proprietors of large machine-works in this city, conceived the idea of founding a "Mechanics' Library"—one that should be such in reality—a place where all the best works relating to the advancement of the trade could be studied by workingmen, free of charge, or at least at a merely nominal fee, for membership. It is not intended to stock this library and reading-room with modern novels, but with the foreign and domestic scientific journals and books relating to art and the practice of it. Should the scheme be carried out, as we trust it may, it will be of incalculable advantage to the mechanical interests, and a credit to the energetic and benevolent originators of the idea. The sum of $8,000 has been subscribed already; the principal engineering firms are directly interested in the enterprise, for they will reap substantial benefits in the future from the generations of educated men which are sure to arise from such an advantage as this institution will afford.

BREECH-LOADING RIFLES FOR THE ARMY.

We have long been of opinion that one regiment of soldiers armed with good breech-loading rifles would be more efficient than three regiments, perhaps superior to ten regiments, armed with muzzle-loaders. With a breech-loader the soldier consumes but one or two seconds of time in the labor of loading, and he can pour an almost constant stream of balls into the ranks of the enemy. It has been objected that when a soldier could load with so much facility, he would throw away his ammunition in careless firing; but we have never doubted that this difficulty might be overcome by a proper drill. In the case where the soldier can load so quickly, he may be taught to make all of his movements slowly and to take a much cooler and better aim than he will when he hurries through the operation of loading.

Our attention has been called to this subject anew by the reception of a pamphlet written by W. C. Dodge, Esq., Acting Examiner, United States Patent Office, in which the advantages of the breech-loading rifle for army use are very ably set forth. Mr. Dodge cites more than forty officers in our army, including Major-generals McClellan, Hooker, Fremont, Rosecrans, Burnside and Sigel, who approve of the introduction of this class of arms. He also gives the following letter from Col. Wilder, who has tried the guns in actual warfare:—

DEAR SIR:—Your letter of Dec. 25, 1863, is just at hand. In reply, I am ready to urge the expediency of arming all the mounted troops of this army with the "Spencer Repeating Rifle." It is a most perfect weapon, when used by cool men, and I have no hesitancy in saying (after commanding a brigade armed with them for nearly a year) that men so armed can always defeat at least double their number, and my command have repeatedly driven three times their number of rebels. Since using this arm my command has never failed to break any column of troops they have attacked, and have never been driven by any force, no matter how heavily they were massed against them.

At Farmington, Tennessee, in the late raid of the rebel General Wheeler within our lines, four of my regiments broke through and scattered two entire divisions of mounted rebel infantry; fighting on foot and formed in three lines, my men captured their battery and dispersed their entire force. I would respectfully refer you to Brigadier General Crook, commanding the second division of cavalry in this army, who witnessed this fight, and can vouch for its correctness.

At Chickamauga on the 20th of September my brigade of five regiments drove back the rebel column that had driven the 20th army corps, and, alone and unsupported, held the entire left of the rebel army for four hours, and were withdrawn without being pursued.

I could enumerate at least thirty fights in which the "Spencer Rifle" has triumphed over other arms in such apparently overwhelming numbers as to almost appear incredible. They should be made with a ring in the side of the breech-piece, so as to be carried as a carbine. The ammunition being water-proof, is not worn out or destroyed like other kinds.

I believe that if the Government would arm ten thousand mounted infantry with these guns, and put them under a good enterprising officer, they could destroy all the principal railroad lines in the South, and do more damage to the rebellion in three months than fifty thousand ordinarily armed infantry could in a year.

I wish I could see those having authority in this matter, that I might impress upon them the great importance of using these arms.

I am, sir, very respectfully, your obedient servant,

J. T. WILDER.

Nashville, Tenn., Jan. 7, 1864.

A PLAN is being rapidly matured for the establishment of a woolen factory in Milwaukee, on a scale heretofore unknown in the North-west. Such a manufactory, besides being a profitable investment for the manufacturers, will greatly aid in the development of agricultural resources by furnishing farmers with a better market.

HOW THE STERNS OF SCREW SHIPS ARE BORED.

Many mechanics are aware that the hole in the stern of a screw ship is bored out after the ship is planked, caulked, and nearly ready to launch, so that no disturbance of the proper direction of the hole or bore may occur from the fastening of or strain caused by the completion of the rest of the vessel. The operation of boring is thus accomplished: The hole is first roughly cut out by the carpenter through the "dead" (or solid) wood of the stern. The length of this dead wood varies according to the dimensions of the ship. In this rough hole a long iron boring bar is placed, supported by bearings at either end; the bar has an ordinary boring head upon it, which is a circular cast-iron wheel, driven from end to end of the hole by a screw; the cutters are fixed in this head and the bar is driven by a spur-wheel and pinion; sometimes a small engine furnishes the power, at other times "muscle" does it.

The time required to bore out the stern varies with the nature of the job. Sometimes the copper and iron through-fastenings of the timbers run into the hole and cause a great deal of trouble. In the *Dunderberg*, the huge iron-clad now building by Mr. Webb, the length of the dead wood is 24 feet, 7 inches, and the diameter of the hole when finished is 25 inches. This length is run in two hours, cutting one inch on a side at the ends; inside the cut has to be lessened as the bar springs too much to carry it. This is remarkably fast work—about 2½ inches, lineal speed, per minute for the cutter. After the hole is bored, the shaft pipe, made of brass, is inserted; on the inboard end of this pipe there is a stuffing box and gland, and out-board the pipe has a lining of liginum vitæ inside of it, constituting a bearing on which the main shaft works; the shaft is also fitted with a brass sleeve, shrunk on where it passes through the pipe so that it may not be corroded by the action of salt water leaking through. In iron ships, of course, the construction is different and no hole has to be bored; these details relate only to wooden vessels.

REVIVAL OF THE COTTON MANUFACTURE.

In the debate which followed the presentation of the Queen's address, on the opening of the British Parliament, on the 4th of February, Lord Derby endeavored to show that the distress in the manufacturing districts had not been relieved to the extent asserted in the address. But in the course of his remarks he made the following admission:—

"I venture to entertain a hope that the worst and heaviest of the pressure is at an end, and that in the course of a few months we may date a considerable increase in the industry of the manufacturing districts. [Hear, hear.] I may be permitted to say that the anticipations which were formed last year of the expected supply of cotton have been realized to the letter, and therefore we may look with greater confidence at the anticipations put forth by those who say that, towards the beginning of April or May, we may calculate upon a supply of cotton which will be sufficient to maintain the mills in working order for five days in the week throughout the manufacturing districts. . . . . I may venture to say this is a proof of the hopeful spirit which animates the people in these districts, that there are no less than one hundred new mills in the course of erection and being prepared for a start on the revival of the cotton trade, and one of these mills will have no less than 5,000 looms in it."

The same revival is taking place in this country. The Woonsocket *Patriot*, which is published in the heart of the manufacturing district of New England, remarks that there is great scarcity of labor to supply the mills which are resuming operations.

It seems that the high prices of cotton, caused by the war in this country, have so stimulated the cultivation in other places that, in the course of only three years, the product is sufficient to supply five-sixths of the machinery of the world.

In this country, as well as in England, the opportunity of the suspension of manufactures has been employed by mill-owners in the repair and extension of their works, and in the construction of new mills and machinery. The cotton manufacture will soon be in full activity, and on a larger scale than ever before.

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week; the claims may be found in the official list:—

Foot Shield for Skates.—Straps are considered by experienced skaters to be the most efficient means for securing skates to the feet, as they insure a firm connection between the foot, boot and skate. There is one disadvantage, however, attending their use, which consists in the pressure of the straps upon the foot, preventing the free circulation of blood, and thereby causing cold feet—a great inconvenience; and in case the wearer has corns, causing a great deal of pain. This invention is designed to obviate this difficulty, and it consists in the employment of a shield constructed of metal or other suitable material, and of such a curved form that it will encompass the foot like an arch, while its ends will rest upon the edges of the sole of the boot or shoe, and the strap or straps pass over the shield and press thereon when the skate is secured to the foot, thereby relieving the same of all pressure of the strap or straps. De Witt C. Winans, of New York city, is the inventor of this improvement.

Machine for cutting Tobacco.—The object of this invention is to produce a simple, compact and cheap machine for cutting tobacco or other material of any desired fineness, so that every small manufacturer is enabled to cut up his own tobacco to suit himself and his customers. The invention consists in the application of one or more oscillating adjustable levers acted upon by eccentrics or cams, and acting on rising tappets in combination with the cutter wheel and with a lever spring catch which acts on the teeth of a ratchet wheel secured to the end of a screw spindle which imparts motion to the follower moving in a suitable box, and through it to the tobacco or other material to be cut, in such a manner that, by the combined action of the adjustable lever, tappets, ratchet wheel, screw spindle and follower, an intermittent feed motion is imparted to the tobacco or other material in the box, and said material is cut up to such a fineness as may be determined by the position of the oscillating levers. The invention consists, also, in the employment of a laterally-sliding nut in combination with the screw spindle, follower and box, in such a manner that by imparting to said nut a lateral motion, the end of the box is thrown open for the purpose of removing the follower and introducing a fresh charge of tobacco or other material to be cut. E. W. Ritterhoff and C. A. Colquitt, of New York city, are the inventors of this improvement.

Machine for stamping Carpenters' Squares.—This invention consists in the employment of one or more rollers, each provided with a series of dies representing the figures and the graduation of the squares or other articles to be stamped, in combination with a smooth reciprocating bed, in such a manner that by the action of the dies the article to be stamped is pressed down flat upon the bed and prevented from springing or bending. The invention consists, further, in the arrangement of a bed resting in a semi-circular cavity or otherwise supported in such a manner that said bed is rendered self-adjusting in a transverse direction, and the inequalities in the thickness of the article to be stamped are compensated. The invention consists, finally, in the employment of an eccentric cam acted upon by an adjustable weight or spring, in combination with the reciprocating bed and stamping rollers, in such a manner that the article to be stamped is pressed up against the rollers with a uniform yielding pressure, which can be regulated according to the nature of the work to be accomplished. H. K. Jones, of Kensington, Conn., is the inventor of this improvement.

Plates for Bank-note and other Engraving and Printing.—Much of the engraving on bank-note plates is produced by what is called transferring impressions from the surfaces of hardened steel rollers, the face of the plate being passed under the roller or the roller passed over the face of the plate several times back-and-forth, while applying a heavy pressure. To enable this to be done successfully it is desirable that the face of the plate have a mellow softness and yet the plate be hard and strong enough to resist the heavy pressure. The plates made of fine iron sometimes used are frequently so stretched in the roll-

ing operation that, in the successive passages of the rollers the lines of the impressions do not come exactly in the same place, and impressions produced are rendered imperfect; and steel plates are so hard that a good transfer is only obtained by many repetitions of the operation of the rollers, and the rollers soon wear out. It has been attempted to decarbonize the faces of steel plates to give them the requisite degree of softness, but this has not been successful. The object of this invention is to obtain plates which have a desirable softness of surface, and the requisite hardness or strength of body to resist the heavy pressure to which they are subject; and to this end it consists in combining a layer of steel and a layer of fine iron, by welding, casting or any other suitable method of uniting the iron forming the face and the steel forming the back of the plate. Alfred Sellers, of New York city, is the inventor of this improvement.

Life-boat and Pontoon Bridge.—The object of this invention is to obtain a life-boat which may, when not required for use, be compactly folded and stowed away in a small space and still be capable of being readily adapted for use, and possess the advantage of always righting itself if thrown into the water. The invention consists in having a series of air chambers formed of india-rubber, gutta-percha or any other suitable air-tight and water-proof fabric, provided with inflating tubes so arranged that the chambers may be readily filled with air and the latter retained therein, and having a metallic keel attached to the central air chamber, the upper surface of the boat being provided with a netting and the under surface having a rope applied to it; all being arranged in such a manner as to effect the desired end. Edward L. Perry, of New York city, is the inventor of this improvement.

Fastenmg for Breast-pins.—This invention consists in a single or double U-shaped clasp hinged to the under side of the breast-pin, stud, button, or other similar article, in combination with a point projecting from the under surface of said breast-pin, button or other article, and passing through all but one of the shanks of said clasp in such a manner that when the clasp is turned back, it can be readily hooked over one or both ends of a dress; or the ends of a sleeve or other part of a garment can be readily entered between its shanks, and on closing it down the point penetrates the fabric between its shanks, and the breast-pin, button or other article is firmly retained in the desired place; it consists, further, in the application to a button or other similar article of a double clasp, the main clasp being hinged to the under surface of the button, and the secondary clasp to the last shank of the double U-shaped main clasp in combination with two points, one projecting from the under surface of the button or other similar article, and the other from the inner surface of the secondary clasp in such a manner that one end of a shirt sleeve, or other part of a garment, can be secured in the main clasp and the other end in the secondary clasp, and the degree of tightness with which the shirt sleeve or other part of a garment is fastened, can be regulated at pleasure. Gaspard Buhler, of Newark, N. J., is the inventor of this improvement.

Binding the "Scientific American."

It is important that all works of reference should be well bound. The SCIENTIFIC AMERICAN being the only publication in the country which records the doings of the United States Patent Office, it is preserved by a large class of its patrons, lawyers and others, for reference. Some complaints have been made that our past mode of binding in cloth is not serviceable, and a wish has been expressed that we would adopt the style of binding used on the old series, *i. e.*, heavy board sides covered with marble paper, and morocco backs and corners.

Believing that the latter style of binding will better please a large portion of our readers, we commenced on the expiration of Volume VII., to bind the sheets sent to us for the purpose in heavy board sides, covered with marble paper and leather backs and corners.

The price of binding in the above style is 75 cents. We shall be unable hereafter to furnish covers to the trade, but will be happy to receive orders for binding at the publication office, No. 37 Park Row, New York.

Back Numbers and Volumes of the "Scientific American."

VOLUMES I., III., IV., VII., VIII. AND IX., (NEW SERIES) complete (bound) may be had at this office and from periodical dealers. Price, bound, $2 25 per volume, by mail, $3—which includes postage. Every mechanic, inventor or artisan in the United States should have a complete set of this publication for reference. Subscribers should not fail to preserve their numbers for binding VOLS. II., V. and VI. are out of print and cannot be supplied. We are unable to supply any of the first six numbers of the current volume. Therefore all new subscriptions will begin hereafter with the time the money is received.

ISSUED FROM THE UNITED STATES PATENT-OFFICE

FOR THE WEEK ENDING FEBRUARY 23, 1864.

Reported Officially for the Scientific American.

☞ 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.

41,668.—Packing Projectiles for Rifled Cannon.—John Absterdam, New York City :

I claim, first, onstructing a projectile for rifle cannon with one or more bands or bearings of an anti-friction metal that expands in cooling or that does not shrink in cooling, for the purpose herein described.

Second, Sawing the end of the expanding cup in several cuts diagonally to the axis of the projectile, substantially as described.

41,669.—Manufacture of Gun Barrels.—Walter Baker, Ilion, N. Y.:

I claim as a new article of manufacture the forming of a solid cone seat upon a hollow gun barrel, from the metal at the butt of the same, without welding, in the manner substantially as shown and described.

41,670.—Feed Bag.—Joseph Becker and Wm. Tustin, Philadelphia, Pa.:

We claim, first, The strap, A', running obliquely under the throat of the animal and fastened by a loop upon the rear top side of the bag, substantially as and for the purpose described.

Second, The sieve or ventilator, F, fig. 2, or its equivalent, at the bottom of the bag, as herein described, substantially as and for the purpose set forth.

41,671.—Machinery to aid in puddling Iron and Steel.—Henry Bennett, Wombridge, England. Patented in England May 18, 1863 :

I claim improved apparatus or mechanism to be used in the process of puddling iron, steel-iron or steel, and constructed substantially as herein more fully set forth and specified.

41,672.—Water Elevator.—B. B. Bignall, Owego, N. Y.:

I claim the reel, B, having the spurs, k k, of nearly the same transverse thickness at the base and top, and the bearings, l l, respectively on each side of the spurs, for the support of the chain, substantially as herein set forth.

I also claim the toothed reel, B, constructed as described, with the main chain, C, auxiliary chain, C', and bucket, D, all arranged and operating substantially as and for the purpose herein specified.

41,673.—Street-sweeping Machine.—H. S. Blood, New Orleans, La.:

I claim, first, The rotating brush, J, in combination with the dirt-plate, K, provided at its lower end with the elastic strip, M, arranged to operate in the manner substantially as and for the purpose specified.

Second, The endless apron, N, placed in the box or dirt-receiver, L, for the purpose of discharging the dirt therefrom when used in combination with the brush, J, for the purpose set forth.

Third, The operating of the endless apron, N, from the driving wheel, F', by means of the shaft, O S, gearing, G' P Q R, and endless belt, V, as described.

Fourth, The operating of the door, W, from the lever, A', simultaneously with the throwing in and out of gear of the pinion, P, with the wheel, G', substantially as described.

Fifth, The combination of the rotating brush, J, endless apron, N, and dirt-plate, K, all constructed and arranged to operate in the manner substantially as and for the purpose herein set forth.

[This invention consists in the employment of a rotary brush placed in an oblique position in a mounted frame and used in connection with a curved inclined dirt plate and a dirt receptacle provided with a dirt-discharging apron, all arranged to operate in such a manner that the dirt will be cleanly swept up from the pavement of the street, and discharged at suitable or desired intervals in piles.]

41,674.—Working and using Sugar Evaporators.—Luke W. Bodwell, Ann Arbor, Mich. :

I claim the combination and arrangement of the eccentric shaft and cam, A a, the fulcrum or center of motion, E, the flue, R, sliding plate, f, opening, T, enlargement, S, in connection with the arch, J, combined and arranged as and for the uses and purposes set forth in the foregoing specification.

41,675.—Protecting Lead Pipe against the Action of Water.—Leopold Brandeis, Brooklyn, N. Y.:

I claim the application of hydrogen or any other gas in combination with sulphur for the purpose of producing a sulphite of lead, on which water cannot act, and thereby do away with any danger of lead-poisoning, even if water should be kept standing in such pipe or vessel.

41,676.—Opening and closing Iron Blinds or Shutters.—William H. Brown, Worcester, Mass.:

I claim, first, The combination with a sliding blind of the slats, b, connecting rod, c, lever, G, rack bar, u, and sliding shaft, n, with its gear, m, arranged and operating together, substantially as and for the purposes set forth.

Seconp, The combination with a sliding blind of the lip, e, spring, l, ratchet wheel, o, and pawl, t, for the purposes stated.

41,677.—Cultivator.—C. J. Buchner, Paxton, Ill.:

I claim the combination of the horizontal connecting plate, a, pendent slotted plates, b b and f f, beams, g g, rods, i i, bracing foot bars, G G, and transverse bars, K K, all as herein shown and described.

[This invention relates to a corn-planter of that class which are mounted on wheels and are provided with a driver's seat. The object of the invention is to obtain a plow of the class specified which may be manipulated by the driver with the greatest facility and be completely under his control, and also have a draught equalizer of simple construction to insure an even pull of the team and an uniform draught movement of the machine.]

41,678.—Fastening for Breast-pins.—Gaspard Buhler, Newark, N. J.:

I claim, first, The single or double U-shaped clasp, B, hinged to the under or inner surface of a breast-pin, button, stud or other similar article, and operating in combination with the point, f, projecting from the inner surface of said breast-pin or other article, substantially as and for the purposes herein shown and described.

Second, The application of the secondary clasp, C, in combination with the main clasp, B, points, f f', and button or other similar article, A, arranged and operating in the manner and for the purpose substantially as set forth.

41,679.—Governor.—John P. Burnham, Chicago, Ill.:

I claim the lever, E, with the slotted link, h, and friction wheel, G, in combination with the rocking shaft, C, and sleeve, g, of the governor, A, all constructed and operating in the manner and for the purpose substantially as herein shown and described.

[This invention consists in a slotted link secured to a lever which is suspended from a rock-shaft in combination with an ordinary ball-governor and with a friction wheel, which works within the slotted link in such a manner that when the balls of the governor fly out, the slotted link is pressed up against one side of the friction wheel, and the steam-valve is closed or the effective surface of the sails of the wind wheel decreased, and when the balls sink down, the link is pressed up against the opposite side of said friction wheel, and the steam valve is opened, or the effective surface of the sails increased, and by this means the speed of an engine and wind-wheel can be rendered self-regulating.]

41,680.—Sugar-cane Mill.—Wm. H. Clark, Cincinnati, Ohio, and Walter E. Edgerton, Spiceland, Ind. :

We claim, first, So arranging the connecting gearing of three-roll cane mills, that the minor rolls may be placed and worked with their faces nearly in contact, for the purpose herein described.

Second, Supporting the lower ends of the roll shafts in oil-tight cup boxes, adjustable vertically, substantially as described.

Third, Arranging the stay-rods or bolts, e e, &c., obliquely in opposite directions, as and for the purpose specified.

Fourth, The construction and arrangement of the scrapers, h h, in reference to the rolls, A and C, for the purpose described.

Fifth, The false plate, E, adjustable to the lower ends of the unflanged rolls, B C, and resting against the circumference of the flange of the roll, A, in combination with the adjustable rolls, A B C, substantially as described.

41,681.—Sugar-cane Mill.—Wm. H. Clark, Cincinnati, Ohio, and R. R. James, Rising Sun, Ind.:

We claim, first, In combination with the regular main-pressure roll, D, and delivery roll, F, the use of the fluted feed roll, E, when arranged and operating in connection with the former in the manner and for the purposes herein described.

Second, We claim the hand-hole, i, in the end plate and cap, h, when the latter is so constructed and adapted to the plate as to form in connection therewith a plain face on the inner side, as and for the purpose specified.

Third, We claim the vibrating or self-adapting conductor, G, in combination with either a plain or fluted feed roll, for the purpose described.

Fourth, In combination with the juice channel, j, extending into the triangular space between the rolls, we claim the bridge plate, k, for the purpose specified.

Fifth, We claim the grooves, m, in the end plates and the grooves, n, in the ends of the rolls either separately or in combination for the purpose described.

41,682.—Sofa Bedstead.—Francis Cotton, Brooklyn, N. Y. :

First, I claim tightening the sacking, B, substantially as described for the purpose specified.

Second, I claim the use of the hinged levers, E, constructed as shown, in combination with the sofa, A, sacking, B, secondary frame, C, and rubber springs, h h, in the manner and for the purpose or purposes specified.

41,683.—Door Bell.—Nathan F. Cone, La Crosse, Wis.:

First, I claim, in combination with the bridge or bar, B, the screw-threaded stem, A', formed or cast in one piece with the bell, A, so as to avoid or permanently close any aperture in the said bell, substantially as described.

Second, In combination with the bell, A, rotating shaft, f, cam, E, frog, G, and one or more hammers, D D', I claim the bar, B, inclosed within the bell and employed for the attachment of the latter, in the manner herein explained.

[This invention relates to that class of door bells in which the striking mechanism is operated by rotating the knob, and the present improvement consists in dispensing with all external appliances as a means of attachment.]

41,684.—Fixed Ammunition for Fire-arms.—George Conover, Middletown, Conn.:

I claim the combination with the shell, A, of the chamber. B, disk, d, nipple, a, and percussion cap, i, substantially as and for the purpose herein specified.

[This invention relates to the use in fixed-ammunition cartridges, for loading in front of the chamber or chambers of or at the muzzle of a fire-arm, of a second charge of gunpowder, for the purpose of expelling the case or shell of the cartridge through the barrel and out at the muzzle of the fire-arm, in which the cartridge is used ; it consists in a novel mode of applying and igniting such second charge.]

41,685.—Mode of manufacturing Alcohol from Olefiant Gas.—E. A. Cotelle, Paris, France :

I claim forming alcohol from olefiant gas and water by means of diluted acids acting only by their presence without reconcentration or revivification, substantially as herein described.

41,686.—Gang Plow.—F. R. Crothers, Sparta, Ill. :

I claim, first, Hinging the axletree to the frame of the machine so that the former will swing forward of its hinge connection, in combination with the thrusting connecting rod, N, chord or chain, m, and windlass, p, all applied and operating substantially as described.

Second, The use of a stiff rod, N, in combination with a windlass, p, and a hinged axle, D, operating substantially as and for the purposes described.

Third, The manner of attaching the draft pole, P, to the plow beams, substantially as and for the purposes described.

41,687.—Preparation for destroying Vermin.—John W. Dodge, New York City. Ante-dated Feb. 21, 1864 :

I claim the within-described composition, mixed together, of the ingredients herein specified, substantially in the manner and about in the proportion set forth.

[The object of this invention is a composition which will, in every case, kill all kinds of vermin that infest the human head or body, and also cattle and plants, and which is equally effective on bedbugs and fleas.]

41,688.—Machine for making Splints for Barrel Hoops.—John B. Dougherty, Rochester, N. Y.:

I claim the within-described machine for preparing at one operation, hoop splints ready for market, said machine being constructed and operating substantially as set forth.

41,689.—Rocket.—Isaac Edge, Jersey City, N. J. :

I claim a telescope tail to guide and rotate a rocket in its flight, by means of wings fixed to rods held at each end by rings made to slide or close on the rocket and be partly withdrawn and fastened to the end of the rocket when in use, the wings being then expanded and secured from spreading by means of ties or straps, substantially as described.

41,690.—Refrigerator.—John N. Ehrsam, Hoboken, N.J. Ante-dated Feb. 12, 1864 :

I claim the arrangement of the water-chamber, F, covering the whole area of the bottom of the refrigerator, in combination with the ice-chamber, B, and the serpentine pipe, E, connected with and receiving the discharge from said ice-chamber, all as herein shown and described.

[This invention consists in the application to a refrigerator of a salt-water reservoir in combination with the ice chamber and with a serpentine metal pipe conducting the ice water through the salt-water reservoir in such a manner that the temperature of the salt water is brought down to and kept at a low temperature by the action of the ice water passing through it, and thereby an additional refrigerating agent is obtained.]

41,691.—Lime-kiln.—Edward B. English, Philadelphia, Pa. :

First, I claim the arrangement at or near the base of the chimney, of the damper, a, or its equivalent, as and for the purpose set forth.

Second, The chambers, W and X, when formed and arranged in respect to each other, as and for the purpose specified.

Third, The fire-places, F F', with their diverging sides when combined with the chamber, W, as and for the purpose described.