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TO OUR READERS ON THE PACIFIC COAST.

The SCIENTIFIC AMERICAN has now a large and increasing subscription list in California, Oregon, and other Pacific States. Our professional business in those States is also increasing, which clearly indicates a healthy progress in the manufacturing and mechanic arts.

We now desire to thank our patrons and friends upon the Pacific coast for their generous encouragement, and also to remind them that a new volume of the SCIENTIFIC AMERICAN will commence January 1, 1866, at which time there are a large number of subscriptions that will expire. We make the announcement at this early date for the purpose of securing the co-operation of our friends in getting up clubs for the next volume.

Notwithstanding the increasing cost of paper, we have determined to offer the SCIENTIFIC AMERICAN in clubs of ten and upward for \$2 50 per year, at which rate we hope to largely increase our circulation.

Of the future value of the SCIENTIFIC AMERICAN the past twenty years must be our guaranty. No other journal of the kind in this country, or Europe, can compare with it in the extent and value of the information which its columns supply.

Send in your clubs and subscriptions early, in order to secure the first numbers of the new volume.

FASHIONS AND TRADES.

Our ancestors, who clothed themselves in primitive fabrics, made in the plainest manner, would doubtless be astonished if they could realize the rage for unique articles of dress at the present day, and be still more surprised at the enormous consumption of them. There are cravats with all the colors of the rainbow, and a good many more not in it; there are hoop-skirts elastic, incompressible, and with countless other qualities unmentionable to profane ears; there are coats of shoddy, which, like the possessions of their owners, arise and disappear in a day; there are somber hats, shocking hats, hats invisible and waterproof, and other hats; there are boots with thick soles and square toes, with spring shanks, with rotary heels, boots with bootjacks already attached to them, and boots with wooden soles; there are shirts that pretend to be both shirt and vest together, when they are only simple shirts; and there are collars of steel, whitened by enameling, which are claimed to be all that fancy paints them. Truly, a man may

wonder at the diversity and variety of human attire, and he must be critical indeed, if out of all this array there is "nothing to wear."

The manufacture of clothing in various forms is immense, and gives employment in different branches of trade to thousands of persons.

When the hoop-skirt became popular with ladies, the energies of machinists, steel rollers, and wire drawers were taxed to the utmost. The call for the steel springs was such that hundreds of persons bought sets of rollers, hired a room and power in some factory, and with a forge went into business on their own account. All they had to do was to start the wire in the rolls, run it through them into the furnace, temper it as it went, and the job was done. Of course, much of it was wretched stuff, but it sold, and that was the main thing, for it kept the market brisk and supplied.

The latest candidate for popularity is the paper collar. The rapidity with which it has been seized upon, and the extent to which it is manufactured surpasses even the hoop skirt in its palmy days.

To say nothing of the number of collars made, which is almost beyond estimate, statistics concerning one branch of trade involved with it—the manufacture of paper boxes—will prove interesting.

One firm has a contract with paper-collar manufacturers, to furnish 11,000 paper boxes daily, for twelve months. This is but one out of numerous others in different parts of the country. Of course, with such demands upon them, the paper mills are busy, and the price is high. The men who furnish paper material are also busy; girls are busy with the boxes, in making and filling them; packing-case makers and machinists have enough to do, and, in short, every one whose business is in this line has his hands full.

That such wide-spread activity should spring from such a simple thing as a paper collar seems incredible. The impulse given to trade by this one thing ramifies in all directions. It stimulates inventors to produce better machines for making paper. It sets chemists to work on cheap processes for bleaching. It furnishes an incentive to capitalists to erect works and thereby call into requisition the services of all tradesmen in that line, and the list of persons and industries benefited by the adoption of the paper collar might be extended infinitely. Fashion does some good in the world, after all.

NEGATIVE SLIP.

Sir John Herschel remarks that the problem of the tides is one of the most difficult of any that has engaged the attention of the human mind, and it seems to us that the explanation of negative slip is of analogous character. When a fluid is acted on by contending forces, the direction and power of which cannot be measured, to determine the motion of the fluid by a priori reasoning, requires more than human intelligence; when, also, a ship is driven through the water by the rotation of spiral blades at its stern, the currents produced in the water, and the action of these upon the ship and upon the screw, form a problem too complicated and difficult to be unraveled by the mind of man.

That a screw propeller should exert part of its power in moving the water, and that the vessel driven by it should, consequently, move with less velocity than if the screw were running in a solid nut of metal, is precisely what would have been anticipated, but that the vessel should run faster than if the screw were revolving in a solid nut, would seem to be impossible. This strange circumstance was, however, observed in the running of the *Niagara*, and several other vessels, before its extraordinary development in the case of the *Bellerophon*.

THE "ALGONQUIN" AND "WINOOSKI" TRIAL.

Having thus far considered the circumstances of the entire trial with due seriousness, we may be pardoned if we smile at the scientific character with which the whole performance has been invested. No engineer in his senses would expect to realize economy, either by expansion or otherwise, from engines making barely fifteen revolutions, and pistons running at less than 300 feet per minute in unjacketed cylinders, with a stroke of 10 feet. It would seem as though neither Mr. Dickerson nor Mr. Isherwood are able to realize the fact that, in order to obtain economy of fuel by the aid of expansion, certain conditions must be complied with. The former apparently imagines that expansion is all-powerful, and, regarding steam as a permanent

gas, he takes no account of condensation in the cylinder, and constructs his engines without the least regard for principles which English engineers know to be essential to success. Mr. Isherwood, on the other hand, selecting a single machine of a construction notoriously the worst adapted to the application of the principle, tried a few experiments, carried out and worked up with a minuteness sufficient to invest them with a false importance, and gravely states that he has tested expansion, and that there is nothing in it. We have thus the remarkable spectacle of two men, equally ignorant of the fundamental principles of the subject on which they presume to discourse, trying experiments with machinery no more calculated to decide the questions at issue—if there be a question at issue—than a pair of water-wheels; while the Government of a great nation consents to identify itself with the one, and the great nation acts as bottle-holder to the other. As it is, the correctness of a principle has asserted itself, according to the reports which have reached us, under the most unfavorable circumstances. Whether Mr. Isherwood did or did not beat Mr. Dickerson is a matter of the least possible real importance. He would find in any of our English firms a very different opponent. There is such a thing as philosophy in sport as well as science in earnest. As far as we can see, the Washington competition comes under neither head, and its value is almost infinitesimal as compared with the importance with which the American public appear to have invested it.—*London Engineer*.

We are surprised that the editors of the *Engineer*, with their extensive knowledge of steam engineering, should regard the result of running two engines under such very different conditions as the triumph either of expansion or non-expansion. Suppose the pressure of steam in the two engines had been reversed—that the *Algonquin* had run with 17 lbs. to the inch and the *Winooski* with 70 lbs.—in what way would "the correctness of a principle" have asserted itself? We have no doubt of the economy of working steam with some measure of expansion; the most economical measure varying with the pressure of the steam, the extent to which it is superheated, the velocity of the piston, and several other circumstances, but to suppose that this principle can be established by experiments like that of the *Winooski* and *Algonquin* is preposterous, as we have already pointed out.

VELPEAU ON CHOLERA.

Among those men who have devoted themselves to the study of that department of medical science which relates to the cure of disease—therapeutics—the most eminent are two Frenchmen, Pierre Charles Alexandre Louis and Alfred Armand Louis Marie Velpeau. Louis is the author of a revolution in the mode of investigating the effect of medicine on disease. Previous to his labors, while anatomy, physiology, and pathology, contained a great mass of ascertained and unquestioned facts, almost every thing in the department of therapeutics was the subject of disputes among physicians, so constant and so general that they were the theme of universal ridicule. This uncertainty was the result of the defective method employed in observing the effect of medicines upon diseases. Each physician deduced the general law from the few cases that occurred in his own practice; and even these few cases were generally observed with prejudiced minds, and in a loose and careless manner. Louis undertook the task of ascertaining the effect of the medicines in general use upon the more common diseases by a series of observations so careful, thorough, and honest, and conducted upon so large a scale, that the results would command universal respect. The great hospitals of Paris gave him the most favorable opportunity for carrying out his plans, and he went through his task in such manner that his results are accepted by physicians throughout the world as indisputable and established science.

To illustrate his method: it had been the most general practice to give antimony in lung fever—Louis said, "Let us see whether antimony does any good in lung fever." He selected for experiment a hundred patients sick with lung fever, and divided them into two parts as nearly equal as possible in regard to age, strength of constitution, force of the disease, and all other conditions; to fifty he gave antimony in the usual quantity, and to the other fifty he gave no medicine whatever; treating the patients alike in all other respects. The effect on each patient was carefully observed and recorded. The experiment was then repeated in another hundred patients divided in the same manner.

The circumstances which has given peculiar authority to Louis' investigations, even more than their large scale, is the honesty with which they were con-

ducted. While other physicians had generally made experiments in order to prove the efficacy of some favorite treatment, or to establish the truth of some preconceived notion, it was the ambition of Louis to win fame by the impartial conduct of his observations.

The most eminent disciple, or rather colleague of Louis, is Velpeau; and his observations are received with equal respect in the world of medical science. When he recommends a remedy it may be accepted, not, as in the case of most physicians, as a guess founded on some half dozen cases, but as the conclusion of a long series of careful and honest comparisons.

At a recent meeting of the Academy of Sciences, in Paris, the treatment of cholera was discussed, and most of the published remedies denounced as utterly useless, when M. Le Verrier, the astronomer, complained that the time of the Academy was taken up in condemning remedies without indicating those which were more capable of arresting the evil. The newspapers publish recipes every day which contradict each other. Every medical man had his own system. What was necessary, was to point out at least what should be first done in the absence of the doctor. In a word, he wanted positive suggestions instead of negative discussions.

These remarks called up Dr. Velpeau, who said:—

"I am obliged to avow that it is not always in our power to point out an efficacious remedy. The cholera is no doubt caused by the introduction of a poison into the organism. If the poisonous element is in small quantity, and the organism strong, it makes no ravages; if the contrary be the case, the danger is real. Also when the patient absorbs what is administered to him, his cure is probable. But sometimes the stomach refuses to absorb any thing; and in this case recourse should be had to external means, which are often insufficient. In a word, the malady almost always commences by characteristic symptoms, such as premonitory diarrhea. The preventive treatment is easy, and it is for each person to guard himself. Excess of every kind should be carefully avoided, and the rules of salubrity attentively observed. The means of arresting the malady at its outset are very simple. My advice is this—pour from three to four drops of laudanum on a lump of sugar, and swallow it. Repeat in two hours afterward, and so on, until the colic and vomiting pass away. Take also very small injections of starch, poppy flowers with six, seven, eight or ten drops of laudanum. This treatment will almost always suffice to stop the diarrhea, and will be a guaranty against the malady."

The premonitory diarrhea of the cholera is of a very peculiar character, very easily distinguished from other forms of diarrhea. The discharges are frequent, and are white and watery, generally compared to rice water. Even for these it is best to consult a physician if possible, but if no physician is within reach, then, according to Velpeau, we are to swallow three or four drops of laudanum every two hours till the diarrhea is checked.

EGYPTIAN KOHL.—The kohl, or kheel, which we have seen in use for darkening the eyelids since the time of the ancient Egyptians, is made by the Arabs in the following way:—They remove the inside of a lemon, fill it up with plumbago and burnt copper, and place it on the fire until it becomes carbonized; then they pound it in a mortar with coral, sandal wood, tears, ambergris, the wing of a bat, and a part of the body of a chameleon, the whole having been previously burnt to a cinder, and moistened with rose water while hot.—*Rimmel's Book of Perfumes.*

TO OUR READERS.

PATENT CLAIMS.—Persons desiring the claim of any invention which has been patented within thirty years, can obtain a copy by addressing a note to this office, stating the name of the patentee and date of patent, when known, and inclosing \$1 as fee for copying. We can also furnish a sketch of any patented machine issued since 1853, to accompany the claim, on receipt of \$2. Address MUNN & CO., Patent Solicitors, No. 37 Park Row, New York.

RECEIPTS.—When money is paid at the office for subscriptions, a receipt for it will always be given; but when subscribers remit their money by mail, they may consider the arrival of the first paper a *bona fide* acknowledgment of our reception of their funds.

INVARIABLE RULE.—It is an established rule of this office to stop sending the paper when the time for which it was prepaid has expired.



ISSUED FROM THE UNITED STATES PATENT-OFFICE
FOR THE WEEK ENDING NOVEMBER 7, 1865.
Reported Officially for the Scientific American.

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.

50,783.—Banding and Covering Projectiles.—John Absterdam, New York City:

I claim the employment or use of an alloy, such as herein described, for making bands, sabots, or packings of projectiles, substantially as specified.

Second, Cooling the alloy suddenly after casting on the projectiles, substantially as and for the purpose set forth.

50,784.—Sliding and Covering Buildings with Wood.—Henry B. Adams, Brooklyn, N. Y.:

I claim a new article of manufacture, formed like clapboards, but with the grain of the wood running up and down, the same being made in long strips by cutting them from around the log, as herein described, by which I avoid the numerous joints of a covering of shingles, and produce a more perfect covering for buildings, and more economical than has been heretofore known.

50,785.—Spring Seat for Wagons.—Thomas J. Alexander, Westerville, Ohio:

I claim the spring seat, consisting of the boards, f, f, united by the cleat, h, and attached to the knees, E E, combined with the links, G G, and seats, B B, arranged and operating substantially as and for the purpose set forth.

50,786.—Mode of Lubricating Journals.—Charles Andrew, Providence, R. I.:

First, The combination of the lubricating reservoir with an adjustable screw plug, constructed and operating substantially as and for the purpose specified.

Second, I claim the combination of the box or bearing, H, the chamber, m, and the ducts or passages connecting with the same, the whole being constructed to operate substantially as and for the purpose specified.

Third, I claim the levers or conductors, k, k, or their equivalent, in combination with the adjustable bearing, substantially as described for the purpose set forth.

50,787.—Combined Platform and Windlass.—Tunis J. Burhyte, Fond du Lac, Wis.:

First, I claim a platform, hinged and mounted on wheels, for the purpose of moving it, substantially as shown and described.

Second, I claim the rollers, a, b, c, and d, provided with cog wheels, and used for separating the coils of rope separate, substantially as and for the purpose set forth.

Third, I claim the reversible frame, E, in combination with the platform, as shown and described.

Fourth, I claim mounting one of the rollers, c or d, in an adjustable bearing, as and for the purpose set forth.

Fifth, I claim the anchor, D, connected as shown, and arranged to operate in combination with the movable platform, as herein set forth.

50,788.—Boot-crimping Machine.—J. D. Batchelor, Upton, Mass.:

I claim the combination with the clamping jaws of the screw shafts, B and C, and crank, F, substantially as set forth, also claim operating the clamping jaws in boot-crimping machines by means of two parallel shafts, each shaft having a gear which meshes into the gear upon the other shaft.

50,789.—Grain Dryer.—H. H. Beach, Rome, N. Y.:

I claim, First, The employment of a perforated rotary cylinder, or drum, which is constructed that grain can be passed through it in a continuous stream, and subjected at the same time to currents of air, and to sieves or buckets, h, h, substantially as described.

Second, Providing a rotating grain-drying cylinder, which is perforated, with a bonnet or cover, S, or its equivalent, substantially as described.

50,790.—Grauary and Fruit House.—S. R. Beckwith, Cleveland, Ohio:

I claim, First, The drying of grain in bins or boxes by causing a current of cold, dry air to be circulated through the same by means of the pipes, h, h' and j, in combination with the ice chamber, D, substantially as set forth.

Second, I claim the chamber, D, rack, D', slotted frame, F', and annular or rectangular chamber, N, in combination when constructed substantially as and for the purpose set forth.

Third, I claim the ice floor, a, in combination with metallic troughs, c, and wood gutters, e, constructed and arranged substantially as and for the purpose specified.

50,791.—Machine for Molding Potters' Ware.—Ephraim N. Blackmer, McGranville, N. Y.:

I claim the combination of the shouldered mandrel, h, and the molding box, b, operated as above set forth.

50,792.—Grain Dryer.—Alonzo T. Boon and Charles L. Stevens, Galesburg, Ill.:

First, We claim the heating of air from a force-pump blower, or otherwise, in a series of ring tubes placed within a cylindrical or other shaped furnace, and the application of it thereafter to the outer surfaces of rotary grain cylinders through perforated longitudinal tubes, substantially in the manner and for the purpose set forth.

Second, The passage of the products of combustion from the furnace into the oven through flues for increasing the heat therein, whereby the condensation arising from damp or moist grain is dried quickly or absorbed, substantially in the manner and for the purpose set forth.

Third, The passage of the products of combustion back again from the oven, together with the hot air, from the longitudinal tubes, and whatever volatile oil or other matter that may be emitted from the grain while drying, to the fire-box of the furnace, for facilitating the combustion therein, substantially in the manner and for the purpose set forth.

Fourth, The combination of the longitudinal tubes, E, with the flues, H, whereby the hot air, in conjunction with the products of combustion in the oven, serve to give an increased heat therein, substantially in the manner and for the purpose set forth.

Fifth, The ring tubes, a, air chamber, B, distributing pipes, C, longitudinal tubes, E, having jets or nozzles with oblong openings, smoke pipe, h, flues, H, and pipe, J, as constructed and arranged, substantially in the manner and for the purpose set forth.

50,793.—Steam-engine Governor.—Augustus Brown, New York City:

I claim the swivel arm, G, and spring, k, in combination with a governor and its valve and with the belt which serves to impart motion to said governor, substantially as and for the purpose described.

The object of this invention is to combine with the governor of a steam engine a stop motion, which is so arranged that when the belt of the governor breaks or parts from some cause, the throttle

valve will be closed, and the engine is prevented from running away and doing some injury.]

50,794.—Ventilator.—B. J. Burnett, Mount Vernon, N. Y.:

I claim the construction and arrangement of the air ducts and regulating valves, substantially as and for the purpose herein specified.

50,795.—Glass Caster Wheel.—J. B. Capewell, Gloucester, N. J.:

I claim the employment of glass wheels with ribbed bushes, for casters, substantially as and for the purposes herein specified.

50,796.—Car Axle.—John W. Clark, Manchester, Wis.:

I claim a car axle, composed of the independent short axles, A, provided with the journals, a, having the projections, b, thereon, in combination with the central connection pieces, B, constructed and operating as and for the purposes herein set forth.

50,797.—Car Coupling.—Samuel A. Corser, Holyoke, Mass.:

I claim the arrangement of the draw-head, with its chamber, D, the gravitating pin, C, the pointed and notched shackle bar, B, the whole arranged substantially as set forth and represented.

50,798.—Construction of Baling Presses.—F. F. Cornell, Jr., New York City:

First, I claim forming a close press box or chamber by the employment or use of bars or strips of metal or other material placed between the upright posts of the framing, and working in suitable guides, and arranged so that their inner faces will be flush, or nearly flush, with the interior surface of the press box or chamber, and connected to the platen or roller and to the toggle levers, and operating substantially as and for the purpose herein specified.

Second, Forming feet or lugs, n' n', upon the lower ends of the bars or strips, M M', and connecting together each pair by the rods, f, substantially as and for the purposes herein shown and described.

Third, The use in a toggle lever press of the lever sills, E E, and sheave frame, F F', and guide sheave, d d d, so arranged as to form a secure foundation for the fulcrum points of the radii of the toggle levers, and at the same time provide a means of carrying the chains, d', d', around the press chamber, so that the plane of the motion of the lower ends of the toggle levers and of the capstan used for winding the chains connected with the same may be placed at any required height above the base of the press chamber, substantially as and for the purposes herein specified.

Fourth, The joints in the lower part of the suspension rods, in combination with a side door or doors for liberating the ball from lateral pressure, substantially as described.

Fifth, The use of mechanism for retaining and liberating the platen on finishing the bale, substantially as described.

Sixth, The use of mechanism for opening the feed door automatically, substantially as described.

Seventh, The use of mechanism for liberating the cope automatically from the fixed position, so as to be used as a beater, by the action of the lifting rope, substantially as described.

50,799.—Double-lever Fishhook.—Germond Crandell, Washington, D. C.:

I claim the lever hooks, A A, either with or without the side hooks, a, in combination with the bait-holder, b, and the spring, d, the whole arranged to operate substantially as and for the purposes herein set forth.

50,800.—Refining Lead.—John J. Crooke, New York City:

I claim the improved process of refining impure lead by treating it, while melted, with the melted oxide of lead, substantially in the manner herein before set forth.

50,801.—Neck Yoke.—Jeptha Cummings, Perry, Mich.:

I claim the combination of the pivoted lever, F, rods, E E, and sliding rings, C, arranged in the manner and for the purpose described.

The object of this invention is two-fold—first, to have the yoke adjustable in such a manner that it may be vertically lengthened or shortened so as to have a short and long yoke in one; and, second, to have it so arranged that it will equalize the draft, or, rather, subject each horse to an equal share of the labor of holding back the vehicle and its load in descending an eminence.]

50,802.—Roller for Washing Machines.—John Danner, Canton, Ohio:

I claim a washing-machine roller, the ribs of which are covered by sheet rubber or rubber cloth, and which is held to the ribs by the pieces, C, or their equivalents, clamping the edges of the rubber substantially in the manner and for the purpose herein specified.

50,803.—Device for Spurring or Driving Horses.—John Davis, Northampton, Ill.:

I claim the attachment to a sweep horse-power of a series of rods provided with spurs and arranged with suitable levers, and in such relation with the sweeps that all of the horses attached to the power, or such as require it, may, by a single manipulation of a lever, be spurred simultaneously, substantially as described.

The object of this invention is to obtain a simple device by which horses may be spurred in a sweep horse-power without the aid of a driver, and a plurality of horses, when used, spurred simultaneously—that is to say, those which require it—the spurs only acting upon these which do not perform their share of the work.]

50,804.—Manufacture of Steel.—Julien Derby, New York City, Alexander Trippe, Brooklyn, N. Y., and Eugene Ganssion, Baltimore, Md.:

First, We claim the tweers passing through the walls of an arch and carrying steam to the liquid pig after it has left the furnace, so as to produce granulation.

Second, The water tank or reservoir placed under said arch, for the purpose of receiving and chilling the granulated pig.

Third, The tweers adapted to the furnace, Fig. 2, for the purpose of carrying steam to the reheated granular pig, with a view to transform it into magnetic oxide; and

Fourth, We further and especially claim the general disposition of the appliances herein described and figured, for the production of said granulated, chilled and oxidized iron, as herein substantially set forth and specified.

50,805.—Grinding Mill.—Roswell Denison and John P. Moon, Grand Rapids, Mich.:

We claim the combination of the fan blower, d, air pipes, r t, arranged and described, and the discharge pipe and chamber, y z, in which latter the air is withdrawn from the inside of the curb, distinct from the aperture through which the meal is discharged.

This invention consists in supplying currents of cold air to the interior of the mill-stone curb, and also through and into the eye of the stone, for the purpose of exhausting the moisture from the wheat as it is being ground, and thus preventing its gathering upon and adherence to the surface of the stone and curb, and other contiguous parts, where it soon sours; the air thus charged with the moisture from the wheat then passing freely out of the curb into a receiver, where, leaving such particles of wheat as may have been carried with it, it escapes to the atmosphere.]

50,806.—Stopper for Fruit Jars.—Charles R. Doane, Spotswood, N. J.:

I claim the improved stopper, composed of the radially divided or notched tightening disk, B, combined with the packing ring, D, and counter disk, C, substantially as and for the purpose herein specified.

50,807.—Car Spring.—George Douglass, Scranton, Pa.:

I claim the elastic plates, C, in combination with blocks, B B', of india-rubber or other suitable elastic or yielding substance, arranged within a box, A, to operate in the manner substantially as and for the purpose herein set forth.

50,808.—Screw Thread Cutting Tool.—Casper Dreher, Detroit, Mich.:

I claim as an article of manufacture a tongs whose jaws are provided with dies and set screws, substantially as described and represented.