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#### LIST OF PATENT CLAIMS Issued from the United States Patent Office.

FOR THE WEEK ENDING MARCH 4, 1851.

To Wm. Brewer & John Smith, of the County of Surrey, England, for improvement in Paper Moulds. Ante-dated Feb. 12, 1849.

We claim as our invention the improved moulds for the manufacture of paper, as made in the manner herein specified, that is to say by stamping or forming such moulds, partly or wholly, in and by dies, and afterwards removing the back of such mould, by filing or other process analogous thereto.

To Junius Judson, Jr., of New York, N. Y., for improvement in Power Governor.

I claim communicating the action of governors to the valves, or other parts of machinery governed thereby, in such a manner as to cause, by accelerating or retarding the motion of said valves, large amounts of regulating power to be added to or taken from the engine by a given change of the speed when the motion of the engine becomes too much retarded, whether such retardation arises from increase of work or resistance, or from diminution of the tension of the moving force, and also small amounts of regulating power to be added to or taken from the engine, by a like change of speed, when the motion is too much accelerated, whether such acceleration arises from diminution of work or resistance, or from increase in the tension of the moving force, as herein set forth.

Second, I also claim connecting the valve arm, or part to be regulated, to the regulator, by a cam or its equivalent, having progressive rates of action, when the same is employed for transmitting the action of governors to the parts of machinery to be governed, and for the purpose of causing the motions of valves, gates, wires, or other analogous parts, to take place rapidly and slowly, for the regulation of high speeds, substantially in the manner and for the purpose set forth.

Third, I also claim making the eccentric curve of the vibrating cam to vary its position with respect to its centre of vibration, for the purpose of varying the rapidity and extent of opening of the valve, according to the pressure of steam, in the manner herein set forth.

To John W. Nystrom, of Philadelphia, Pa., for improvement in Calculating Machines.

I claim, first, the trigonometric curves of the inner scale, in combination with the graduated arms and logarithmic curves of the outer scale, the curves being laid out substantially in the manner herein described.

Third, I claim the two graduated arms, constructed in such a manner that they can be moved in connection or independently, substantially in the manner and for the purposes herein set forth.

[Has the P. O. left out the second claim in copying our list?]

To Bernard O'Neill, of Reading, Pa., for improved method of bracing the water spaces of boilers.

I claim the method herein described, of bracing and securing the shells of boilers or fire boxes of locomotives and other engines, by means of ribbands of sleeves, or other starting sleeves, so that when a bolt or bolts are to be removed, to cure leaks, or to remove the sheets in the fire box, the sleeves will remain in place, serving as a guide to punch the new sheets by, and affording greater support to the shells, both in backing out the old and riveting the new bolts as herein fully described and shown.

To H. H. Snow, of New Haven, Conn., for improvement in Peppermint Droppers.

I claim, first, the combination of a peppermint dropper, by combining a sugar kettle with a revolving cutter.

Second, the combination of such dropper, either with a railway, the dropping sheet being stationary or with a movable dropping sheet, the dropper itself being stationary; or with a railway and a movable dropping sheet combined, all substantially as herein described.

To Henry Waterman, of New York, N. Y., for variable Cut-Off, regulated by the governor.

I claim regulating a variable cut-off valve, by a motion derived from and corresponding to that of the governor, by means of a toe or vibrating lever attached to the rock shaft, acted upon by revolving pins or cams, when either the cams are made to vary in position, with respect to the toe, or the toe in length, with respect to the cams, the whole machinery being constructed, and acting substantially as herein described.

To E. P. Gaines, of Nacogdoches, Texas, for improvement in dressing mill stones.

I claim the new and improved mode of dressing mill stone, which I have described as fully and correctly as I can.

#### RE-ISSUES.

To John Jones, of Clyde, N. Y., for improvement in Carriages. Originally patented Jan. 14, 1851.

I claim the arrangement of two bars or reaches, placed in connection with the straight reach, as above described, and in combination with the spring rod and cross bar, substantially in the manner described.

To Charles Wilson, of Springfield, Mass., for improvement in cutting stone. Originally patented March 13, 1847.

I claim the method, substantially as above described, of dressing, facing, or reducing stone and other like materials, by means of a rolling edge or edges acting against the face, or surface of the material to be worked, substantially as herein described.

#### DESIGNS.

To Gardner Chilson, of Boston, Mass., for Design for Furnace Registers.

I claim the new design herein above described, for a register in the form of a circle, having within and near to its outer ring, two concentric rings, the space between each of said rings being ornamented with curved lattice work, forming hyperbola-shaped openings, and a ring in its centre, enclosing an eight-leaved star, with a small circle in its centre and curved and notched branches radiating from the said ring to the smaller of the outer rings, forming irregular and heart-shaped openings, all as described.

To Gardner Chilson, of Boston, Mass., for Design for Furnace Registers.

I claim the new design described for a register for furnaces, &c., of rectangular form, having within it a smaller rectangle, connected to the edge of the register by curved bars, said inner rectangle having a square in each corner, and small rectangles within its sides; said squares being ornamented with curved bars, forming the lattice work, &c., and said smaller rectangles being ornamented with semicircular and diamond-shaped lattice work, and a rectangle in the centre of the register, ornamented with irregular curved branches or bars, proceeding from its sides to a ring enclosing a four-notched leaved star; the whole forming a lattice or open work for the heat to pass through, as described.

To Gardner Chilson, of Boston, Mass., for Design for Furnace Registers.

I claim the new design, herein described, for a register of rectangular form, having within its sides, two smaller rectangles, one within the other, the space between the outer bars of the register, and the larger rectangle being ornamented with curved lattice work, and the triangular openings, and the space between the two inner rectangles being ornamented with irregular heart and diamond-shaped openings, while the centre of the register is occupied by a five oval leaved star, in a ring, with curved and notched branches or bars running from said ring to the inner rectangle, all as herein described.

To Gardner Chilson, of Boston, Mass., for design for Furnace Registers.

I claim the new design herein described, for

a register of rectangular form, having within its sides a smaller rectangle, the space between the two being ornamented with the circular and diamond-shaped lattice work shown in the drawing, the inner rectangle being ornamented with irregular curved bars or branches running from its sides to a ring in its centre, which encloses a five pointed star with curved sides, the whole forming a lattice work for the passage of the heat, all as herein described.

To S. W. Gibbs, of Albany, N. Y., (assignor to Jagger, Treadwell & Perry), three Designs for Stoves.  
J. S. Perry, of Albany, N. Y., for Design for Stoves.

#### Oars and Levers.

Messrs. Editors—I wish you to look at your answer to the question of "A. V. P." in a late number of the Scientific American, and see if there is not an error. As I understand the process of rowing a boat, the speed depends upon the pressure on the end of the blade of the oar outboard. For instance, I take a 15 foot oar, 10 feet outboard and 5 feet inboard—I suppose it takes 100 lbs. on the outer end of the oar to move the boat at a given speed, consequently 200 lbs. will be required on the end inboard to balance it—this brings a force upon the oarlock of 300 lbs. I will now change the position of the hands  $2\frac{1}{2}$  feet from the oarlock. To balance the 100 lbs. on the blade of the oar, it takes 400 lbs. upon the point where the power is applied, making an additional pressure on the oarlock of 200 lbs.; the power applied in the last case will be double, but the pressure upon the oarlock I think will not be. In both applications of my power I wish to keep the speed of the boat the same.

S. B. PALMER.

Belfast, Me.

[The great difficulty, with many, in treating on such subjects, is the want of commencing the discussion at the right point—the base line of the argument. In treating of levers, as Maclaurin has set forth in his series of short but clear articles on Mechanical Principles—the base line of the proposition is the *examen* (the needle of the balance beam). It is quite true that "the speed of a boat depends upon the pressure on the outer end of the oar," as one condition, but not the only one, for that pressure depends entirely upon the power applied inside, and the velocity with which it is applied. Our correspondent has treated the question almost entirely as one of *statics*, whereas it is one belonging to *dynamics*. He should have commenced to apply the figure from the inside instead of the outside of the oar; and, first of all, he should have balanced the oar. Put the whole of the oar outside and then we have the whole leverage from the outside on the oar, but would the boat move an inch? No, because no one rows from the outside, and there is no direct pressure inside. Let the whole leverage be from the inside, and would the boat move? No, because there is no outside back pressure. In moving a boat there are two pressures, the inside direct pressure and the outside back pressure, and yet these two do not determine the speed of the boat, for the line of pressure or action is just as important. One oarsman may exert a force of 600 lbs., on his oar and another only 400 lbs., and yet the latter, by the line of action, about  $45^\circ$ , kept by his oar, will beat the former, if the former moves his oar in a line of  $55^\circ$ . Let us take the oar 15 feet long, and let it be balanced at  $7\frac{1}{2}$  feet. Now let us try to run the boat without an oarlock (fulcrum), and what can be done? Nothing. Place the oar in the fulcrum or oarlock, and exert a force of 300 lbs. at each stroke, and make 20 strokes per minute, and what force then have we got to move the boat? Why, the back pressure on the oar, is that which propels the boat, and is exactly proportioned to the amount applied which must be 300 lbs., and if each stroke is three feet, we have the boat moved 60 feet in one minute by the force applied of 300 lbs. Now, upon the principle of leverage, if we shift the fulcrum of the oar to 5 feet from the inner end, we shall have 10 feet outside, which with 300 lbs. active pressure loses one third of the leverage, but then it gains one-third in the velocity from the inside, and this exactly balances the long sweep on the outside with its greater leverage. Time, pressure, and space,

must all be taken into consideration. As we extend the length of oar outside, we decrease the amount of pressure (300 lbs.) at every point of its sweep in proportion to its increase of length over the inner end, where the power is applied, and this just brings about a balance of forces. Thus, lever 15 feet, 300 lbs. pressure— $15 \times 300 \div 2 = 2250$ , where the oar is balanced. Change the oar to the conditions mentioned by our correspondent, and we have  $15 \times 300 \div 1.3$  (or 5ft.) = 1500; then  $15 \times 300 \div 2.3$  (or 10 feet) = 750, and this is  $1500 \div 750 = 2250$ , the exact pressure mentioned above,  $(1.3 \div 1.6 = 1.2)$ . When the conditions are changed, such as more power applied inside, when the lever is shortened, more speed will be obtained, and, on the other hand, if the lever is extended, with a decrease of power applied, the speed will be decreased. The changing of the oar in the lock in any sensible degree, however, must not be looked upon like the mere calculation of a common lever, the back pressure is exerted in a peculiar element, and whatever change is made, there is not only the calculation of weight, and length of lever to be taken into consideration, but the direction of all the forces—a problem which has merely been touched upon by us, in speaking of the angle of action.

#### The Cheap Postage Law.

The law, reducing the rates of letter postage to three cents when pre-paid, and five cents when not pre-paid, for any distance in the United States, and also reducing the postage on newspapers, goes into operation on the first of July next, with the exception of the coinage of three cent pieces, ordered by it, which is to be commenced immediately. That our readers may see at a glance what the postage on the Scientific American will be after the 1st of July next, we give the following table:—

#### RATES OF POSTAGE.

Delivered in the County of New York	Free.
Postage within 50 miles of ditto, (per Quarter of a Year)	5 cts.
From 50 miles to any distance not exceeding 300 miles from New York	10 cts.
For any distance from 300 to 1,000 miles	15 cts.
For any distance from 1,000 to 2,000 miles	20 cts.
For any distance from 2,000 to 4,000 miles	25 cts.
From 4,000 miles to any distance in the United States	30 cts.

The above rates, it will be observed by many of our patrons, will render the expense of the Scientific American much less to them per year, while the slight difference to those who live at a great distance, we hope, will not induce them to withdraw their patronage.

Next week we shall present, aside from our usual variety of mechanical engravings, some beautiful specimens of the Seventeen-Year Locust which, it is said, will appear in the State of Virginia and Pennsylvania during the coming season, producing sad destruction to the grain crops.

#### New Floating Railroad.

A first rate plan for crossing at Rouse's Point between Canada and the United States. On the Vermont side a very extensive pier has been made by driving piles for some thousands of feet from the shore, to such a distance from the bank as to reduce the channel to the width of 400 feet. A large vessel has been built of such dimensions as exactly to correspond with this 400 feet channel, and upon the deck of this vessel iron rails are laid. Thus, when she is swung into the gap, there will be the continuous track required for the carriages, as there would be if there were really a bridge; and when the trains have passed over, there will be again the 400 feet of clear water way for the passage of craft.

As Congress has now adjourned, we hope to hear of fewer political speeches being made and more political capital, in the shape of common sense, invested in the national bank of all parties.

A tombstone in Jersey bears the following epitaph; "Died of thin shoes, January, 1839." A truthful epitaph.