VENTRILOQUISM.

All have heard and read of the art of ventriloquism. How it came to receive such an inappropriate name would be an interesting inquiry, but foreign to our present purpose. Nothing in the derivation of the word gives the least clue to the means by which the effect is produced, or the true nature of the effect itself. The word is derived from the Latin *venter*, the belly, and *loquor*, to speak. The Germans have it *das Bauchreden*, belly-speaking. The old idea that the voice came from the belly has been so long exploded that a more philosophical name ought to have been adopted ere this.

The analogies between light and sound are so remarkable that the most eminent modern scientists make great use of them for purposes of illustration in the lecture room; yet much as we have read upon the subject of sound and light we have never seen these analogies applied to the elucidation of the phenomena of ventriloquism. We purpose to make such an application in the present article.

Ventriloquism bears the same relation to other phenomena of sound that perspective does to optical phenomena. The art of perspective consists in portraying upon a flat surface the appearance of objects at a distance from it, so that the same effect shall be produced upon the eye by the picture as would be produced by the objects themselves In order to do this, the form, tints, and shadows are reproduced, not as they really are, but as they are modified by position and distance. Or it may be said to consist in making and arranging a group of objects so that when *viewed* at a given distance they shall produce the same optical effect produced by another set of objects arranged in different positions and at different distances

Ventriloquism consists in making and arranging sounds so that when *heard* at a given distance, they shall produce the same effect upon the ear that another set of sounds produce arranged in different positions and at different distances

It was formerly supposed that some peculiar conformation of the vocal organs was necessary to the ventriloquist, but such is not the case. The means by which sounds can be imitated, are not solely confined to voice. In an article entitled "Possibility of Speech to those hitherto Considered Mutes," published on page 389, Vol. XVI'I., of the SCIENTIFIC AMERICAN, we gave an account of a case in which the larynx was entirely closed, breathing being performed by means of a tracheotomy tube inserted in the windpipe, audible speech not being prevented, although voice, properly speaking, was not possible. Nevertheless the tones produced by the vibrations of the vocal chords may be modified so greatly in pitch and quality, that many sounds differing widely from the tones used in speech and in singing may be imitated.

A good illustration of the action of the vocal chords may be obtained in the followieg manner. Take a short hollow tube, glass or metal, or even a piece of elder with the pith punched out will do Cut it off smoothly, and stretch a piece of elastic rubber over it winding it with a cord to keep it stretched. Now cut with a sharp knife a slit lengthwise in the rubber slip, so that it shall traverse the entire internal diameter of the tube. Blow through the opposite end, and a sound will be produced by the vibrations of the rubber. The tighter the rubber is drawn the higher will be the pitch of the sound emitted. The larynx is composed of five cartilages, the upper one being attached to a bone shaped like the letter U, called the hyoid bone. This organ may be distinctly felt from the outside, and it constitutes the prominence called "Adam's apple." It has two bands of ligamentous tissue—vocal chords—the edges of which are tightened and brought nearer together at will by a set of beautiful and delicate muscles. These bands are illustrated by the slitted rubber above described, the tube upon which it is stretched representing the windpipe. The forcing of air from the lungs sets these bands into vibration. The sounds thus produced are varied in pitch by the tightening or slackening of the vocal chords, and otherwise modified by the shape of the cavity of the mouth.

Sounds from a distance are of course weakened, and they also have another quality which may be compared to the indistinctness of outline in objects seen at a distance. As the colors of objects are partially obscured by the color of the medium through which they are viewed, so sounds coming from remote places are partially obscured by the sounds which pervade even the stillest atmosphere. In proportion as the fine ear of the ventriloquist can appreciate these modifications will be his success in imitating distant sounds. For as to see correctly is the first essential to success in drawing, so is hearing correctly the first essential in ventriloquism.

There are many sounds which cannot be imitated by voice merely, such as the singing of birds, the strident noise of a saw, the whistling of a plane, etc. Such and similar unmusical sounds are imitated by means of the teeth, the lips or the soft parts of the mouth Thus the noise of a saw is like that produced by hawking, only much prolonged, and modified by the cheeks; singing of birds may be imitated by whistling through the teeth. The foaming of soda water by breathing with open lips into a tumbler, etc. To persons having a fine ear this amusing art is not difficult, but we object to the name applied to it. It ought to be called *sound-painting*.

New Galvanic Exciting Liquid.

M. Delamier in a communication to the Academy of Science, states that the followiag mixture forms an exciting liquid for galvanic batteries of great energy and economy, disengaging no deleterious fumes or gas. Dissolve twenty parts by weight of proto-sulphate of iron in thirty six parts of water. Then stir in seven parts of a solution of sulphuric acid (equal parts); then in the same manner add one part of diluted nitric acid (equal parts).

MANUFACTURE OF WHITE LEAD.

White lead, or cabonate of lead, is extensively used in the arts. As a pigment, when pure and mixed with linseed oil, it produces a beautiful white. It is also the base and vehicle for colors used in painting. Cements for metals are composed mainly of it, and in the preparation of vulcanized rubber and liquid gutta percha it enters largely. In medicine it is employed mixed with linseed oil as an ointment for burns, scalds, ulcers, and excoriations. Of all the different preparations of lead the carbonate is the most poisonous to the human system, inducing what is know as the painter's colic in those engaged in its manufacture and in painters. This terrible disease, even if not fatal, frequently produces local paralysis, and the victim becomes a permanent cripple.

The method of manufacture is simple. The material, usually in pigs, of the purest quality, is melted in a fixed kettle and then run into very thin sheets. When made by hand, the process of casting these sheets requires considerable skill. The operator holds in his left hand, by a suitable handle, a sort of shovel of sheet brass, the sides turned up, and dipping up a small quantity of the melted metal, he dexterously throws it over the surface of shovel, when it almost instantly cools in a thin sheet, the superfluous portion of the metal running back into the kettle. A number of these sheets are loosely coiled, forming a sort of cylinder to be submitted to the after action of the acid.

In large concerns, however, this hand casting has been superseded by a method very much superior, the invention of Mr. Augustus Graham, of Brooklyn, N Y. A series of molds, corresponding to the shovel just mentioned, and connected to an endless chain, are successively presented to a current of melted lead, forming sheets in the shape of grates, called "buckles" from their resemblance to the large shoe and knee buckles worn in former times These buckles are discharged at the further end of the apron and placed in earthen pots, their edges resting on inward projecting ledges about three inches from the bottoms of the pots Each pot contains a small quantity of acetic acid, not however reaching the lead buckles. The pots have holes near the top and they are set on a floor covered with tan, the holes of the pots opposite each other to insure a free passage, from one to the other, of the acidulated gases. The first layer of pots is covered with boards over which is spread another layer of tan and on this another layer of pots, and so on to the hight of perhaps twenty feet. The whole is covered with a thick layer of tan.

Then the process of decomposition begins. The tan ferments, generating heat, which causes the vinegar to evaporate and its vapors to circulate among the lead. This goes on for several weeks and the white carbonate falls down in snowy heaps. When the process is supposed to be completed, or the action of the acid ceases, the pile is taken down, the carbonate removed, and those portions of the lead which have not been reduced, called "blue lead," are cleansed of their white coating and returned to the melting pot.

The carbonate or white lead in the form of powder is then washed in tanks with water. These tanks are placed high enough to draw off the lead paste from their bottoms to immense pans called drying kilns, which have false bottoms, between which and the true bottoms steam is admitted to hasten the evaporation of the water. When dry the powdered lead may be packed ready for market, but usually it is ground in oil in which form it is generally sold.

It is seldom, however, that it is offered pure; sulphate of barytes being extensively used to adulterate it. This substance is nearly as heavy as white lead, and is perfectly white but not so brilliant. It has not the body of white lead, but is not so easily affected in color by noxious gases, white lead being soon discolored by sulphureted hydrogen gas.

THE MANUFACTURE OF STRAW BOARD.

The manufacture of straw board is a growing industry in this country. Notwithstanding it is comparatively modern, its increase has been so great, that it has nearly trebled the price of straw during a period of twenty years. Although based upon the same general principles as paper making, it differs from the methods employed for fine papers, in several important particulars, some of the processes being omitted and others not required in the latter being necessary.

The first process consists in boiling the straw with quicklime. This is done in a wooden digester which takes steam from a boiler. The straw is packed in layers with the lime between them, and the whole boiled for from ten to twelve hours according to circumstances. The rationale of this process is based upon the nature of the material. Straw is composed of a tube of woody fiber and cellular tissue, having upon its outer surface a cuticle composed of silicates of potassa and soda with some free silica. The woody fiber also contains some silica. To the silicious cuticle the straw owes in great part its strength. The same cuticle also covers the leaves of the different grains and grasses, and gives them the sharp cutting edge often observed in the coarser varieties. The boiling process is therefore chemical in its effect. The reaction which takes place is the combination of the lime and the silica, which leaves the straw in a soft and pulpy state. The mass is now ground by a machine similar in principle to that used for grinding the ordinary paper pulp, namely: a revolving cylinder upon which knives are fixed which play between a series of fixed knives on a bed plate. The straw is not chopped by these knives but is gradually disintegrated until it is reduced to a uniform pulp.

The entire mass is now drawn into a vat, which contains water and is kept constantly agitated by a series of revolving arms. A wire gage cylinder is so adjusted that it will revolve partially beneath the surface of the fluid mass. The pulp adheres to the gauze, and is carried around to another cylinder around which an endless belt of felt runs. The latter cylinder presses upon the gauze and by this means the pulp is made to adhere to the felt, and condensed so as to give it enough consistency to be taken up by another cylinder called a forming cylinder. This cylinder is one of a pair made of polished metal, and by them the pulp is strongly compressed. The pulp is wound around the former until the proper thickness is reached; this is determined by an indicator. Along the forming cylinder there is a groove planed out, through which the operator now rapidly passes a wooden knife thus severing the soft board; and at the same time he unwinds the sheet and removes it. These sheets are cut so as to form other sizes, and then dried which completes the process. Woolen rags are sometimes ground and mixed with the straw pulp. This makes a much darker colored and heavier board, which is worth considerably more than the pure straw board.

The boards as thus manufactured are applicable to a great variety of useful purposes, among which bookbinding, button making, and paper box manufacture are most prominent.

WEALTH AND ITS SOURCE.---A GRACEFUL RECOGNITION.

It may be fashionable to decry the decadence of the age, the facilities of getting rich by the circumstance of our latest (and may it be our last) war, and to harp upon the selfishness of war contractors, and capitalists, but while such men as George W. Childs, and many others we might name exist, they, by their acts, give the lie to these unfounded calumnies on the present generation. It is but a short time ago that we noticed the generous act of Mr. Childs, in providing each of his employés with a life insurance policy, and now we find the same generous spirit manifested in providing a resting place for the remains of the members of the Philadelphia Typographical Society, in the donation of a plot, in the Woodlands Cemetery, Philadelphia, comprising an area of two thousand superficial feet inclosed with a marble wall, and having a handsome marble gateway.

On Saturday, Oct. 17th, this plot was dedicated by proper ceremonials, and accepted, in a series of resolutions, by the Philadelphia Typographical Society. Among the distinguished guests and speakers, who took part in the ceremonies, were Hon Ellis Lewis, late Chief Justice of the Supreme Court of Pennsylvania, who is the oldest member of the New York Typographical Society, and one of the oldest practical printers in the United States; Hon Morton McMichael, Mayor of Philadelphia, the oldest newspaper publisher in the city; Henry C. Carey, LL D., the oldest book publisher; Louis A. Godey, the oldest magazine publisher; Col. John W. Forney; William Prescott Smith, of Baltimore; Anthony J. Drexel, F. J. Dreer, Joseph Harrison, J B Lippincott, and others.

Mill on Co-operation.

John Stuart Mill, the celebrated political economist, has written a letter to the Illustrated Weekly News, upon co-operation. He says:

"I am quite of the opinion that the various forms of co-operation (among which the one most widely applicable at present to production, as distinguished from distribution, is what you term the system of small per centage partnerships) are the real and only thorough means of healing the feud between capitalists and laborers, and while tending to supercede trade unions, are meanwhile a natural and gradually increasing corrective of their operation. I look also with hope to the ultimate working of the foreign competition.

"The operatives are now fully alive to this part of the case, and are beginning to try how far the combination principle among laborers for wages admits of its becoming international, as it has already become national, instead of only local, and general, instead of being confined to each trade, without help from other trades. The final experiment has thus commenced, the result of which will fix the limit of what the trade union principle can do. And the larger view of questions which these considerations open up, and which is already visibly enlightning the minds of the more advanced work people, will dispose them more and more to look for the just improvement of their condition, rather in becoming their own capitalists, or allying themselves on fair conditions with the owners of capital, than in their present uncomfortable and often disastrous relations with them."

Double Propellers.

We find in a daily cotemporary—always enterprising and interesting, and generally correct — the following item of *news*:

"The latest marine contrivance is the double propeller about being introduced by the French Transatlantic Company. Instead of a single screw resting on the keel of the ship, there are two screws placed one on each side of the Stern with the rudder between. It is claimed that the new arrangement will increase speed, work more easily, produce less strain and wear on the vessel, and give a new impulse to the movement by which propellers are slowly crowding sidewheels from the ocean."

It would not be inappropriate to, advise our cotemporary, and its thousands of readers, to take the SCIENTIFIC AMERICAN, and learn that double propellers have been used for years. Terms of subscription, three dollars per year in advance.

WHEN Mr. Darwin was at Valparaiso, he found beds of mussels and limpets at a hight of 1 300 feet above the level of the sea, and he expresses his conviction that these beds of shells had been raised to their present elevated position by a series of such earthquakes as those which have been experienced in recent times.

American Railway Master Mechanics Association.

A convention of Railway Master Mechanics was held at Cleveland, Ohio, Sept 30, at which time an organization was formed, and the above title adopted The following officers were chosen: President, Mr. H. M. Britton, of the Indianapolis, Cincinnati and La Fayette Railway; Vice-president, Mr. N E. Chapman, of the Cleveland and Pittsburg Railway; Secretary, Mr. Frederick Grinnell, of the Atlantic and Great Western; Treasurer, Mr. S. S. Hayes, of the Illinois Central Railway. A constitution was adopted and signed by the gentlemen present, a large number of railroads being represented. A Committee on Order of Business was appointed, which reported the following subjects for discussion:

1. Are steel plates preferable to iron in the construction of locomotive boilers, and if so will the difference in strength, durability, and safety, justify the excess of cost of steel as compared with the cost of the best iron?

2d, What should be the thickness of steel or iron plates when used in the construction of the outside shell of a forty-eight inch boiler? Also the best and strongest mode of riveting and bracing the same?

3d, What water space is deemed best upon the sides and ends of a furnace, both for wood and coal burning engines?

4th, How does the durability of steel for furnaces and flue sheets compare with that of copper or best iron?

5th, What space should there be between the flues so as to obtain the greatest absorption of heat?

6th, What size flues and what length will give the best results in wood and coal burning engines?

7th, What is the experience of the different master mechanics as to the wear and tear of steel tires now in use on their respective roads?

8th, What are the views of this convention on the subject of packing for cylinder and stuffing boxes?

9th, What are best modes of preventing the formation of lime and other incrustations in boilers?

10th, What is the opinion of this convention as to the present system of safety valves, levers and fixtures upon locomotive and other boilers—is it the safest and best?

11th, Would not the adoption of a "lock up valve," that could not be interfered with by the engineer, tend to the prevention of explosions now so frequent?

The following committees were appointed to report upon these subjects at the next meeting:

On the articles 1st to 6th, inclusive, Messrs. Hayes, Jauriet, and Anderson; article 7th, Philbrick, Eddy, and Perry; article 8th, Brown, Chapman, and Smith; article 9th, Dripps, Towne, and Ray; article 10th and 11th, Stone, Young, and Wells.

On motion a committee of three—Messrs. Kinsey, Cooper, and Congdon—was appointed on valves anti-friction, size, etc. Messrs. Losey, Cullen, and Little, were appointed a committee on the explosion of boilers.

After the transaction of some minor business, the meeting adjourned, to meet at the shops of the Pennsylvania Central Railway at Pittsburgh, Pa, on the second Wednesday of September, 1869.

Adulterations in Vinegar.

The *Prairie Farmer*, has the following on adulterations in vinegar: Since the great increase in the price of high wines, on account of the heavy tax imposed by the Government, there has been a disposition, on the part of vinegar manufacturers, to produce the requisite degree of acidity by means of a cheaper substance than acetic acid, which forms the acidity of all pure vinegar, and which can only be produced by the oxidation of alcohol. Sulphuric, nitric, and hydrochloric acids are all employed for this purpose, but in the great majority of cases, the former is used, on account of its extreme cheapness and its intense sourness.

This acid may be detected, even in extremely small quantities, by taking a portion of the suspected vinegar, placing, it in a clear glass vessel, and dropping into it a few drops of a solution of the chloride of barium, or the nitrate of barita If the vinegar remains clear after the introduction of this substance, it is sufficient proof that it contains no sulphuric acid. If, on the other hand, the liquid presents a cloudy appearance, it is on account of the formation of the sulphate of barita, which will remain insoluble, whatever acid may be afterwards added.

The detection of nitric acid is not so easy. It may be discovered, however, by first adding to the vinegar placed in a wine glass, a few drops of sulphuric acid, waiting a few minutes for the mixture to cool, and then dropping in a crystal of the sulphate of iron, or copperas. If nitric acid is present, a brown ring will form around this substance, in the bottom of the glass.

To detect hydrochloric or muriatic acid, we have only to bring the suspected vinegar to a moderate heat, and to hold over it a glass rod or shaving of wood, moistened in aqua ammonia. If this acid be present, it will form white fumes as the two substances come in contact, forming, as they do, chloride of ammonium, or sal-ammoniac.

Ordinarily, however, it will only be necessary to test for sulphuric acid; but this should always be done before using vinegar, as this acid is very injurious to the health, and exceedingly liable to destroy substances placed in it to be preserved, as pickles. A few cents' worth of the substance we have recommended under this head, is sufficient to test all the vinegar which would be used in a family for many years. The cheapness of sulpburic acid is so great that vinegar may be made from it—or, rather, a substance that passes by the name of vinegar—for only a cent or two per gallon. That it is so made, is evident from the fact that carboys of sulphuric acid are to be found in most of the manufactories of "pure cider vinegar," in this as in other cities.

THE first mill in America for making sewing silks and twists by water was built by Rodney Hanks, in Mansfield, about fifty-eight years since. The first silk made by machinery in the United States was made in 1829, in Mansfield In 1814 silk rose to $30 a pound. The census of 1810 gives us the value of the silk manufacture and raw silk of Massachusetts and Connecticut for that year—$29,121. In Windham County, Connecticut, the value of these products in 1825 was $54,090. In 1831 Mansfield produced 84,000 worth of silk.

Can Any One Beat This?

OLD SAYBROOK, CONN., Sept. 26, 1868.

MESSRS. WHEELER & WILSON:

Gentlemen:—I wish to say that I have in my family a "Wheeler & Wilson Sewing Machine," that has been in almost *daily* use for the past ten (10) years, and not a thing has ever been done to it in way of repairing; not a screw loose, or any part of it out of order in all that time. It has been used in making coats, vests, and pants, of the thickest of woolen goods, beside doing all kinds of family sewing, and is now, this day, the best machine for work I ever saw.

Can any one beat this?

Respectfully, GILBERT PRATT.

Any one who can beat this (and we think many can), will please address Messrs. WHEELER & WILSON, 625 Broadway, New York.

OFFICIAL REPORT OF PATENTS AND CLAIMS

Issued by the United States Patent Office.

FOR THE WEEK ENDING OCTOBER 20, 1868.

Reported Officially for the Scientific American.

PATENTS ARE GRANTED FOR SEVENTEEN YEARS, the following being a schedule of fees:—

On filing each Caveat	$10
On filing each application for a Patent, except for a design	$15
On issuing each original Patent	$20
On appeal to Commissioner of Patents	$20
On application for Reissue	$30
On application for Extension of Patent	$50
On granting the Extension	$50
On filing a Disclaimer	$10
On filing application for Design (three and a half years)	$10
On filing application for Design (seven years)	$15
On filing application for Design (fourteen years)	$30

In addition to which there are some small revenue-stamp taxes. Residents of Canada and Nova Scotia pay $500 on application.

☞ *Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to Inventors, may be had gratis by addressing MUNN & CO., Publishers of the Scientific American, New York.*

83,124.—CAR-COUPLING.—George S. Acker, Kalamazoo, assignor to himself and H. A. Lacey, Detroit, Mich.

I claim the plates, J and K, thimble, L, hasp, M, and channel, N, in connection with the link, I, and pin, D, and draw bar, A when arranged and operating substantially as and for the purposes set forth.

83,125.—BOILER SAFETY VALVE.—Edward Andrews, Pottsville Pa. Antedated October 9, 1868.

I claim, 1st. The arrangement and combination of the balanced valve. E, with the valve, J, lever, H, piston, K, and yoke D.

2d The arrangement of the box, B, inclosing the valves, J and W and lever, H.

83,126.—INKSTAND.—H. P. Andrews, and M. E. Rawson, Cleveland, Ohio.

We claim, 1st. An ink-elevating elastic air sack, constructed with a perforated corking end, which is of thicker material than the body of the sack, substantially as described.

2d, The horizontally sliding cover, D, pressure plate, F, one or more air chambers, E, and one or more ink reservoirs, G, combined and operating substantially as described.

3d, The cover, D, pivoted at b, and extended into a lever beyond said pivoted point, and connected with a laterally rocking or rolling plate, F, substantially in the manner described

4th The ink reservoirs, G G, in combination with a case, A which is provided with a removable top and means for effecting the raising of ink to supply cups by the movement of a single cover to said cups, substantially as described.

83,127.—REVENUE STAMP FOR LIQUOR BARRELS.—George W. Bishop, Baltimore, Md. Antedated October 6, 1868.

I claim, 1st, The oblong plate, A, provided with flanges on the sides, and with a central box, B, when constructed substantially as and for the purposes specified.

2d, The "stamp," C, made of soft metal, and provided with pins, b b, as described, and used with the beveled box, B, substantially as set forth.

3d, The combination of the perforated slide, D, with the box, B, in the plate, A, and stamp, C, when used as and for the purposes specified.

4th, The forms, 11, placed in the plate, A, under the slide, D, as and for the purposes specified.

83,128.—GROOVING MACHINE.—William H. Bond, and George G. Lee, Syracuse, N. Y.

We claim an arm, B, when constructed in such manner as to alternately present a plain or grooved rolling face, as desired, substantially as and for the purpose herein described.

83,129.—PERMUTATION LOCK.—Edward W. Brettell, Elizabeth, N. J.

I claim the hollow wheel, B, pawl, t, with its arms, r and s, in combination with the inner circular tumblers, and the case, A, all constructed and arranged to operate in the manner and for the purpose set forth.

83,130.—PLOW POINT.—Lyman D. Burch, Sherburne, N. Y.

I claim, 1st, The ribs or braces, D, D1, and D2, constructed and operating substantially as described.

2d, The stays, E and E', constructed and operating substantially as described.

83,131.—SAW FRAME.—Beauman Butler, and Charles F. Ramsay, St. Johnsbury, Vt.

We claim, 1st, The saw frame, constructed substantially as above described with a rigid end, A A' C E, and a flexible end, B C E'.

2d, The provision, in a buck saw frame, of the spring or cushion, G G', substantially as and for the purpose set forth.

3d, The slotted ears, I I, or their equivalent, employed to connect the cross bar and end piece, and permit mutual play between them, substantially as described.

83,132.—HOSE, AND MACHINE FOR MAKING HOSE.—George Coles, London, and James Archibald Jacques, and John Americus Fanshawe, Tottenham, England. Patented in England August 17, 1864.

We claim, 1st, As a new article of manufacture, flexible hose, when construct d substantially as and for the purpose specified.

2d, The apparatus, constructed as described, whereby alternate layers or piles of yarn or thread are laid helically round the core in opposite directions, as herein set forth and shown.

83,133.—FEEDING MECHANISM FOR SEWING MACHINES.—J. L. Coles, and David H. Coles, New York city.

We claim, 1st, The cam slide, C, in combination with the feed bar, A, substantially as and for the purpose described.

2d. The feed bar, A, in combination with the cam slide, C, constructed as described, and its mechanism for adjustment, as and for the purpose set forth.

3d, The adjusting screw, G, in combination with the cam slide, C, and feed bar, A, substantially as and for the purpose described.

83,134.—SNAP HOOK.—Edward A. Cooper. Buffalo, N. Y.

I claim the hook, A, cast with hinge pin, e, and cross bar, h, in combination with the grooved tongue, D, and bow spring, h, when the parts are arranged and secured together in the manner described.

83,135.—VENTING CORE.—George G. Cressey, Philadelphia, Pa Antedated October 8, 1868.

I claim the box, E, its plate, G, and prints, H, in combination with the sliding plate, F, and its pointed wires, K, and the mechanism herein described, or its equivalent, for imparting the desired movement to the said plates.

83,136.—BOAT DETACHING APPARATUS.—Thomas L Cuthbert, Charleston county, S. C., assignor to himself, Nathaniel Levin, and Edward J. Marks.

I claim the "marine cradle," by which ships' boats or yawls may be lowered and detached in the manner described in the above specification, or any other substantially the same, and which will produce the intended effect.

83,137.—LOCK FOR TRUNKS, PIANOS, ETC.—C. N. Cutter (assignor to Davis, Hill & Co.), Worcester, Mass.

I claim, 1st. The combination, with the face plate, D, of the hinged tongue C, substantially as and for the purposes set forth.

2d, The combination, with the face-plate, D, of the hinged tongue, C and spring, E, substantially as and for the purposes set forth.

83,138.—TRACK LIFTER.—Charles De Bergue, Westminster, Great Britain.

I claim the within described instrument, consisting of the metal bed plate, a, pivoted lever, b, and operating screw, e, the whole constructed and operating substantially as and for the purpose herein set forth.

83,139.—STOVE-PIPE DAMPER.—William H. Deily, Sycamore, Ill.

I claim the two part case, formed by the parts, A and M, having flanges, D B, for supporting the joints of pipe, and a recess inside, in which a damper, H, is made to operate for regulating the draft, substantially as and for the purpos set forth.

83,140.—NOZZLE FOR CANS.—Frederick W. Devoe, New York city.

I claim, 1st, The plate, C, made separate from the nozzle and can, in combination with the nozzle and the can, substantially as and for the purpose herein specified.

2d, The box formed within the nozzle by the closed bottom, C, and the cap or stopper, substantially as herein described.

83,141.—CLOTH DRAWERS.—Job Dyson, New Britain, Conn.

I claim cloth drawers made by forming each half or leg portion in one piece, with the seam down the back of the leg, and an opening, B, suitably located to form the body connection of the two legs, substantially as shown and described.

83,142.—RAILROAD-CAR HEATER.—John C. Eckert, Dayton, Ohio.

I claim, 1st, The knob or trigger, N, in combination with the vase, for the purpose set forth.

2d, The inner catch, T, with the shutter, P, its spring, S, and arm, Q, as herein described and shown.

3d, The falling door or shutter, C, and spring, E, acting in combination with the slot, D, the lever, F, and slide, G, arranged to operate substantially as herein described, and for the purposes set forth.

83,143.—PAPER CUTTING MACHINE.—Spencer Ellsworth, Lacon, Ill.

I claim, 1st, The combination of the bar or way, C, the sliding carriage, D, the vertically adjustable knife, K, and screw, S, all arranged, constructed, and operating in the manner and for the purposes herein set forth.

2d, The combination of the bar, C, provided with the grooves, c, the carriage, D, provided with the rib, b, and adjustable rib, d, and the screw, L, all arranged to operate in the manner and for the purposes described.

3d, The combination of the bar, C, carriage, D, knife, K, screw, S, movable rib guide, d, and screw, L, all arranged in the manner and for the purposes specified and shown.

4th, The combination of the bar, C, frame, A, rods, F, springs, G, treadle, N, and toothed plate, P, arranged to operate as specified, and for the purposes set forth.

83,144.—PERMUTATION LOCK.—William F. Ensign, Troy, N. Y.

I claim, in combination, the interlocking of the wheels or tumblers, and closing of the gateway in the wheels by the slides, as shown and described.

83,145.—WASHING MACHINE.—Robert E. Ferguson, Chicago, Ill.

I claim the arrangement of the wringer rib, I, centrally over the tub of the machine, when supported upon a bar or bars, C D, which at the same time encloses and protects the gearing of the machine from the water expressed from the clothes by the wringer, all constructed and operating as and for the purposes specified.

83,146.—COMBINED SKIRT AND HOSE SUPPORTER.—Maria J. Fuss, Charlestown, Mass.

I claim the skirt-supporter, B, to which are attached the hose supporters, D, the latter being provided with hip pads, C, and the whole being combined and arranged substantially as set forth.

83,147.—MACHINE FOR CARBURETING AIR.—Theodore F. Frank, Buffalo, N. Y.

I claim, 1st. An upright cylindrical vessel forming the carbureting chamber, D, regulating compartment, G, and water tank, I, containing the air drum, H, arranged respectively one above the other, and with the supporting frame, A A' B, and operating weights, W W, substantially in the manner and forth.

2d, The combination and arrangement of the elevated pipe, b, with the regulating vessel, G G', substantially as and for the purpose specified.

83,148.—SPRING KNIFE.—Samuel Friend and John McCollom, Decatur, Ill.

We claim the construction and arrangement of the stock, A, flat rectangular knife blade, B, secured thereto by means of the stirrups, a a, and adjusted by means of the set screws, b b, curved metal spring apron, C, secured to the beveled under side of said stock, A, its outer end projecting therefrom and guiding the splints, as herein set forth, for the purpose specified.

83,149.—PLASTIC COMPOSITION.—Hannah C. Gaskin, Union Vale, N. Y.

I claim, 1st. A plastic composition of flour or starch, treated substantially as described, in combination with glue, resin, gum, or other equivalent substance, as described.

2d, The new article of plastic manufacture, substantially as described.

83,150.—REIN HOLDER.—Lorenzo D. Gillett, Rochester, and Henry W. Inman, Detroit, Mich.

We claim the construction of a rein holder, with bed plate A, curved lever, F, and spring, D, arranged and operating substantially as herein described.

83,151.—SEED PLANTER.—John M. Gitchell, Haverhill, assignor to J. F. Morse, North Haverhill, N. H

I claim for effecting the reciprocating movements of the slide F, by means of the wheel or roller, H, the combination of the vibratory frame, G, the pulleys, the crank shaft, and the pitman, arranged with the slider, the wheel shaft, and the hopper, in manner, and to operate with an endless band or chain, substantially as specified.

83,152.—MANUFACTURE OF SHOT.—William Glasgow, Jr., and John G. Wood, St. Louis, Mo.

We claim, 1st, The method herein described of producing shot, consisting substantially in dropping the metal, in a molten state, through a column of glycerin, oil, or other similar fluid, instead of air.

2d, The heating of said column at or near the top, so that the molten shot shall first impinge upon the heated portion of the medium, and be quickly cooled by its descent into the cooler portion of the same.

3d, The employment of an adjustable heating apparatus, so arranged and operating as to impart heat to a variable part of the cooling column, substantially as and for the purpose set forth.

4th, The construction of the cooling reservoir with a lateral branch for the withdrawal of the shot, substantially as herein shown and described.

83,153.—BILLIARD TABLE.—Karl Gudenoge, San Francisco, Cal.

I claim the construction of a billiard table by the arrangement of the longitudinal slats, a a, transverse slats, b b, longitudinal rails, c c c, and alternate wide boards or pieces, d d d, placed edgewise, and held by the transverse bars, e e e, or equivalents, substantially as and for the purpose described, in combination with the papier maché or pasteboard bed, A, applied and prepared as specified.

83,154.—COMBINED PLOW AND HARROW.—Jacob Haessel, St. Louis, Mo.

I claim the arrangement of the harrows, D, with the plow, A B, in the manner shown and described.

83,155.—CORN HARVESTER.—John D. Hampshire, Paper Mills Post Office, Md.

I claim, 1st, The circular saw or cutter, E, perforated with holes, k, and arranged in connection with the spring bar, O, bar, Q, and discharging bar R, to operate in the manner substantially as and for the purpose set forth

2d, The bow, U, connected with the discharging bar, R, and arranged to operate in connection therewith substantially in the manner as and for the purpose set forth.

3d, The reel, M, in combination with the circular saw or cutter, E, arranged to operate substantially as and for the purpose specified.

4th, The combination of the saw or cutter, E, reel, M, spring bar, O, bar, Q, discharging bar, R, and bow, U, all arranged to operate in the manner substantially as and for the purpose set forth.

83,156.—AUGER HANDLE.—T. C. Hendry (assignor to himself and R. B. Smith), Union Point, Ga.

I claim the combination of the socket, A, formed by two tubes, a and b, crossing each other, with the handle, B, made adjustable in the socket, b, and the auger shank, c, having a ratchet thereon, extending up through the tube a, and handle, B, all constructed and arranged substantially as and for the purposes herein specified.

83,157.—FASTENING FOR CHECK HOOKS AND TERRETS.—A. L. Hill, Decatur, Ill.

I claim the screw, B, with a flat head, D, having its corners, a, turned upwards, and used for connecting the terret or check hook, A, when said terret or hook is provided with a female screw in the shank, all substantially as herein shown and described.

83,158.—SEEDING MACHINE.—Frank A. Hill, Marysville, Cal.

I claim the frame, A, provided with the shares or teeth A, in combination with seed box, D, provided with the toothed shafts, E E, rotated in opposite directions from the wheels, B B, and also provided with the fixed and adjustable perforated plates, e e, all arranged to operate in the manner substantially as and for the purpose set forth.

83,159.—RAILROAD AXLE.—George H. Hoagland, Port Jervis, N. Y. Antedated October 10, 1868.

I claim a wrought iron axle, constructed with steel journal casings, extending about midway into the eye of the wheel, substantially as and for the purposes specified.

83,160.—TOY.—John L. Holt, Providence R. I.

I claim, 1st, The toy, consisting of the self-sustaining pendulum, A B C, and of the figures or images, E E, having loose swinging limbs or part, F F, attached thereto, so that constantly varying pictures and positions are produced, substantially as described.

2d, The pins, c, when provided with the fastening arms, d, and when secured to the images, E, to suspend the limbs, F, as specified.

3d, The disk, D, when provided with a stock, r, with its equivalent, the spring, g, and when so arranged that figures or images, E, can be easily fastened to and removed from it, as specified.

4th, The manner herein shown and described of fastening the sustaining plates, G, to the figures, E, by cutting pointed pinions, h, out of the former, and fastening them to the figures, as set forth.

5th, The manner herein shown and described of suspending the members, F, from the figures, E, by fastening tubes, i, to the figures, and pins, j, to the members and securing and arranging all as herein shown and described.