tight for any length of time—Instead of a great thickness of argilaceous material, called puddle, which is not always at hand, and only applied with great labor and expense, the bed of the canal would have to be ined with Seyssel asphalte to the thickness of about one inch and a quarter.

The application of asphalte to canals would doubtless help to keep the water they contain in a pure state, and do away with that stagnant mud in which water weeds of the coarsest description flourish and impede the progress of the barges, while it in hot weather gives rise to feetid emanations as soon as the water sinks a little below its highest level.

For this purpose the artificial asphalte, which is nothing more than gas tar mixed up with calcareous grit and sand, would not be found adequate, as it cannot be expected to afford a durable or an even surface. The necessity of employing natural asphalte for this and other purposes, instead of various artificial mixtures intended to imitate it, has been recently insisted on by an eminent engineer, who states that economy and durability are "only assured when the asphalte has a natural source like that shipped to London in large quantities from the mines of Pyrimont Seyssel, in the Jura mountains." These mines have been worked by the Seyssel Asphalte Company since the year 1838, the period at which the late Captain Claridge introduced their product to England, and are still, we understand, far from being exhausted.—Scientific Review.

#### Electric Clock in London.

A remarkable clock has been erected for public use at the top of the offices of the Liverpool and London and Globe Insurance Companies, at the junction of Cornhill and Lombard streets, where it forms one of the most conspicuous objects to be seen in the city. The Mechanic's Magazine contains the following description of it: "The object of the Electric Clock Company, by whom it was erected, was to make the 'globe' do duty as a clock face; some of its convexity has, therefore, been sacrificed, but the result is a novel and beautiful object, the interest of which is only exceeded by its utility. The globe is surrounded by gilt stars which indicate the hours, and by the shape of the dial so much light is thrown upon them that they are visible by night and by day, while the pointers contribute greatly to the general effect of the design. The clock requires no winding up. The dial is illuminated by Schaeffer's patent double burners; and by an ingenious apparatus the gas is turned off every morning and evening two minutes earlier and two minutes later every day as the days are lengthening or shortening, and it is adjustable as well for the toggy days of November as for the light nights of summer."

### The Chinese Woman's Telegraph.

During the recent visit here of the Chinese Ambassadors one of them stated in reply to the inquiries of a physician that it was not customary in China, except among the lower classes of the people, for the doctor to see or touch female patients. In order to ascertain the pulse of the sick woman, a string is tied around her wrist and extended outside the window to the doctor, who holds the string between thumb and finger, and by this sort of telegraph is enabled to count the pulsations. This seems a ludicrous plan; but it is far less mischievous than our custom of admitting men doctors to the private apartments of temales. The opportunities for the medical education of women in this country are yearly increasing; and we hope the day is not far distant when the ladies will be able to rout the men from the sick room, and compel them to stand out in the cold, under the window sill In China only women nurses attend during child-birth.

# Charcoal Crucibles.

Mr. Gore communicates to the Philosophical Magazine an excellent way of making charcoal crucibles, etc. He first shapes the articles out of wood, and he finds that lignum vitæ, kingwood, ebony, and beech answer best. After the vessel has been formed, the wood is carefully dried in a warm place. The articles are then enclosed in a copper tube retort having two exit tubes for the escape of gas. This retort is heated slowly at first, and finally for some time to bright redness, to completely carbonize the wooden vessel. It is necessary, Mr. Gore says, to turn the retort continually, and so distribute the beat, that none of the tarry matter evolved may condense upon the articles; otherwise, he tells us, their shape and dimensions may be curiously altered. The heating is to be continued until no more gas is evolved, and care must be taken not to heat too rapidly, or the article will fall to pieces Charcoal made in this way from lignum vitæ is remarkably hard, and the texture is so close as to make it apparently quire impervious to liquids; even after immersion in the strongest hydrofluoric acid the surface and no acid taste, Rods made of this lignum vitæ charcoal, conduct electricity admirably, and would probably, Mr. Gore says, answer well for pencils for the electric arc.

FORTY MILES OF SNOW SHEDS.—The Pacific Railroad Company are now engaged in erecting sheds over the cuttings and other exposed points. They are of heavy timber framework, with pointed gable roofs, and look as if they could withstand almost any pressure of snow. Nearly forty miles of the track will have to be thus covered, and the quantity of timber required will be enormous. Not less than twenty-two saw-mills, most of them worked by steam, are run night and day, employing nearly two thousand men; and yet they do not work up to the needs of the Company. It is estimated that it will require no less than eight hundred thousand feet of lumber to construct a mile of sheds. So great is the demand that the country on both sides of the track is being rapidly denuded of its forests.

# Editorial Summary.

WHITE GUNPOWDER. - A correspondent writes us upon the subject of woite gunpowder. The drift of his communication seems to be that it is not suitable for blasting. We agree with him that it is too costly, and makes too much smoke, which is annoying to miners; but we can scarcely see how our article, which was intended to be a general review of the subject, as discussed in scientific journals of this and other counties, could justify the opinion that we supposed it adapted to mining or quarreing. We even took ground against its use for heavy artislery, and only admitted the possibility of its adaption to small arms. The fact that it is apt to explode, during the operation of tamping, is to be interred from the directions we gave for its use, and its cost should be compared only with that of fine gunpowder, and not with coarse and cheap blasting powder with which we had no intention of comparing it

RECIPE FOR TOMATO KETCHUP.—Remove the skins by pouring scalding water over the tomatoes in a pan. Simmer the fruit at least one hour (a longer time will not injure); using sufficient water to keep from scorching. When cool wring the mass through a piece of coarse cotton or linen cloth wet in cold water. To each gallon of liquer add 2 tables on sful whole black pepper, one-third teaspoonful of pure cayenne pepper (ground), and 1 tablespoonful of cloves. B il the whole until reduced one-third. Add 2 tablespoonfuls fine salt to every gallon while hot, and when cold strain out the spice and bottle. No vinegar is used. Will keepfor years; but if scum rises at any time re-boil and add a little more

THE BRITISH PATENT OFFICE.—In 1867, 2,284 patents were passed, and 2 253 specifications were filed. 2,528 applications for Letters Patent lapsed or were for leited by neglect to proceed for patents within the six months of protection. The fees received in the year 1867 (by stamps) amounted to £112,843. The fees paid to the Attorney-General and Solicitor-General, and their clerks amounted to £11,115; and the salaries and expenses of the office, compensation annuities, printing, and other expenditure, with the payment of the revenue stamp duty of £30,820, left a surplus income for the year of £42,840. The Commissioners—the Lord Chancellor, Master of the Rolls, Attorney-General, and Solicitor-General—renew their representation of the need of a suitable building for the Patent Office.

LIFE IN THE SEA.—Two well known naturalists, Dr. Carpenter and Professor Thomson, of Bel'ast, are engaged in a dredging expedition, to the westward of the Faroe Islands. This will decide the question whether there are living creatures in the deepest parts of the sea. Eminent authorities (the late Professor Edward Forbes among others, according to Chambers's Journal) have maintained that the pressure at the lower depths was too great to allow of existence being carried on—that there was not sufficient light—and that the water contained too little air.

THE velocipede is suggested as a substitute for the horse for the rapid transportation of infantry. Celerity of movement is the desideratum; for it is a maxim that the strength of an army, like the power in mechanics, is estimated by multiplying the mass by the rapidity. Now, as to comparative speed. Recently, in France, there was a race between a velocipedist and a horseman for a distance of forty-five miles, when the, latter won by only twenty-five minutes, after a run of six hours. It is stated that but for a head wind that blew all the time the machine would have won. Imagine a body of troops moving on the enemy mounted on the velocipede. It would be a great sight.

THE proposition has been made to make a canal across Southern Michigan to connect Lakes Michigan and Erie, and thus save the grain laden vessels eastward bound a voyage of about 400 miles which they are now obliged to make around the southern peninsula of the Wolverine State. Another proposition of a similar nature is a canal through Canada connecting Lakes Huron and Ontario. Both are said to be feasible, and the latter can be accomplished, the engineers think, for \$40,000,000. This, however, is not so important as the route from Lake Michigan to Lake Erie, as but a small proportion of the commerce of the lakes extends to Lake Ontario.

It has long been contended that steel boilers never could be used, not being sufficiently tenacious. But this theory has been badly damaged by some recent experiments at Pittsburg when a steel boiler has withstood the most pressure that could be brought to bear upon it. The biler is made of two places of No 3 steel, ½ inch thick, 6 feet long, and 38 inches in diameter. It has been subjected to several tests, the 10th trial giving it a pressure of 725 pounds to the square inch. Experiments on it continue, but up to this writing no pressure has been able to burst the boiler. It has stretched three inches since the tests commenced.

Wounds by the Chassefor Rifle.—Experiments have recently been made at the camp of Lvons on the bodies of dead horses, with the view of ascertaining the precise character of the wounds produced by co-ical bullets discharged from the Chassepot muktt. It is said that the aperture made by the projectile at the moment it penetrates the flesh is commonly no larger than ordinary pea, but that the representations of the ball revolving on its axis gradually enlarges its circles until it makes a hole into which a person could thrust both fists.

THE foreign exports of petroleum, from the United States, from January 1 to September 12, have been as follows, for the years indicated: 1868 67921.290 gallons; 1867, 41949, 820 gallons; 1866, 39.792,292 gallons; 1865, 12.680,524 gallons. Received at New York from January 1 to September 12; 1868, 692,029 barrels; 1867, 792,507 barrels.

A NEW Russian invention is a letter-box, so contrived that when a letter is deposited, it gives the depositor a ticket in exchange, showing the date when the letter was put in the box. We are not informed whether the Government is expected to assume any responsibility not already assumed in regard to the safe delivery of letters. If not, what is the invention worth?

CATTLE PLAGUE IN RUSSIA.—The cattle plague is making great ravages in the governments of Pakof and Norgorod. The disease has also made its appearance in the environs of St. Petersburg and Mascow. One of the Russian papers remarks that the cattle plague will do more mischief in the empire than a thousand Polish insurrections.

UNDER the Ming dynasty, in China, paper money issued by the government is inscribed with the hint that it must be received as coin and that whoever refuses to so receive it shall have his head cut off. There is no premium on gold or discussion as to how the currency shall be redeemed, in China

AN Albany mechanic has invented a process of manufacturing paper boxes by pressing the pulp in molds. They come out fit for immediate use, and can be made quicker and cheaper than from the board.

EARTHQUAKE AT GIBRALTAR.—There has lately been an earthquake at Gibraltar, the first which occurred for many years. Two distinct shocks were felt, but it does not appear that any serious damage resulted,

A MAN in Lynn, Mass., a few days ago made fifteen pairs of ladies' gaiters in less than ten hours, making seven dollars and fifty cents. This is the greatest feat known to be accomplished by any shoemaker.

PROF. WHITTLESEY has discovered evidences of the residence of man at the High Rock Spring, Stratoga, just 4,840 years ago, or about six centuries before the deluge.

### MANUFACTURING, MINING, AND RAILROAD ITEMS.

From January 1st to September 1st, this year, the receipts of lumber at Chiago were 659,317,000 feet, and 157,117.000 shingles.

The Detroit Car Companyhave a contract for 200 platform cars for the Union Pacific Railroad.

The Society of  $\Delta rts$ , London, has offered prizes for the best improved models of rail way meativans, milk-vans, and milk-cans.

The earlings of western railroads, as shown in the official reports, indicate a large increase in their business.

The cost of the iron bridge to be erected by the Union Pacific Railroad Company over the Missouririver will probably not fail below two millions of dollars.

The first woolen mill built in Minneapolis, Minnesota, was the North Star Woolen M ll erected in 1864. It is of stone, seventy by fifty feet, and four stories high.

Two bonded yards for railroad iron have been established at Detroit for the accommodation of the Grand Rapids and Indiana Railroad Company who are receiving large quantities from aproad.

There has been a large falling off in the business of ship-building in Main e this year. Instead of from twenty to thirty first-class ships, as has heretof tre been the case at Batn, only seven ships of 1,200 tuns eachhave been built this

There are 557 woolen mills in the seven states of Otio. Michigan, Indiana, Illinois, Iowa, Wiscons in, and Minnesota. Their aggregate capital is \$5,448,000.

year.

The Taunton Machine Company is to build a pulley for its own use which, will be 30 feet in diameter, and the pit lathe in which it is to be constructed, it is said will cost over \$5,000.

There are ten factories in St. Louis engaged in the manufacture of hide-covered saddletrees which are principally sold in New York, Newark and Philadelphia. The wood used is mostly nackberry and sycamore, which is very soft when green and easily worked but which hardens very fast.

Mount Vista, about ten miles from Saratoga, a bluff rising directly from some table land to a hight of 500 feet, is found to be composed of a pure white sienite granite, equalor superior to any E is tern granite for monumental or other purposes, with a gran so fine that after dressing it resembles marble.

Aniron mountain, five miles long and two hundred feet high, has been found in Cobden, III. It is within three miles of the II inois Central Railroad and alargepart of the iand belongs to that corporation. The iron crops out all along the ridge and is of extra purity.

It has long been contended that steel boilers never could e used, not being sufficiently tenacious. But this theory as been badly damaged by some recent experiments at Pitts.

The Sc. Louis order over the Mississippi is expected to be completed by the summer of 1.71, and the St. Louis merchants are auxiously awaiting the day. Now it constituent twelve cents a barrel to send flour 1,500 yards across the river, while it coses only twenty cents a barrel to send it to New Orleans, 1,200 miles below.

The Government machine shop at Charlestown Mass., has just completed the largest planing machine in the United States, and they think, the largest in the world—It will plane ap ece of iron forty feet long, twenty feet wide, and twenty feet high. One of the bid piec's weighs over torty tuns. Seth Wilmarth, the master machinist of the yard, was the designer.

It is only fourteen y ars ago that a grand excursion was made to St. Anthony's Falls, on the completion of the Chicago and Rock Island Rallroad, in celebration of the finished railroad connection of the Atlantic and the Mississippi, and yet to-day, there are no less than twenty-five railroads that strike that great river between St. Louis and St. Paul.

The grasshoppers were so thick on the Missouri Valley Railroad track as to cause the wheels to slip and delay the morning train two hours on the 14th inst. It was several times necessary to stop the train and sprinkle dirt on the track to make the wheels blie.

The Reading Railroad Company own 16,355 cars of all kinds, and 268 locomotives. Were these all placed in one line upon the track they would make up a trainforty miles in length. The greatest distance wethun by any engine of the company has been accomplished by the engine Atlas, which has traveled 363,000 miles, or about fibeen times the earth's circumference.

Lynn has shipped 35,800 cases of shoes during the past three months slightly in excess of last year's shipment. The total number of pairs in this immense pile would be about 2,148,000, and the aggregate value \$2,

In the Illinois Penkentiary eight hundred convicts are employed in mecharical trades. Two hundred and fifty are in the cooper shops, ninety make shoes, torty-four make cigars, and there are thirty harness makers.

The Everett Mills, in Lawrence, Mass., run 30,000 spindles, employ 1.000 hands, use every week 12,000 pounds of wool and 20 000 pont ds. f cotton; and produce in the same time, 100,000 yas ds of goods, principally flannel shirtings, cotton and cot on wool fabrics, dress goods, and shawls.

Work upon the Iron Mountain Railroad between St. Louis and the South is going on rapidly. Track laying will be finished to a point four miles below Farmington within sixty days, and the track has already been laid from Belmont to Charleston. Fifteen hundred men are employed upon the line in and at the tunnel, fifty miles from Bismarck; four sets of hands are constantly employed working night and day. This tunnel is twelve hundred feet in length.

Experiments have recently been made at the camp of Lyons on the bodies of dead horses, with the view of ascertaining the precise character of the wounds produced by conical bullets discharged by the Chassepol muskets. It issaed that the aperture made by the projectile at the moment it pentrates the flesh is commonly no larger than an ordinary pea, but that the rotatory movement of the ball revolving on its axis gradually en arges its cir cles until it makes a hole into which a person could thrust both fists

CHROMATE OF IRON.-This mineral, which is found so abundantly in Maryland and Pennsylvania, has recently been used for alloying iron and steel to considerable extent, and with highly satisfactory results, the steel made from the mixture being the bardest known. Works for its manufacture have recently been erected, and a comp ny formed whose capital is \$400,000, which are in active operation. The extension of the use of this mineral for harden ing various manufactures of iron is now under experiment; and if the results prove satisfactory, the consumption of chrome ore, or chromate of iron, as it is technically termed, will be greatly increased.

# Recent American and Loreign Latents.

Under this heading we shall publish weekly notes of some of the more prom inent home and foreign patents

LAMP FEEDER -T. P. Gibbons, Baltimore, Md.-The object of this invertion is to provide a cheap and convenient device by which lighted lamps can be filled at any time with perfect safety.

SNOW PLOW FOR RAILROADS .- Jenkins Jones and T. G. Eiswald, Provi dence, R. I.—The object of this invention is to construct a snow plow for rallroads which shall operate more easily and effectually than thou fore in use, and by which the snow may be thrown upon either side of the track, as may be desired.

STOVE .- Henry D. Snyder, Carbondale, Pa.- The object of this invention is to so improve the culm or anthracite burning stove, that better combustion of the tuel will be effected, and the heat be better radiated than heretotore while the outer wall of the stove can be opened all around the fire box so as to diffuse the cheerful radiance of the fire on every side. The stove can also, be readily changed and adapted to burning different kinds of coal and wood.

WATER ELEVATOR -C. F. Woodruff, Nawbern, Tenn.-The object of this invention is to furnish a simple and neat device by which, after raising a bucket of water from the well, the bucket can be readily and conveniently lowered into the water again without reversing the motion of the crank by which it was raised. This device is an improvement on one patented by the same party Feb. 4, 1868.

CLOTHES WRINGER.-Josiah Webb, Spartaneburgh, Pa.-This invention consists in the peculiar method of constructing and arranging the compressing rolls, whereby the water is more completely expressed from the clothes, and whereby, also, the rubber coating of therolls can be easily adjusted and

PROCESS FOR PREPARING SULPHATE OF BARYTES .- Page and Krausse, St. Louis, Mo.-This process is a simple and effective series of operations for treating the mineral known as su phate of barryta or heavy spar, so called whereoy the mineral is refined and reduced to a fine powder known in com merce as sulphate of barytes.

GUIDE FOR SCROLL SAWING .- G. W. Staats. Newcastle, Pa. - The object of this invention is to enable irregular figures and curves to be sawn from wood by a scroli saw without the necessity of working to a line, which latter operation is properly performed by a skilled workman, beside requiring the figure to be marked to the wood to guide the operator.

GROUND AUGER MACHINE.-Jacob M. Walter, and Samuel Shank. Spring field, Obio. The object of t is invention is to provide a machine for boring post holes in the ground, which is effective, easily and conveniently operated and adjutable to operate upon side bills. It consists of a binged auger shatt whereby the earth lifted by the auger may be conveniently deposited away from the hole, together with windlass and cord mechanism for lifting the auger shaft vertically from the hole. It further consists in the form of the boring disk, and hinged or pivoted uprights supporting the boring and lifting mechanism, the said uprights vibrating in contact with slotted semi circular plates affixed to the bed frame of the machine which serve in con junction with clamp borers and screw stude in the uprights to adjust the up rights and the auger shaft in a vertical position when the hole is to be boxed on a side hill and the bed frame is necessarily inclined from the horizontal.

TENONING MACHINE.-William McKnight, Clearfield, Pa.-The object of this invention is to provide an apparatus by means of which tennous of any suitable angle and slope, both in the tennon and shoulder of the same, may be cut in an expeditious and accurate manner. It consists of a fran e having devices for adjusting and holding the wood to be cut in such a manner that the tennou when cut will be straight or tapered, or the shoulders of the same will be straight or mitered as may be desired and having, also suitable guides for the plane. It surther consists of a tennoning plane having a shear iron, in combination with the frame above mentioned.

Sawing Machine.-Simuel Yarion, deceased, Corunna, Mich.-This invention refers to a portable machine designed more particularly for felling trees and for cutting the same up into dimensions suitable for portability or for consumption as fuel, and is peculiarly simple and effective in accomplishing the same.

LIFTING MACHINE.-Andrew Kriebel Hercford, Pa.-This machine has for its object to furnish a simple, cheap, and convenient machine, designed especially to enable the end of an endless cham horse power to be easily and conveniently raised by one man, to receive the trestle, so as to give a proper inclination to the endless chain of the machine.

WAGON JACK .- E. R. Baldwin, Southfield, Mass .- The object of this invention is to provide a wagon jack that may be operated with greater case than those now in use, and which is more especially adapted for raising heavy trucks and carts which stand low, but which may also be used with equal ta cility for high and light wagons.

SEED COVERER.-E. D. Cramer, Hackettstown, N. J.-This invention re lates to a new device for covering the seed behind a planting or seeding ma chine, and consists of a triangular frame which rests on three or more wheels and which is attached behind a planter or seeding machine, so as to follow its motion. On the two sides of the frame, which converge directly in front, are secured metal plates that are up and down adjustable these; plates acting as scrapers for covering the seed.

ADJUSTABLE CARRIAGE POLE .- M. A. Koon, Catskill, N. Y .- This invention relates to that class of carriage poles which can be adjusted to carriages, sleighs, or other vehicles, in which the clips may be set at any suitable dis t ance apart and to any length of axle.

CORN HARVESTER.-Nelson Newman, Springfield, Ill.-This invention re lates to a new and improved device for picking the ears of Indian corn from the standing stalks.

COMBINED COEN PLANTER AND CULTIVATOR.—John S. Mason, Coal Run, Obio.—This invention relates to a combination of a complanter and cul

tivator, and it consists in a peculiar construction and arrangement of the

WRENCH .- Luke Chapman, Collinsville, Conn -- This invention has for its object to furnish an improved wrench simple in construction, comparative ly mexpensive in manufacture, strong, and convenient.

ANGULAR SHAFT COUPLING -John M. Case, Worthington, Ohio.-This in vention has for its object to improve the construction of my angular shaft coupling, patented March 10. 1868, and numbered 75.364, so as to make it simpler and cheaper in construction, and equally efficacious in use.

PLAYING CARDS.-J J. Levy, New York city.-ihis invention relates to new manner of forming the edges of playing cards, for the purpose of facilita ting the shuffling of the same, and to prevent them from spitting. It also consists in providing the cards with beyeled edges when double beyeled or single, so that they are narrower at the edge than in the middle.

BEEHIVE.-Orrin Field, Independence, Iowa.-I his invention consists in a peculiar construction of the hive, the manner of arranging the comb frames etc, whereby a very desirable hive is obtained, all the comb frames rea dered very accessible, and all of them rendered capable of being renewed when necessary

PACKING. PRESSING, AND WEIGHING WOOL, ETC .- A. W. Fox, Columbia wille, Mich.-This invention relates to a machine for packing, pressing, and weighing wool and other similar substances, and it consists in a novel construction and arrangement of parts.

REFRIGERATOR-Wilson Bray, Stockton, N. J.-This invention relates to an improvement in refrigerators, and the improvement is applicable to railway provision cars as well as to stationary refrigerators, both on a large and

HEATING RAILWAY CARS BY STRAM.-W. B. Farwell. New York city.-This invention relates to certain improvements in heating railway cars by steam taken from the boiler of the locomotive by which the cars are drawn.

WAGON AXLE.-C. D. Bachelder, Camden, Me.-This invention consists in providing an oil recess in the body of the journal of the axle, and a sleeve which is put on over the axle oil tight, to confine the oil in the recess, hav ing a stot communicating with the recess in the axle through which the •il is fed by a wick to the wearing parts.

CONSTRUCTION OF CHAIR SEATS.—E.L. Buckingham, Jefferson, Wis -This invention consists in a method of fastening the rod or splint to the frame of the seat by pr viding oblique slots through the rails from about the center of the inner edge, downward and outward, terminating in the bottom face of the rails near the outer eige, and in passing the strips of which the bottom is to be woven through the said slots, instead of through vertical holes as heretofore; and it further consists in providing tenons on the back ends of the side rails, to be secured in corresponding holes in the hind posts.

KITCHEN IMPLEMENT.-Charles S. Westland and John B. Allen, Provi ence, R 1.—The object of this invention is to provide animplement availa ble both as a stove-plate lifter and a holder for knives, forks, and spoons which latter will, when so held by the implement, be conveniently accessi ble to the person employed in cooking.

BLOCKING CHAIN.-Peter Kendrick, Trenton, N. J.-This invention re lates to a device for facilitating the driving of wooden blocks in chains, such as are used for mining purposes.

SULKY PLOW .- J. R. McConnell, Marengo, Iowa .- This invention relates o a sulky plow, and it consists in a peculiar construction of the same by ease of draft, uniformity in the depth of furrow, and complete control over the machine by the driver, is obtained.

DEVICE FOR CONDUCTING GRAIN TO THRASHING MACHINES. - A. W. Lockhart, Sacramento, Cal.-Talis invention relates to a device for conducting grain, from the stack or from wagons, to trashing machines, thereby effect ing a great saving in lacor in thrashing grain.

STEAM ENGINE.-Thomas A. Nizer, Hamilton, Ohlo.-This invention re lates to that class of steam engines which are known as rotary engines, and it consists in a novel construction and arrangement of parts.

GAS APPARATUS. - John W. Brown, Wooster, Ohio. - This invention re lates to improvements in apparatus for generating and purifying coal gas, for illuminating as d other purposes, whereby the apparatus is adapted to household or domestic use, and the flow of gas to the gas holder is regulated automatically, and the surplus gas used as fuel.

MACHINE FOR STUFFING COLLARS .- William Fauntlerey, New Harmony Ind.—This invention consists of a collar board pivoted centrally on a suitable bench, whereon the leather portion of the collar is stretched and secured with both ends open, and a pulley made to operate by a foot lever, over which a belt works, to which a stuffing mandrel is connected, which is guided by one hand, while by the other the straw on the filling is fed into the mouths of the collar, and the strap actuates the mandrel to pack the filling. When the collar has been filled at one end to the center, the collar board is swung around to present the other end to the operator.

MORTISING AND SLOTTING AUGER.-Peter Cunningham. Eckley. Pa.-The object of this investion is to provide an auger with which the operations of mortising and slotting may be performed rapidly. Patented Sept. 1, 1868.

# 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 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 gratuitous repties 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 back numbers should be by volume and page.

- W. L. B., of N. Y.—There is nothing that will remove rust from polished seed and leave a smooth surface. Iron rust is dissolved by acids, but they will attack the polished metal. The only remedy we can recommend is repolishing.
- A. J. G., of Kansas.—The amount of water that can be raised to a given hight by the hydraulic ram, working under a given head, is iim ited only by the size of the ram and the supply. Hydraulic Rams are man ufactured by W. and B. Douglass, Middletown, Conn.
- J. J., of Ill.-If wheat is not allowed to sweat before grinding, the flour will sweat after grinding; but this may take place without injury or loss more than is usual in the complete drying of believe the best flour is made from wheat which has passed through this stage before grinding. The bolting cloths made in Holland are of silk, instead of thistle fiber as you have been informed.
- M. H. R., of Mass.,-All other things being equal increased length of a water pipe diminishes the flow. In your case, if we understand it, the flow through the anerture at the function of the pine with the cistern depends upon the pressure of the water in the reservoir. Beyond a length sufficient to compensate for the contracted vein a pipe will be of no
- F. C. C., of Me.—There are different theories in regard to why the ocean is salt. Some think there may be large deposits of salt somewhere at the bottom of the ocean which by dissolving have rendered it salt. Some think that the sea obtained its salt at the time the globe was in the act of subsiding from a faseousstate. We are better satisfied to be-lieve that it results from the evaporation of the water which is constantly flowing into the sea, which, although it may appear fresh to the taste, A TREATISE ON OPTICS. or Sight and Light Theoretically always or nearly always contains more or less salt absorbed from the earth during its flow. In this view the ocean bed is a immense tailoro in which nature has been boiling away water for ages; the salt remaning in the kettle, precisely as it does in the saltworks, only very much

G. W. B. of S. C.—A good waterproof cement may be made simply of powdered clay, dried by a gentle heat and mixed to the consist the study of larger works. To all such we can recommend it.

tency of a paste with boiled linseed oil. It may be thinned with turpentine, colored with ochres or other pigments, and used for covering metallic roofs.

- M. A. K., of Conn.-We have frequently restored faded flowers by immersing a portion of their stems in very hot water and allowing them to remain until the water is cool; then, removing them, cutting off the scalded portion of the stems and placing them in a vase of cold water.
- A. H., of R. I., says that sawdust is the best bedding for horses he has ever tried. It possesses all the qualities necessary; it is an absorbent, a deodorizer, and a fertilizer, keeps the horse's skin in a healthy condition, and does not contaminate the clothes of the attendant with
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