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IS THE CAREER OF CHOLERA ENDED?

Two hundred years ago there were two great pestilences which from time to time smote the human race with sudden and wide-spread destruction, hurrying vast numbers to untimely graves, and filling the hearts of survivors with unspeakable terror. One of these was the small pox, the other was called the plague. The small pox yet lingers among us, and the plague is still well known in the southern countries of Europe, but both diseases have ceased their ravages as epidemics, and have been shorn of their terrors. The small-pox is made harmless by the curious process of passing the disease through one of our domestic animals. The plague has probably been banished by the general improvement in modes of living, though its cessation has been attributed to the introduction of the potato as an article of diet.

About forty years ago a new and strange pestilence made its appearance in Europe in the course of its desolating march from Asia, and it has since repeatedly filled the world with fear like that which of old accompanied the plague. But there now seems good reason to believe that epidemic cholera, like its two predecessors, has been conquered by the power of intelligence.

Among the many substances that are produced when bituminous coal is subjected to destructive distillation at that temperature which is required for the manufacture of illuminating gas, is a compound which has acquired the name of carbolic gas, though, as its properties are those of an alcohol and not those of an acid, a more appropriate name would be carbolic alcohol. It is this substance which seems to have given man control over the last and most terrible of the pestilences that have desolated the world.

The New York Board of Health, in one of their reports in 1865, made the statement that pestilences among men have generally been preceded by epidemics in cattle, and they regarded the prevalence of pleuro-pneumonia as one reason for apprehending a visitation of cholera. Besides their advent as harbinger and follower, there are other intimate relations between these two epidemics.

In 1849 it was announced that a microscopist in Michigan had discovered minute animalculæ in the fæces of cholera patients, but this discovery being American, had to wait, like anæsthesia, the Ruhmkorff coil, and so many other American discoveries, till it could be rediscovered or appropriated by some European pretender. When an Englishman, Mr. Beale, found similar animalculæ in the blood of cattle suffering with pleuro-pneumonia, the most eminent masters of science proclaimed the important discovery.

In the case of pleuro-pneumonia, Mr. Crookes passed the breath of diseased cattle through tufts of cotton wool, and produced the disease in healthy cattle by inoculating them with the matter thus collected. In a recent lecture, Dr. F. Crace Calvert declared his agreement with Mr. Crookes in the inference that the breath of the diseased cattle must have transferred to the cotton wool the germs of the animalculæ which Mr. Beale found in the blood.

As the presence of carbolic acid even in the form of vapor, and in extremely minute quantities, is death to all organic germs, it was inferred that by its use the propagation of pleuro-pneumonia from diseased to healthy cattle might be effectually prevented. The brilliant success of Mr. Crookes in the practical application of this theory, as set forth in the report of the Royal Commission, has already been published in our columns. Dr. Calvert, in the lecture above referred to, says that the spread of pleuro-pneumonia was arrested in Belgium and Holland, as well as in England, by the use of carbolic acid. There is no room left to doubt that pleuro-pneumonia in cattle can be controlled by carbolic acid: will this substance also stop the spread of cholera?

During the summer and fall of 1866 the cholera several times secured a foothold in this city, and every time it was stamped out by the Board of Health. Dr. Harris and other members of the Board regard carbolic acid as the most efficient agent which they employed. It was also used with similar success in several other of our principal cities. Dr. Calvert refers to numerous cases in England where the spread of the cholera was absolutely stopped by the same agent.

Whatever may be the theory of the disease, the numerous and rapidly multiplying facts give us at least a reasonable hope that the means have been discovered for stopping effectually the spread of Asiatic cholera, and that terrible pestilence will scourge the earth no more. If this should prove to be the case, the discovery must take rank as by far the most valuable and beneficent of any one that has been made in the nineteenth century—a century so prolific in great discoveries.

PLASTER MOLDS FOR THE CASTING OF LOW FUSIBLE METALS.

Plaster of Paris is one of the most useful substances employed in the arts. Its generic name is gypsum, and it is largely used as a fertilizer, the mineral being coarsely ground in a mill and scattered broadcast over the land, or plowed in. Its constituents are sulphuric acid, 46.3; Lime, 32.9; water, 20 8, the nitric acid and lime combined being its fertilizing properties. It is known under various specific terms: as gypsum, alabaster, marble, etc., owing to the varying proportions of its constituents. It is the substance which ornaments subterranean caves with brilliant stalactites and stalagmites, and is known in the arts frequently by the name of crystal. French clocks, so popular as parlor ornaments, have their supports and frames composed of selected specimens of this widely diffused mineral, some of which are almost transparent and most of which are translucent.

The use, however, of the substance as a fertilizer and as an ornamental material in the fine arts is, in its application, less extensive than in mechanical processes. Our dentists would find much difficulty in the progress of their business if plaster of Paris was rejected. In the taking of casts of the mouth, and of the living, as well the dead, for portraits and busts this substance is invaluable. It combines readily with water and dries rapidly, taking the minuest lines of the pattern and faithfully reproducing them. Combined with sand and lime it makes a durable, hard, and smooth cement used in Spain and France for floors and vaults.

In the use of plaster of Paris for metal molds our mechanics require some instruction. It is adapted to the casting of the low fusible metals, if the mold after being once made is properly prepared. To prepare these molds they should first be submitted to the action of the atmosphere for several hours, that the water mechanically combined with the plaster shall be driven off or evaporated; then, to expel the water chemically combined with the plaster, it is necessary that the mold should be exposed to a heat of at least 400° F., for about four hours to make it fit to receive the metal without cracking and ruining the casting. By the following table it will be seen what is the fusible point of various metals and their combinations. We quote from a table arranged by Prof. P. H. Vander Weyde, all the compositions of which we believe can be cast successfully in plaster molds.

Boiling water is 212° F. But some metals or compositions of metals melt or fuse at a still lower heat. For instance, a composition of 5 parts bismuth, 2 of tin, 3 of lead. and 1 of mercury fuses at 167° F.; 4 parts bismuth, 1 of lead, and $\frac{1}{3}$ mercury melts at 185° F.; 4 of bismuth, 1 tin, 1 lead, at 203° F.; 5 bismuth, 4 tin, 1 lead, 257° F.; 1 bismuth, 1 tin, 284° F.; 3 tin, 2 lead, 329° F.; 3 tin, 1 lead, 338° F.; Tin, pure, 428° F.; Bismuth 500° F.; Lead 617° F.

All these compositions and others may be cast successfully in molds of plaster of Paris. The condition is that the cast or mold should be allowed to dry thoroughly in the atmosphere or rather in a warm room and then be exposed to a heat of at least 400° for several hours. If the mold becomes red hot so that it is nearly transparent it will not receive injury if properly treated. Such molds should be allowed to cool gradually, when, if they have been properly managed it will be found they will give sharp and clean impressions of the metals they receive.

THE DETROIT DILEMMA.

We are indebted to Stanley G. Wight, Esq., one of the commissioners, for the sixteenth annual report of the Detroit Board of Water Commissioners for the year 1867. There is the usual amount of statistical information of merely local value, but one feature of the report is of general interest. We refer to the efforts of the commissioners in devising some way of preventing the ice from choking up the main inlet pipe. This pipe extends 150 feet into the river, and terminates in a bell-shaped mouth elbow, three feet in diameter, turned upward, in water twenty-five feet deep. Covering the end of the pipe is a boiler-plate strainer, perforated with half-inch holes, 144 to the square foot. Inside the shell of the strainer is a diaphragm plate with similar holes, and below this the strainer shell has four-inch holes, to allow the sand to pass through, so as not to bank upon the outside of the strainer. When the engine is pumping, the water is required to pass through the strainer holes at the rate of 120 barrels per minute. This is the full supply, but in extreme cold weather, under certain circumstances, it is with great difficulty any water can be obtained, in consequence of the accumulation of ice. The circumstances under which the difficulty occurs are, when the weather is cold and ice is forming in the lake above, and on the shores of the river, and the river is free from ice over the strainer. But when the river is covered with ice over the strainer, the difficulty does not occur at any degree of cold. The great difficulty occurs when the thermometer ranges from 7° or 8° to 18° or 20° above zero; but when the mercury rises above 20° the difficulty soon ceases. The greatest number of detentions, it has been observed, occurs at night, and when the sun is obscured by clouds, but when the sun is unclouded, no difficulty is ever experienced.

With the rapidly increasing consumption of water, the commissioners foresaw that the time would very soon arrive when it would not be safe to permit any detention to the pumping engines, and that this remarkable phenomenon must be solved and the difficulty overcome. The committee have adopted every accessible means of investigation to obtain suggestions and information on this subject. Attention has been called to it in published reports, and by the press. Men of science have been seen and corresponded with, and scientific associations have been requested to investigate the subject, but as yet no complete remedy has been discovered. As no experiments had ever been previously made, and the theory was so strongly presented that the trouble was wholly from anchor ice forming on the strainer, an opening was cut through the down-stream side of the strainer, and a self-acting door was hung, but this and the plan of suspending a line of booms so as to retain a covering of ice over it when the rest of the river was not covered, both failed to accomplish the object sought. The theory that the covering of the entire surface of the river by ice prevented radiation, and by that means the ice did not form on the strainer, was strongly urged; but, if so, any covering over the strainer would answer the same purpose. To test it, last summer submarine divers built a submerged platform of planks immediately over the strainer, but this proved of no avail, for the stoppages occurred at a higher temperature than before.

On the 29th of last December, when but a very limited supply of water could be obtained, divers went down, examined the strainer, and found that it and its surrounding piles, were one mass of ice particles collected into a mound some ten feet high and about fifteen feet in diameter, and that large quantities of minute crystals of ice were rapidly passing and adding to the mass already collected. Specimens of the ice were brought to the surface in a bag. It was in sheets and particles thin as paper, translucent, with sharp, pointed edges. A further examination developed the fact that the small amount of water the pump was then receiving came through the lower or down stream side of the strainer, this being the only point where the diver could approach it, and which was found but slightly covered with ice. Having ascertained the existing state of affairs, the commissioners felt confident that a remedy could now be provided, and with a large piece of canvas they had the strainer completely covered and encircled, except on the down-stream side, but temporary relief only was afforded by this expedient, and another descent to the strainer was undertaken. The diver went down and found out this very important fact, that with the temperature of the atmosphere at 29°, the water at the surface was 33°, while at the bottom of the river it was 35°. At this descent much less ice was found on the strainer and its surroundings than at the first time. The lower side was clear, but on the upper side the action of the current had worn the ice into elongated cones, pointing up stream. At this time the pump was receiving a full supply of water. About three hours later, the diver again descended (thermometer 33°); he found the ice had entirely disappeared. The wooden platform was removed, since which time no trouble was experienced, until the surface ice of the river began to move, when there was a few hours during which no water could be obtained, but with this exception no further delays have since occurred.

It is clearly proved that ice particles are ever present in the river, and are continually passing down by the action of the current, collecting upon whatever obstructions they happen to meet with in their passage. The commissioners, therefore, advise the entire removal of all spiles and other substances adjacent to the strainer, believing that with nothing but the smooth dome of the strainer for these particles to lodge upon, the quantity that will accumulate cannot very seriously prevent the flow of water to the inlet pipe.

RELIEF TO MANUFACTURERS.

Probably no measure proposed in the present Congress is of more importance to the manufacturing and mechanical interests of the country, and to the country at large, than the bill reported by Mr. Schenck from the Commitee of Ways and Means and passed by the House of Representatives by a vote of one hundred and twenty-two, to two. It will also undoubtedly receive the sanction of the Senate and the President, when it will become a law, to take effect on the first of next May. Its most valuable provision is the total repeal of section 95 of the internal revenue law, which taxed and re-taxed manufactured articles at almost every step of their progress of manufacture. It repeals all revenue tax on manufactures of every description except on the manufacture of gas, petroleum, lubricating and illuminating oils, liquors, tobacco, and snuff.

When this bill, becomes a law, it will give an impetus to business which the country greatly needs, and remove a load grievous to be borne, from the shoulders of our industrial clases.

Rumford Chemical Works.

In the list of patents for the week ending March 11th, we notice an unusual number granted to Messrs. Horsford & Wilson, President and Treasurer of the Rumford Chemical Works, Providence, R. I., upon improvements relating to the manufacture of phosphoric acid. This article, which is the basis of the self-raising flour so largely manufactured by

Messrs. Hecker and others throughout the country, is the acid constituent of Horsford's self-raising bread preparation and of the Rumford Yeast Powders, which have come into such extensive use. In these preparations the properties usually lost with the bran in bolting, are restored to the flour, greatly increasing its nutritive value.

DOUBLE-WALL ICE PITCHERS.

The following letter from Professor S. Dana Hayes, State Assayer of Massachusetts, contains facts that should be read by all persons that have occasion to buy or use double-wall ice pitchers. Messrs. Reed & Barton, the patentees and manufacturers of the Seamless Lined Ice Pitchers, are the oldest and one of the largest and most celebrated manufacturers of silver plated ware in this country. The old lining, made in two pieces of different kinds of metal, and now in common use, renders water deleterious to health in four hours, and in twenty-four hours sufficient poisonous metals have been dissolved to impart taste to the water. This result is surprising, and it is still more so that attention has not been sooner called to this source of ill health.

STATE ASSAYER'S OFFICE,
No. 20 State street, Boston, Jan. 23, 1868.

Messrs. REED & BARTON, Taunton, Mass.:

Gentlemen: I have been much interested in investigating the corrosion of linings for ice pitchers, and the consequent poisoning of the water, after standing in them.

The lining, or inner chamber, of the greater part of the ice pitchers in common use is made from two different metals or alloys. As it is necessary that the bottom should be quite strong, to resist the blows from the ice when carelessly thrown in, this part has been made of nickel silver, copper, or other hard metal, while the sides of the chamber are generally made of britannia or "white metal," the two parts being soldered together and then silver-plated.

The corrosion of this lining and solution of the metals in water naturally results from this mode of manufacture; because these different metals, in contact, under water, form a galvanic arrangement. If a silver coin be placed above the tongue, and a piece of zinc below, allowing the edges to come in contact, a metallic taste will be perceived in the mouth, from the galvanic action and solution of one of the metals. And the action is similar in these linings, only that it is not so violent at first.

Several of these linings, made as above and in common use, have been examined; some of them are very badly corroded, and it is noticeable that the solder has been first attacked. In one of these a nearly pure water was left for several hours that the effect might be noted.

In 1 hour the water contained traces of lead and copper.
In 4 hours the water contained 0·7 grain of lead and copper.
In 12 hours the water contained 1·6 grains of lead and copper.
In 24 hours the water contained 3 grains of lead and copper.

And, with a natural well water, this action is still more energetic.

It is hardly necessary to tell you, that metallic poisoning is one of the greatest enemies we have to contend with in the struggle for life, and it is common knowledge that lead and copper are highly poisonous and accumulative.

I have also submitted your new patent lining to careful chemical tests. This is formed from one piece of metal, without any seams, or soldering, the bottom being strengthened on the outside. There is no galvanic action here.

Analyses—This lining was nearly filled with the same water as the other, the temperature and all other conditions being the same in both cases. After standing for forty-eight hours the water did not contain a trace of metal. It was then boiled in the lining for an hour, and analyzed twice during that time, but it was still perfectly free from metals of any kind.

It is certainly fortunate that you can make these linings from one piece of metal, to take the place of the others, as a safe ice-pitcher is a great luxury.

Respectfully,
S. DANA HAYES,
State Assayer of Mass.

Polishing Powder for Gold Articles.

Dr. W. Hofman has analyzed a polishing powder sold by gold workers in Germany, which always commands a very high price, and hence, it may be inferred, is well adapted for the purpose. He found it to be a very simple composition, being a mixture of about 70 per cent of sesquioxide of iron and 30 per cent of sal-ammoniac. To prepare it, protochloride of iron, prepared by dissolving iron in hydrochloric acid, is treated with liquid ammonia until a precipitate is no longer formed. The precipitate is collected on a filter, and without washing, is dried at such a temperature that the adhering sal-ammoniac shall not be volatilized. The protoxide of iron precipitate at first becomes charged with sesquioxide.

The Steam Man.

This automaton, which has furnished a number of paragraphs for the press, is on exhibition at 538 Broadway, New York city, nearly opposite the site of Barnum's Museum; but owing to some objection on the part of the owner of the hall, he is not permitted to "travel on his muscle," but is hung in slings and merely "marks time," as our military friends would say. We understand, however, that his managers have decided to test his powers more effectually, when we shall probably have more to say of him.

ELECTRICAL JEWELS.—One of the latest Parisian novelties is a scarf pin for gentlemen's wear in which a curious application of electricity is introduced. The pins are finished with imitation human heads the eyes of which are made to open or shut at the will of the owner. The electro-motor is a simple voltaic element of zinc and carbon, or zinc and platinum, the whole being inclosed in a small brass case conveniently carried in the vest pocket. The carbon is fixed in a vessel partly filled with a solution of sulphate of mercury, and the zinc is attached to the lid of the case. No electrical action is generated as long as the case is carried perpendicularly, but if laid on its side a current is formed.

OFFICIAL REPORT OF PATENTS AND CLAIMS

Issued by the United States Patent Office,

FOR THE WEEK ENDING MARCH 10, 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.*

75,234.—BOAT DETACHING BLOCK.—Nelson B. Adams, San Francisco, Cal.

I claim in combination with a block, the jaws, E E, with the long arms, F F, the short levers, H H, with shoulders, a a, forming a knee joint, the operating lever, J, having its fulcrum at G, and pivoted to the knee joint, I, the whole constructed, combined and operating as a detaching apparatus, substantially as and for the purposes herein described.

75,235.—LEAKAGE MEASURE, ALARM, AND INDICATOR.—Thomas P. Akers, New York city.

I claim, 1st, Providing for indicating the hight of leakage water in the hold of a vessel by means of weights of greater specific gravity than water, suspended from a pulley, so that one of the weights shall rise and descend with the rise and fall of the water, and the other make similar movements, but in a reverse manner, and by its movements communicate motion to registering, indicating, and alarm mechanism, substantially as described.

2d, The combination of a leakage measure which consists of two weights, and a chain, which is arranged to unwind from a pulley as fast as it winds upon the same, with an alarm, or with an indicator, or with a combined alarm and indicator, substantially as described.

3d, The combination of the wheels, L L', chain, F, weights, G G', pulley F, and disks, C C', substantially as and for the purpose described.

4th, The combination of a leakage measure, operating substantially as described, with the figured disks, the alarm devices, and gearing, L L and M, substantially in the manner and for the purpose described.

5th, The curved piece, h, constructed and applied to the hammer arm substantially in the manner and for the purpose described.

6th, The combination of the weight, G, cylinder, H, pendulum, K, and double-acting poppet valve, substantially as and for the purpose described.

7th, Arranging all the gearing, the alarm devices, the indicating disks, and the pulley of the weight chain or cord, upon a frame or spider of the case, A, substantially as described.

75,236.—FLOOR CLEANER.—Abraham Armstrong, Newburg, Ohio.

I claim in a floor cleaner, as described, adjusting the rubber and intervening plates by means of the set screws, for the purpose set forth.

75,237.—COLTER HOLDER.—Jefferson Aughe, Dayton, Ohio.

I claim the combination of the plates or disks, C, colter, B, beam, A, and bolt, e, substantially as described and for the purpose specified.

75,238.—APPARATUS FOR BURNING CRUDE PETROLEUM.—Henry Baldwin, Titusville, Pa.

I claim, 1st, The jacket, e, as arranged to surround the supply pipes and a portion of the heater, and used in combination with the same, substantially as and for the purposes set forth.

2d, The reflector, f, as arranged with relation to the heater, when used in conjunction with the same, substantially as and for the purposes set forth.

3d, The supplementary reflector, g, and blow pipe, h, as arranged with relation to the reflector, f, and heater, a, substantially as and for the purposes set forth.

75,239.—BOLT THREADING MACHINE.—Wm. B. Bement, Philadelphia, Pa.

I claim, 1st, For opening and closing the dies while the machine is in motion, two or more cranked or eccentric spindles, f, each carrying a toothed segment or pinion, adapted to internal teeth in a loose disk, which is controlled partly by a spring, d, and partly by the friction clamp herein described, or any equivalent to the same, the whole being combined with the spindle or a screwing machine substantially as specified.

2d, The cutting dies, l l, secured to the blocks, n n, but admitting of an adjustment independently of the latter, substantially as specified.

3d, The pump, with its piston and spring, in combination with the spindle, B, and its eccentric or cam, substantially as and for the purpose herein set forth.

4th, The within-described lever, spring pawl, and rack, arranged for operating the sliding head or plate, substantially as set forth.

75,240.—PROCESS OF PURIFYING IRON AND STEEL.—John F. Bennett, Pittsburg, Pa. Antedated Feb. 28, 1868.

I claim the use of carbonic acid gas, either alone or mixed with atmospheric air, or with other gases or vapors, when introduced into the body of molten iron or other metal, in combination with or immediately following the pneumatic process, for the purpose of removing sulphur, phosphorus, and any other impurities which will form chemical combinations with the oxygen of the carbonic acid, and deposit the carbon substantially as hereinbefore described.

75,241.—METRONOME.—Hiram S. Blunt, New York city.

I claim the adjustable rings or plates, A A' A'' A''', separated or united, in the form of a drum, with pins or stops, n n n n, secured to and forming a part of the movable shaft, C and B, in combination with the index or hand, d, and with or without the dial, D, for the purpose of indicating the number of beats in a bar of music, in the manner substantially as described and shown in the drawings.

75,242.—MODE OF PRESERVING EGGS.—Joseph Brakeley, Bordentown, N. Y.

I claim the preservation of eggs of hens or other fowls in the manner substantially as set forth above, that is to say, by drying them within their natural integument.

75,243.—BRICK CARRYING CAR.—John K. Caldwell, Pittsburg, Pa.

I claim, 1st, A series of tables, b, resting and turning on recesses in the supports, a, in a brick drying car, substantially as and for the purposes set forth.

2d, In a brick drying and bearing car, the supports, a, having ledges, c, inclined, c', and tenons, e, constructed and used substantially as and for the purposes set forth.

3d, The comoination of the tables, b, supports, a, ledges, c, inclines, c', and tenons, e, in a brick drying car, when constructed and arranged as and for the purpose specified.

75,244.—LETTER BALANCE.—Benjamin Chambers, Jr., Washington, D. C.

I claim the knife edges in holes passing through the lugs, as herein described, and covered, the covering plate at one end being pivoted, whereby the knife edges are kept in place, and can be readily removed when it is required to remove them.

75,245.—PROCESS OF DEODORIZING AND REFINING SACCHARINE AND OTHER FLUIDS.—William Clough, Cincinnati, Ohio.

I claim the process of refining and deodorizing saccharine and other fluids herein specified.

75,246.—ROCKING CHAIR.—C. W. Conant, Gardner, Mass.

I claim the arrangement as well as the combination of the spring, D, and the arch piece, C, with the chair seat, A, the rockers, c c, and the supporting frame, B, thereof, the whole being to operate substantially as described.

75,247.—MOP PRESS.—L. S. Covey and John Duffy, St. Croix county, Wis.

We claim the box or receiver, E, constructed and operated substantially as described, in combination with the plunger, C, the lever, D, and the cross beam, F, and grooves, e e, all constructed and arranged substantially as and for the purpose described.

75,248.—GUN LOCK.—John F. Crabtree and Wm. N. Crabtree, Visalia, Cal.

We claim, 1st, The pawl piece, B, in combination with the trigger, E, and the lever, F, acted upon by the main spring, G.

2d, The spring catch, I, in combination with the lever, M, with the inclined oblong slot, O, for the purposes described and in a manner substantially as set forth.

75,249.—DEVICE FOR RAISING AND LOWERING WINDOW SASHES.—John D. Cramer, San Francisco, Cal.

I claim the combination and arrangement of the several parts of my device, namely, the recess, A, with the slotted plate, B, and the plate, D, connected to the staff, C, by the curved piece, c, substantially as described.

75,250.—HAME.—Benjamin Crawford, Allegheny City, Pa.

I claim, 1st, Making fastenings for connecting harness tugs or traces to hames, adjustable by an eye through the inner or forward end of each, such eye to be operated on a staple, d or d', in connection with proper locks or supports, e e', the same being attached to the hame or hames plate, for holding such fastenings at the proper point of adjustment, substantially as and for the purposes described.

2d, The shoulders, i i', constructed on the fastenings, f f', in combination with the supports, e e', for the purpose of relieving the strain which would otherwise come on the staples, d d', substantially in the manner above described.

75,251.—CLOTHES DRYER.—H. Du Bois, Marlborough, N. Y.

I claim, 1st, The combination in a folding clothes dryer, of the arms, B B, latches, a a, and springs, b b, with the central polygonal shaft, A, arranged and constructed substantially as and for the purposes herein described and set forth.

2d, The combination of the arms, C C, and legs, D D, with the shaft, A, arranged and constructed to fold up, substantially as herein described and set forth.

75,252.—MACHINE FOR DISTRIBUTING FERTILIZERS.—Jesse S. Edwards, Medford, N. J.

I claim the arrangement of the hopper, A, distributing shaft, G, wheels, C and D, and plows, B, as and for the purpose specified.

75,253.—MOP HEAD.—Richard W. English, Buffalo, N. Y.

I claim, 1st, The cross head, H, and shank, B, in combination with a screw ferrule, K, provided with a slot, R, as and for the purposes substantially described.

2d, The thumb nut, C, in combination with the parts, E E, and collar, D, substantially as and for the purposes described.

3d, The employment of the binding wire, for holding the collar, D, and parts, E E, together, as herein shown and set forth.

75,254.—BEDSTEAD FASTENING.—Bartholome Essig, Sacramento, Cal.

I claim the plate, C, for attaching the side rail of a bedstead to the post, having an arm, c, an oblique lug, b, so as to be firmly secured to the post by the tenon on the end rail, substantially as described.

And in combination with the plate, C, the plate D, fastened to the side rail, having a lug or key, g, fitting into a slot or groove on the plate, C, substantially as and for the purposes described.

75,255.—HAY KNIFE.—Green Fenton, Streetsboro, Ohio.

I claim the handle, A, spring, C, pin, a, arm, c, and blade B, all constructed and arranged in the manner as and for the purpose specified.

75,256.—LAMP BRACKET.—E. L. Ferguson (assignor to himself and Charles B. Clark), Buffalo, N. Y.

I claim, 1st, The combination of the two jointed arms, A' A'', provided with suitable jaws for holding lamps of different sizes.

2d, The india-rubber ring, E, in combination with the said arms, arranged substantially in the manner set forth.

3d, The combination of the arms, A' A'', ring, E, and cam, f, or equivalent, for distending the jaws of the clamp, substantially as set forth.

4th, The peculiar construction of the jaws, D D, provided with shoulder, m, flange, n, and contracted bottom, as shown and described, for holding lamps and fountains of different forms and sizes.

5th, The peculiarly formed casting, C, constructed and arranged with the plate, B, and bracket arm, A, so as to secure the latter in its socket, and also form a receptacle for matches, in the manner shown and described.

75,257.—HARNESS TRIMMING.—Milton A. Fisk (assignor to Edward M. Wesson), Springfield, Mass.

I claim as a new article of manufacture, a rosette or harness trimming, when constructed as herein described and for the purpose specified.

75,258.—PLATING SPOONS AND OTHER ARTICLES.—Marshall L. Forbes (assignor to the Meriden Britannia Co.), West Meriden, Conn.

I claim the mode, substantially as before set forth, of coating spoons and similar articles with a regulated unequal thickness of the plating metal by immersing different portions of the article for different periods in the bath of the electroplating apparatus with which the article is connected.

Also the combination of a holder, adapted to confine the article to be coated, with regulating mechanism to hold the articles partially immersed to the required extent in the depositing bath, substantially as before set forth.

Also the combination of a holder, adapted to confine articles, with mechanism for tilting the article, so as to vary the extent of immersion in the depositing bath, substantially as before set forth.

75,259.—MACHINERY FOR PRINTING YARN.—John Forrest (assignor to himself, John Archibald, and John Taylor), Lawrence, Mass.

I claim the combination as well as the arrangement of the two carriers for carrying skeins of yarn, in the manner described, with one or two series of printing wheels, composed of annular disks, their color rollers and cellular troughs, the whole being provided with mechanism to operate them substantially as and for the purpose specified.

Also the combination of the drying cylinder or apparatus, the two carriers as above, one or two series of printing wheels, their color rollers and cellular troughs, the whole being provided with mechanism to operate them, substantially as and for the purpose specified.

75,260.—KNITTING MACHINE.—Guy P. Fuller, Adrian, Mich.

I claim the combination of the finger, A, the disk or dial plate, B, the geared wheel, C, the pinion, D, or their equivalents, the frame E, the ratchet F, the lever, G, the friction wheel, H, the nut, I, the shaft, J, the plate, K, when constructed substantially as described, for the purposes herein set forth.

75,261.—MILKING MACHINE.—B. F. Graves, Groton, Mass.

I claim the arrangement of the pump, with the flexible tubes, teat cups, glass tubes, stop cocks, devices for adjusting the teat cups to the udder of the cow, all constructed and arranged substantially as described and for the purposes specified.

75,262.—MODE OF ATTACHING ANIMALS TO CARRIAGES.—Henry B. Hale and Thomas Flagler, Grass Lake, Mich.

We claim the construction of a draft or extension bar, with or without joints, in connection with pulleys, straps, chains, and rods, arranged in the manner and for the purposes specified.

75,263.—HARVESTER RAKE.—Thos. Harding, Springfield, O.

I claim an automatic device which opens the switch, g, at each revolution of the rake and reel, and at the same time is under the control of the driver to make the raking only when it is necessary, in combination with a revolving reel and rake on a harvester, substantially as set forth and described.

The collar, O, provided with the clutch pin, n, and lug, o, in combination with the tripper, l, clutch lever, u, and switch, g, whereby the driver while on his seat may depress said collar and throw the clutch pin, n, out of connection with the head, L, to stop the rake from sweeping the grain from the platform, as desired.

Working the switch, g, automatically by means of the tripper lever, l, and a lug attached to a collar surrounding and revolved by the rake shaft, substantially as set forth.

Arranging the tripper, l, between the guide way and the rake-arm head upon the box or bearing of the rake shaft, substantially as set forth.

The combination and arrangement of the switch, g, provided with the arm l, and spring, k, with the tripper, l, and lug, o, or its equivalent.

75,264.—COMPOSITION FOR STUFFING LEATHER.—John Hazeltine, Warren, N. H., assignor to himself and Person Noyes, Lowell, Mass.

I claim the combination of the herein-described ingredients in about the proportion specified, for the purpose and in the manner substantially as described.

75,265.—INVALID BEDSTEAD.—Wm. Heath, Bath, Me.

I claim the combination of the recesses, K K L L, or their equivalents, with the frame, A, the two frames, D E, and mechanism for moving and depressing or operating the back frame, E, substantially in manner described.

Also, the combination of the folding legs, M M, the toothed sectors, and their arms, f f, the frame, A, and the parts, B C D and E, arranged and connected substantially as specified.

75,266.—SHANK SPRING.—Ed. Heaton, New Haven, Conn.

I claim the construction of shank springs, when cut or stamped out of the sheet without scrap or waste, substantially as specified.

75,267.—COTTON-BALE TIE.—John W. Hedenberg, Chicago, Ill.

I claim a cotton-tie buckle, made and constructed substantially in the manner described.

75,268.—GANG PLOW.—Chas. Hess, Lyons City, Iowa.

I claim, 1st, The slot, T, in the head piece, and axle to adjust the tongue.

2d, The iron beams, when used in a gang plow.

3d, The combination and arrangement of the parts, when constructed and used as above set forth.

75,269.—STRAW CUTTER.—L. B. Hoit, Cedar Falls, Iowa.

I claim, 1st, The balance wheel, B, when provided with recessed and beveled arms, r r, and curved knives, E, attached thereto, in combination with the bevel gears, e f, the interchangeable feed rollers, C C D, and crank, g, as and for the purpose specified.

2d, The within-described arrangement of the intermediate spokes, r, of the balance wheel, with reference to the knife-carrying spokes, r, thereof, and the interchangeable feed rollers, C C, substantially as and for the purpose specified.

3d, The method, herein-described, of graduating the feed by the detachable or interchangeable rolls, C, of different sizes, arranged to operate underneath the yielding roll, D, and operated by the crank, g.

75,270.—CAR COUPLING.—Winfield H. Hoover, North Benton, Ohio.

I claim the combination of the pivoted drop, E, link, D, pin, C, and drawhead, B, when operated by the bar, F, with its side levers, H H, all constructed and used substantially as and for the purposes set forth.

75,271.—PREPARATION OF ACID PHOSPHATE OF LIME.—E. N. Horsford, Cambridge, Mass.

I claim, 1st, The method of producing a pulverulent acid phosphate of lime, substantially as and for the purposes above set forth.

2d, The product obtained by the process, substantially as and for the purposes above described.

75,272.—MANUFACTURE OF ACID PHOSPHATE TO BE USED IN FOOD.—E. N. Horsford, Cambridge, Mass.

I claim the manufacture of liquid acid phosphate of lime, for use as a condiment or article of diet, or ingredient to be employed in beverages or food, substantially as and for the purposes herein set forth.

75,273.—GRINDING MILL.—G. W. Hubbard and S. A. Smith, (assignors to Cresson & Smith), Philadelphia, Pa.

We claim, 1st, The lever, B, combined with and trued by the disk, a, substantially as described.

2d, The shell, D, with its inclined edge adapted to the plate, E, substantially as set forth.

3d, The spindle, A, with its burr, when confined in its place within the shell by two adjustable collars arranged upon the spindle, as specified.

75,274.—BABY CREEPER OR WALKER.—P. H. Hurd (assignor to Clara Hurd and E. D. Horton), Croton, Mich.

I claim, 1st, Frame, A, chair, B, and rollers, C, in combination, substantially as described.

2d, Revolving chair, B, with flexible seat, D, and strap, E, in combination with frame, A, substantially as and for the purpose described.

75,275.—CLOSING FRUIT JARS.—William M. Imlay, Philadelphia, Pa.

I claim, 1st, Making and adapting the neck of a fruit-jar so as to be used for a spiral wire coil, substantially as and for the purposes set forth.

2d, A wire coil, arranged and used about or around the neck of a fruit jar, so as to make a fastening for fruit jars, substantially as set forth.

3d, The arrangement and construction of a wire coil about the neck of a fruit jar, so as to make an elastic pressure on the cover, as described.

4th, The broad-seated ring or gasket, H, when retained in place by the beveled or inclined top, I, substantially as and for the purposes specified.

75,276.—GATE.—J. L. Janewa, Flemington, N. J.

I claim the continued arrangement of an ornamental or garden gate, B, with the stationary posts, A A, swivel bar, C, pivoted disks, f g, and caster rolls, m m, the whole constructed and operating as described for the purposes set forth.

75,277.—GRAIN DRIER.—J. B. Johnson, Indianapolis, Ind., assignor to himself, T. E. Johnson, and B. F. Johnson.

I claim, 1st, Making the top of the furnace of drying kiln of cobble stones