

of them spinning. As the velocity with which they spin varies with the intensity of the light, in these instruments we have a new form of actinometer. At present there is no good and scientifically exact method of making actinometrical measurements; but these discoveries may possibly result in the production of a more perfect instrument for this purpose.—*The Engineer.*

HOUSEHOLD HINTS.—II.

We have often wondered by what powers of designing the makers of moderate priced furniture contrive to make chairs and sofas, as a rule, in such outrageously uncomfortable shapes. Why, indeed, should chairs be constructed with seats inclining forward, or with backs hollowed in below and protruding above, so as to furnish support to but two points, and these exactly beneath the shoulder blades? It is a positive labor to sit in such chairs, and no amount of disguise, in the shape of fancy covering or upholstery, should ever beguile a person into purchasing one. The proper shape for a chair is a broad, moderately low seat inclined rearward, and the back should be just the reverse of the form above described—in other words it should conform to the natural curvature of the spine. The frame becomes a support and comfortable rest for the body, while otherwise its tendency is to push the shoulders forward while the lower part of the person slides in the same direction on the seat, the result is that the occupant must either sit back in a round-shouldered position, or else balance himself on the very edge of the seat; in both cases finding himself the reverse of comfortable. The same remarks apply to sofas, and especially to those made with straight backs and in the pretty gothic forms which are now so fashionable. Buying furniture for comfort and buying it for looks are very different matters—in fact, there is a distinct class of furniture which is gorgeous to the eye but simple martyrdom to the body. It includes pine or whitewood chairs, covered with plaster of Paris, gilding, and satin, which are meant to be admired but not to sit in; and an endless variety of brass-mounted tables, footstools, cabinets, and like objects the cost of which appears to augment in exactly inverse ratio to their utility. With such, we have nothing to do here. We propose simply to talk about articles that can be used, and used comfortably.

For stuffing furniture, there is nothing equal to good white curled horse hair. It will last indefinitely, for it is susceptible to almost perpetual regeneration. There is no economy whatever in paying twenty or thirty dollars less for a set which is filled with tow, moss, excelsior, or any other of the numerous materials used as substitutes. To be sure, the articles look exactly as well in the beginning as if stuffed with hair; but a year's wear, evidenced by the sunken seats and cushions, will speedily show the difference. It is better to select furniture before it is covered, as then a small hole, surreptitiously, if need be, poked in the side of a seat or back, will soon prove whether the salesman's too frequent protestations that "we use only the best hair" are founded upon fancy or on fact.

While horse hair is most suitable for the inside, we have very little liking for the same material made into cloth as a covering for the exterior, although it is the most enduring of all materials. Hair cloth is black; and as the articles upon which it is used are the principal objects in the room, the general effect to our minds is funereal and depressing. The heavy deep shade cannot, when in such masses, be acceptably toned down by contrasts, nor can it be enlivened so that the general appearance of the room is rendered bright and cheerful.

Good stout woolen reps are among the best fabrics to wear. Silk rep is just the reverse, while not one person out of ten can tell the difference in the fabrics across a room. Plush is also very strong and lasting, though it is not suitable for a modestly furnished room. Satine, though not equal to rep in wearing qualities, showing spots and dirt much easier, is by some considered handsome, and probably is better suited than the latter for a parlor.

In regard to color, the hues of the carpet, unless Turkish rugs are used, and that of the wall paper are again to be taken into consideration. With a gray toned wall and carpet, crimson is the proper shade for the furniture. Blue looks nicely with a rich dark carpet having no green in it, or with a blue carpet of a harmonizing shade. Crimson or green furniture accords well with either brown or green carpeting. Brown upholstery requires a green carpet. Covering furniture with two distinct colors or shades is now quite common, and is preferred by many to a single shade or color throughout. The body of the piece is upholstered in gray rep, for example, and the edges surrounded with blue puffings. There is a variety of pretty combinations of colors, of which in such a case advantage may be taken. Deep blue and golden brown, chocolate and bright blue, gray and pink, maroon and warm green, claret and buff, are instances in which the tints make pleasing contrasts.

Wood work enriched with gilding is now extensively made, and even enters into the construction of the cheapest grades of furniture. We do not counsel its purchase, as the gilding, especially in cheap goods, wears off very easily, leaving the articles badly defaced. A few pieces of furniture about the room differing from the principal set will be found to give a pleasant and furnished look to the apartment. A very neat chair, made by the Shakers and at some of the penitentiaries, is now sold at from five to ten dollars. It has a light though stout wooden frame, of simple pattern; and the seat and back are made of plaited webbing of two colors, either red and blue, or green with gray or black. One red chair of this kind makes an attractive spot of color to a room furnished in green. Then there are the so-called oriental chairs, something after the camp stool pattern and having

high backs. These may be purchased as low as ten dollars apiece, and may well take the place of the much more expensive stuffed easy chairs.

We prefer a wooden top covered with a handsome cloth, to a marble slab, for a table. There is something cold and uncozy about marble; it makes us think of a burial tablet, such as one sees in country churches.

About the cloth we shall have something to say in another paper; but just here we desire to remark that a number of small tables, on which one can place ornaments without fear of obscuring either inlaid work or fancy marble, can be arranged about a room so as to be much more ornamental than one large table deposited in the center. Stands of very pretty and graceful shape can be obtained, made of bamboo. These are quite cheap, and their light yellow color contrasts nicely with the darker wood of the heavier furniture. We have seen very tasteful home-made tables of cane, dried and varnished; also of white wood, ornamented with bracket saw carvings. Holly wood, if attainable, when smoothed can be painted upon in water colors and afterwards varnished; or the material may be even pine painted black, and have fall leaves arranged upon it in pretty designs, and then covered with two or three coats of copal varnish.

In arranging furniture about a room, bear in mind that it is not necessary to push every article primly out to the sides, so that sofas and chairs look as if they were glued to the wall. Pull them out; put a sofa across one corner; stand the big easy chair in the light, with a little table close by, handy for sewing or books; leave a chair or two in front of the sofa; and in general so dispose the articles that the room shall not appear as if its owners never entered it save on ceremonial occasions. Whether a room is pleasing and cosy or not does not depend upon the elegance or costliness of its fittings. The simplest furniture, if tastefully arranged as regards color and position, often looks better than the handsomest products of the cabinet maker's skill. In our next paper, we shall discuss a few simple styles of curtains and decorations.

Miniature Steam Engines for Light Work.

We have frequently stated our belief that there is a growing want in the community for small steam engines, machines of one horse power and under, which might advantageously serve as a source of power in a variety of uses. As no greater skill would be required in the generation of such power than in the boiling of a teakettle, it would seem that a simple steam engine, driven by a boiler thoroughly protected against explosion, might find employment both as a domestic motor and for light work in the shop. It could turn wringers, churns, washing machines, or ice cream freezers, run coffee mills, pump water through a house, actuate foot lathes, scroll saws, or light box-making machinery, run knitting or sewing machines, turn a grindstone or emery wheel, work ventilating fans, hand thrashing machines, cutters, meat or feed choppers, or sausage machines, drive small blowers for pneumatic dispatch tubes in a building, or for a blacksmith's forge, or compress air or work an air pump on a small scale in the laboratory. These are but a few of the applications which suggest themselves as we write, and the reader will doubtless be able to recall many more.

The principal obstacle to the employment of the steam engine hitherto, for such uses as above detailed, has been its cost. No manufacturer, so far as we are aware, has ere this prepared the necessary patterns and mechanism for producing small engines on a large scale, so as to allow of their sale at low rates, so that there has been no way of obtaining the machines save by employing workmen especially to build the same, a course involving considerable expense.

A couple of small engines have, however, recently been forwarded to us for examination, which, if we may take them as specimens of the general product of their manufacturer, abundantly prove that he has read our oft repeated assurance that such motors were in demand, and is taking proper steps to meet it.

The two engines submitted to us are certainly admirable pieces of mechanism. One would probably develop half a horse power, perhaps more, and the other, which is running at full speed on our desk as we write, is intended as a toy. The larger machine has a copper boiler, 10 inches in diameter by 18 inches high, with furnace and all necessary gages and fittings. The cylinder of the horizontal slide valve engine is 1½ by 2¼ inches, and the fly wheel 12 inches in diameter. The small engine is of similar type and is furnished as perfectly and in as workmanlike a manner as if made entirely by hand.

The miniature sizes of engines are of course designed more as playthings for the boys; but the maker, Mr. George Parr of Buffalo, N. Y., has devised an ingenious way of rendering them at the same time a really valuable source of knowledge. To this end, besides finished machines, he prepares rough castings which he furnishes at reduced prices. These portions require no expensive nor elaborate tools to finish them. Any youth with a little mechanical skill can easily trim them, and then, putting them together, build his engine for himself. This we think an excellent plan, and one which cannot but result in the young machinist gaining ideas certain to be of much practical use to him in the future.

Mr. Parr's advertisement may be found in another column.

DECISIONS OF THE COURTS.

United States Circuit Court—District of Massachusetts.

PATENT TREMOLO.—GEORGE G. SAXE *et al.* vs. A. H. HAMMOND *et al.*
[In equity.—Before SHEPLEY, J.—January, 1875.—
SHEPLEY, J.:
This bill in equity alleges that the respondents infringe certain letters patent issued to the complainants, as assignees of R. W. Carpenter, on

the 5th of October, 1869, No. 3,665, for a "tremolo" attachment to musical instruments, and alleges prior knowledge and use of the patented invention by La Fayette Louis and others more than two years before the date of the application of R. W. Carpenter; and also, that the same invention and discovery, and the same device described in said patent, and substantial and material parts thereof, were patented on the 13th day of November, 1856, to La Fayette Louis.

If the defendants could be held as infringers of the Carpenter patent, it is a valid patent, and not anticipated by the device which was made and used by La Fayette Louis at Chicago and other places, it would be necessary carefully to consider and decide upon the probative force and effect of the testimony in relation to those devices of Louis, which, if the testimony of the witnesses in relation to them is to be received with full credit, acted substantially as agitators to, or reflectors of, the waves or currents of air passing through the reeds of the musical instrument, and not as valves to interrupt the continuity of the musical notes. If they are operated in the way first described, they would seem to have operated in the same manner and with the like result as Carpenter's fan-tremolo, although Louis appears to have been ignorant of the philosophy of the operation—a want of knowledge which is imputable as well to Carpenter, and even to those who have the benefit of the theories (which are only claimed to be theories) of the most learned scientists who have testified as experts on this subject.

If, however, the evidence in this record is not sufficient to charge the respondents as infringers of the complainants' patent, it is not necessary to that effect to inquire into this question. The respondents are manufacturers of supplies of materials which are elemental parts of organs and other musical instruments. They sell to the organ manufacturers. It is not claimed that they have made any musical instruments or sold any in which the tremolo attachments of any kind are arranged, or to which they are applied in any manner. The complainants allege that they (the complainants) have licensed large numbers of manufacturers to put the fan-tremolo in their organs, and that they agreed to license every reputable manufacturer who should apply. There is no evidence in this record of a sale to an unlicensed manufacturer of organs. The thing made by the defendants is shown by the exhibit produced in the case; a wooden structure of the simplest kind, which is in itself no infringement, and which, in order to constitute an infringement of the complainants' patent, must be placed by an unlicensed manufacturer in a musical instrument, and placed in a certain position in that instrument, external to the wind chest. A revolving fan is not new. All the respondents make is a fan capable of being made to revolve.

The complainants claim as their invention the application of any means to the musical instrument whereby the air may be agitated to produce a tremulous note "by agency external to the wind chest, which shall not check the flow of the air past the reeds," so as to give a continuous tremulous note, but not cut off the sound and make a succession of notes, instead of a continuous note of one note. Whether the fan made by the respondents would infringe this claim when placed in the instrument depends upon the position and arrangement of it in the organ, whether or not it be placed external to the wind chest, whether it be placed so as to cut off the sound and produce a succession of notes, or merely to agitate the air and vary the musical notes without interrupting their continuity. Even if all these alternative conditions were on the side of infringement, there must be the additional element of a sale for use by an unlicensed manufacturer, which is not proved in this case.

The complainants rely upon the case of Wallace vs. Holmes, & Blatchford C. C. R., 65. There can be no doubt of the soundness of the conclusions of the court in that case, or the cogency of the reasons given by the learned judge (Woodruff) in his opinion. But, without rehearsing the facts in that case, it is sufficient to say that they were very different from the case now before the court; the gist of the decision in that case was that the actual copying of the notes of the makers of the elements in the combination was a certain inference from the fact in that case, and the distinct efforts of the defendants to bring into use those elements of the combination which comprised the whole invention, although they could not be used without adding one other element, were found to be proved. No such state of facts is proved in this case, as has already been shown.

I must, therefore, repeat what I stated to counsel at the argument of the case. As defendants only make one element of the patented invention, in order to hold them guilty of infringement, proof connecting them with the infringement. Different parties may all infringe by respectively making or selling, each of them, one of the elements of a patented combination, provided those separate elements are made for the purpose and with the intent of their being combined by a party having no right to combine them. But the mere manufacture of a separate element of a patented combination, unless such manufacture be proved to have been conducted for the purpose and with the intent of being infringed, is not, in and of itself, infringement. A patent is valid for a new combination of old elements. A person who uses one or more of the old elements is not an infringer, unless he uses the new combination. (Prouty vs. Ruggles, 16 Peters, 386, 341; Byam vs. Farr, 1 Curtis, C. C. R., 260, 265; Foster vs. Moore, 1b. 279, 288; Bames vs. Godfrey, 1 Wall., 78, 79.) The use of a part less than the whole is no infringement.

Infer from the remarks of counsel at the argument that, although respondents deny infringement, I must not waive the question of the validity of the patents for the respective inventions of Louis and Carpenter. If the court should find the complainants' patent to be valid, no decree could be made in their favor, as respondents do not infringe. To find the complainants' patent invalid in a case in which the defendants do not infringe, would partake too much of the nature of a moot case.

Complainants' bill dismissed.
[Winward & Zeigler, for complainants.
R. E. Valentine and W. W. Blackmar, for defendants.]

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]

From April 14 to May 13, 1875, inclusive.

- ASTRONOMICAL APPARATUS.—H. Allen, New York city.
- BLAST FURNACE.—W. A. Stephens, Succasunna Plain, N. J., *et al.*
- BLIND REGULATOR, ETC.—J. T. O'Donoghue, New York city.
- BLIND ROLLER.—E. Putnam (of Chicago, Ill.), London, England.
- BREACH LOADING ARM.—E. Whitney, New Haven, Conn.
- BUTTON HOLE CASING.—V. V. Balmforth, Oakland, Cal.
- CARRIAGE SAFETY SHOE.—J. Tiffany, Chicago, Ill.
- CHAIR SEATS, ETC.—C. Mason, New York city.
- CONDUCTOR'S ALARM, ETC.—T. B. Doolittle, Bridgeport, Conn.
- CORK SCREW.—W. R. Clough, Newark, N. J.
- DAMPING PRINTING ROLLERS.—W. H. Woodcock, Brooklyn, N. Y.
- DRAWING NAILS, ETC.—M. D. Converse, New York city.
- ELEVATED RAILWAY.—R. P. Morgan, Jr., Bloomington, Ill.
- EMBROIDERING DEVICE.—J. I. West, New York city.
- EXCAVATOR.—O. S. Chapman *et al.*, Boston, Mass.
- EXPANDING TUBES.—O. Pagan *et al.*, Philadelphia, Pa.
- FERTILIZER HOLDER.—W. F. Wheeler, Dorchester, Mass.
- FINISHING CLOTH, ETC.—I. E. Palmer, Middletown, Conn.
- GOVERNOR.—D. L. F. Chase, Boston, Mass.
- GRAIN-BINDING MACHINE.—C. L. Travis, Minneapolis, Minn.
- HAMMER EYE MACHINERY.—L. Chapman, Collinsville, Conn.
- HARVESTER.—W. Y. Selleck, New York city.
- KNITTING MACHINE NEEDLES.—S. Peberdy *et al.*, Philadelphia, Pa.
- LAMP.—G. H. Lomax, Massachusetts.
- LAMP REFLECTOR, ETC.—H. Craighead, New York city.
- LIFE-PRESERVING DRESS.—P. Boyton (of New York city), London, Eng.
- LOCKING NUT.—F. L. Bates, Carrollton, Miss.
- MAKING SWIVEL HEADS.—W. Edge, Newark, N. J.
- MARINER'S COMPASS.—D. Baker, Boston, Mass.
- OPENING WINDOWS, ETC.—J. T. Parlour, Brooklyn, N. Y.
- PADDLE WHEEL, ETC.—N. T. Edson *et al.*, New Orleans, La.
- PEAT FUEL MACHINE, ETC.—F. Dodge, New York city.
- PRINTING FROM GELATIN.—E. Edwards, Boston, Mass.
- PRINTING MACHINE.—W. H. Woodcock, Brooklyn, N. Y.
- RAILWAY BRAKE.—A. Barker, Wyoming, Pa.
- RAILWAY SIGNAL.—H. Flad, St. Louis, Mo.
- ROCK DRILL.—C. Burleigh, Fitchburg, Mass.
- ROTARY ENGINE.—B. T. Babbitt, New York city.
- SCREW DRIVER, ETC.—A. Cummings, New York city.
- SEWING MACHINE.—J. L. Follett, New York city.
- SPOOLING MACHINE.—G. W. Patne, Pawtucket, R. I.
- SURGICAL NEEDLE, ETC.—J. C. Holland, New York city.
- THREAD-HOLDING DEVICE.—H. Sutor, New York city.
- THREAD SPOOL MACHINE, ETC.—D. T. Lyman, Providence, R. I.
- TRACTION ENGINE.—W. H. Milliken, Sacramento, Cal.
- TREATING SUGAR.—F. O. Mathlessen, New York city.

Recent American and Foreign Patents.

Improved Sight Protector.

Marmaduke H. Mendenhall, Wabash, Ind.—This device is an improvement upon that for which letters patent No. 158,726 were granted January 12, 1875, to the same inventor. The lamp case is pivoted at the bottom to adapt it to rotate. It is also cut away on all sides, and a hinged flap or plate swinging vertically, and a door swinging horizontally, are so combined with the case that, when opened, the lamp may be readily inserted or removed, or the light allowed to diffuse itself freely into the room; or the flap may be turned up while the door remains closed to allow the light to strike the ceiling and illumine the upper portion of the apartment, while the eyes of the persons reading or otherwise employed are shaded and protected.

Improved Corn Plow.

Linus G. Clawson, Pleasant Hill, Mo.—This implement is of peculiar construction, consisting of two plows of similar form connected together at the forward part by an adjustable bow, which allows the plows to be reversed without being disconnected. They may, by simply turning, and without any adjustment, be made to turn the soil to or from a row of plants. The advantages claimed for this invention are as follows: It is adapted to more varieties of work than any other, possessing the very minimum of draft, is light, easily handled, convenient, durable, and is not liable to get out of order. Any kind of shovel may be used on it, straight, twisted, diamond, wide, or narrow; in addition to which, its reversibility renders it of universal adaptation. The draft is perfectly straight and direct, and as close to the horse as it is possible to get it. Each plow holds the other in an upright position, so that neither can upset, and has a perfectly free and easy side-to-side motion by the handles while in operation. Its entire weight is 65 to 80 lbs.

Improved Vehicle Seat Lock.

Albert E. Van Horn and Joseph Wideman, Sebewaing, Mich.—This consists of a pivoted dog or key of the side board, that is thrown against a T-shaped piece of the seat block, binding it securely into the recessed top plate of the side board, a pivoted pawl securing the dog in locked position by engaging the outer cleat of the same.

Improved Take-Up for Knitting Machines.

Ira Tompkins and Albert Tompkins, Troy, N. Y.—This invention consists, first, in combining the take-up rolls with a pair of gear wheels differing in size, and so connected with intermediate mechanism as that the operation of drawing the fabric from the needles or cylinder will take place at constantly varying points. The objection is thus avoided of having the draw of the take-up always at the same point relatively to the cam, or some similar device which never varies its position. The invention also comprehends an improvement in the means of connecting and disconnecting the take-up roll with the gear wheels that operate it.

Improved Horse Hay Rake.

Gould Platt, Colliersville, N. Y.—This invention consists in suspending a common revolving hay rake from a wheeled frame by means of a properly balanced and adjustable guide frame, for being readily governed by the attendant seated on the wheeled frame.

Improved Addressing Machine.

Charles W. Van Vleet, Waterloo, N. Y.—The type are placed in a galley, with the various addresses properly set up and inked, and paper wrappers are placed beneath a platen, which is pressed down by a weight and raised by the cam. After every impression, the galley is moved a short distance to bring the next address into proper position, and so on for the whole galley, when other prepared galleys may be introduced and printed from in the same manner.

Improved Bluing Case.

Sylvester W. Sheldon, New York city.—This bluing case is made in two parts, the upper part being externally, and the lower part being internally, tapered, to fit one within the other. The upper part is provided with a cavity for holding the bluing and a discharge opening with a covering plate.

Improved Adjustable Top for Carriages.

Almon Clarke, Sheboygan, Wis., assignor to himself and Charles A. Spencer, of same place.—The invention consists of a curved standard, which is attached to the body of the carriage and provided, at the upper end, with a pivoted pulley, operated by means of a turning spring knob and connecting cords. A canopy, with arc-shaped slide piece, is adjusted by a clamping device to the pulley, and set to any inclination thereon.

Improved Steam Engine Governor.

Thomas I. Walsh, Brownsville, Pa.—This is an improvement in the class of devices for indicating steam pressure in boilers, consisting of a piston provided with a central annular recess, and arranged to move freely in a vertical tube or pipe connected with the steam space of the boiler. If the steam pressure is below the regular fixed point to which the boiler is limited by the weighted piston, it will establish the communication of the pipe with the engine channel, so as to admit the unobstructed passage of the steam to the engine; but whenever the pressure in the boiler is increased, the piston is forced by the pressure of the steam on its lower part, which overcomes its weight in upward direction, closing the communication of the pipe with the engine channel, and establishing that with the blow-off pipe, so as to stop the engine and give the signal to the engineer.

Improved Bosom Pad.

John C. Tallman, New York city.—This is a bosom pad made entirely of thin sheet cork, molded or pressed into shape.

Improved Slide for Gas Pendants.

Samuel B. H. Vance, New York city.—This gas pendant is so constructed that the burners may be drawn down to light the gas without disturbing the globe, while it avoids the use of balancing weights or springs. It consists in an arrangement of sliding tubes, the friction between which and stationary tubes holds the former as adjusted.

Improved Box for Packing and Showing Goods.

Francis S. Kinney, New York city.—The invention consists of a box of rhomboidal shape, made with the upper part of its lower end cut away, and provided with a terraced or step false bottom and hinged flaps or false ends. The upper ends of the goods of each upper tier show above the goods of the lower tiers, and the forward side of the goods of the lowest tier may be fully seen through the open lower end of the box.

Improved Egg Tester.

James W. Van Arnam, Watertown, N. Y., assignor to himself and Charles T. Greene, of Newtown, Conn.—An egg-holding branch is arranged to open into a lamp chimney at the top of the flame, or thereabout, and to incline upward in an oblique angle with the chimney; and it flares a little from the lower end upward, in order to receive and hold eggs of different sizes. The simplest way of attaching the egg holder to the chimney is by soldering it; but when attached in that way, the solder is liable to be melted by the heat, making it necessary to apply a water holder, in which water may be kept in contact, so as to keep the heat down.

Improved Apparatus for Cutting Goods on Bias.

Salomon Mayer, New York city.—This invention consists of a feed table with a revolving disk, having a central bias slot and a treadle-acted and knife-grinding clamp piece applied thereto, which, in connection with an adjustable gage piece, is set with the disk plate to any angle, and locked in the required position for cutting the width and angle of the bias strips.

Improved Rotary Engine.

Hermon G. Wood, Sharon, Pa.—This rotary steam engine has movable abutments and two or more eccentric drums or wheels, with side wheels or flanges and a central dividing wheel or flange, revolving in an open cylinder on a central shaft.

Improved Locomotive Ash Pan and Damper.

Walter W. Beach, Esconawba, Mich.—The dampers are hinged to the bottom ends of the ash pan, and fold inwardly between sides or braces, thus always preventing escape of fire, while they are allowed to fold under the bottom, and permit the pan to be cleaned without removal.

Improved Ironing Machine.

George F. Perrenot, Rockport, Ark.—A reciprocating iron carrying frame is mounted on wheels running on rails, which are connected in a frame, one above another, by rods, and arranged to shift up and down in ways in the posts, for shifting the iron on and off the clothes. The iron is suspended from the arms by rods, which are adjusted by nuts for holding the iron the right height, and they have springs for pressing the iron down and allowing it to rise for passing over seams and the like. The toggle bars, for raising and lowering the rails, are connected together to be worked in unison by a bar, which is connected to a lever and shifting lever, to be worked by the operator, said lever being arranged at the front of the table where the operator stands. It has a catch bar to hold it in the different positions.

Improved Reciprocating Churn.

Wilhelm Howe, Brooklyn, N. Y.—This consists of a swinging churn, provided on the inside with guide plates having inclined grooves, for adjusting therein the detachable perforated dash boards to the quantity of cream in the tub.

Improved Grapple.

George Conklin, Poughkeepsie, N. Y.—The chains for closing the jaws are connected to the ends of arms, and extend directly to and wind on the pulleys of the shaft, which is used to close the jaws. The jaws are pivoted to the frames to afford the requisite leverage to the arms. The guide rods are connected outside of the pivots, and serve only to regulate the opening and closing of the jaws. The frames are double, and have a space between them, in which the jaws are pivoted, and the closing chains and pulleys are arranged for operating them.

Improved Light House Lantern.

Oliver Cook, Darien (Rowayton P. O.), Conn.—The invention consists in a light house lantern provided with a glass dome or cover, having a concave ring reflector hung on gimbals and provided with clamping screw pivots. The pivots of the gimbal are made as screws to enable them to clamp the rings of the gimbal in place when the reflector is adjusted in the proper position to throw the light vertically or at inclination, as may be desired. By this construction the light may be thrown upward against the clouds, and will be reflected by said clouds so that it can be seen at a much greater distance than is possible when the light is thrown from the lantern in a horizontal direction.

Improved Folding Table.

Rudolph Sprigade and John Schnoering, Brooklyn, E. D., N. Y.—This invention consists of a table with longitudinal top sections, hinged to folding leg sections, and locked by hinged side boards, and a pivoted lateral piece for retaining the table sections when in open position.

Device for Setting, Filing, and Jointing Saws.

William Bryson, Unity, Wis.—The invention consists of a couple of blocks and a straight edge, contrived with the latter fastened between the former, so that they clamp on the saw by set screws. The straight edge rests on the points of the teeth of a straight saw to gage them as to length. In the top of the block is a filing notch and an adjustable gage for the file for jointing the teeth; and on each end of the straight edge are adjustable, detachable, and reversible gages, by which to gage the file for beveling and squaring the edges of the teeth. The set consists of an adjustable die in one of the blocks and a screw presser in the other by which to bind the teeth.

Improved Mail Bag Fastening.

James C. Franklin, Lena, Oregon.—In this improved fastening a slotted flap of one side of the bag folds over on hooks projecting from the other side, and a slotted hasp slide, for locking the hooks, folds over on them from rods below, on which it is pivoted, so as to slide under the hooks after receiving them through the slots, to engage with the staple in which the lock is secured.

Improved Combined Wash Bench and Wringer.

Orsemor S. Holden and John S. Corey, Felchville, Vt.—In this invention the wringing rolls and an inclined shelf are supported above or over the wash bench by a frame, which is joined to and forms part of the bench, so that, as the clothes are passed up between the rolls directly from the tub, they are deposited on the inclined shelf, and thereby conveyed to a basket or other receptacle.

Improved Sad Iron.

Thomas J. Ellyson and Aaron O. Askew, Jackson, Tenn.—Between the two faces of the iron is a hollow space, into which the burner extends, from a lamp attached to the heel of the iron for heating it, at the same time that it is being used to avoid the labor and delay of heating it by the stove, and to dispense in warm weather with the hot fires necessary for heating irons. The pivot at the heel of the iron is made hollow for the burner to enter the chamber in this way, and it is formed on the standard of the handle. The lamp is attached to the iron by the studs projecting from the standard and a slotted plate. It also has a latch which swings over and engages the standard, after the studs are adjusted in the slots, to prevent the lamp from becoming detached.

Improved Car Coupling.

Nathan G. Shelley, Stephen P. Bozarth, and David V. Spring, Austin, Tex.—This invention consists of a sliding block within the drawhead, having a plate to cover the lower hole for the pin, and to hold the pin in position for self-coupling. The plate also is acted upon by a spring to keep it in position for holding the pin, and to allow it to be pushed back by the entering link of the other car, to trip the pin and uncover the hole to let the pin fall through the link into the hole. The links are pivoted in the drawheads above the block, so that the one passing over the other when they come together will rise up over the block, while the end of the other hangs low enough to strike the pin-holding plate and push the block back. The links also have a spring over the pivoted end, to control the other end as to the height.

Improved Exercising Apparatus.

William Arnold Knight, Worcester, Mass.—This invention consists of a table, provided with lifting handles, that are operated against an adjustable combination of spring and weight, that can be used singly or jointly. A graduated machine is thus obtained, which starts from a minimum strain, by gradual increase to maximum strain, and back again to the minimum strain, requiring no sudden effort to overcome a constant or fixed strain, but admitting, by a gradually increasing effort, a regular training and developing of the muscles.

Improved Snap Hook.

J. G. Eberle, Glasgow, Mo., administrator of John Eberle, deceased.—A snap hook is provided with a reverse rear hook, bifurcated to allow the tongue of a buckle to be easily inserted or removed, and shouldered at the rear to prevent the buckle from coming out by a slackening of the strap. This snap is thus adapted to any kind of buckle, is applicable without punch or rivet, and may be readily used by an unskilled person.

Improved Rag Cutting Machine.

William C. Harrison, Goshen, N. Y.—This consists of two revolving cutting rollers, which are adjusted by suitable mechanism in close proximity to each other, to cut the fabric fed thereto by the shearing action of their cutting edges. An adjustable guide regulates the width of the strips, while a square shaft of one roller assists the feeding of the same.

Improved Chair Base.

William T. Doremus, New York city.—This invention consists in a base plate cast with a socket to receive a pivot or screw, and with sockets to receive the legs. Upon the lower side of the top plate are cast pins or points, which enter holes in the legs, and thus further strengthen the connection. Upon the upper side of the top plate is formed a ring groove to receive a ring rib, formed on a plate secured to the chair seat. These devices serve to regulate and steady the movement of the pivot plate. This construction enables the base plate to be cast without using cores, so that it can be cast readily and with perfect accuracy.

Improved Press for Cider, etc.

Henry Krumsick, Nashville, Ill.—The principal difficulties encountered in interposing elastic blocks between the screw and follower of a press, for the purpose of supplementing the pressure of the screw by expansion of the blocks, have been lack of steadiness and directness of pressure. To remedy this and other defects, the elastic blocks in the present device are arranged between two parallel cross bars of the press frame, one of which is fixed, and the other vertically adjustable, its ends being tenoned and fitted in elongated mortises in the uprights of the frame.

Improved Moth Trap.

Washington Hollis, Pembroke, Ky.—This is a rectangular tin box in the upper part of which is formed a slot to receive the alighting board of a bee hive. Upon the inner end of the box is formed a shallow passage, deep enough for the passage of the bees, and directly over the entrance to the hive. In the top of the box, just in front of the passage, are formed slips, of such a size that the moth millers can crawl through them. In the outer end of the box are formed holes, in which are secured tubes projecting into the said box, and made tapering, the inner ends being made so small that the moth millers can only crawl through them. In the end of the box farthest from the slits is inserted a glass plate so that light can shine through. When once in the trap, the moth millers will be attracted by the light through the glass plate, and will be unable to find their way out.

Improved Ventilating Apparatus for Coal Mines.

Francis Murphy, Streator, Ill.—This apparatus is mainly designed for the purpose of removing deleterious gases, which can only be effected by means of strong currents of air applied directly in the particular localities where they accumulate. This is accomplished by exhausting the gases with an apparatus controlled entirely from the outside. The exhaustion is produced by the creation of a partial vacuum in a properly constructed chamber above the ground. A spiral exhausting fan revolves in close proximity to this chamber, from which airtight tubes extend down through the shaft and along the galleries to branch pipes and receivers at the extreme portions of the works.

Improved Ventilating Damper.

Anson Augustus Schroder, Warren, Ill.—This invention consists in a pipe made with a conical enlargement in its middle part, having openings formed in it. Two shoulders are made at the upper end of said enlargement. By moving a ring in one direction, the cams thereon will pass in beneath the stems of the dampers, and raise said dampers; and by moving the said ring in the opposite direction the dampers will be allowed to drop into their seats, where they will be kept in place by their own weight.

Improved Leather-Punching Machine.

Henry Mott, Pottsville, Iowa, assignor to himself and John C. Callbreath, same place.—This invention consists of a pair of horizontally swinging awl-carrying arms, with foot treadles and springs for swinging them forward and backward, in combination with an intermittingly reciprocating work-holding clamp, and mechanism for feeding it, all contrived for punching straps for harness work, and all other leather work to be sewn in straight lines by hand, easier and more regularly than it can be done with the hand punching awl. The clamp, by which the work is fed to the punches, serves to hold the work suitably for the workman to sew as the punch holes are made.

Improved Car Window.

La Roy S. Starrett, Athol Depot, Mass.—This invention consists of a car window that is applied by a combined hinge and lock mechanism at both sides to the car frame, in such a manner that it may be swung open at either end and retained in position, according to the direction of motion of the car. The window sash is provided with top and bottom and adjustable side weather strips for closing tightly, and the lock and hinge parts with suitable devices for carrying off any dust collecting therein.

Improved Organ Reed Board.

Wesley W. Walker, Brattleborough, Vt.—The object of this invention is to contrive an organ in a compact and simple form with large capacity for different combinations and varieties of music. It consists essentially in the manner of the arrangement of two or more reeds directly over or partly over and partly back of the lower reeds, on one or both sides of an air cell, through which the air is taken from the reeds into the common air cell above the valve through which it passes to the bellows.

Improved Wagon End Gate.

Benjamin F. Bulkley, Southport, Conn.—Cleats are attached to the outer side of the end boards to strengthen them. A rod extends longitudinally along the outside of the end boards and through holes formed in the cleats to receive it. Upon each end of the rod is formed a hook for the links to be hooked. The links are placed in the eyes of eye bolts, which pass through outer cleats and the ends of the side boards, and have hand nuts screwed upon their outer ends, so that they can be readily loosened to enable the links to be detached from the hooks. With this construction the fastenings can be readily and quickly fastened and unfastened to secure and release the end boards.

Improved Farm Fence.

Stephen Sout, Tremont, Ill.—This consists in securing between the horizontal wires of a wire fence a board provided with spikes. Vertical wires are employed to fasten said board in a simple manner.

Improved Coal Holder.

Samuel M. Whiteside and Amos C. Holliday, Wheeling, W. Va.—This invention relates to a receptacle for coal to be placed in the grate or stove, to contain a supply of coal for the fire, and for dispensing with the objectionable coal bucket. The box turns forward on pivots to allow the coal to be removed, and closes back tightly with the cap when turned again to an upright position.

Improved Automatic Car Brake.

Fielding L. Kirtley, Cleburne, Texas.—The object of this invention is to provide a means for the automatic application of brakes to the cars of a railway train, and it consists in a loosely moving drawbar attached to the car by means of bolts passing through a central longitudinal slot, and having its sides wrought into two rack bars which mesh with pinions upon two windlass shafts, which arrangement, when the locomotive is slowed, causes the impact of the cars to drive up the drawbars, and wind up cords upon the windlass shafts, which cords communicate with and apply the brakes to the wheels. The invention also consists in the combination with the rack bar of a locking device to prevent the application of brakes in backing, and in a device for maintaining the brakes applied when stopping upon an incline.