand for glass making. The market for these articles is now pretty well supplied, but there is always room for superior qualities, and in the due progress of manufacture all the good beds of kaolin and sand in the country will be called for.
- L. H. P., of Ill.—" What will be the power exerted in each hand while drawing out a spring balance, when it indicates 25 lbs., pulling horizontally, one hand on each end of the scale? Will the resistance be 50 lbs. or 25 lbs., with each hand or, 25 lbs. and 12½ respectively or other wise?" The resistance on each hand will be 25 lbs. This is a new form of an old question.

L. and C., of Ind.—Solder is never directly used to unite a metal with glass; glass and metallic solders are incompatible. A metallic brilliance is often given to buttons and other small articles of glass by attaching to the back a bright metallic foil. The internal surface of glass ornaments are also sometimes silvered by a fusible amalgum.

S. N., of N. Y.—The black varnish liquid blacking for boots is not to be recommended. When the blacking becomes dull, it is di ficult to remove the hard resinous matter from the leather.

J. C. T., of Ark.—It has often been proposed to carry up, with a balloon, hydrogen condensed in a metallic vessel, and to use the hydrogen as a reserve to keep the balloon inflated. But the idea seems impracticable; the weight of the vessel would more than counterbalance the ascensive power of any gas that it could contain.

W. B., of C. W.—The spent acid of the oil refineries is mostly used here for preparing super-phosphate or other manures. The acid does not bear much transportation, and should be used np where it is produced.

R. G. of Conn.—Sea sand is not a special and peculiar mineral formation, but is simply a finer sort of gravel. All the particles of sand and gravel were once undistinguishable parts of the solid rock. The variation of currents, etc., account for the deposition of such ma terials according to fineness in different localities.

S. 'C., of O.-We think you are mistaken. There is no alloy of lead and tin which has a higher melting point than lead. . . The ores of mercury which are worked are always solid.

COUPLING JOINT FOR THE PITMAN AND SIGKLE BAR.-Wm.J.Keeney, Norwalk Co., Ohio.-This invention consists in coupling the pitman to the sickle bar of a reaping machine with an adjustable knuckle joint formed by a movable box fitted against the end of the sickle bar, so that it can work freely and accurately while compensation for wear is fully provided for.

COTTON-BALE TIE.—S. J. Mitchell, St. Louis, Mo.—This invention relates to an improved construction of a fastening for the ends of iron hoops to secure them to a cotton or other bale.

LIFTING JACK.-J. N. Parker, Darlington, Wis.-This invention relates to a new and useful improvement in the construction of a jack for lifting the axles of wagons.

SWINGLETREE.-Martin Ryerson, Huntsville Co., Ala.-This invention relates to an improvement in swingletrees or doubletrees for wagons.

SWIVEL SHIP FENDER.—William Sniftin, Sing Sing, N. Y.—The object of this improvement is to provide a fender for vessels which shall have a rotary motion, by means of swivels or rollers at the end or ends, to which the rope for suspending it is attached.

WAGON JACK.-J. M. Spitler, Clinton, Kansas.-This invention relates to an improved wagon jack.

SMOOTHING LEON.—John Fraser, Dowagiac, Mich.—This invention relates to an improved smoothing iron and consists in having the smoothing surface of copper attached to the body of the iron by rivets onst with the copper plate. •

PLOW.-J.S. Beals, Alabama Center, N. Y.-This invention consists in the construction of a supplemental share, and in the manner of securing the same to the standard, and in securing the colter to the lower end of the same standard on which the supplementary share is arranged.

APPARATUS FOR CARBURETING AIR, GAS, ETC.—George H. Peacock, Fairport, N. Y.—In this apparatus there is so coubined and connected with a supply tank or reservoir tor the liquid hydro-carbons, another vessel, into and through which the air or gas, etc., to be carburetted, is passed, that the liquid within the air vessel can be always kept at a uniform and even or givenhight, or nearly so, whereby the air, etc.,forced or passed into the same, from time to time, whether the apparatus has been running for a longer or shorter time, is always subjected to an equal or corresponding amount of the liquid hydro-carbons, thus producing a gas of uniform deasity and richness at all times.

BARREL, KEG, ETO.—Christopher S. Provost, New York City.—This invention relates to a barrel, keg, or cask, which is divided into two or more compartments by one or more partitions. The object of this invention is to arrange barrels for holding beer, cider, and other liquids, in such a manner that the said liquids may be kept free from the injurious influences of the air, as long as they are in the barrel.

PAINT CAN, ETC.—George W. Bennett, Brooklyn, N. Y.—This invention has for its object to furnish an improvement in the construction of cans for holding paint, and for other purposes, by means of which the can in which the paint or other substance is packed for storage or transportation, becomes a vessel from which it may be conveniently used.

Business and Personal.

### The charge for insertion under this head is 50 cents a line.

Pattern Letters and Figures to put on patterns for castings, etc., etc., are made by Knight Brothers, Seneca Falls, N. Y. G.M. Danforth & Co., Inventors' Exchange, see advertisement.

New invention. A potato digger which puts the potatoes in a bag and the small ones apart in a box. The original was made by a blacksmith at very little cost, which will be saved by the work on three acres of potatoes. Patent rights sell: C. G. Grabo. Address care of Schober Bro., Detroit, Mich.

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Manufactures of stamped wares and small, fine castings, also manufacturers of dies for stamping sheet iron, will please send catalogues and circulars to Bullard & Co., Geneva, N. Y.

J. B., Ill.—You have the right to continue to use a machine that was invented and publicly worked two years before the application for patent. The issue of a patent for such a machine is invalid.

Patentees of small articles will please address "K.," Room No. 3, 36½ Larnad street west, Detroit, Mich.