formed in a thin sheet, having one of its surfaces impregnated with a solution of starch pressed therein in the proportion to the thickness of the package, substantially as described. 2nd. As a new article of manufacture, an absorbent cotton lint package, consisting of a homogeneous absorbent cotton bat formed in a thin sheet, having its top and bottom surfaces impregnated with an adhesive solution pressed therein and indented or pebbled, substantially as described.

No. 38,418. Pulsating Steam Pump.

(Pompe à vapeur à pulsation.)

William Paul Theermann, Salford, England, and John Burford Foxwell, Manchester, England, 7th March, 1892; 5 years.

Claim.—1st. A steam admission valve for pulsating steam pumps formed of two semi-spherical or other convex bodies connected together at their convex sides. 2nd. In a pulsating steam pump, the combination of the two semi-spherical bodies *h*, with flat or concave faces, which form a steam admission valve H. 3rd. In a pulsating steam pump, the combination with the two working chambers of the two semi-spherical bodies *h*, with flat or concave faces which cover the ports of the chambers to form a steam admission valve H. 4th. In a pulsating steam pump, the combination of a steam admission valve H, formed of two semi-spherical hollow bodies *h*, with a steam passage or port *h*, through the valve from one side to the other. 5th. In a pulsating steam pump, the combination, with the working chamber having a conical opening formed in the casting of the grid K, which fits loosely into the conical opening, the disc valve which extends beyond the edge of the grid, and a centre supporting stud which carries the valve guard and holds the grid and valve in position, substantially as described. 6th. In a pulsating steam pump, the combination, with each of the working chambers of the conical grids K, fitting into conical openings in the castings, the disc valves D and E, covering the openings and extending beyond their respective grids and the central supporting studs *d* and *e*, which carry the valve guards and hold the valves and grids in position, substantially as described and shown. 7th. In a pulsating steam pump, the inlet or delivery valve formed of a grid let loosely into a conical opening in combination with a disc valve extending beyond the grid, a valve guard and a central pin or stud which holds the several parts in position. 8th. In a pulsating steam pump, the combination, with the working chamber and shelf L, of the central supporting stud *d*, the disc valve D, the seating or grid K, and the chilled base or casting of the chamber with a conical opening formed therein. 9th. In a pulsating steam pump, the combination, with each working chamber, of an inclined shelf or projecting plate which extends from one side to the centre near the base of the chamber. 10th. In a pulsating steam pump, the combination with four or more working chambers of a common inlet chamber and outlet chamber, and a conical pipe or nozzle leading from the inlet chamber to the delivery pipe, substantially as described. 11th. In a pulsating steam pump, the combination, with the four chambers A, A^1, B, B^1, of the chambers F and G, the valve R, and the conical pipe or nozzle S, substantially as described. 12th. In a pulsating steam pump, the combination, with the working chambers of water passages which always connect each working chamber with the other working chamber, and with the discharge chamber or delivery pipe, substantially as described. 13th. In a pulsating steam pump, the combination, with two working chambers of two air valves O, with a single inlet port, and controlled by a set screw, substantiallly as described. 14th. In a pulsating steam pump, the combination, with the two working chambers and the valve chest cover H^1, of the air admission valves O attached thereto, with air admission ports passing through the walls of the valve chest, substantially as described. 15th. In a pulsating steam pump, the combination, with the two working chambers, the valve chest and valve chest cover H^1, of the air valves O, with air passages *p*, the set screws P, which regulates the air admission to both valves, and the pawl or tumbler which engages with the notches in the head of the set screws, substantially as described. 16th. In a pulsating steam pump, the combination, with the working chambers of a triangular shaped valve chest, double valve of semi-spherical bodies H, triangular side plates H^1, with air passages through and air admission valves O affixed to the steam chamber, substantially as described and shown.

No. 38,419. Grate Bar. *Barreau de grille.*)

The Improved Zigzag Grate Bar Company and William James, assignees of Etienne Boileau, all of St. Louis, Missouri, U.S.A., 7th March, 1892; 5 years.

Claim.—1st. A zigzag grate bar having parts 13^a and removable head sections, one fitting each part 13^a, and having side wings extending transversely to the body of the bar, substantially as set forth. 2nd. In a grate bar, a removable head section adapted to fit an inclined portion 13^a of a zigzag body, with side wings 18 extending transversely to the body of the bar, and having at the edges bevels 21 parallel with the sides of the part 13^a, upon which the head section is supported. 3rd. In a grate bar, the combination of a zigzag body, composed of parts 13^a, having alternate inclination and each part having a separate removable head section having side wings 18, with serrate edges inclined inwardly from the top downwardly. 4th. In a grate bar, the combination of a zigzag body having removable head section, 17, 18, with rounded corners 23, substantially as set forth. 5th. In a grate bar, the combination of a zigzag body composed of parts 13^a, each part having a separate head section with side wings 18, having beveled serrate edges inclined inwardly from the upper part downwardly, substantially as set forth.

No. 38,420. Bath Tub. (*Baignoire.*)

Kallmann Glass and Ignatz Herrmann Rosenfeld, both of New York, U.S.A., 7th March, 1892; 5 years.

Claim.—1st. A bath tub composed of two hinged sections, a water tight packing and eccentric hooks *e*, and pins *f*, for drawing the sections together, substantially as specified. 2nd. A bath tub composed of two hinged sections and provided with tubes *j*, *k*, that communicate with each other when the tub is folded up, substantially as specified. 3rd. A bath tub composed of two hinged sections and provided with tubes *j*, *k*, and overflow branches j^1, k^1, substantially as specified. 4th. The combination of the hinged sections *a*, *b*, with toothed eccentric hooks *e*, and pins *f*, and clicks *h*, engaging the teeth on the hooks, substantially as specified. 5th. The combination of the hinged sections *a*, *b*, with the basin *i*, and doors *m*, *n*, substantially as specified.

No. 38,421. Electric Clock. (*Horloge électrique.*)

Philip A. Jenkins, Boston, and Walter Jenkins Dudley, Somerville, both in Massachusetts, U.S.A., 7th March, 1892; 5 years.

Claim.—1st. The combination of the time measuring vibrator with the impelling-lever and its restoring electro-magnet and armature, a detent for supporting said impelling-lever after being raised and released by said magnet, and the second lever pivoted independently of said impelling-lever and co-operating with said detent, substantially as described. 2nd. The combination of the pendulum-impelling device and actuating electro-magnet therefor with the circuit-closing lever fulcrumed near the point of oscillation of the pendulum, and provided with a projection to be engaged by the pendulum-rod, and a spring arm connected with said lever constituting one member of the circuit-closer in the circuit of said electro-magnet, substantially as described. 3rd. The combination of the impelling-lever with the electro-magnet and armature provided with an arm for engaging said lever, and the detent having a spring engaging portion with a shoulder to engage said impelling-lever when set by the electro-magnet, substantially as described. 4th. The combination of the time measuring vibrator with an electro-magnet and circuit-closer therefor operated by said vibrator, the train of wheel-work and the actuating ratchet-wheel thereof, the armature for said electro-magnet, provided with a pawl for engaging the teeth of said ratchet, and a cushioning-spring that engages the periphery of said ratchet-wheel to limit the ratchet-actuating movement of the armature, substantially as described. 5th. The combination of the time-measuring vibrator with the circuit-closing lever engaged and operated thereby, a spring-arm connected therewith provided with a laterally-projecting contact-piece, and a co-operating stationary contact piece engaged thereby, the said laterally-projecting contact and spring being proportioned to one another, as set forth, whereby the contact rocks without sliding on the co-operating contact surface as the tension of the spring varies, substantially as described. 6th. The combination of the pendulum with an impelling-lever and a circuit-closing lever, each pivoted independently of the other near the point of oscillation of the pendulum, an electro-magnet co-operating with the said impelling-lever and a detent for the lock, which latter is engaged and operated by the circuit-closing lever, substantially as described.

No. 38,422. System of Operating Railway Signals.

(Système pour actionner les signaux de chemin de fer.)

The Scarr Railway Signal Company of Harriston, Ontario, Canada, assignees of Abraham Calver Scarr, of Harriston aforesaid, 7th March, 1892; 5 years.

Claim.—1st. A movable rail held in position by a spring or its equivalent, in combination with a semaphore or signal connected to the said rail in such a manner that the movement of the rail caused by a passing train will set the said signal at danger, substantially as and for the purpose specified. 2nd. A semaphore or signal connected to and operated by a movable rail, as described, in combination with an air cushion arranged to support for a given period the said semaphore or signal at danger, substantially as and for the purpose specified. 3rd. The rail A, having bars C connected to it and resting in the grooved plates D, a spring or weight arranged to hold the said rail against one of the rails of the track B, in combination with a chain or cable connected to the said bars C, and to the lamp rod J, and semaphore arm N, substantially as and for the purpose specified. 4th. A pivoted semaphore arm N, in combination with a cylinder O pivoted on the bracket P, and provided with a piston rod R, for connecting it to the said semaphore arm, substantially as and for the purpose specified.