

The best fattening material for chickens is said to be Indian meal and milk.

A remedy for caterpillars, which is used on a large scale in France, consists in a solution (1 part in 500) of sulphide of potassium, sprinkled on the tree by means of a hand syringe.

The best and most durable insulation for electric wires is to tin them and cover with pure rubber.

Javelle water, used for turning white the dirtiest linen, and removing stains, is composed of bicarbonate of soda 4 lbs., chloride of lime 1 lb. Put the soda into a kettle over the fire, add 1 gallon of boiling water, let it boil from ten to fifteen minutes, then stir in the chloride of lime, avoiding lumps. Use when cool. This is good for removing fruit stains from white underwear.

Biborate of soda dissolved in water, used as a lotion, will remove prickly heat.

The average yield of corn cobs is 762 parts of carbonate of potash in 1,000 parts of the cobs, which is nearly twice as much as is furnished by the best specimens of wood. The corn crop of this country will supply 15,400,000,000 lbs. cobs, from which 115,500,000 lbs. of potash might be made.

The way they boil rice in India is as follows: Into a saucepan of 2 quarts of water, when boiling, throw a tablespoonful of salt; then put in 1 pint rice, previously well washed in cold water. Let it boil 20 minutes, throw out in a colander, drain, and put back in the saucepan, which should be stood near the fire for several minutes.

Save the corn cobs for kindlings, especially if wood is not going to be plentiful next winter. To prepare them melt, together 60 parts resin and 40 parts tar. Dip in the cobs, and dry on sheet metal heated to about the temperature of boiling water.

Equal weights of acetate of lime and of chloride of calcium, dissolved in twice their weight of hot water, is a fireproofing mixture for fabrics.

The ammoniacal solution of oxide of nickel will dissolve silk; that of copper dissolves cotton also.

[For the Scientific American.]

THE CHEMICAL FIRE-FLY.

BY PROFESSOR C. W. WRIGHT.

Of all the elements, there is none which presents such a diversity of forms as phosphorus, and not one that presents such a variety of properties which are so apparently contradictory. The number of allotropic forms assumed by this element, and the peculiar part which it plays in the conditions essential to the manifestation of sensation and intelligence, together with the fatal effects which often result from its introduction into the system, give it an interest not exceeded by that of any other form of matter whatever. A distinguished professor of this city, who was in his day a most attractive teacher, maintained that the chief element of success in a lecturer consisted in the power to address the eye, experimentally when possible, and by a well drawn mental image when the subject under discussion did not admit of physical demonstration. In other words, he contended that nothing should be left to the imagination of the student. There can be no doubt that a single, well selected experiment, skillfully executed, is more instructive than an hour's talk without illustration. Phosphorus may be selected as a means of illustrating the two methods of presenting a subject. Thus, the average text book informs the reader that phosphorus is luminous in the dark, or, in other words, phosphoresces when exposed to the air; and this is about all that is stated in reference to a property of this element, which is the most important of any connected with it. Upon this property, or one closely allied to it, is the poisonous quality of this agent based. Destroy this power of phosphorescence, and this element is no longer a deadly poison, either when swallowed, or by the action upon the bones of the upper and lower jaw. The phosphorescence of this element is accompanied by the development of ozone, and any substance which has the power of destroying ozone will arrest the luminosity of phosphorus, and, what is of still greater importance, destroy its poisonous action. In fact, phosphorus is not of itself a poison, but the ozone which it has the power of developing out of the oxygen of the air is the sole cause of the fatal results which follow its introduction into the system. This I have repeatedly demonstrated by experiments on the lower animals; and in two cases of accidental poisoning in human beings, the same facts have been proven. This is a subject, however, that properly belongs to the medical profession, and I will simply state that ten or fifteen drops of spirits of turpentine, mixed with an ounce or two of sweet oil, or any liquid fat, will prove an efficient antidote to elementary phosphorus, or any substance, such as the tips of matches or certain rat poisons, with which it may be incorporated. Other volatile oils, such as sassafras, may be employed when turpentine is not at hand. It is not every specimen of turpentine that will prove antidotal to phosphorus. Any substance that has the power to instantly destroy the luminosity of this body will prove effectual as an antidote; and the only assurance we have of the efficiency of any agent is to test it beforehand.

Phosphorus is, then, not of itself capable of producing inflammation of any tissues of the body; but ozone, which it has the power of evolving from the oxygen of the air, is the cause of all the local mischief which results from its contact with certain parts of the body. That this body may produce certain general effects when it finds its way into the circulation, we do not doubt, but these are distinct from its local action.

To prepare the chemical fire-fly, by which some of the most characteristic properties of phosphorus can be demon-

strated, select a two ounce phial which has been well annealed, and introduce into it sweet or almond oil, till the bottom is covered to the depth of half an inch (lard will answer, if nothing better can be procured), and to this add fifteen or twenty grains of phosphorus, and then cork it loosely. After this, place the phial in a pan of cold water, and set it on a stove or other warm surface till the phosphorus melts, then shake the phial till the oil has dissolved as much of it as it is capable of holding in solution. Three or four vigorous shakes in the course of ten minutes will answer. That quantity of oil will not dissolve the whole of the phosphorus, which is not desirable. The cork must not be a closely fitting one, but must be forced into the phial so as to nearly prevent the escape of the oil when inverted. It is best to give the cork more of a conical shape than those in use by druggists. When experimenting, the phial must be warmed about as hot as the hand can bear, and slightly agitated or inverted, taking care, when doing this, to have the cork well secured; it may afterwards be loosened a little. When the cork is properly adjusted, which can be easily accomplished by a little practice, the whole interior will light up every few seconds, in rhythmical succession, and continue to do so for hours, provided the proper temperature is maintained. At the conclusion of the experiment, the apparatus should be put away in a dark place, and a tightly fitting cork introduced into the phial. A number of these phials, properly adjusted in a darkened room at different points, and several set swinging by means of strings suspended from the ceiling, produce a singular and weird impression, that grows upon the observer the longer the experiment is observed; and after a time it is difficult to divest oneself of the idea that the light is evolved by a living, moving creature. For impressiveness, there is no experiment in chemistry that makes such an enduring image upon the observer. Of course every precaution should be taken to avoid breaking the apparatus or spilling the oil. No damage, however, need be apprehended provided the directions are strictly followed. In experimenting with phosphorus, the inexperienced should always be provided with a large vessel of water in which a few drops of turpentine have been diffused. When burning phosphorus has been extinguished by this water, there is little or no danger of its re-ignition, which is very apt to occur when it is extinguished in the ordinary way. The phosphorescence of this element, when a solution of it is spilled upon any object, as well as its disagreeable odor, are instantly destroyed by a small quantity of turpentine suspended in water.

Under no circumstances should children or careless persons be permitted to experiment with phosphorus; not that it is anything like as dangerous as coal oil and many other articles handled daily, but there is no substance that so completely demoralizes the understanding, in case of an accident, as this.

The glow-worm may be imitated by transmitting bubbles of air through glass tubes containing the phosphorized oil. In fact, there is no end to the number and variety of experiments that can be devised by a person of inventive genius.

The phosphorescence of the fire-fly and glow-worm is due to slow combustion or oxidation; and the phenomenon is arrested in them, as it is in phosphorus, by placing them in a negative gas, such as nitrogen, for example. Phosphorescence is not always, however, the result of oxidation. This fact can be demonstrated by exposing the diamond to direct sunlight for a few minutes, and then transferring it to a darkened room, when it will emit a beautiful light for several seconds.

The phosphorescence of the fire-fly is not due to the slow combustion of phosphorus, nor is it an amatory display on the part of that insect. The species are perpetuated under different circumstances, and in the daytime. The fire-fly is a carnivorous insect, and the object of the illumination is to attract small insects, which are quickly devoured.

If the ear be placed near the vessel of phosphorized oil at the moment of illumination, a slight hissing noise will be perceived, produced by a sudden rush of air into the phial, in consequence of the partial exhalation (one fifth) of the air in the phial, by the abstraction of oxygen, which unites with the phosphorus. This fact is instructive. It demonstrates to us, in a striking manner, that a vessel which may be impervious to a liquid may permit the entrance or exit of a gas or vapor; and it accounts for the decomposition of spirits, conserves, extracts, etc., that are put up in vessels that are supposed to be hermetically sealed, simply because they do not permit of the escape of their liquid contents.

Louisville, Ky.

Progress of Flying Machinery.

A new steering balloon by Smitter is being exhibited, suspended in the middle of the Alcazar in Paris. The measurement is only 6,000 cubic feet, but the balloon is so light that, when filled with pure hydrogen, it must float. A considerable sum of money has been invested in it, and great ability has been displayed in the construction. Although no practicable result in open air may be hoped for, it is a wonderful piece of clockwork. In connection with this subject, it is stated that, for several months past, a firm of engineers have been experimenting privately at the Crystal Palace with an aerial steamer of a novel and promising character, weighing 160 lbs. Experiments are stated to have proved the capability of two vertical screws, each 12 feet diameter, to raise a weight of 120 lbs.; the steam engine, with water and fuel, forming part of the weight so raised to the extent of 80 lbs. The power exerted by it is equal to two and a half horses. The communication of motion is given by a vertical axis emanating from the car.—*Nature*.

Recent American and Foreign Patents.

Improved Dumping Car.

Benjamin Slusser, Sidney, Ohio.—This invention makes a considerable change in the frame of a dumping car or wagon, so that the contents may be discharged with little expenditure of manual force, and yet with great facility, the tail board being made to open automatically.

Improved Fifth Wheel.

Jacob Hodge, Springfield, Ill.—The fifth wheel is a circular iron disk, the face of which is slightly convex, and which has lugs formed upon its sides to receive the clips, by which it is firmly secured to the axle. In the center of the disk is formed a hole to receive the hub on the circular disk of the head block. The lower side of the head block has a circular recess to fit upon the fifth wheel, the face of which is slightly convex, so as to bring the bearing toward the center. Upon the head block is a transverse rib, upon which rests a spring. Upon the rear side of the head block are formed two flanges, and an arm or projection, having slight flanges formed upon its side edges to form a seat for the reach, the forward end of which abuts against the rib of said head block. The connection between the reach, head block, fifth wheel, and axle is strengthened by two metal straps.

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 combination with the feed pipe to the gas holder of a ball valve to prevent back pressure.

Improved Cotton Chopper.

Wm. D. Evans, Society Hill, S. C.—The invention consists in a rotary chopper having intervalled sets of knives on two drums arranged on a single shaft, so as to chop out two rows simultaneously.

Improved Egg Tester.

Wm. W. Wilson, Parkville, Mo.—The invention consists in an egg tester consisting of a case in whose center is placed a lamp, and in whose side is a horizontal tube having an egg-holding cap at the outer end.

Improved Gang Plow.

A. Schrader, Walla Walla City, Wash. Ter.—The invention relates to that class of gang plows whose frames are supported on swiveled castor wheels so as to regulate the depth of furrow, and consists in an improvement by which the front and rear wheels are simultaneously graduated by the driver, so as to determine the exact depth of furrow required.

Improved Post Hole Borer.

Obadiah Love, Saxenburg, Pa.—The object of the invention is to expedite and diminish the cost of post-hole digging by making the blades form a cage, tapering in an upward direction, and causing the soil to crumble and discharge itself.

Improved Automatic Car Coupler.

F. W. Nash and S. S. Kirk, Washington, D. C.—This coupler is adjustable to any car, and couples with any other coupler, by simply bringing the cars in contact. It can be uncoupled from side, top, or platform of car, avoiding the necessity of the attendant ever going between cars. It is claimed to combine simplicity, utility, durability, strength, and cheapness. For further particulars, apply to S. S. Kirk, Washington, D. C.

Improved Vehicle Tongue Support.

George W. Burnside, Prairieburg, Iowa.—By suitable construction, when the draft is applied, the downward pressure of a chain upon a pulley raises the tongue, and supports it, so as to relieve the horses' necks from its weight, and hold it raised so long as the draft strain is continued.

Improved Foot Treadle.

Daniel E. Lillis, Lockport, N. Y.—The invention relates to the construction of swinging foot treadles for sewing machines and others, in which an adjustable foot plate is bolted on to the hanging bar, for shifting forward and backward on the bar to balance the feet relatively to the pivot. Ribs are cast on the edges of the foot plate, in combination with the notched hangers, to assist the binding screw in holding the foot plate fast.

Improved Lamp Fount.

Edward Brown, New York city.—The lamp fount is provided with a thin circular outwardly and downwardly projecting flange around an inner conical cavity, a space being left between the flange and body of the fount to receive the fastening screw of a bracket.

Improved Bessemer Converter.

Almon S. Dunning, Joliet, Ill.—The invention consists of a converter, the nose of which is constructed at the front part in straight or flattened shape. By the removal of the projecting angle or curved convexity, the sectional area of outlet is greatly increased, and consequently the force and velocity of the blast diminished. Thus any metal rolling up will fall back. The invention states that he has made about twenty thousand tons of steel under this improvement, and with not one fourth the usual overflow.

Improved Harrow.

Joseph Rieth, Mount Sterling, Ill.—The harrow frame is made in two parts. Each part consists of three or more parallel bars, connected. The two parts may be adjusted closer together or farther apart, as may be desired. The outer ends of the outer bars of each part have rings secured to them. To the draft bar are attached five staples. Two draft chains the forward ends of which are hooked into two of the staples, are equally distant from the center of the draft bar. The chains are passed through forward rings, and are hooked into rear rings, or are turned back upon themselves and hooked into their own links. The draft may be applied to the other side of the harrow. By detaching the chains, the parts of the harrow may be folded together, so that it may be drawn upon its side in passing to and from the field.

Improved Blind Stop.

Charles E. Steller, Milwaukee, Wis.—This consists of a plate of metal, arranged between the inner edge of one of the stiles of the blind and the end of one or more slats, so as to oscillate a little. It has a cam button on the stile, so combined with it that, by turning the button against the plate, the latter will be pressed against the slats, so as to hold them by friction in any position in which they may be set. It was fully described and illustrated on page 70, current volume of this journal.

Improved Combined Grave, Coffin, and Monument.

Leland M. Speers and Abraham Clark, Newberry, S. C.—This device is so constructed as to prevent the escape of odors and the entrance of water, while allowing the features of the dead to be viewed whenever desired. The invention consists in a combined grave, coffin, and monument, formed of the recessed lower part, the grooved cover made thicker at its head end, and having an opening formed through it, in which is cemented a glass plate and the cover for said opening.

Improved Blind Stop.

Thomas T. Duffy, Dubuque, Iowa.—By suitable construction, by turning a rod, a cord will be wound upon the said rod, and the slat rod will be drawn down, opening the slats to any desired extent, where they will be held securely by a ratchet wheel and pawl. By withdrawing the pawl from the ratchet wheel, the elasticity of a spring will raise the rod and close the slats.

Improved Stove Grate.

Jonathan Moore, Jr., Brooklyn, N. Y., assignor to J. L. Mott Iron Works, New York city.—This is a combination of a laterally shaking and dumping bottom section, provided with clinker-breaking points, with the stationary top section, also having breaking points.

Improved Smoking Pipe.

Carl J. Jonasson, Warren, Pa.—In this smoking pipe the stem may be readily folded down to the bowl, so as to occupy a small space in the pocket, be less liable to get broken, and easily taken apart for being cleaned. The stem is hinged by ball and socket joint and connecting link.

Improved Flower Pot.

Joe Sephus Johnson, Somerville, Tenn.—This is an earthen flower pot consisting of body, hollow base, and perforated partition, all made up in one piece. With this construction the earth will be kept properly and uniformly moist, and will not be soaked or leached, as it is liable to be when the plants are watered by pouring water upon the earth in the flower pot.

Combined Cigar Tip Cutter and Watch Charm.

Emil F. W. Eisenmann, New York city.—The invention consists of the combination of a watch charm with a cigar-tip-cutting device. The stem end of the cutter is guided in the barrel in such a manner that, in pressing on the same, the cutter is carried down between the rims and cuts off the tip.

Improved Seed Planter and Fertilizer Distributor.

David F. Balentine, Mount Gallagher, S. C.—An arm projects into such a position that it may be struck by pins attached to a wheel. In the bottom is an opening for the seed to escape, which opening may be partially covered to regulate the amount of seed discharged by a plate. To the hopper is attached a narrow bar, the rear edge of which projects into the said hopper, and has saw teeth formed upon it to take hold of the seeds or fertilizer as the bottom rises, and cause them to pass out through the opening in said bottom. By this construction the bottom will be constantly moving up and down, keeping the seed or fertilizer in the lower part of the hopper loosened, and causing it to pass out regularly.

Improved Egg Box.

William H. Holdam, Crab Orchard, Ky.—The device consists of a box, having detachable egg holders, provided with subadjacent spacing and supporting end pieces, so that each may be conveniently placed on a floor or table, and filled with eggs before being inserted.

Improved Vehicle Wheel.

Sobieski L. Bond, Columbia, S. C.—A nut screws on the outer part of the hub, against keys under the spokes, to wedge them out for tightening the tyre. The face plate screws on the nut against the sides of the spokes, to wedge the latter firmly in the mortises of the hub. There is a wedge between the ends of the felly, and a screw for drawing it up to fill up the opening made by wedging out the spokes and tightening the felly. The wheel can thus be tightened up as often as required merely by turning the screws with proper wrenches.

Improved Stove.

James L. Roberts, Brunswick, Ga.—This invention consists of a flue on the under side of the top plate of the stove, for carrying the heat around directly under the pots in a continuous stream, so as to heat them more, and quicker, and the other parts of the stove less, than with the common arrangement. It also consists of two openings in the bottom of the stove, making a passage directly through for cleaning out the soot.

Improved Smelting Furnace.

Henry C. Creal, Cheyenne City, Wyoming Ter.—The ore melting furnaces are located one on each side of a central heating furnace, and communicate therewith by means of openings in the vertical side walls. The three furnaces, together with the flue, are arranged in the form of the Latin cross. Fire places located directly under the floor communicate directly with central fire place. The ore to be melted is placed on the concave floor of the side furnaces, and the same is melted by the heat from the central furnace and the fire places. The products of combustion from the side furnaces pass into the central furnace by means of the openings in its side walls, and, mingling with the products of combustion in the latter, pass to the chimney.

Improved Jar Lifter.

William W. Brower, New York city.—This is a jar lifter consisting of two rods made adjustable at the point of intersection, and bifurcated below, forming legs, which carry rubber-faced arc jaws made fast to the inside of their lower ends.

Improved Chuck for Rock Drills.

Joseph C. Githens, New York city.—A key is fitted into a groove in the piston rod. The inner edge of the key has a half-round groove formed in it, to correspond with the bottom of the groove in the piston rod, so that when the key is in place a cylindrical hole will be formed to receive a bit. The key has a swell formed upon the outer side of its middle part, which is notched transversely, to receive the bend of a U bolt, the arms of which pass through the enlargement of the piston rod upon the opposite sides of the groove in said piston rod, and have nuts screwed upon their ends. By this construction, the end parts of the key bearing upon the bit and the U bolt grasping the middle part of the key, there will be a slight yield or spring to the key, which will cause it to hold the bit more firmly.

Improved Car Coupling.

Charles E. Ramage, Sherman, Tex., assignor to himself and Wilhelm Heyde, of same place.—When the cars come together for coupling, the end of the link strikes an arm, which raises the other arm and the coupling pin. The link passes into the drawhead beyond the pin, the arm struck slips off the link, and the cars are coupled automatically. An angle plate is attached to the front of the car directly above the drawhead, and acts as a spring. Devices are added so that when the car runs off the track, and is partially turned over, the drawhead will be withdrawn from the car.

Improved Device for Regulating Car Ventilators.

George W. Birmingham, New York city.—The operating lever is fulcrumed to a supporting bracket. The opposite arm is jointed by a pivoted link to the pivoted ventilator. The central part of the lever bears against a brake spring attached to the ventilator frame, and is held by the friction of the same firmly in any position.

Improved Airtight Can.

Stephen Joyce, New York city.—The cover is made of two parts soldered together. In one part a groove is made, in which groove is a band of rubber which projects outward, and when forced down it is crushed and expanded by its contact with the flaring end of the can. The joint is made airtight and water tight. Ears left on the top of the flare are, when the cover has been forced down airtight, bent over the edge of the cover, so as to securely fasten and keep the cover in place.

Improved Portable Boiler.

George F. Johnson and Daniel Wilde, Washington, Iowa.—A barrel is hung on gudgeons in a kind of wheelbarrow. It is open at the top, and in the center of its bottom is a galvanized iron cylinder. In the lower part of the cylinder is a grate. To the upper end of the cylinder is attached a cover, and in the cover is formed a hole for the escape of the smoke. The grain or other feed to be cooked is placed in the barrel around the stove, so that it may receive the full heat of the fire. A conical shield is placed around the cylinder to keep clothes, when the same are boiled in the barrel, from coming in contact with said cylinder. To the shield, a little above its lower end, is attached a perforated flange, which projects nearly to the sides of the barrel, to keep the clothes up from the bottom.

Improved Fire Place.

William Tweeddale, Brooklyn, N. Y., assignor to J. L. Mott Iron Works, New York city.—This fire place is composed of a back plate inclined forward at the top, forward and outward at the sides, and provided with an opening to the chimney, and flanges which support the middle plate and damper. The middle plate is inclined forward at the sides and top, and provided with an opening also to the chimney. The front plate is secured to the middle and back plates.

Improved Pitman.

John R. Taylor, Eagle Point, Ill.—This is an improved pitman connection for connecting the driving power with the sickle bar of mowers, reapers, and harvesters, so constructed as to enable the wear to be taken up at the pivoting and working points.

Improved Metal Cap for Posts.

John Davenport, Stamford, Conn.—The metal cap is made in two parts, and secured by bolts being inserted from the under side of a flange, forming a cornice. The nut is confined by a lug cast on the inner wall. The upper part overlaps the lower part, so as to prevent the rain from getting inside.

Improved Paddle Wheel.

James Salter, Brooklyn, E. D., N. Y.—This invention consists of paddles composed of entire plates the whole length and breadth, with taper-pointed outer ends connected to a thin metal ring, and the inner ends connected to the hub. By the tapered form the paddles enter and leave the water much easier and smoother. The invention also consists of the paddles made in two plates, which match at the inner edge with an arm having a groove on opposite sides, in which the plates are confined by a band of metal applied between the rim and the hub, to fasten them to the arm, while the inner ends enter mortises in the hub.

Improved Leather Belting.

Charles H. Alexander, Henry W. Alexander, and Edward P. Alexander, Philadelphia, Pa.—It is proposed to cut the hide along the middle for belts of two or more plies, and turn the back edges, that is, the edges formed by so cutting it, outward, and the side edges inward; and for belts too wide to be made by the two pieces so cut, one or more middle pieces are introduced, taken from the center of a side. Thus the firmest texture is placed at the edges of the belt, and the softer and more yielding texture in the middle, which makes the edges hug the lower portions of the face of the pulley, while the middle stretches over the crown, and thus the belt acts with due effect throughout its whole breadth.

Improved Show Case.

William B. Smith, New York city.—When the door is closed, a cleat inside the bottom strikes the lower edge of a rubber, and turns it up and confines it against a rabbet, and thereby excludes all dust from the show case.

Improved Harvester Cutter.

Thomas R. Arnold, Knoxborough, N. Y.—In the back of the cutter bar is a groove, and on the side of the knives is a lip. This lip rests in the groove, while the knife rests flat on the face of the cutter bar. The knives are brought in contact with each other on the front of the cutter bar. The backs of the knives rest against the shoulder of the cutter bar, so that the knives are kept rigidly in place. The clamping bar is attached to the cutter bar with screws which pass between each pair of knives. The corners of the knives, having corresponding pieces cut out of each corner, form rearwardly opening spaces on each corner edge of the shank. By loosening these screws the knives may readily be removed and replaced.

Improved Automatic Shut-off Attachment for Water Closets.

James Cavanagh, New York city.—This is an automatic shut-off attachment for water closets, by which the supply of water is instantly interrupted as soon as the hinged cover of the same is released, and the supply of water regulated as desired; and by the ready access and easy lubrication of the parts, few repairs are rendered necessary. The invention consists of the connection of the stop cock of the supply pipe by a crank lever and adjustable rod with the hinged and weighted cover of the bowl, so that the opening of the same produces the closing of the supply cock, which is provided with a waste pipe and a lubricating pipe attached by a fastening nut to the flange of the bowl.

Improved Knock-Down Bureau and Wash Stand.

William S. Moses, Lebanon, N. H.—The front rails for the support of the drawers are divided in two parts longitudinally, and the front portion is permanently attached to the front of the bureau. The other portion forms part of a removable frame for the support of the drawer. The front sides and back connect by dovetail joints sliding together vertically, and are locked by the top, which slides in the sides, over the back, over and against the front, and is fastened by cams concealed inside. No joints are visible.

Improved Machine for Catching and Destroying Potato Bugs.

Ceylon E. Mathewson and Harvey T. Mills, Franklin Corners, Pa.—The construction is such that, as the machine is drawn forward between two rows of potatoes, the vines will be drawn into the spaces between guards and side bars, where they will be struck by wings. The blows of the wings knock the bugs against a partition, from which they fall upon a bottom, slide down, and pass out through the discharge opening, where they are crushed by rollers.

Improved Oiler.

Henry E. Bohm, Herman Stuhr, and Peter J. Joecken, Cleveland, Ohio.—The bottom plate, top plate, and glass cylinder of the cup are secured by a center bolt, which screws into the cup and also passes through a clamping band and fastens it to the cup.

Improved Saw Mill.

William T. Wayne, Conyngham, Pa.—This invention consists of a vertical guide roller, turning in a sliding standard frame, adjusted by rack, sector pinion, and lever mechanism. The lever is locked by a spring latch to an arc-shaped rack, and adjusted with the sector pinion to the exact position of a horizontal supporting roller by set screws of the supporting hangers.

Improved Hens' Nests.

Julia P. Clement, Williamston, S. C.—A box is divided longitudinally into two equal parts, by a division board extending from the peak of the roof to the floor. The interior is divided up into nest spaces by boards extending up to the roof. The hens, when they enter, pass through an end passage, enter a side passage upon the opposite side from that at which they entered, and take possession of any unoccupied nest. No one can obtain access to the nests in any other way than by opening the hinged parts of the roof.

Improved Hydraulic Press.

John F. Taylor, Charleston, S. C.—This invention relates to certain improvements in cotton presses; and it consists in the combination, with the platen and cross head, of continuous links of tenacious wrought metal, which encompass said platen and cross head lengthwise, and constitute of themselves the frame, and receive all the strain of the press, whereby the construction of the press is greatly simplified and rendered capable of standing a much greater strain than the ordinary cast frames. It also consists of a cushion of woods interposed between the links and the contained platen and cross head.

Improved Sewing Machine Fan Attachment.

Isaac A. Abbot, New Orleans, La.—This invention consists of a standard arranged to fasten on the top of the sewing machine table and having a rotary fan and a balance wheel mounted on a crank, shaft. On the crank of the latter is a long connecting rod extending down to the treadle, with which it is to be detachably connected, so that the fan attachment can be readily put on and taken off at any time, and when on may be worked by the treadle by which the machine is worked.

Improved Potato Digger.

George W. Haag, Milton, Pa., assignor to himself and Pembroke Churchill, same place.—The device includes two sets of teeth, which are pressed into the ground and close under the roots by the forward movement of the machine. Said teeth are mounted on endless chains, traveling on horizontally elongated ways. The teeth are constructed in fluted or grooved transverse section.

Improved Lifting Jack.

John B. Fayette and Lorenzo Meeker, Oswego, N. Y.—A tubular standard contains a movable tube of smaller diameter. A pin passes transversely through the lower part of the tube, and the ends project so as to pass through slots in the standard, so that, by dropping the pin into the proper slots, the tube may be supported at any desired height. A short rod fits into and slides up and down in the upper part of the tube, and has a head attached to its upper end to receive the object to be raised. To the rod is pivoted a short connecting rod, the lower end of which is pivoted to a lever. By suitable construction, the rod is lowered by raising the free end of the lever, and is raised by lowering the free end of the said lever. In using the jack, the rod is lowered and the tube is adjusted to the proper position in the standard. The jack is then placed beneath the object to be raised, and the free end of the lever is lowered till it passes the perpendicular, which raises the object and locks the jack until the lever is again raised.

Improved Wagon Brake.

George S. Garth and William H. Rosser, Mill Hall, Pa., assignors to George S. Garth, same place.—This invention relates to the means for connecting the lock or brake bar to the hounds, and guiding it as it is moved up to or away from the wheels. Metal plates are bolted to the rear hounds for a lock bar to rest upon. The said plates serve as guides to the said lock bar as it is moved forward and back. To the lock bar is bolted a metal block, which may be made with short slots to receive the bolts, and is made of the thickness of the plates.

Improved Band Saw Guide.

Lewis K. Young and Charles M. Ferguson, Bridgeport, Conn.—This is a guide for band saws, which will be durable and will hold the saw at the desired point. It consists in the use of glass, dove-tailed or set in either wood or metal, to form the wearing surface.

Improved Detachable Seat for Chairs.

William W. St. John, Pisgah, Mo.—This is a seat of a chair, stool, or settee, strained and made detachable by means of slats. To keep the two lower slats in position (the two upper slats being kept by the lower), a removable cross bar is applied to one of the slats by a pivot fastening at one end, and a hook at the other end.

Improved Gang Plow.

Henry Opp, Belleville, Ill.—By suitable construction, by loosening nuts, the forward ends of the plow beams may be adjusted at any desired distance apart, and, by loosening a rear bolt, the plow beams may be adjusted to take or leave land, as may be desired. The plow beams are made of different lengths, so that the forward plow may always be out of the way of the furrow slice turned by the following plow. The rear ends of the plow beams may be adjusted to correspond with the adjustment of their forward ends. By operating a lever, the plows may be raised from the ground and lowered to work at any desired depth. A pawl holds the plows to their work and prevents them from running out when plowing hard ground, while a chain prevents them from entering the ground too deep when plowing loose.

Improved Straw Cutter.

Charles F. Stewart and Milton Stewart, Muncie, Ind.—This is an improved straw cutter with reciprocating feed box. It consists of a revolving cutting knife, in combination with a reciprocating feed box, that moves the straw forward by a ratchet wheel and pawl connection of the feed rollers with an actuating lever and cams of the supporting main frame. The upper feed roller turns in bearings of a compressing front gate, and is forced on the straw by springs of suitable power.

Improved Washing Machine.

Jesse Wise and Peter Lane, Elwood, Ind.—This invention includes a device which enables the rubbing cylinder to be oscillated to rub any part of the clothes that requires extra rubbing. The operator can hold the clothes with one hand while working the cylinder with the other.

Improved Machine for Attaching Stamps and Sealing Letters.

Eddy Taylor Thomas, Boston, Mass.—A box-shaped casing, about the size of the envelopes mostly in use, is provided at its front part with a letter-opening device, a moistening device, which consists of a middle sponge holder and upper and lower guide plates: the lower for the purpose of passing the gummed flap of the envelope through the same, and moistening the mucilage, and the upper, for moistening the envelope at the place where the stamp is to be affixed. With each stroke of the lever, a stamp is carried to the moistened place of the envelope and attached thereto, while the pressure of the plate seals the flap.

Improved Device for Attaching Hubs to Axles.

Warren E. Pratt, Chesaning, Mich.—The object of this invention is to provide convenient means for fastening the wheels of a vehicle on the axle without the use of screw threads or the ordinary burr or screw nut; and it consists in leaving the ends of the axle or skein square or polygonal, and fastening on the end thereof a washer, to which is attached a key box, having an orifice to fit the axle, the same being fastened to the axle by means of keys and springs.

Improved Steam Rock Drill.

Joseph C. Githens, New York city.—The steam cylinder moves up and down in ways in a shield, which is swiveled to the frame work, and is strengthened by long bolts passing through lugs formed upon its ends. The bolts are extended upward beyond the upper end of the shield, and to their upper ends are attached the ends of a cross bar, to the center of which is swiveled the feed screw, which passes through a screw hole in a lug, formed upon the rear part of the upper end of the cylinder, so that, by turning the said screw, the cylinder may be moved down as the drill works its way into the rock and moved up when the hole has been sunk to the required depth.