and are thirty feet in hight above low water, and have a width at the bottom of nine feet, and at the top under the coping (which projects nine inches on all sides) of six and one half feet. They are all built of heavy cut stone laid in cement.

The face stones are all clamped together by iron clamps, and, in addition, the two faces of the pier are tied together by iron bars at intervals on each course along the front, extending through the pier from side to side; and still further to insure the strength of the masonry, the head stones are all dowled together with iron dowels—each stone to the stones both above and below.

The bridge has been constructed by "The Albany Bridge Company," constituted mainly of directors in the different railroads centering at Albany, and it is understood that it is owned one-half by the New York Central Railroad, and one quarter each by the Hudson River and Albany and Boston Roads. The total cost of the bridge has been over a million of dollars.

HOW THE PACIFIC RAILWAY IS BUILT.

From an able correspondent of the Cincinnati *Gazette*, who accompanied the senatorial party, we learn the *modus operandi* of the construction of the great trans-continental road, which is steadily progressing at the rate of two miles per day.

"There is really little known by the people of the character of the enterprise. Most think that a company of capitalists are hastily putting down a rude track, over which cars can be moved with care, for the purpose of securing lands and money from the government. The fact is, that one of the most complete roads of which the country can boast, with equipments that surpass many, is being laid with a speed that fails to impress the nation, simply because it is not believed. But let the facts tell their plain yet wonderful story.

"General J. S. and D. C. Casement, of Ohio, grade the road, lay the track, and put up the telegraph. The graders go first. There are two thousand of them. Their advance is near the Beach Hills. They protect themselves and are digging the great fortification which makes the future sure for us, on through Indian battle fields while the daily fight goes on. Their work is done to Julesburg.

"Of tie-getters and wood choppers there are one thousand five hundred. Their axes are resounding in the Black Hills, over Laramie Plains, and in the passes of the Rocky Mountains. They have one hundred thousand ties in these hills awaiting safeguards for trains to haul them.

"A mile in advance of the track layers are the squads which place the tiers. There are three of these. First, however, the engineers set their leveling stakes at distances of one hundred feet on the straight lines and fifty feet on curves. At each of these points sawed ties are placed and leveled by them. Then come two men with a measuring rod, marking off spaces equal to the length of a rail, and also the half of this space. These sawed ties are laid by the second squad, to give firm support to the ends and middle of each rail. These are placed by sighting along the guide ties already laid. The third squad then place the intermediate ties, and the bed is then ready for the iron.

"Now go back twenty miles on the road and look at the immense construction trains loaded with ties, and rails, and all things needed for the work. It is like the grand reserve of an army. Six miles back are other trains of like character. These are the second line. Next, near the terminus, and following it hour by hour, are the boarding cars and a construction train, which answer to the actual battle line. The one is the camp; the other is the ammunition used in the fight.

"The boarding cars are each eighty feet long. Some are fitted with berths; two are dining halls; one is a kitchen, storeroom and office. Under the whole those men who prefer fresh air have swung hammocks. Rifles are hung overhead, plentiful in number, loaded, and convenient. The party protects itself without attention from the government. The track-laying gang numbers 400. On the 350 miles already built there are 1,000 track repairers constantly improving the road bed.

"The boarding cars go in advance. They are pushed to the extremity of the track; a construction train then runs up, unloads its material and starts back to bring another from the second line. The boarding train is then run back till it has cleared the unloaded material.

"Three trucks, each drawn by two horses, ply between the track layers and their supplies. The horses run outside the track, pulling with a long tow line, as boats are moved on canals. They must be out of the way of the workmen. One of these trucks takes on a load of rails, about forty, with the proper proportion of spikes and chairs, making a load, when the horses are started off on a full gallop for the track layers. On each side of these trucks are rollers to facilitate running off the iron. On reaching the end of the last rail the truck is stopped. A single horse is attached to move it over each successive rail. Meantime, the truck last emptied has been turned on its side to allow the loaded one to go to the front. The two horses released are started back on a keen gallop for another supply. The third one moves up in like manner, and thus through all the day they are rushing forward with their iron load. To see them, and reflect what their rush and roaring means, is as exciting as it ever was to watch a battery thunder into position at a needed moment, at the vital point in its line.

"The rails within reach, parties of five men stand on either side. One in the rear throws a rail upon the rollers, three in advance seize it, and run out with it to the proper distance. The chairs have, meantime, been set under the last rails placed. The two men in the rear with a single swing, force the end of the rail into the chair, and the chief of the squad calls out 'down,' in a tone that equals the 'forward' to an army. Every thirty seconds there came that brave 'down,' 'down,' on either side of the track. They were the pendulum beats of a mighty era; they marked the time of the march and its regulation step.

"One of the rear men drove the cars, in addition to handing the rail. The horses started as each rail fell into his place, the truck rolled on to the end of it; a second rail was projected into the wilderness, with the same precision and haste; then came the magic 'down,' the car moved on again, and another length was accomplished.

"Two spikers followed each rail, one party a little in advance of the other. One rail was fastened at the end and at the middle. The second party then drew the opposite rail to the exact gage, and fastened it at the middle and the end. Then came other squads of spikers, moving along with the precision of military drill, each having a particular spike to drive, and no one interfering with another. Track liners followed these, and with their crowbars rectified the line. The fillers came last. One party of these filled and packed the spaces at the ends and middle of the rails; the other completed the intermediate intervals, and the job was left till the squads of track repairers should come up and finish the ballasting. But as the fillers leave it, full trains can run over it with safety at twenty miles an hour.

"These are the dry details. Let the reader picture the scene. The rush of the loaded truck; the successive dropping of the rails in place; the rattle of the spiker's hammer, sounding like a hotly contested skirmish; the roar of the distant supply trains moving up; the resounding of the frequent signals, near at hand; the universal bustle; the 'rumble, and grumble, and roar' of the wonderful advance. Let the elements of savage warfare and the actual presence of hostile Sioux along the bluffs be woven into the picture, and together it forms one that the world has not seen before, and which the stories of magic can scarcely equal.

"Nor is any of this energy wasted. If it is asked: 'How does the work get on?' again let the facts answer. On the 9th of May, 1866, but forty miles of road were completed. In a hundred and eighty-two working days thereafter two hundred and forty-five additional miles were laid and put in prime condition, every rail, and tie, and spike having been brought up from the rear. Seven saw mills furnish the ties and lumber. All bridges are framed, the pieces numbered, and set up where wanted without the least delay. The bridge at Loup Fork is fifteen hundred feet long, and as fine a Howe truss as can be found in the land. While our train was running the sixty miles from North Platte, over a mile of track had been put down and one train passed over it. From one o'clock till four in the afternoon a mile and two hundred feet were added to this while the party were looking on. The progress was astonishing, and the more so because the ground was wet and the soil stiff and hard with alkali.

"Unless driven off by Indians, which does not now seem probable, the road will touch the base of the Rocky Mountains the coming autumn. The California end has already reached a point about a hundred miles east, and is descending the eastern slope of the Sierra Nevadas into the valley of the Humboldt. It is confidently expected that Salt Lake will be reached next year, and that 1870 will see the whole line completed. While the nation has scarcely heard of what was being done, the work has been near one-third accomplished."

A PHILADELPHIA NEWSPAPER ESTABLISHMENT.

The new and splendid building of the *Public Ledger* newspaper, at Philadelphia, was inaugurated on the 20th inst., and the proprietor made it the occasion of a remarkable festive gathering of remarkable people. Many of the prominent newspaper personages from all parts of the country were present and after inspecting the new establishment the company adjourned to the spacious dining rooms of the Continental Hotel, where a magnificent repast was provided, and many fine speeches were made.

The new *Ledger* building is one of the largest printing houses in the Union, very beautiful in architecture, located on the corner of Sixth and Chestnut streets. Every portion of the establishment is complete with regard to light, heating, ventilation, and other comforts. The office and editorial rooms are furnished splendidly. The composing room is on the upper floor, which, by aid of a Mansard roof, has a hight of twenty-one feet. The main entrance is ornamented by a sculptured coat-of-arms of Pennsylvania, and over the doorway at the corner of the streets, is a pedestal sustaining a statue of Franklin, in whose right hand is a lightning rod, which at night will emit gas jets. At the base of the pedestal is a public drinking fountain. The press room has a hight of over twenty-three feet, contains the Harrison boilers, and is to be filled with Hoe's great presses, folding machines, etc. There is not a more complete newspaper establishment in the world.

The *Public Ledger* belongs to the class of cheap or popular daily newspapers. It has been in existence for more than a quarter of a century, and until the breaking out of the war was always sold at one cent per copy. But taxation has deprived the people of the luxury of penny newspapers, and now the *Ledger* readers pay two cents.

The *Ledger* is one of the best daily newspapers in the country, and wields an immense influence for good, in Philadelphia and vicinity. Everybody reads it, trusts it, and follows its counsels. Any thing published in the *Ledger* is regarded by all Philadelphians as authentic. The *Ledger* has a daily circulation of 70,000 copies, an immense weekly edition, and probably more than half a million readers. The *Ledger* was established by Swain, Abell & Simmons. After the death of the last named, a few years ago, Mr. George W. Childs became the proprietor, under whose auspices the establishment continues to prosper. Mr. Childs is a young man of ability and popularity. His success in life has been well earned, and he understands the responsibilities which rest upon him as the owner of a great newspaper.

One of the peculiaritles of the *Public Ledger*, is an entire absence from its columns of self laudation, puffery, clap-trap, and braggadocio. Its news and its discussions of public questions, have always been characterized by truthfulness, and an apparent desire to disseminate correct information. If it did not agree with its cotemporaries, it never called them knaves and scoundrels, by way of argument; but stated its views dispassionately, and thus acquired universal esteem and respect.

The editorial management of the *Ledger* has always been remarkably excellent, and we think that to this fact the success of the paper is in a great measure due.

The editor-in-chief is Mr. Wm. V. McKean, a gentleman of rare qualities for this responsible position. In person he is rather under the medium stature, of compact organization, nervous temperament, large brain, quick perception, fine taste, well balanced mind, safe, cautious, prudent, a ready writer, an accute observer, thoroughly posted upon all subjects, and full of strong, practical common sense. He is indeed a model editor.

Long may the national banners wave from the proud turrets of the *Ledger* building, betokening prosperity to those within her walls and public confidence in their honorable labors.

FRENCH OCEAN STEAMERS.

We learn from the report of the French Trans-atlantic steam navigation company, presented to its shareholders at their annual meeting held in Paris on the 13th ult., some interesting facts in regard to the speed of vessels belonging to this company. Tables drawn up by the post office authorities show that in eleven complete trips from Brest to New York and return, made by the *Ville de Paris* and the *Pereire* between March 1866, and February 1867, in an interval of about twelve months, comprising both the summer and winter seasons, the average speed was 12·8 knots instead of the 11.5 knots required by the terms of the contract. This speed, says the report, we believe has not been equalled even in England; it exceeds by two-tenths of a knot, the average runs of the celebrated *Scotia*, as stated in official documents. One of the quickest passages on record since the commencement of steam navigation between Europe and America, was made by the *Ville de Paris* between the 21st and 30th of July 1866, the average speed of that steamer having been 13.60 knots in a run of 3,000 nautical miles, from port to port. The propeller *St. Laurent*, in one of her passages made 12.10 knots, running 350 nautical miles in twenty-four hours for four consecutive days. The last passage of the *Pereire*, between Havre and this port, was made in nine days and four hours from dock to dock.

In comparing the relative advantages of screw and side wheel steamers, the report asserts the use of the screw procures for vessels of equal tunnage, a saving of about twenty-five per cent in fuel, with an increase of twenty per cent in speed. The results appear to the directors so satisfactory that two steamers the *Washington* and *Lafayetie*, of excellent nautical qualities, but too slow for present requirements are to be fitted with double screws, which recent successful trials in England and in the French imperial navy prove, possess theadvantage of being more easily and more economically adapted than the single screw to vessels already built. The saving of fuel and increase of space reserved for passengers and freight, it is claimed will more than balance the cost of transformation.

Internal Revenue Decision.

TREASURY DEPARTMENT,
OFFICE OF INTERNAL REVENUE,
WASHINGTON, June 14, 1867.

SIR: In your letter of the 13th inst. you inquire whether a manufacturer of patented articles is bound to return the full price at which they are sold, including the patent fee, or whether he should be allowed to deduct said fee.

In reply I have to say that whenever a patent enters into the combination of an article or machine, giving additional value to the same, and enhancing its cost or price to the purchaser, such patent becomes an element of value, and cannot be separated any more than any other element of value. The actual sales' price, including royalty, must be returned for taxation. Yours, respectfully,

E. A. ROLLINS, Commissioner.

OBITUARY.

HON. ISAAC NEWTON, Commissioner of Agriculture, died at Washington, June 19th, at the age of sixty-seven, having been born in March, 1800. He was appointed in 1861 Chief Clerk in the Bureau of Agriculture, and in 1862 to the position made vacant by his death. The duties of the office he held were not such as permitted the exhibition of brilliancy of talent, but demanded industry, application, and much patient care, qualities which Mr. Newton undeniably possessed. He was a gentleman highly esteemed by those who knew him for his courtesy, affability, and purity of character.

THE "Modern Carpenter and Builder," noticed in our last issue, is published by Howard Challen, No. 1,308 Chestnut street, Philadelphia.

Photographic.

Mr. Valentine Blanchard has made known a very simple and excellent plan for keeping wet plates in a sensitive condition for a considerable time, after removal from the bath. The plan is to add a few grains of a salt of bromine—cadmium or ammonium—to the collodion. An old collodion works best. We have tried it with success, adding two grains of bromide of ammonium to the ounce of collodion. In some instances our plates remained three hours in the shield before exposure, and developed without surface stains. The rationale of this method is explained as follows by the *Photographic News*:

The value of a bromide in securing immunity from stains, comets, and other markings has long been known; but its mode of operation in doing this has not been well understood. Its action in permitting long keeping, however, is easily explained. The process of double decomposition, in which the bromide salts employed in the collodion are changed into bromide of silver, is much slower, as is well known, than is the conversion of iodides; and when a simply bromized collodion is employed, the immersion in the nitrate bath needs to be very much prolonged, in order to convert the whole of the bromide in the collodion into bromide of silver. In effecting his purpose Mr. Blanchard just pursues the opposite course. Employing a very highly bromized collodion, he gives the plate the shortest possible immersion in the nitrate bath, keeping it in motion from the first, to get rid rapidly of the greasy, streaky appearance of the plate. The solution running evenly over the film, without streaks or oily-looking lines, which is generally regarded as the indication of sufficient immersion, is, in reality, no test of the conversion of the salts in the collodion film into salts of silver; it merely indicates that the alcohol and ether in the film have become thoroughly mixed with the aqueous solution, and that the mutual repulsion has ceased. Under ordinary circumstances, however, by the time this is thoroughly effected, the mutual decomposition of the iodides originally in the collodion and the nitrate of silver, and the formation of iodide of silver and a nitrate of potash, or other base is also complete. With bromides, as we have said, this operation is not so rapidly completed; if therefore, a collodion film containing a large portion of bromide be immersed and kept in motion so as rapidly to get rid of greasiness, and then removed after a very brief immersion, the film will contain a large portion of the bromide—say, of cadmium or ammonium—which remains undecomposed, and is not converted into bromide of silver. In this fact lies the safety of the plate for long exposures. The free nitrate of silver—which would otherwise be crystallizing on the surface of the film, or, by the concentration of the solution caused by evaporation, acquiring a readier tendency to abnormal reduction—now performs a different office: being in contact with the unconverted bromide of cadminm or ammonium, it is decomposed by it, and aids in the formation of bromide of silver in the film. Instead of being made stronger by evaporation of water, the free nitrate is made weaker by the loss of the silver which combines with the bromine, whilst the nitric acid, combining with the base which leaves the bromine, produces an innocuous, or possibly in some cases a hygroscopic, and therefore beneficial salt. It will thus be readily seen how the use of a large portion of bromide and a very short immersion of the plate in the nitrate bath tend to prevent the stains of crystallization or of reduction consequent on long exposure in warm weather. The mode in which the effect in question is secured in the case described may possibly suggest an explanation of the general action of bromides as aids to clean negatives. It is probable in most cases where a freely bromized collodion is employed, and the plate kept in the nitrate bath the usual two or three minutes, that some portion of unconverted bromide remains in the film, and that the formation of bromide or silver goes on after the plate leaves the bath, the bromide of silver being formed at the expense of the free nitrate on the film, which is thus much weakened. As the use of a weak solution of nitrate silver, at times secured by re-dipping the plate in a weak bath, is known to be conductive to cleanliness, the weakening of the free nitrate by the formation of bromide of silver may also be a source of the cleanliness well known as an accompaniment of the use of bromides.

The amount of bromide in collodion for very long exposures may vary from two grains to two and a-half. Any soluble bromide may, we presume, be used without impropriety.

Sheathing Iron Vessels with Wood.

A correspondent gives us an account of a method of repairing an iron steamer running between New York City and South Amboy, which, in fifteen years' service had become very much corroded externally, although her frame was sound. She was taken out of the water and planked with three-inch yellow pine from the keel to the guard braces, the planks being bolted with five-eighth bolts every linear foot, with large square washers on the inside of the hull; an oak keel was also added and the work was done within five weeks. She is 270 feet long and 30 feet beam, and required over 9000 bolts. She is now believed to be good for at least another fifteen years' work. Parties specially interested in the object are advised to investigate the matter. It is very important if as feasible as our correspondent believes it to be.

SOMETHING NEW IN THE MOON.—At a late session of the French Academy of Sciences, M. Delaunay read a paper, by M. Flammarion, on the subject of a recent change in the moon's surface. A crater well defined and perfectly well known to astronomers has disappeared within a year, and its place is now marked by a large white spot in the middle of a plain. It is the first time that any change in the moon's surface has been noticed. M. Chacomar made a like observation.

OFFICIAL REPORT OF PATENTS AND CLAIMS

[Issued by the United States Patent Office,

FOR THE WEEK ENDING JUNE 18, 1867.

Reported Officially for the Scientific American

PATENTS ARE GRANTED FOR SEVENTEEN YEARS, the following being a schedule of fees:—

On filing each Caveat	$10
On filing each application for a Patent, except for a design	$15
On issuing each original Patent	$20
On appeal to Commissioner of Patents	$20
On application for Reissue	$30
On application for Extension of Patent	$50
On granting the Extension	$50
On filing a Disclaimer	$10
On filing application for Design (three and a half years)	$10
On filing application for Design (seven years)	$15
On filing application for Design (fourteen years)	$30

In addition to which there are some small revenue-stamp taxes. Residents of Canada and Nova Scotia pay $500 on application.

☞ Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & Co., Publishers of the SCIENTIFIC AMERICAN, New York.

65,785.—GLUE.—William Adamson, Philadelphia, Pa.

I claim a glue consisting of size aerated, or treated with gas, substantially in the manner described.

65,786.—PROCESS OF MANUFACTURING AERATED GLUE.—William Adamson, Philadelphia, Pa.

I claim the mode or process substantially as herein described of aerating carbonating size for converting the same into glue.

65,787.—MANUFACTURE OF GLUE.—William Adamson, Philadelphia, Pa.

I claim the combination substantially as described of glue or size with carbonate of soda for the purpose specified.

65,788.—CAR TRUCK.—C. F. Allen, Aurora, Ill.

1st, I claim an eight wheel truck which is composed of two independent four wheel trucks connected together by means of a platform, A, which is supported upon, and connected by pivots to laterally swinging spring beams, arranged substantially as described.

2d, In an eight wheel truck, I claim the combination of the laterally swinging and vertically elastic beams, D D and E, with the side springs, f f, and equalizing beams, D' D', so arranged that the weight of the load upon the center of the platform, A' will be uniformly disposed upon all the axles of the trucks, substantially as described.

3d, The connecting platform, A, constructed of wood and metal provided with a swinging beam, K, and strengthened by means of trusses or braces, J J, substantially as de cribed.

4th, In combination with the bars, b, b', braces, c c, pedestals, a a, steps, e' e', and saddles, e2 e2, I claim the transverse beams, C C, metal boxes, e e, pillow blocks, d d, tu lcra straps, g', and the equalizing beams, D D, with their springs and connecting loops all arranged and operating substantially as and for the purposes described.

65,789.—FLOUR BOLT.—Elkanah Bateman, Frederick City, Md.

I claim the buckets, n, arranged and operating in combination with the bolting cylinder and fan, substantially as herein set forth.

65,790.—CAR SPRING.—Julien F. Belleville, Paris, France.

I claim the spring composed of trunco-conical disks having the form and proportions herein specified, arranged in pairs, united by means of a rod passing through the center of the said disks as shown and set forth.

65,791.—FAUCET.—Marshall Burneet, Boston, Mass.

I claim a faucet having the cylinder, C, valve, F, cone, H, and cam lever, I J, all constructed and arranged substantially as shown and described.

65,792.—FLOAT OR RAFT.—Andrew Carson, Memphis, Tenn.

1st, I claim constructing a float for saw mills or the purposes herein described, by securing a sufficient quantity of light timber or other material together in a solid mass, and supporting a platform on the same, substantially as herein described, for the purpose set forth.

2d, I claim attaching side floats to the main float, for steadying the structure, and making room to deposit the sawed lumber, as herein described.

65,793.—GRAIN DRYER.—Lewis S. Chichester (assignor to himself C. W. Mills and G. H. Nichols), Brooklyn, N. Y.

1st, In a grain drying apparatus, I claim a chamber above the fire into which air is admitted in large volumes and descends and mingles with the products of combustion and passes into the grain dryer, substantially as and for the purpose specified.

2d, I claim the arrangement of the hot and cold air flues, f and n, trunks, g org' and valves, l l,' and m m', for regulating the temperature of the air passing into the grain drying chamber, k, substantially as specified.

3d, I claim a series of half pipes crossing the grain chamber and opening at or near both ends into air spaces or flues as set forth, so that the current of air shall pass through and beneath the half tubes and in contact with the grain as set forth.

65,794.—MACHINE FOR FILLING CYLINDRICAL MOLDS FOR RUBBER GOODS.—J. W. Cobb, Melrose, Mass.

I claim so connecting by gear or otherwise the pattern roll, M, with the filling roll, R, that the said filling roll, R, shall always revolve with greater rapidity than the pattern roll, M, made substantially as described and for the purpose set forth.

65,795.—SLATE FRAME.—J. M. & John Connel, Jr., Newark, O.

I claim a corner casing of elastic or resilient material constructed substantially as described to hook into notches in the edges of the slate.

65,796.—WOOD PLANING MACHINE.—W. H. Doane and W. E. London, Cincinnati, Ohio. Antedated Dec. 18, 1866.

1st, We claim the combination of two or more removable tonguing and growing cutter heads, having attaching stems, formed on or applied to them, two or more spindles with their upper ends below the surface of the planing bed, and a rotary planer, constructed and arranged so as to operate substantially as and for the purpose set forth.

2d, Placing the beading shaft of a planing and matching machine within or upon the pressure bar for the several purposes and in the manner described.

65,797.—AXLE BOX.—D. H. Dotterer (assignor to himself and Dillwyn Parrish, Jr. Philadelphia, Pa.

1st, I claim the hollow roller, B, having openings arranged substantially as described, for permitting the lubricating material to pass through the said roller to the stationary pin, E.

2d, The said stationary pin, E, and its longitudinal groove, q, in combination with the hollow roller and its openings.

3d, The stationary pin, E, arranged within the box and confined thereto by the detachable cap or follower, k, and substantially as described.

65,798.—GANG PLOW.—C. L. Eastham, Rhodes Point, Ill.

1st, I claim the combination of the axle, A, and hinged bar, C, provided with the lever, l, and having the plows attached thereto as described, all constructed and arranged to operate substantially as set forth.

Second, The combination of the lever, L, connected to the plow beams and having a fulcrum at or near the axle, with the elbow lever, E, pivoted to the tongue or equivalent part arranged to operate as described.

65,799.—CAR REPLACER.—N. H. Edgerton, Pottsville, Pa.

1st, I claim the reversible and detachable canting block, K, secured to the rail, A', and the depressed foot, n, substantially as described.

2d, I claim the plated incline, D, having a projecting foot, m, in combination with a canting block, K, adjusted substantially as described.

3d, I claim the combination and arrangement of my second claim with the inclined block, C, when both are constructed and operating substantially as described.

65,800.—SPECTACLE.—George D. Edmondson (assignor to himself and Albert R. Clark), Detroit, Mich.

I claim the spectacles with lenses each of which consists of two pieces of different relative convexity and set at a different angle in the bezel, substantially as described.

65,801.—ROCK EXCAVATOR.—W. H. Elliot, New York City.

1st, I claim the combination of car, a, track, h', and drilling machine, e, when said machine is suspended from a car, substantially as herein shown and described.

2d, Platform, c, in combination with car, a, and drilling machine, e, substantially as and for the purpose herein set forth.

3d, Adjustable support, f and f', in combination with car, a, and drilling machine, e, substantially as and for the purpose herein shown.

4th, Frame, m", in combination with drilling machine, e, and platform, c, for the purposes herein set forth.

5th, Braces, o, in combination with platform, c, substantially as and for the purpose herein set forth.

65,802.—DRILLING MACHINE.—W. H. Elliot, N. Y. City.

1st, I claim the carriage, k, with springs, n or n', in combination with cranks, h', and drill spindle, l, when operating substantially as herein shown and described.

2d Projections, n', and a corresponding collar on the drill spindle, in combination with spring, n, when employed substantially as and for the purpose herein specified.

3d, The combination of crank, h'. drill spindle, l, and spring, n, when employed as devices for producing excess of motion in the drill spindle over that given to the connecting rods by the cranks which shall cause the machine to feed towards the rock, substantially as shown.

4th, The pawl, u, and rack, u', when acted upon by devices producing excess of motion in the drill spindle over that of the connecting rods for the purpose of feeding the machine towards the rock, substantially as herein set forth.

5th. Plate, m', with its diagonal edge when acting on the notches on the collar, m, to revolve the drill when operated upon by devices producing excess of motion in the drill spindle over that of the connecting rods, substantially as shown and described.

65,803.—PACKING PUMP JOINTS.—Benaiah Fitts, Newark, N. J.

1st, I claim the packing composed of india-rubber, or other similar substances, formed or constructed substantially as set forth and described, that is to say, a packing made by applying the prepared india-rubber in the plastic state to the different surfaces as shown, and compressing it to fit all the inequalities, recesses or grooves in the metal, and being made in vulcanizing to adhere firmly to one part of the metal leaving the other to be freely removed.

2d, I claim a pump valve composed of a metallic case in which is confined india-rubber adhering to the metal by being vulcanized therein and forming an elastic face, as described.

65,804.—FRUIT PARER.—D. H. Goodell, Antrim, N. H.

I claim the combination of the arm, V, with the notched slot, S, in the plate, for the purpose described.

I also claim the described fruit parer, when all its parts are arranged and operated as set forth.

65,805.—CIGAR-MAKING MACHINE.—John Hafer and J. A. Henderson, Bedford, Pa.

1st, We claim the packing tube, C, arranged and operating as described.

2d, The combination as described of a fixed hopper tube or feed pipe with a reciprocating tube, for the purpose set forth.

3d, The combination substantially as described of a fixed hopper tube or feed pipe with a plunger reciprocating inside and a packing tube reciprocating outside the feed pipe for the purpose of filling a wrapper with fine-cut tobacco.

65,806.—SORGHUM STRIPPER.—David Hain, H. A. Gross and Martin Hain, Gasconade county, Mo.

1st, We claim two pairs of semi-elliptical knives, c2 c3, one pair of which is to be placed in front of the other, substantially as described and set forth.

2d, We claim the flexible handles, c c', in combination with the knives, c2 c3, for the purpose of allowing the said knives to yield readily to any variation in the size of the stalk passed between them.

3d, We claim the knife handles, C', and the toggle bars, D, when combined as herein described and set forth for the purpose of opening or raising the knives, C8.

4th, We claim the knife handles, C', the toggle bars, D, the spring, D2, or its equivalent, the rod, D', the link, d, and the treadle, D3, when constructed and arranged substantially as herein described and set forth.

65,807.—TYPOGRAPHIC MACHINE.—Tho. Hall, Bergen, N. J.

1st, I claim weights attached to the type levers when they are so arranged that they act with less power when the type is making its impression than at any other position.

2d, The stop mechanism, 1111, and hollow shaft, 2' substantially as described.

3d, The arrangement for moving table, by varying length of levers to suit each type, substantially as described.

4th, The method of spacing between letters and words by a variable length of lever, J, by which the space for each letter is increased or diminished equally, substantially as shown.

5th, Moving paper by the clutch, n, on straight rod, m, substantially as described.

6th, Lever, Q, and connections for moving table, substantially as described.

7th, Parallel motion for moving table backward and forward, substantially as described.

8th, Ring, R, or its equivalent, for stopping type when making an impression.

9th, Automatic stop operating when the printing has reached the end of the line, substantially as described.

10th, Varying the length of movement of the table, P, or substance to be printed upon by causing the keys to move different distances before acting on the feed mechanism.

65,808.—ELECTRIC APPARATUS FOR LIGHTING GAS ENGINES.—Oscar Hammel, Jersey City, N. J.

1st, The arrangement of the battery, B, coil, C, pendulum switch, G, and electric hammer, E, all constructed and operating substantially as and for the purpose set forth.

2d, The pendulum switch, F, in combination with the slide, H, or its equivalent, constructed and operating substantially as and for the purpose described.

3d, The electric hammer, E, in combination with the slide, H, or its equivalent, and with the pendulum switch, G, constructed and operating substantially as and for the purpose set forth.

4th, The saddle, p, on the electric hammer, E, in combination with the serrated bar, q, on the slide, H, or its equivalent, constructed and operating substantially as and for the purpose described.

65,809.—LEMON SQUEEZER.—Oswald Hesselbacker and Henry Moesta, Detroit, Mich.

1st, I claim the construction of the frame of a lemon squeezer of the parts, A and B, and a circular bracket, C, which latter is adapted for receiving and supporting a straining cup, D, beneath a plunger, E, substantially as described.

2d, The combination of the vibrating slotted cam lever, G J, and plunger, E, with the cup, D, and its supporting segment, C, constructed and arranged substantially as and for the purposes described.

65,810.—SEED PLANTER.—C. T. Holman, Conneautville, Pa.

1st, I claim perforating the shank of the furrowing tooth and arranging the seed tube to pass through it, substantially as described.

2d, I claim arranging the hoppers on and hinging the furrowing, seeding and covering fixtures or devices to the blocks, J J, arranged to traverse between ways and adapt the planter to rows of different widths, substantially as described.

3d, And in combination with devices hinged to the blocks, J J, I claim the swinging bar, Q', worked by the cam, Q, and so arranged as to work and operate the several parts in the different portions in which they may be placed to vary the width of the rows planted.

4th, I claim making the swinging bar, M', which connects the shank of the furrowing tooth to the link so long that the tooth and link may be traversed on it, substantially as described, in adjusting the machine to rows of different widths.

65,811.—WATER ELEVATOR.—Thomas Holmes, Bristol, R. I.

I claim the combination of the brake lever, G, and pawl, F, with the gear wheels, D C, when arranged substantially as described and for the purpose set forth.

65,812.—BREECH-LOADING FIRE-ARM.—W. W. Hubbell (assignor to himself and J. H. Orne), Philadelphia, Pa.

1st, I claim the breech, B, with its rear face, c, secured firmly in the concaved front of the ordinary screw base, a, of the barrel by the fixed shaft or center, b, with this breech, B, operating the breech, C', under the side ribs, n', by means of the link, D, and locking by their faces, f and e, and by the projection, d, into the bore of the barrel, all within the recess substantially as described.

2d, The detachable cheek pieces, E E, arranged for the introduction of the breech, C', to and its withdrawal from the recess and the rear of the barrel, substantially as described.

3d, The single retracting bar, G, moving in a groove, 4, in one of the two opposite sides of the recess, both in loading and extracting the cartridge shell by the projection, 5, in the slot, 9, and intercepted at each end of the latter by the breech, C', substantially as described and shown.

4th, The stationary rear striker, I2, and the breech, B, and its striker, I1 operating together as described both with and without the front striker, I, when the ends of the striker and breech pieces are beveled, substantially as specified.

5th, The ribs, n', in combination with the rear space, w, and with the retractor, G, to insure the insertion of the flange of the shell in the rear of the retractor head, 6 as described.

6th, The combination of the breech, B, link, D, breech, C', retractor, G arm, F, with the strikers, constructing and operating together successively in the recess and with the barrel to insert, fire, withdraw, add eject the primed ammunition or shell, as described.

65,813.—COUGH MIXTURE.—P. M. Huffman, Harvard, Ill.

I claim a cough mixture which is composed of the several ingredients mixed together in about the proportions specified.

65,814.—CARPET LINING.—M. A. Johnson, Lowell, Mass.

I claim as a new article of manufacture a felted hair bat, or its equivalent, covered with strips of paper on one or both of its sides, and leaving intervening uncovered spaces between the strips for the dust to pass through.

65,815.—SHOE HOLDER.—L. C. Keeler, Montrose, Pa.

I claim a shoe holder constructed as described consisting of the standards, B B', one or more, provided with hooks, a, stirrup or plate, A, and clasp, D, substantially as herein shown and described.

65,816.—PARLOR TENPIN ALLEY.—E. W. Keyes, Boston, Mass.

I claim a parlor alley made with movable or folding buffers, D D', substantially as described and for the purpose set forth.

65,817.—CONSTRUCTION OF SIGNS.—G. H. Kitchen, New York City.

I claim a prismatic illuminator formed of an opaque case with openings to which prisms are applied, substantially as and for the purposes set forth.

65,818.—APPARATUS FOR WASHING AND SEPARATING COAL.—C. A. Comp, New York City.

1st, I claim the arrangement of the grinding rollers, C, and elevator, D, in combination with the assorting drum, E, constructed and operating substantially as and for the purpose set forth.

2nd, The arrangement of the assorting drum, E, in combination with the separating machines, G, constructed and operating substantially as and for the purpose described.

3d, The arrangement of the drying drum, A, in combination with the separating machines, G, and assorting drum, E, constructed and operating substantially as and for the purpose set forth.

65,819.—FENCE.—I. L. Landis, Lancaster, Pa.

I claim so constructing the panels of a fence that one of the rails of each panel shall overlap the corresponding rail of the adjoining panel and securing the same together by a wire fence, in the manner specified.

I also claim specially the mode of fastening shown in Fig. 5.

65,820.—CIRCULAR COKE OVEN.—F. J. F. Laumonier, Augers, France.

1st, I claim a circular coke oven composed of any suitable number of radial compartments converging toward a central chimney, substantially as herein described.

2d, The combination with the radial compartments of a circular coke oven as described of the flues for conducting the products of combustion from the said compartments to the central chimney under the arrangement herein shown and specified.

3d, The combination with the radial compartments provided with openings in their top of the circular railway passing over the said openings, as and for the purposes set forth.

4th, The application and use in connection with the herein-described coke oven of the water conduit or pipe encircling the same, substantially as and for the purposes herein specified.

65,821.—SHAFT COUPLING.—W. E. London and John Richards, Cincinnati, Ohio.

We claim the use of two conical sleeves within two separate conical shells arranged to act independently on each shaft and forming the two halves of a shaft coupling, as herein set forth and described.

65,822.—MELODEON.—La Fayette Louis, Providence, R. I.—Antedated June 11, 1867.

1st, I claim combining with a tremolo valve, h, hinged directly to an immovable or fixed valve seat, an auxiliary valve, g, for regulating the direct passage of the air from the reeds to the bellows, substantially as described.

2d, I also claim in combination with the valve, h, the lever, m, and its counter-balancing weight, q, when this lever is pivoted or hung directly in or to the valve board, substantially as set forth.

3d, Applying such weight to the lever by means of an adjusting screw, substantially as set forth.

4th, Combining with the valve, g, the buttons, r, made adjustable with respect to the valve seat, substantially as described.

5th, Also combining with a tremolo valve, h, and a direct passage valve,