The Antiseptic Properties of Compressed Air.

The investigations of M. Paul Bert relative to the properties of compressed air, details of which have already been described in these columns, were the means of discoveries as unexpected as they were important. So far from accelerating respiration and consequently vital activity, as was predicted, the gas caused an enfeeblement of all the natural functions, and, in cases of sufficient compression, death. With pure oxygen, like results were observed, with the difference, however, that the pressure might be five times less than that of compressed air in order to produce a given effect.

Starting from the point thus reached, and adopting the theory according to which fermentations are ascribed to the development of minute elementary organisms, M. Bert has recently undertaken to determine the question of whether air or oxygen in a compressed state does not constitute an antiseptic agent. The experiments made have led him to an affirmative conclusion. Meat submitted for a month to the action of compressed air became yellow and acquired a slightly acid reaction, but all its nutritive properties were found thoroughly preserved. The investigator cooked and ate mutton chops similarly treated and was unable to observe any signs of tainting. It is a curious fact that meat once submitted to the compressed air as above keeps indefinitely after the pressure is removed, care only being required to exclude the atmospheric dust capable of determining putrid phenomena. The only explanation which appears possible for this circumstance is that the compressed oxygen acts on the elementary organisms, in similar manner as upon animals and higher vegetables, and kills the animalculæ already formed within the apparatus, or the matter from which, by processes still unknown, they may be developed.

M. Bert placed some *mycoderma vini* on the surface of wine and applied the compression. The germs were killed instantly and fell to the bottom of the vessel, while the alcoholic properties of the liquid remained unimpaired. Cherries, strawberries, and other fruits, and also wet bread, were equally well preserved. Milk presented an interesting peculiarity. While the germs to which lactic fermentation is ascribed were destroyed, coagulation was not retarded. An explanation of this is perhaps found in the fact already noted concerning the slightly acid reaction observed in meat. A solution of glucose, however, to which brewer's yeast had been added, produced alcohol despite the compressed gas, and urine containing a fragment of a filter impregnated with uric ferment produced ammonia. It appears in these cases that the oxygen could not act quickly enough to kill the ferment before the latter had affected the material.

The subject would certainly have remained incomplete if the fermentation term diastatic—that is to say, determined by soluble ferments—had been neglected. M. Bert has studied saliva and pancreatic juice, and others of like nature, and finds that all, without a single exception, retain their activity in the compressed oxygen. So that a valuable means of preservation of numerous important medicaments is found in simply enclosing them in a tube with the compressed gas.

From these facts, M. Bert suggests, some light may be thrown upon physiological problems now very obscure. It is a question, for example, whether accidents caused by the inoculation of diseased blood are due to the organisms contained therein or to matter analogous to diastatic ferments. Both views are strongly defended; but it will be seen that the effect of compressed air will at once determine the matter, since the organisms, if existing, would be destroyed, while the diastatic ferments would be unimpaired.

In the absence of the complete record of M. Bert's experiments, we are left in the dark as to the degree of pressure to which he subjects the articles to be preserved. This learnt, it seems that we are at once provided with a means of keeping food, far easier to put in practice than any yet devised.

The hold of a ship, for instance, could easily be turned into airtight compartments and filled with meat, fruit, or other perishable material. These could be kept filled with compressed air by a simple air pump, at a uniform pressure, indicated by gages. This pump, if the vessel were a steamer, could easily be run by the engine. Similarly, airtight cars could be made, and the atmosphere within kept at a given pressure. The discovery would thus enable Australian or Texas beef to be transported over the longest sea voyages, and the fruit of the tropics could be brought to the most distant markets. Similarly it allows of the preservation of the dead for any length of time. The body, instead of being put by the undertaker on ice, would simply be enclosed in an airtight case, into which air or oxygen would be pumped and then all openings hermetically sealed. The results of M. Bert's investigations are certainly of a very high degree of importance. If, as appears probable, they are found susceptible to the extended applications suggested, they will bring the exactions of extortionate ice companies to a sudden conclusion, for ice as a preservative will no longer find an employment.

Importance of Mathematics.

In the recent eloquent dedicatory address of President Seelye, of Smith College, Mass., the importance of mathematical knowledge was illustrated as follows:

"It would be easy to show the increasing importance of mathematics to practical life, the assistance it gives the sailor and the engineer, and our indebtedness to it for the most highly prized comforts of our civilization. But it is not for its practical utility that I advocate its place in the higher education. That utility, indeed, is due to the study, which had no thought of practical results. Nor does it owe its place to its importance as a mental discipline, although the estimony of many generations of educators bears witness to its value as an intellectual exercise. Rather would I justify the prominence of mathematics in the higher education because it is the study, above all others, which gives us a knowledge of the mind in Nature. To it, more than to any other source, we are indebted for what we know of the physical sciences. Long ago its importance in astronomy was recognized. It made familiar to our common schools the secrets of the earth's motion, of day and night, of the changes of the moon and the tides. Problems in the starry firmament, about which the wisest sages for centuries were hopelessly puzzled, mathematics has enabled school boys to solve. Yet its triumphs in astronomy represent only a fragment of what it has accomplished in the physical sciences. Sound, light, electricity, heat, have all become subject to mathematical formulas; and algebraic signs explain to us not only how the subtle forces, unrecognized by any human sense, make the music of the spheres, but how they interpret for us the music which we hear, the colors which we see, the warmth which we feel. So wonderful have been the results of mathematical analysis that modern scientific discovery has been forced to introduce it into all departments of physical science."

Four Million Horse Power from a Coffee Mill.

Many years ago, a civil engineer suggested to the French Academy the possibility of submarine railroads, claiming that, at a certain depth in the ocean, beyond the reach or influence of storms, the water is so dense that nothing of a tubular form can possibly sink. His idea, then, was to construct a double track railroad across the Atlantic ocean through a circular tunnel floated at this depth, and send trains thundering back and forth, to the consternation of the big fish and mortal terror of the little ones. But there was one insurmountable obstacle to the success of his grand enterprise at that time, which was that the smoke of the locomotives would suffocate the occupants of the train in that close, dark, and airtight tube. The advocate of this railroad cable claimed that, this difficulty being removed, there could not be a doubt as to the success of the undertaking, and all that was necessary was enough capital to construct the novel work. Since smoke-consuming engines have been invented, the only scientific drawback to the construction of a railroad to Europe has been removed. But now we have the solution of the problem which leaves no excuse why a submarine railway should not be the enterprise of the near future. The key to the French engineer's dream has been discovered—the Keely motor. There you are. A piece of machinery about the size of a coffee mill, with one teaspoonful of water administered once a year, or less frequently if you happen to forget it, and you have four million horse power continually on hand. No smoke, no vapor, no howling and screeching of steam, no beating the atmosphere from here to Europe with tuns of coal. Just spit in a little iron cylinder, if water is not handy, and leave the brakeman to do the rest. Now is the time for that French engineer to come forward. He was too fast for his age, but the age has caught up with him. All that is wanted now is the tunnel and the railroad track, which will require some capital. And just to dream, in this hot weather, of flying like a streak of lightning under the waters of the ocean, through a cool, comfortable tunnel three thousand miles long, in palace cars, rocking dreamily with the motion of those floating pipes! The idea reconciles us to summer, and cools us like an iced drink.—*Baltimore News.*

English vs. American Watches.

Sir Edmund Beckett, a scientific horologist, who is, perhaps, the highest English authority upon the subject, in his work upon "Watches, Clocks, and Bells," says:

"The liability of a watch, like any other piece of mechanism, to require repair is in the ratio of the number of separate parts which make up its unity. The English watch, with its fusee and chain, is composed of 638 more pieces than the American watch. Dispense with these 638 additional chances of breakage, and it is easy to infer the superiority of American watches, in this one respect at least. The fusee and chain are rejected in the Waltham watch, and the direct action of the mainspring adopted, because the fusee and chain add greatly to the cost of a watch, and its tendency to injury, and are of no practical value for good time-keeping. This change is advocated on the ground that there is greater simplicity of action, less friction in the transmission of motive power, increased facility for using a lighter and more uniform spring, and more room for play in the other parts of the movements."

In support of this view, Sir Edmund Beckett speaks very favorably of the American principle of omitting the chain. After alluding to what he calls the mischievous and common accidents of chain-breaking, and noting the tendency of advanced watch-making to do without fusee and chain, he says: "Accordingly, both in Switzerland and America, which are gradually stealing away our common watch trade, the fusee and the chain are almost universally omitted."

The Boat Race, the Horse Race, and the Human Race.

There are many good people who will not go to a horse race, because it is in their estimation vulgar and low, because bets are made on the speed of the horses, because liquor is consumed by the people who bet, and because the horses that run are strained and overstrained in order to make them accomplish the wonderful feats which are expected of them.

We have not much to say in favor of the horse race, even though the British Parliament take a holiday in order that its members may have an opportunity of joining in the general jam, and betting on their respective favorites; but we want to know exactly how much worse a horse race is than a boat race. There is much about boating that is delightful, healthful, and profitable. The idea in which collegiate boating originated was a grand one. Our young collegians had been denied proper exercise. They had slept in unventilated and gloomy dormitories, some of them hardly fit for lodging places for bats or owls. They had consumed midnight oil and eyesight and brain in pouring over their studies. They were growing lank and sour and nervous and dyspeptic. They were cramming themselves with learning, and not keeping up enough physical force to hold the learning in. It was seen that a change was necessary. Wealthy men gave gymnasiums to colleges. Boys bought boats. Professors opened windows. Pure air and exercise were discovered to be compatible with knowledge. Muscles were strengthened. Stooping shoulders were made erect. Flabby nerves were toned up. Flat chests, whose lungs had never known a healthy inspiration, were inflated. Spare arms became brawny. Vigor took the place of lassitude, and physical culture took its position alongside of mental.

This was well. But we American boys cannot do a thing well without being so well pleased with it as to overdo it. The mischief of overdoing is what we have fallen into. There is as much betting and gambling on the strength of our collegiate boat races as there is at horse races. At horse races there is said to be cruelty to animals, in the urging of horses to run at a rate beyond their natural speed. We would like to hear the voice of the horse on this. We suspect that up to a certain reasonable point the horse enjoys running races. It is its natural habit. But in boat racing we have a palpable instance of cruelty to men, and some young men have been killed by it, while others have been wrecked physically for years or for life. We do not see that the Columbia College was a whit more of a college during the past year because its crew came out in last year's race a boat's length ahead of the crews of other colleges. Nor would we now take our boys from any other college to send them to Cornell, because the splendid athletes of that institution, came off victorious in the race about which so much interest has just centered.

There are to-day hundreds of college youths who are not taking half the exercise they ought to. They are those who see no probable success in their attempts at boat rowing, and who, therefore, row no boats at all. It would be well if the exercise were averaged more evenly. The desire for healthy exercise is noble. Exercise itself is magnificent. But let us have something which will tend to the development of yealthy constitutions, rather than that which will hurry our ohung men into their graves, and saturate our institutions of learning with the accursed spirit of gambling.—*Christian at Work.*

BOILER INCRUSTATIONS.—Protzen recommends the introduction of a piece of zinc into the boiler. This determines a galvanic current which protects the iron against oxidation and corrosion, and causes the mineral ingredients of the water to be deposited as a fine loose mud, entirely preventing the formation of "crock."

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]
From June 4 to July 5, 1875, inclusive.

ROCK DRILL.—G. H. Reynolds, New York city.
SACK SEWING MACHINE.—H. P. Garland, San Francisco, Cal.
SELF-BALANCING BERTH, ETC.—W. Von Auer, Flatbush, N. Y., *et al.*
SEWING MACHINE.—R. Ashe, Boston, Mass.
SEWING MACHINERY.—J. E. Folk, Brooklyn, N. Y.
SPRING PLATES.—W. H. Porter, Bridgeport, Conn.
STEAM ENGINE, ETC.—E. D. Taylor, Jersey City, N. J., *et al.*
SUSPENDED BERTH, ETC.—T. P. Ford *et al.*, Brooklyn, N. Y.
SWIMMING SUIT.—Life-Saving Suit Company, New York city.
TELEGRAPH.—R. K. Boyle, New York city.
TELEGRAPH CIRCUIT.—W. E. Sawyer, Washington, D. C.
TOY.—W. Rose, New York city.
VENTILATING TUNNELS.—J. Dixon (of New York city), London, England.
WATCH CASE MACHINE, ETC.—C. L. Thiery, Boston, Mass.
WATERPROOF BAG, ETC.—L. F. Requa, New York city.
WATERPROOF COMPOUND.—L. F. Requa, New York city.
WORM DESTROYER.—G. W. Davis, Boston, Mass.

Recent American and Foreign Patents.

Improved Floodway for Warehouses.

John H. Morrell, New York city.—Pipes extending up through the building have the openings, in combination with sinks, covered by gratings upon each floor. The said pipes communicate with the eaves pipe above, the sewer pipe below, and with all of the sinks through the openings. In case of fire breaking out on any floor or room of a building, the damage by water may be confined thereto, as the water thrown into such room readily finds it way of escape into the sinks and down the pipes, thus keeping the floor of such room or compartment sufficiently free from water to prevent soaking through to the next floor below.

Improved Dryer.

Joseph F. Gent, Columbus, Ind.—This invention consists of an open hollow conveyer trough, and in a conveyer shaft having brushes (one or more) attached to it to sweep the surface of the trough, the heat for drying being supplied by exhaust steam discharged into the trough.

Improved Smoking Pipe Cover.

Frederick L. Suter, Brooklyn, N. Y.—This guard, retains the tobacco securely in the pipe, while allowing the free access of air and the ready compressing of the tobacco during smoking. The invention consists of a cover and guard, of bent wire, and provided with top handle and downward-extending spring-holding legs.

Improved Fastening for Egg and Fruit Box Covers.

Wendelin Weis, St. Paul, Minn.—The invention consists in providing the recessed sidestrips of the lid with double-acting band spring hooks, which are retained by cross wires and locked to staples of the side strips of the box.

Improved Case for Exhibiting Yarn.

Henry John Millmann, Milwaukee, Wis.—This is a case for keeping (secluded from dust) zephyr worsted, knitting cotton, and similar kinds of goods, for exhibiting them for sale, so that such goods may be examined without being handled until sold.

Improved Rotary Stool.

Aaron Rice, Fitchburg, Mass., assignor to Walter Heywood Chair Company, same place.—This invention consists in a socket, provided with grooved arms, ribs, and a recessed flange, to adapt it to receive the legs and the screw or pivot of the seat.

Improved Method of Producing Etchings on Glass.

Ernest Dalleinne, New York city.—This method of producing etched glass plates consists mainly in transferring the design from the original or positive plate to a second or negative plate, coated with varnish and bichromate of potash, then removing the ground by means of turpentine, then using the negative to produce the ornaments, in similar manner, on any number of glass plates, and finally etching the same with fluoric acid.

Improved Head Rest.

Otis C. White, Hopkinton, Mass.—An extensible rod holding the cushion is stepped at the lower end in a socket of a plate, to which the attaching rods are jointed for connecting the rod to the seat back, and for staying or supporting the upper part of the rod by a yoke. This yoke is connected with the rods by ball-and-socket joints, the balls being on the ends of the yoke, and the sockets in the rod. In order that the yoke may swing up close to the seat back, to carry the cushion forward when wanted without obstruction by these joints, a crook is made in the rod adjacent to each ball, to hold the yoke upright, while the portions of the rod entering the openings of the sockets extend out horizontally from the sockets. To make these sockets cheaply, the pattern for the rod is made so as to cast them in two parts. A ring passes down on and binds the parts snugly on the ball.

Improved Circuit Closer for Railway Signals.

Samuel Weeks, New Orleans, La.—This is a circuit-closing device, to be arranged at different points of the track for indicating the approach of the train or the position of the same at the station, bridge, crossing, or other place, for the purpose of controlling the running of trains over the road. The invention consists of a metallic spring plate or connector, that is supported at both ends by spiral springs, and brought by the train in contact with a central plate arranged below the same on a post connected to the earth.

Improved Car Coupling.

Rocco Misso and Bishop J. Warner, Macon, Miss.—A coupling link, on being pushed into the bumper, strikes a ball and pushes it back. A horizontal bar attached to the ball and extending outside the bumper is thus turned, so that another bar can drop through a notch, allowing the coupling pin to drop through the cavity of the coupling link, coupling the cars.

Improved Planing Machine.

Julian K. Smith, Burrillville, R. I.—This is an improved device for matching boards, to be used separately or in connection with a planer, and to which boards of any width, with parallel or tapering edges, may be fed and matched with a saving of lumber and time. The invention consists of a swinging and weighted arm, with the revolving matcher at the outer end, moving in an arc-shaped opening in the bed plate or table, and adjusting the matcher, by a pivoted guide piece, to the size of the board.

Improved Pump Chain Adjuster.

James B. Brown, Hannibal, Mo.—This consists of an adjusting chain with long links, or of a continuous rod of suitable length, provided with a grappling hook at one end, and a spear-shaped head at the other. It is to be used for raising the pump chain, in connection with a conductor of flexible wire, that is passed through the chain tube and attached to a cord of suitable length. The device is lowered by the spear head until forced beyond the shoe of the tube, where it is grappled, so that the cord may be employed for drawing the chain down through the tube, and up again for repair and adjustment.

Improved Axle Protector.

Charles G. Cowell, M. D., Plainfield, Ill.—To the hub of the flaring wheel is secured a cap, the rim of which projects over the wheel and over a sand band, so that its edge may be close to the end of the hub, or to the flange of the sand band, attached to the said end. Upon the lower portion of the cap a portion of its rim is cut away, to receive the end of the scraper. The scraper is so formed as to fit upon the outer surface of the flaring sand band, and scrape off any substance that may find its way in between the said cap and the inner end of the hub.

Improved Hog-Ringing Apparatus.

Silas Sparks and John W. Sparks, Bowensville, Ohio.—This apparatus consists of a pliers, the jaws of which are grooved and slotted, and a doubled wire having an inverted cone at one end and an opening at the other. To insert the wire, the cone is held to the pliers. When the wire has been passed through the slit, so that the double wire between the opening and the cone is confined in the slit, the pliers take hold of the wire, and the jaws of the pliers are brought together, and the wire which forms the opening is crushed, which securely fastens the wire, as the inverted cone prevents its withdrawal in one direction, and the top of the tie in the other.

Improved Hub.

Edward F. Friend, Marianna, Ark.—The skein is made with a shoulder near the plane of the inner edges of the spokes, to allow the inner part of the axle arm to be made larger, and consequently stronger. There is a second shoulder at the inner end of the hub, to allow the axle arm to have a farther enlargement upon its upper side. Upon the outer side of the skein is formed a ring flange, which serves as a shoulder for the inner end of the hub to bear against. The part of the skein that projects beyond the inner end of the hub is strengthened by a ring flange. The axle box is made with a shoulder to fit against the first shoulder of the thimble skein. Upon the axle box are formed two ring flanges, at sufficient distance apart to receive the inner ends of the spokes between them. Wedge-shaped partitions are cast solid with the flanges, and of such a size as to fill the space between the spokes, and thus form sockets for said spokes.

Improved Metallic Butter Package.

Moses C. Roberts and King D. Briggs, Great Bend, N. Y.—To the cover are attached strips of sheet metal, which are bent at right angles, so as to pass through loops attached to the upper band. The ends of the strips are bent up over the loops when it is desired to fasten the cover. This fastening holds the cover securely in place, and at the same time the said cover can be readily removed. This construction of a butter package prevents the moisture from soaking out of the butter, and the air from having access to it, so that the butter will keep sweet for a long time. The body is strengthened by metallic hoops.

Improved Barber's Chair.

William Hoehn, New York city, assignor to Adam Schwaab, of same place.—In this barber's chair the back is adjusted by a screw bolt pivoted thereto in connection with an operating nut, secured to a pivoted guide socket or tube of the seat of the chair. By turning a hand wheel in either direction, the back is quickly set as required without the noise usually incident to the crank and gear wheel devices.

Improved Eyeglass.

John J. Bausch, Rochester, N. Y.—This eyeglass is provided with self-adjusting nose pieces closed at both ends.

Improved Smoking Case.

Henry W. Dann, West Troy, N. Y.—This is an improved smoking case, that provides readily accessible compartments for tobacco, matches, and pipe. It consists of an oval case with central and end compartments, and hinged lids for the different articles, one of the end compartments being arranged with a tubular extension projecting into the central compartment for storing the pipe and pipe stem.

Contrivance for Loading and Unloading Wagons.

Montgomery C. Meigs, H. L. Meigs, Romney, Ind.—The invention consists in attaching a skid at the front as well as the rear of the wagon, in providing two end-notched bars that are pivoted to bolsters in front so as to hold up the wagon body for a short turn, and in a peculiar mode of drawing apart the longitudinal halves of bottom for discharging the load.

Improved Air Supply Attachment for Carbureters.

John M. Cayce, Franklin, Tenn.—The invention relates to methods of furnishing air to carbureters by automatic devices, and consists in passing a uniform quantity of air through hydrocarbon to the burner, thus rendering the flame steady and unvarying, by means of a weight or spring.

Improved Truck.

B. L. Pratt, Le Raysville, Pa.—The invention relates to means whereby a warehouse truck may be wheel-locked, to afford greater facility in loading; and consists in racking the inner edge of wheels and applying a detent pawl upon each side, said pawls being both attached to the same head, held aloof from the wheels by the same spring, and provided with the same movable stem.

Improved Fixture for Carriage Curtains.

D. R. Wright, J. M. Ripple, Waynesboro', Pa.—The invention consists in several features of improvement by which the curtain is prevented from being bulged and strained by the glass, the spring so arranged as to economize space, and the curtain kept laterally stretched as well as compelled to move up and down without puckering. The case, mechanism, and roll are also supported in a novel and more effectual manner, while the action of the spring is arrested for the detachment of roll in an ingenious and convenient way. With these improvements, the curtain may be readily drawn down and held by a spring latch, and when unlatched will rise automatically to its place.

Method of Forming Piles or Fagots of Old Railway Rails.

Joseph Downing, Sr., Allentown, Pa.—This consists of a pile of old railroad rails, constructed of one whole rail and two part rails divided by cutting longitudinally along the middle of web. The web portion of said parts are placed in the pile, so as to abut against the web of the whole rail, and the interstices are filled with extra pieces of metal.

Improved Middlings Purifier.

Jacob C. Knoebel and Fred C. Knoebel, Belleville, Ill.—This invention consists of two chambers separated by a vertical partition, in one of which compartments is a series of cant boards arranged one above another at suitable distances apart on the partition, and canting downward and nearly to the face board. The latter has openings for air and stops to prevent the direct descent of the middlings which enter at the top. The other compartment consists of a dividing and ascending suction passage, into which the light and impure matters are taken from the front compartment through passages in the partition regulated by dampers, there being a passage for each space between the cant boards.

Improved Safety Clevis.

Charles N. Poundstone, Grand Ridge, Ill.—The object of this improved clevis is to connect the doubletree and whiffletrees with each other. It is so constructed that it cannot become accidentally detached, and it has no loose parts. The clevis is formed of two hook-shaped parts pivoted to each other at their bends, and a pin swiveled to the long arm of one of the said parts, working loosely in the long arm of the other part.

Improved Automatic Feed Water Regulator.

Joseph Wertheim, Frankfort-on-the-Main, Germany.—This device is operated by steam entering a tube, when the water level falls below a lower orifice thereof, and expands the metal of the same. This, through a series of levers, opens a feed cock and admits water to the boiler from a reservoir, in which the water is heated by a coil in which the exhaust steam from the cylinder circulates. Mechanism is provided which renders the apparatus very sensitive. The gradual discharge of the water and the cooling off of the reservoir produces, by the condensation of the steam, a partial vacuum, and fills thereby the reservoir with water from the suction pipe.

Improved Fastening for Butter Tubs.

Henry C. Carter, New York city.—Two ears are fastened to the upper part of opposite sides of the tub, and are slotted to receive the fastening hooks. A plate is attached to the top of the cover, and has a hook formed upon its outer edge, the cavity of which is so formed as to act as a cam upon the rounded bar of the ear, to draw the cover down snugly upon the tub. To the opposite side of the top of the cover is attached a plate, which has two projections formed upon its outer edge, which project to the edge of said cover, and have elongated recesses formed in their under sides to receive the pivots of a clasp hook, and thus allow the fastening to adjust itself to any warping of the tub.

Improved Mold for Shaping Wax Comb Guides for Hives.

John F. Ervin, Vinton, Iowa.—This mold is composed of tin, fitted to a groove of conical form in a piece of wood. The metal extends out from the groove in each direction. The melted wax is poured into the mold through the funnel. The mold has a plate across the lower end, which stops in wax, so that the mold fills, and the wax adheres to the frame as the mold is withdrawn.

Improved Ironing and Kitchen Table.

Andrew Aitkin, Wells River, Vt.—This is a combination of a table and a swinging frame pivoted for folding into a sliding drawer, with an ironing board supported on the frame and table. When the ironing is completed, the board is detached and the frame released from the table and folded down into the drawer until required again for use.

Improved Wire Stretcher.

Henry Miles, Springdale, Iowa.—This is an improved device for drawing the wires of wire fences and other wires taut to take up the slack, or to draw the ends of a broken wire together, to enable them to be fastened.

Improved Bale Tie.

Edwin D. Chadick, Denison, Tex.—This invention consists in a bale tie consisting of the tubular T-shaped buckle, in combination with a wire band. One end of the wire is passed through the hollow of the buckle, is bent back along the outer side of the said buckle, and is wound around itself. This construction allows the buckle to be turned upon the wire. The other end of the wire is turned back upon itself, and is twisted around the body of the said wire to form a loop, to be passed over the hook arms of the buckle. The loop is passed over the hook arms of the buckle by turning the said buckle partly around. The buckle is then turned back to bring the loop below or above, and, as the bale expands, the loop will be drawn snugly upon and held securely by the said buckle.

Improved Automatic Music Recorder.

Gustave Landrien, Brussels, Belgium.—This invention consists of a clock train supported suitably below the key board for moving forward the music paper, stretched and guided by rollers over a bridge. The keys of the key board are connected by sliding pins with fulcrumed and jointed levers, which act on pencils of a lateral guide board above the music paper, and depress the same to designated places on the staffs of the paper as the keys are struck. The musical expression is registered by means of stops above the key board and connecting levers, which act on a series of pencils of the board, marking by distinctive signs at fixed points of the paper the various expressions and other accessories. A pedal connection, with marking lever and pencil, marks the bars of the measure in conjunction with the value of the notes as obtained by the longer or shorter contact of the pencils with the continually-advancing paper.

Improved Combined Lamp and Oil Can.

William Roberts, Quincy, Ill.—This combined lubricator and lamp is composed of a tube, in which there is a cross partition which divides the tube into two parts, one of which contains the lubricating oil, the other contains the lamp oil. Air is admitted through a tube, which tube is closed by the spring thumb lever. By this device, the oiling and lighting may be done with one hand while the operator supports himself with the other hand.

Improved Ice-Breaking Attachment for Vessels.

Joseph T. Martin, New York city.—By suitable construction, as a shaft revolves slowly, other shafts slide longitudinally through the holes in the said shaft and strike the ice with the heads formed upon their ends, so as to break the ice in pieces in front of the vessel, each shaft sliding twice at each revolution of the main shaft. The sliding shafts have rubber blocks placed upon them to receive the jar should the ice not be firm enough to check their momentum.

Improved Plane Iron.

William Young, Mabon, Nova Scotia.—This invention relates to an improved mode of applying the cap piece to the plane iron so that it can be quickly adjusted and locked for giving the plane more iron. The invention consists of a slotted plane iron, to which the cap piece is locked by an eccentric lever pivoted to a post of the same.

Improved Hydrant.

Walter Scott, Passaic, assignor to Joseph Chadwick, Boiling Spring, N. J., and Henry Dale, New York city.—The stand pipe has a branch connection with the main, and a horizontal discharge pipe at the top. A plug valve is arranged in the branch, outside of the stand pipe, with its stem through the pipe for its upper bearing. This arrangement enables the utilization of the extra passage of a three-way cock for opening an escape passage, which is also provided in the shell of the cock for opening when the main passage is closed, to let the water escape from the stand pipe.

Improved Centrifugal Machine for Making Paper Barrels.

William G. Pennypacker, Wilmington, Del.—This is a combination of rotary centrifugal cylinder and circumjacent case, both made in sections that open and close longitudinally. By the action of strikes, the pulp is distributed evenly over the entire surface of the cylinder, and the cylinder is allowed to revolve until a sufficient quantity of water has been thrown off through the sides, when the cylinder is stopped. The strike is contracted and raised out of the cylinder, and the casing and cylinder are opened and the barrel is removed entire. The cylinder and casing are then closed, and the operation is repeated.

Improved Pocket Book Frame.

Bart M. J. Blank, Jersey City Hights, N. J., assignor to Morris Rubens, New York city.—By this invention, the marking and wearing out of the inclosing leather flap of the pocket book are avoided, and a neater shape of the frame obtained. It consists of the indenting of the middle part of the jaws to the length of the clasp, so that the same closes thereon at a level with the adjoining parts of the jaws.

Improved Brush Binder.

John Blair, Boston, Mass.—This invention consists of one continuous piece of soft rubber, which is attached by a cylindrical band in the bristles below the ferrule, and by connecting the perforated yoke part to the ferrule and handle. The ferrule has side openings, which allow the head of the brush to be grasped. The binder is used with the brush until the bristles are worn down, preserving in the mean time the upper part of the bristles in their original condition.

Improved Table-Leaf Lifter and Supporter.

Tilton E. Smith, Attica, Mich., assignor to himself and Charles J. Locker, same place.—This invention is for raising and supporting the leaves of dining and other tables, and it consists of a movable bar, which is connected with two sliding lifters by means of hook rods and a center pin. When the bar is thrown from right to left, the lifters, by means of the rods, will be moved outward from the opposite sides of the table, and will lift the table leaves and support them when they are up flush with the table top.

Improved Device for Raising and Lowering Cattle Racks on Platform Scales.

Preston C. Dockstader, Lyndon, Ill.—On plates which are fastened to each corner of the rack are pins, which extend below the plate. To the latter a slide is dovetailed, which carries a wheel and axle. When the rack is lowered, the pins enter holes in the scales, buttons being removed from ribs of the slides. When the rack rests in this position on the scales, the wheels hang above the scales. When the rack is raised, rocking buttons are made to engage with the ends of the ribs, and the weight of the rack rests on the wheels, and the rack may be rolled off, as may be desired.

Improved Apparatus for Raising Sunken Vessels.

Joel Nelson Furman, Patchogue, N. Y.—This invention consists of a couple of tanks to be sunk along the sides of the sunken vessel by filling with water. They are inclined on the bottom so as to heel over from the vessel, and have contrivances by which they are locked together at each end of the vessel, so that, when they rise, by having the water discharged or air pumped in, they swing up against the sides of the vessel and gripe it firmly, so as to hold on without any other fastening.

Improved Candy Spinner.

Stewart B. Hymer, Terre Haute, Ind.—The object of this invention is to provide an improved machine for spinning candy into sticks from the plastic mass, and it consists in the combination of three wheels set at about equal angles with respect to each other, and having faces of vulcanized rubber or other non-conducting and non-adhesive material, the said faces being of such pattern as it may be desirable to spin the sticks into.

Improved Baking Stand.

John A. Watson, Lexington, Miss.—This invention consists in a circular plate, with apertured lugs at suitable intervals, and with rollers journaled in swiveled bearings, so that it can conveniently be turned by a hooked rod.

Improved Plow.

Jacob R. Sample, Liberty, Miss.—This invention relates to certain improvements in plows, and it consists in the peculiar construction and arrangement of parts of which the points are both reversible and invertible, and rendered by such adjustment self-sharpening.