Useful Recipes for the Shop, the Household, and the Farm.

A permanent and handsome reddish color may be given to cherry or pear tree wood by a coat of a strong solution of permanganate of potash, left on a longer or shorter time, according to the shade required.

Chloroform, which has undergone decomposition by exposure, can be easily purified by shaking it up with a few fragments of caustic soda.

Fruit is kept in Russia by being packed in creosotized lime. The lime is slaked in water in which a little creosote has been dissolved, and is allowed to fall to powder. The latter is spread over the bottom of a deal box, to about one inch in thickness. A sheet of paper is laid above, and then the fruit. Over the fruit is another sheet of paper, then more lime, and so on until the box is full, when a little finely powdered charcoal is packed in the corners, and the lid tightly closed. Fruit thus enclosed will, it is said, remain good for a year.

Pounded alum will purify water. One teaspoonful of alum to four gallons of water will cause a precipitation of the impurities.

To estimate the quantity of shelled corn on the cobs in any given space, level them, and measure the length, breadth, and depth; then multiply these dimensions together, and the product by four. Cut off the last figure, and the result will be the number of bushels of shelled corn and the decimal of a bushel.

Bee moths can easily be killed in large numbers by setting a pan of grease, in which is a floating ignited wick, near the hives after dark. The moths will fly into the light and fall into the grease.

The best way to catch hawks or owls is to set up a high pole with a steel trap on the top. The birds often alight directly in the trap.

Pictures may be transferred to painted surfaces in the following manner: Cover the ground with an even coat of light colored carriage varnish, which should be allowed to set (nearly as dry as if for gilding). If the print to be transferred be colored, soak it in salt and water; if not colored, use water alone. Remove superfluous water by pressing between blotting pads, and then place the picture face down upon the varnish, pressing it smooth. When the varnish is dry, dampen the paper and rub it off with the finger. The picture will be found upon the varnish, and another coat of the latter should be added to bring out the effect. This process answers equally well for glass or metal surfaces.

For the protection of iron and steel tools against rust, Vogel recommends a solution of white wax in benzine. The latter, heated, will dissolve half its weight of wax. This will preserve the metal, even from the action of acid vapors. Apply with a brush.

Round steel wire rope will bear more than double the weight required to break iron rope of similar diameter.

The following rule for strength of iron pipes is based upon the fact that a 10 inch pipe, one inch thick, will stand the pressure of 100 yards head of water. The coincidence of one inch of metal to every 10 inches diameter and 100 yards pressure should be remembered. For every inch in the diameter of pipe, increase or deduct $\frac{1}{10}$ of an inch; and for every yard of pressure, increase or deduct $\frac{1}{100}$ of an inch.

In calculating the strength of iron columns, the safe plan is to find the diameter of a solid column necessary to bear the compression, and then distribute the same area of metal in tube form or a hollow column.

A mixture of peroxide of manganese and water glass is recommended to be applied to cooking stoves when they are red hot, as it is said to make a good blacking, not as liable to burn off as common black lead.

According to recent experiments of MM. Kundt and Lehmann, the velocity of sound in pipes filled with water increases with the thickness of the sides of the tubes.

To make yellow wax into white wax, the former is boiled in water, spread out into thin layers, and exposed to the light and air. This is repeated until all the color is gone.

Cuttings of many kinds of plants, not usually increased with facility by amateurs, may be rooted easily in a Wardian case in the sitting room.

An Alloy of Copper Adherent to Glass.

An alloy of copper which will adhere to glass or porcelain is made by mixing from 20 to 30 parts of copper in powder, (obtained by the reduction of the oxide by hydrogen or by the precipitation of the sulphate by zinc) with sulphuric acid and then with 7 parts of mercury. The mixture is triturated and mingled with care. The acid is removed by washing in hot water, and the mass allowed to dry. At the end of 10 or 12 hours, the latter becomes quite hard and susceptible to a fine polish. On heating it softens, but on cooling does not contract. This alloy may also be used for joining delicate objects which will not withstand very high temperatures.

Chloral as an Anæsthetic.

Hydrate of chloral, administered hypodermically, has recently been used as an anæsthetic with success in the hospital at Bordeaux, France. The operation was a resection of the internal and external nasal nerve, involving some fifteen minutes' work and, necessarily, excessive pain to the patient. The drug took effect in eight minutes, and complete insensibility on the part of the sufferer resulted.

BRICKS made in Japan, and paying 20 per cent duty, are now imported into San Francisco The quality is superior. Japanese brick makers can beat the world in the cheapness and excellence of their productions.

[American Chemist.]

Prices of Metals.

The prices of many of the dearest may be considered also as "fancy prices," and actually a whole pound of some of the metals named could hardly be obtained at even the extravagant figures annexed. In compiling the following table, we have taken the prices of the rarer metals from Trommsdorff's and Schuchardt's last price lists; we have assumed the avoirdupois pound as equal to 453 grammes, and the mark as equal to 24 cents gold.

An inspection of the table is not without interest; it is evident that the prices of the metals bear no relation to the rarity of the bodies whence they may be derived, for calcium, the third in the list, is one of the most abundant elements. Even that excessively sparingly distributed metal, indium, the most recently discovered element, stands tenth in the list, below strontium. The metals of the alkalies seem to occupy a remarkably low place in the table.

Metal.		Value in gold per lb. avoirdupois	Metal.		Value in gold per lb. avoirdupois.
Vanadium	cryst. fused,	$4792·40	Tellurium,	fused,	$ 196·20
Rubidium	wire,	3261·60	Chromium,	fused,	196·20
Calcium,	electrolytic,	2446 20	Platinum,	fused,	122·31
Tantalum,	pure,	2446·20	Manganese,	fused,	108·72
Cerium,	fused globules,	2446·20	Molybdenum,		54·31
Lithium,	globules,	2228·76	Magnesium,	wire and tape,	45·30
Lithium,	wire,	2935 44	Potassium,	globules,	22·65
Erbium,	fused,	1671·57	Silver,		18·60
Didymium,	fused,	1630·08	Aluminum,	bar,	16·30
Strontium,	electrolytic.	1576·44	Cobalt,	cubes,	12·68
Indium,	pure,	1522·08	Nickel.	cubes,	3·80
Ruthenium,		1304·64	Cadmium,		3·26
Columbium,	fused,	1215·28	Sodium,		1·26
Rhodium,		1032·84	Bismuth,	crude,	1·95
Barium,	electrolytic,	924·12	Mercury,		1·00
Thallium,		738·89	Antimony,		·36
Osmium		652·82	Tin,	recent quotations,	·25
Palladium,		498·30	Copper,	" "	·22
Iridium,		466·59	Arsenic,	" "	·15
Uranium,		434·88	Zinc,	" "	·10
Gold,		397·72	Lead,	" "	·06
Titanium,	fused,	239·80	Iron,	" "	·01½

DECISIONS OF THE COURTS.

United States Circuit Court---District of Massachusetts.

PATENTELEVATOR.—OTIS TUFTS *et al. vs.* THE BOSTON MACHINE COMPANY.

[In equity.—Before Shepley, Cir. J.—January, 1875.]

Shepley, J.:

This is a bill in equity brought for alleged infringement of letters patent issued to Otis Tufts, dated August 9, 1859, and extended seven years, for improvements in hoisting apparatus, and adapting that apparatus for use as a passenger elevator for carrying persons to and from the different stories in hotels and other buildings; and also of letters patent dated May 28, 1861, for improvement in the mode of suspending and operating the elevator; also, for infringement of letters patent dated December 11, 1866, for improvements in the mode of adjusting the length and tension of the ropes of an elevator; and of letters patent dated December 11, 1866, for an improvement in elevator guides. All of these patents were duly assigned to complainants.

The twelfth claim in the patent of August 9, 1859, No. 25,061, is the one on which the infringement is claimed, and is as follows:

"I claim passing the shipping rods and the cord or rod that operates the friction brake through the car or platform, for the object and purposes set forth."

The shipping rods are described in the specification as passing up through the car the whole hight of the building and operating a shipper, by which the driving belt is shipped from a fast to a loose pulley when the power is to be thrown off. The cord is also described as passing down through the car or platform, so as to be accessible within the car, which operates to apply a counterpoise spring, so as to put on a friction-strap brake, its office being to check or perfectly stop the descending motion of the car at the will of any person within the car or on the gallery.

The great advantage (claimed) of running the shipping rods and the cord or rod up through the car itself is that they are thus rendered accessible to the conductor, or any person within the car, without incurring the danger of protruding the hand or arms beyond the same while in motion.

If the twelfth claim be construed broadly as a claim for passing any rod or cord, by means of which the appropriate mechanism is operated to move the car up and down, or hold it at rest, *through the car or platform*, instead of outside the car or platform, it is void for want of novelty.

George V. Hecker has, in his flour mill in Cherry street, New York, an elevator which was put in twenty years ago, and which has been in successful operation since that time. A chain passed through the roof and floor of the cage or car, which operated upon a friction clutch and a brake. The conductor or operator within the car could, by means of this chain, operate the shipping apparatus and the brake without incurring the danger of protruding the hand or arms beyond the car while in motion. This chain is connected with a brake in such a manner that the brake could be thrown off by pulling upon the chain, or put on by relaxing the pull upon the chain, a weight then causing the brake to produce friction on the friction pulley. The pull upon the chain, by raising the weight, first relieved the friction of the brake, and then threw into gear a friction clutch, and the car ascended by the force of the motor applied through the friction clutch. When it was desired to stop, the pull upon the chain was relaxed, and the weight threw the clutch out of connection and the cage stopped, held in place by the brake. When it was desired to descend, a slight pull was made upon the chain, sufficient to relax the pressure upon the brake, but not to throw the friction clutch into gear. The car then descended under control of the brake, by force of gravity, at a speed dependent upon the will of the operator who controlled the brake. Within the car was a lever with one long and two short arms, with a friction pulley on each of the short arms, which device was for the purpose of making necessary pulls upon the chain which passed through the inside of the car. The friction clutch is a well known substitute for a shaft with a fast and loose pulley, a belt, and a belt shipper.

It is manifest, therefore, that, in view of the state of the art, the twelfth claim in the patent can only be sustained by giving to it a much narrower construction than the one claimed for it, and one strictly in accordance with the language of the claim, namely:

Passing *the* shipping cords *and* the cord or rope that operates the friction brake through the car and platform, for the objects and purposes set forth.

The defendants do not infringe the twelfth claim thus construed, or any other claim of the patent of August 9, 1856.

Infringement is also alleged on the first and second claims of the patent of May 28, 1861, which are as follows:

"1. Constructing an elevator or hoisting apparatus with a series of two or more hoisting ropes or chains having independent attachments, and winding simultaneously upon the hoisting drum for greater safety, substantially as described.

2. Equalizing the strain upon the series of ropes or chains of my improved elevator or hoisting machine by automatic adjustment, substantially as described."

To construct "an elevator or hoisting apparatus with a series of two or more hoisting ropes or chains having independent attachments, and winding simultaneously upon the hoisting drum," was not new at the date of this patent. Letters patent of Great Britain to Frederick Levick and Joseph Fieldhouse, sealed January 13, 1854, describe a hoisting car or carriage with two hoisting ropes wound around the same spirally grooved drum. The ends of both of these ropes are attached to a connecting chain, which passes under a pulley attached to the top of the car. Another chain is attached to the first-described chain in such a manner that the chain surrounds the pulley. If one breaks, the other, with the chain, forms a loop around the pulley, and sustains the car. The second chain converts the attachment into an independent attachment of each rope, and, when one rope breaks, the other rope will continue to sustain the weight of the car. Mr. Renwick, the expert, correctly states that—

The ropes act precisely as if they were attached to the two ends of a horizontal lever whose center, upon which it could turn, was secured to the top of the car.

In the patent of 1861 the patentee, Tufts, says:

I do not confine myself to the precise method herein described of effecting the automatic adjustment of the strain upon the hoisting ropes, as I sometimes accomplish the same by a rocking lever, when two ropes are used.

It is plain that, in the Levick and Fieldhouse elevator, the two ropes, when intact, have equal strain upon them, and that, if one of the ropes should break, the weight of the car would be supported by the other rope. If the chain should break under the pulley the car would fall, as it would in the form last described or the Tufts elevator, if the attachment to the car at the center of the rocking lever should fail.

It is contended that the purpose of the two ropes in the Levick and Fieldhouse machine was to keep the cage in the center of the shaft, and that, therefore, the Levick and Fieldhouse patent does not anticipate the first claim in the patent of 1861. The answer to this is, first, that, whether they were placed there for the purpose of greater safety or not, they effected that result; and, secondly, that the patentees evidently contemplated that as one of the beneficial results to be attained by the use of two ropes instead of one, as there is no conceivable use for the cross chain before described, except in case of the breakage of one rope, to form a loop around the pulley, thus attaching the surviving rope to the car.

In the elevator which was placed in the mill of the Parsons Paper Company, at Holyoke, Massachusetts, in 1856, there were two hoisting ropes, having independent attachments to opposite arms of a rocking lever; they jointly and equally took the strain of the weight of the car, and each rope was sufficient to sustain the load put upon the machine. This elevator has been in constant use, and when one rope has broken the elevator has been worked several days with the remaining rope. The ropes in the Holyoke elevator did not, it is true, wind around a drum, but were passed around a series of pulleys, and the free ends of the ropes were attached to counterpoise weights, but these two means of winding up a rope to which a weight is attached are well known substitutes for each other.

Without adverting to the other patents which have been introduced in evidence, and relied upon in defence in this branch of the case, enough has been stated to show that the first claim of the patent of 1861 is void for want of novelty.

The second claim in this patent, namely, "equalizing the strain upon the series of ropes or chains of my improved elevator or hoisting machine by automatic adjustment, substantially as described," can only be construed as a claim for the described means of performing this function, and for well known substitutes for or equivalents of those described means. The means the patentee describes are three. One of those modes is by means of a rocking lever, or system of rocking levers, to the ends of which the suspensory ropes are attached. The Holyoke elevator and the Levick and Fieldhouse elevator both anticipate this claim. One had a rocking lever, and the other had a device which operated in the same way and produced the same result. If the claim is valid, defendants are not proved to have infringed it, for there is no evidence in the record tending to show that the contrivance used by the defendants—of a series of pistons fitting into a set of cylinders with connecting pipes, the cylinders being filled with an incompressible fluid—were, at the date of the patent, known substitutes for either of the means of adjustment described in the patent.

The patent of December 11, 1866, No. 60,441, so far as the second claim concerned, which is the one alleged to be infringed, relates to "mean for manipulating relative adjustment within reasonable limits of the series of ropes or chains, which are independently attached to the winding drum and to the car of the elevator, so that an equal degree, or very nearly equal degree, of tension can be had upon each rope or chain of the series, by proper attention or manipulation on the part of the party having such elevator in charge."

The patentee states in his specification that considerations of saving in the first cost of construction render it desirable in many instances to substitute for an automatic adjustment of the ropes or chains a means for adjusting them from time to time, as occasion may require; in other words, that the means of manipulatory adjustment in the patent No. 60,441 were intended as a substitute or alternative means for the automatic adjustment described in the patent of May 28, 1861, No. 32,141. The defendants have put into their elevators means of mechanical manipulatory adjustment, but they do not perform the function described by Tufts as a substitute for the automatic adjustment, because the tension on the ropes or chains cannot be varied by any manipulation of the nuts. Owing to the presence of the equalizer, the means of automatic adjustment in the defendant's elevator, the nuts or the stirrups may be screwed up or down to their fullest extent on any rope, without any variation of the tension on that or any other rope. As defendants do not infringe, it is not necessary to consider the question of novelty of this claim.

The patent of December 11, 1866, relates to means by which an elevator is so guided as to prevent the sway thereof, and the noise consequent upon contact with the ways by which the elevator is guided. The claim is as follows:

I claim combining the suspended car of an elevator with the ways or rails which confine it, by means of guides kept by springs constantly in contact with said ways or rails, when said guides are so arranged as to be capable of motion toward and from the rails.

In the provisional specification, filed April 6, 1858, in the office of the Commissioner of Patents for Great Britain, accompanying the petition of Louis Tétar Van Eiven for a patent, which did not proceed to the great seal, but which specification was printed by Eyre & Spottiswoode, is a clear and accurate description, which contains all the features of this claim. Respondents' exhibit No. 13 is a model of the device described in the Van Eiven specification. It fully anticipates every feature of this claim.

Complainant's bill dismissed.

[*James B. Robb*, for complainants.
Causten Browne, for defendants.]

Recent American and Foreign Patents.

Improved Lint Room Floor.

John N. Stitt, Sardis, Miss.—This lint floor consists of small rods arranged with spaces between, and on joists sufficiently wide to spring a little by the weight of persons walking on the floor—the object being to allow the dust which settles down to the floor to escape, and thus avoid soiling some of the cotton which comes in contact with the floor.

Improved Cultivator.

Edward Nauman, Uniontown, Ohio.—The cultivator is supported at its front end by a small wheel, whose position or angle to the frame may be changed at will by means of a rod which extends back and rests on a notched bar connecting the handles, whereby the wheel may be held locked in any desired position. This construction enables the plows to be held up to the row of plants, when plowing upon inclined ground, by the action of the wheel.

Improved Gas Generator.

James C. Mitchell, Lancaster, N. H.—This invention relates to certain improvements in the manufacture of illuminating gas, designed to utilize any kind of fuel for the production of the gas, and applicable to limited manufacture, as for private families, etc. It consists in a retort placed within a furnace, or a common stove, if desired, and having an airtight door of peculiar construction, and a communication direct with the furnace, by means of which construction the gaseous contents of the retort may be drawn into the furnace and burned when the airtight door is to be opened for drawing and recharging the retort. It also consists in the peculiar construction and arrangement of the tops of the purifiers and an airtight door to the retort, and the combination with the feed pipe to the gas holder of a ball valve to prevent back pressure.

Improved Plow.

Henry Krog, Sr., Washington, Mo.—The connecting ends of the share landside bar, and seat are welded together, while the outer ends of plates on the share and bar are riveted or bolted together.

Improved Hoop Fastening.

William Spalding, Petersburg, Mich.—This consists of a triangular plate clip, which covers the outer end of the hoop. It has points, which are passed through the hoop and clinched on the inside.

Improved Saw Setting Device.

Lewis A. Greely, Elmira, Ohio.—This is a block of steel, on the working side of which is a projecting face, a fulcrum, and a set screw, which latter passes through the gage and is turned or graduated from the back side. The screw may be turned so as to project more or less, as may be desired, according to the degree of set of the teeth. The gage is held against the saw with the hand in such a manner that the set screw rests or bears against the saw, and the fulcrum against the base of the tooth. The tooth is then bent over the fulcrum until the point touches the face, which is accomplished by means of a hammer and anvil or screw wrench.

Improved Means for Raising Water into Railroad Tanks.

Tyree Rodes, Wales Station, Tenn., assignor to himself and T. A Atchison, same place.—The invention consists of a grapple attachment, which is hinged to the cow catcher beam, and used at either side of the locomotive, the grapple taking hold of a wire rope stretched on running gear along the track, and operating thereby the tank pump, until a post near the end of running gear strikes the clamping lever and drops the wire rope.

Improved Veneer Cutting Machine.

Curtis T. Fairchild, Hartfield, N. Y., assignor to Burrell, Ives & Co.—The improvement in this machine is a presser roller, arranged for adjustment independently of the knife, but feeding along with it. It bears upon the log so far above the said knife that, before the edge of the part split off comes in contact with the knife, and is subjected to the lifting force thereof, the said presser roller will force the said piece down upon the main body of the log so hard that it will overcome the force of the knife, and be thereby prevented from being forced off.

Improved Folding Seat for Horse Cars.

Cevedra B. Sheldon, New York city.—This consists of an extra seat contrived to be carried under the main seat when not required for use, and to be readily shifted into position for use above and in front of the main seat on a jointed and folding standard, rising up so that it will project from under the main seat between the passengers sitting on it without inconvenience to them. The extra seat is so jointed to the top of the standard that it turns up edgewise at right angles to the longitudinal direction of the seat for affording the necessary freedom to the sitters on the main seat to rise up or sit down. The object is to afford seats which may be temporarily brought into use when more persons are in the car than can be seated on the ordinary seats.

Improved Registering Machine.

Collins M. Cady, Peninsula, Ohio.—A lever has on its end a stub, upon which the measure is placed to depress that end of the lever. The other end of the lever operates a pawl by means of a connecting bar. The tallying mechanism consists of two ratchet wheels, a forked plate, an eccentric, a dial, and hands, and a central post, with which post the inner ratchet wheel and eccentric and unit hand revolve. The rim of the eccentric bears against the fork, and oscillates the plate, and at every revolution of the inner ratchet it throws a pawl which is attached to the forked plate into communication with an outer ratchet wheel, and turns that wheel one tooth. The movement of the ratchet is indicated on the dial, one hand for each ratchet, one being carried by the central post and the other hand by the outer ratchet.

Improved Rotary Hair Brush.

William G. Nutsford and William Glasgow, Chicago, Ill.—The invention relates to rotary hair brushes which are operated by hand; and consists in the construction of the frame and parts connected therewith, so that the brush has full play as to hight, while it may be turned and revolved in any position to be applied to all parts of the head.

Improved Log Turner.

Charles P. McWane, Dublin, Va.—The device consists particularly in the arrangement of the rope-winding shaft parallel to the ways on which the log carriage travels, and of the saw shaft at right angles thereto, and of the means for connecting the two shafts to cause their simultaneous rotation.

Improved Graining Roller.

William H. Burns, Chicago, Ill.—The invention consists of a movable shoulder of the roller below the flexible transfer belt that is stretched by suitable mechanism over shoulder and roller, for the purpose of adjusting the circumference of the roller, from shoulder edge to stationary roller edge, to the exact width or size of the panel.

Improved Harrow.

Samuel G. Jones, Mowcaqua, Ill., assignor to himself and James M. Jacobs, of same place.—The harrow has wings which may be swung closer or wider apart, as may be required for different work, also spreaders governed by adjustable cross bars.

Improved Motive Power.

Phillip B. Greene, Centerville, Iowa.—This invention consists of a circular platform fixed to tilt on a center pivot by the weight of a horse, and a heavy roller, which he draws around a track at the margin of the upper side, to the under side of which platform are attached a number of hanging cam plates, which by rising and falling with the platform actuate pawls, which give continuous rotary motion to a vertical shaft by means of a ratchet wheel on it, in which the pawls work in succession as the platform is depressed and raised.

Improved Windmill.

Edward Dewald, Coyville, Kan.—The connection of a governor with hinged wings produces a continuous adjusting of the same to the velocity of the wind, and keeps up a uniform speed of the wheel, forming a sensitive self-regulating mechanism for windmills.

Improved Safety Attachment for Pocket Books.

Thaddeus Potter, Jackson, Miss.—Devices are provided whereby hooks are swung out and engaged in the lining of the garment, and, while thus engaged, guard against loss or theft of the book. By drawing up the slide the hooks are entirely disengaged and the book released from the pocket.

Improved Wall Paper Exhibitor.

William H. Hazzard, Easton, Pa.—This is an improved device for exhibiting wall paper, which avoids the necessity of constantly unrolling and rolling up the rolls of the paper, and the consequent injury to it in exhibiting it to customers.

Improved Weighing Scales.

Henry M. Weaver, Mansfield, Ohio.—The invention consists in the direct application of the platform-carrying and weight-supporting knife edges to separate weights of different proportions. These weights are jointed by arms and pivot rod, so that the result is obtained of allowing the object to be weighed being placed upon any part of the platform; and also the weights, having to each other quicker and slower oscillations, tend to stop each other, and thus bring the index sooner to a rest. The casing is provided with an adjustable device for setting the index to the zero point of the stationary dial. To one or each of the weights is attached one or more smaller weights, which, being adjustable, can be used to increase or decrease the capacity of the scale, and also adapt it to any given dial plate.

Improved Clasp for Uniting Webs of Cloth for Japanning.

Benjamin Atha, Newark, N.J.—The two ends to be connected are laid across a bar on the side opening into grooves, and pressed down at one edge into the grooves at one end of the bar. A key is then inserted over them, and driven along to the other end, drawing the cloth ahead of it, and securely binding it in. The unfastening is instantly effected by pulling out the key.

Improved Horse Hay Fork.

Thomas M. Edwards, East Hampton, N. Y.—This invention is an improvement in the class of horse hay forks wherein the hinged prongs are connected with the sliding bar, to which the hoisting rope is attached. In the sliding bar is formed a slot, in such a position that, when the bar is pushed fully down, the end of a spring pawl will enter it, and thus lock the bar and stock together.

Improved Cupola Furnace.

James Blakeney, Springfield, Ohio.—The tweer is composed of a circular flat plate, with curved clutes and a covering plate. These plates are made in sections of suitable length for convenience in handling and for strength, and built into the wall of the cupola, the chutes being inclined relatively to the direction in which the air is blown into it to arrest the circular motion, and direct it into the center of the cupola. A case extends around the cupola, and incloses the space in which the air is conducted to the tweer. The bottom of this chamber is made a little irregular to form hollows at suitable intervals, to cause the metal to flow to escape openings in case it overflows through the tweer. The openings will be closed with fusible plugs of lead, to be melted out by the molten metal.

Improved Safety Seat for Harvesters.

William E. Mattison, New Brunswick, N. J., assignor to William E. Mattison and Edwin Gulick, of same place.—This invention is an improved safety seat for reapers and mowers, so constructed that, should the driver be thrown from or leave his seat, the mechanism that drives the cutters will be thrown out of gear, and the cutters will cease to vibrate, so as to guard against the danger of his being cut by the cutters should he be thrown upon or in front of said knives, or should the machine be started while he is in front of them. The invention consists in shoulders formed upon, and a foot rest attached to, the connecting bar, in combination with the said bar, a bent lever, the bar, the seat, the springs, the platform, and shifting lever; and by this construction, the weight of the driver's feet will hold the bar locked and the mechanism in gear, even should the driver be jolted up from the seat; but should he be thrown from or leave the machine, the slightest jar of the machine will throw the cutting mechanism out of gear.

Improved Steam Cylinder for Cotton Press.

John F. Taylor, Charleston, S. C.—This invention relates to certain improvements in single acting steam cylinders, designed to operate the toggle arms of a cotton press; and it consists in a cylinder having at the top, near the end of the stroke of the piston and upon the inner periphery, a series of recesses of a greater length than the width of the piston; and also upon the same level a series of holes communicating with the outer air, which admit the air to fill the space above the piston on the downward stroke, and allow the escape of the same upon the upward stroke, the said recesses serving to equalize the steam upon both sides of the piston when the latter is upon the same, to break the momentum; and the air holes, being closed when the piston is on the recesses, cooperate with said recess to assist in breaking the momentum, by forming in the top of the cylinder an air cushion.

Improved Apparatus for Measuring Liquids.

Emile E. P. Clausolles, Barcelona, Spain.—This invention relates to certain improvements in meters or apparatus for measuring liquids, also adapted to be used as an engine or force pump. It consists of three or more lantern bellows, constructed of thin annular disks of metal, which said bellows operate successively upon the arms of an elbow lever, so as to cause the end of the main arm or central shaft of said lever to revolve in an orbit and operate a valve, which renders the action of the apparatus automatic. The top of the central shaft is secured by a ball and socket joint, and to the top of the same is attached a stud which, by engaging with suitable gearing, moves the index hand of the registering devices.

Improved Car Coupling.

Belton Mickle, Holly Springs, Miss.—This invention relates to certain improvements in car couplings; and it consists in the combination of a gravity catch having a slotted hole, through which a transverse pin passes to support it, and a drawbar having a central longitudinal slot in which the catch swings, and open recesses upon each side of said slot, in which the projecting ends of the transverse pin are supported. By means of this arrangement, the catch readily adjusts itself to the vibrations of the cars, and may be easily and quickly detached when desired.

Improved Animal Poke.

Henry Walton, Jesup, Iowa.—This invention relates to certain improvements in animal pokes, or devices to be attached to unruly cattle to prevent them from breaking through fences, etc. It consists in a bar having at its lower end a ring to be fastened in the animal's nose, and at the upper end a projecting stem or tongue which takes in the fence when the animal attempts to break through, and pulls the ring in the nose. The said bar is extended a sufficient distance above the animal's head, and is prevented from turning by a crossbar resting upon the face, the main longitudinal bar being held in position against lateral displacement by rings which pass over the horns, and are attached to said bar by adjustable rods.

Improved Calendar.

David J. Miller, Santa Fé, New Mex.—This invention relates to certain improvements in calendars; and it consists in a system of movable pegs, in combination with the attachment hereinafter explained, marked and arranged in headings, columns, and rows, the whole constructed in a block of wood or other suitable material, headed with the year current and divided into twelve divisions, each representing and headed with the name of a month, and each month divided into seven columns of six pegs, the columns headed with the names of the day of the week, and the pegs marked with the numbers of the days of the month and of the days of the year in their order: each date peg having attached to it, on the back or immediately adjoining, a sliding slip or piece of metal or other material also marked, and each being susceptible of bearing also other marks or indicators, as of celestial phenomena and other occurrences capable of easy visible representation.

Improved Cultivator.

Gershom Wilkinson, Quincy, Ohio.—By suitable construction, should the plows strike an obstruction, the upper ends of the standards will be forced forward, raising a lever and allowing the plows to swing back, so as to pass the obstruction. The plows may be adjusted wider apart and closer together by adjusting the positions of bars. To the outer bar of each pair is attached a lever, upon which is placed a slotted plate. The plates have hooks upon their side edges, turned in opposite directions. When the plates are in position, by loosening the clamping nut they may be raised to support the plows farther from the ground, and, by inverting the plates, which brings the other hooks into working position, they may be lowered to support the plows at a less distance from the ground.

Improved Adjustable Sack Holder.

Henry W. Clark, Red Bluff, Cal.—A slotted upright has cleats on the back, flush with the sides of the slot. An arm adjustable on the upright has a spiral spring on its upper side. The under side of another arm, constructed and made adjustable in a similar manner, rests on the spring. A semicircular metallic spring, attached to the lower arm, holds the bag. The arms are adjusted to suit the length of the bag, and so that the bottom of the empty bag will nearly touch the bed. While the bag is being filled, the weight will bear it down to the bed, while the spiral spring will allow the bag to settle.

Improved Wedge for Splitting Rock, etc.

Thomas Cosbey, Fort Scott, Kan.—This invention consists of a metal wedge, whereof the middle portion is hollow or open from one of the tapered sides to the other, to dispense with certain portions of the metal of a solid wedge which are not needed, and thus to economize in the cost. The object is also to make the device lighter and more convenient to handle; and also to provide a hole by which it can be grasped by the fingers or by hooks when it has fallen into a deep cleft of a log or rock, from which it is very difficult to remove a solid wedge.

Improved Harrow.

Adolphus W. Davis, Dwight, Ill.—This improved harrow is so constructed as to adjust itself to uneven ground, and it will allow either of its sections to be raised from the ground without affecting the others.

Improved Process of Making Imitation Woods.

George V. Hann, New York city.—This is a process of making imitation woods by first graining a surface with a mixture of acetic acid, logwood, and iron oxide, and then staining with a mixture of shellac, alcohol, logwood, and red sanders.

Improved Convertible Rocking Chair and Swing.

Sigmund Feust, New York city.—This invention consists of a chair with hinged rocker and leg sections, which are capable of being rigidly applied as rockers for a chair or as side arms for a swing seat. Below the hinged seat of the chair is a box for the reception of the suspension cords attached to the frame of the chair, they being stored in such a manner within the receptacle as not to prevent the closing of the seat.

Improved Bed Lounge.

Abraham Morris, New York city.—This relates to an improved bed lounge, which is provided with a side or guard rail and legs, that are, simultaneously with the opening or folding of the section, carried into the required position. The invention consists of a side or guard rail pivoted to the extended legs swinging therewith. The guard rail supports also, by guide groove in connection with a face strip of the main head piece, the detachable head piece of the folding section.

Improved Wrench.

Thomas F. Dunn, Saccarappa, Me.—This consists in combining two or more wrenches, by means of a longitudinal slot, in one. By this means, the lever on either of the wrenches is materially increased, and when one of the wrenches is placed endwise on the nut, the wrench, which is passed through the slot, may be used as a handle to obtain leverage.

Improved Cultivator.

Joseph C. Jenkins, Lebanon, Tenn., assignor to himself and James G. Jolley, same place.—This is a combination, with two cultivators or gang plows, of a medium coupling, consisting of blocks and a pivoted bow. This gives the plows an opportunity to accommodate themselves to the movements of the horses, and enables the plowman readily to turn or lift each frame laterally, so as to avoid stones or stumps.

Improved Adjustable Handle for Harrows.

Samuel D. Riegel, Adelphi, Ohio.—This improved handle for harrows is so constructed that it may be instantly adjusted to enable any desired part of the harrow to be raised from the ground to pass obstructions, or to clear the harrow of rubbish, and to enable the harrow to be held in or to the right or left of the line of draft.

Improved Compound for Preserving Fish.

Henry Sellman, Hoboken, N. J., and Herman Reessing and Julius Wolff, New York city.—The fish are preserved and at the same time flavored by being packed with a compound of vinegar, allspice, pepper, onions, horseradish, bay leaves, cloves, ginger, coriander seed, Chili pepper, and capers.

Improved Button.

William Hornich, Newark, N. J.—This invention consists of a button which is made with a loop-shaped re-enforcing wire, retained by the metallic shells of the same, for strengthening the fastening fabric.

Improved Door Check.

Horace B. Church, Jefferson City, Mo.—This invention is an improvement in that class of door checks which are formed of a sliding spring bolt and an elastic block secured in a socket in its outer end. The socket for the elastic block is separate from the sliding bolt, and both are connected together by means of an arm which extends downward and holds the socket horizontal. A smaller and cheaper bolt and case is thus employed, and the socket piece may have any required size of friction surface without necessitating any corresponding change in size of the bolt.

Improved King Bolt for Wagons.

William Truax, Hamilton, Mich.—The king bolt is made without a head, and is placed in a hole that passes through the axle tree, sand board, and bolster. The lower end of the king bolt rests upon a plate fitted to the lower side of the axle tree, and secured in place by bolts that fasten the sand board to the said axle tree. By this construction the king bolt will be held securely in place, and, being made without a head, will not wear the bolster and the wagon box.

Improved Butter Package.

Cevedra B. Sheldon, New York city.—This invention consists of a wide hoop-shaped jacket of non-conducting material, pressed on the tapering metal body of the package, both for re-enforcing it as to strength, so that light thin metal may be used, and for protecting the metal from the rays of the sun while the packages are in transportation. The bottom is made of stamped sheet metal, and has a flange turned up outside of the lower end of the body, serving for a strengthening band to the thin substance of the body, also for soldering to the body.

Improved Carbureter.

Edward J. Daschbach, Pittsburgh, Pa.—This invention consists of a carbureting chamber surrounded by a feed tank, in which the gasoline or other hydrocarbon substance is maintained above the feed passage into the carbureter by atmospheric pressure, so that a regular automatic feed is obtained by the oil in the carbureter, and the carbureter is provided with an inlet pipe projecting below the oil inlet.

Improved Windmill.

Jacob D. Christie, Schrallenburg, N. J.—The invention consists of the adjustment of a wheel shaft having a hinged supplementary vane, on a quadrantal turntable, to any angle with the main vane. The wheel is provided with adjustable weights of sliding rods, that act on a brake mechanism of the shaft, to change the position of the wheel shaft toward the main vane. The separate adjustability of the wheel and shaft from the main vane, in connection with the regulating mechanism of the wheel, is claimed to give a uniform motion and even speed at varying velocity of the wind, and admits, also, the exact setting of the mill to the power required for certain purposes.

Improved Car Coupling.

John M. Marlin, Willett, Pa.—This consists of pivoted and spring-acted side bars, that are guided by rigid top and bottom drawhead bars, to retain on their flanged and concaved front ends the coupling pin, until they are forced apart by the entering link, for dropping the link for coupling. The link is wider at the central part, to prevent its entering too far into the drawhead.

Improved Street Car Coupling.

Heinrich Krüger, Jr., New York city.—This is a coupling hook for street cars, by which the draft bar and single tree are supported at such hight that the injuring or entangling of the legs of the horses on the stopping of the car is prevented without changing the point and direction of draft. The invention consists of a braced and spring-acted lever that is pivoted to supports of the car bottom frame, and carried up against the dashboard, so that the coupling hook and draft bar are raised with the same while being lowered by the strain thereon.

Improved Shelving for Stores.

Henry T. Bestor, San Francisco, Cal.—In this improved construction of store shelving, the carrying girder is set back, so that the front finish comes flush with the front of the supporting posts, to allow of metal bars being suspended on the face of the finish for the intermediate support of the shelves, and so that covering columns may be applied in a simple way to hide the rod.

Improved Car Coupling.

John Q. A. Young and James D. Young, Cedar Mill, Oregon.—This invention relates to improvements on the car coupling of H. E. Smith, patented August 25, 1874. The invention consists of a bottom recessed drawhead, with jaw-shaped front end, and of an interior horizontally pivoted lower jaw, that lock the enlarged head of the coupling pin. A cam on the lateral shaft of the uncoupling lever binds on a rear swell of the lower jaw, for securely locking the coupling link, the shaft and cam being introduced to the cavity of the drawhead by a corresponding side slot.

Improved Bale Tie.

Henry J. Wright, Society Hill, S. C.—This invention relates to the construction of ties for baling cotton and other articles, and consists of a tie made of two parts, to one of which the band is attached, which lock together and tie the band.

Improved Egg Box.

Othello Sutphen, Albany, N. Y.—This is a spring-suspended egg box, having guide slots, in combination with pivot pins. The pins serve as guides and pivots for the different positions of the egg box, so that an easy vertical and side motion is allowed to the same.