

No. 3018. ALONZO D. McMASTER, Rochester, N. Y., U. S., 20th January, 1874, for 5 years: "Stove Board." (Sous-poêle.)

Claim.—1st. A sheet metal stove board having a raised centre supported by ties of any suitable material; 2nd. The wired outer edge *a*, in connection with a stove board having a raised centre supported beneath by ties.

No. 3019. WILLIAM H. ROGERS, New London, Ct., U. S., and DAVID L. CAVEN, Stratford, Ont., 20th January, 1874, for 5 years: "Combined Check Nut." (Noix de sûreté combinée.)

Claim.—The construction of the hollow chamber *E*, in the nut *B*, in combination with the leather nut *C*, or its equivalent as specified.

No. 3020. WILLIAM WILSON, Hamilton, Ont., 20th January, 1874, for 5 years: "Safety Railway Switch." (Aiguille de railroute de sûreté.)

Claim.—1st. The taper point rails *N*, and *I*, in connection with the rails *A*, and *U*; 2nd. The combination of the raised blocks *D*, the nose iron *C*, and the check rail *B*, worked by means of the crank *F*; 3rd. The arrangement of the crank with 21 throw as regulated for the spaces between the points and rails as set forth.

No. 3021. NELSON JOHNSON, Jasper, N. Y., U. S., 20th January, 1874, for 15 years: "Invertible Saw Teeth." (Dents de scie inversible.)

Claim.—The combination of the plate *A*, and tooth *B*, with circles *a*, *b*, having the same centre but of unequal radii, the straight part *d*, rivets *e*, and *i*, and rounded corners *n*, *m*.

No. 3022. CYRUS KINNEY, London, Ont., 20th January, 1874, for 5 years: "A Nut Lock." (Une bride de noix.)

Claim.—The nut lock *E*, made of a single piece of wire, bent to the form shown as set forth.

No. 3023. REMIGIUS ELMSLEY, Toronto, Ont., 20th January, 1874, for 5 years: "A Billiard Marker." [Un compteur de billiard.]

Claim.—1st. The time piece *D*, sliding stem *C*, and cross bars *C*, in combination with the table *A*, arranged as described; 2nd. The sliding stem *C*, and tube *B*, contained within or without the suspension rod *B*, latch lever *E*, dog *F*, and spring *H*, in combination with the lever *G*, of the clock *D*, arranged as described.

No. 3024. DANIEL T. CASEMENT, Painesville, Ohio, U. S., 20th January, 1874, for 15 years: "Method of Burning Fuel and Generating Steam." (Manière de brûler le combustible et produire la vapeur.)

Claim.—The combination of a stratum of balls, blocks, or broken pieces of metal, or other substance with a furnace stove range, grate or other burner in such manner that the products of combustion rising from the fire on the grate or other fire bed will be caused to pass through the spaces between and round said balls and be brought into direct contact with the surface thereof, for increasing the combustion and radiation by the method described; a vertically adjustable grate having a water circulation in its bars connected to the water space by an adjustable connection, to enable it to be adjusted and at the same time maintain the circulation; the said grate, suspended by the pipes of the said adjustable connection; a windlass *J*, *K*, *K*, or other equivalent raising and lowering apparatus connected to said grate, suspending and adjusting pipes as specified; the suspending pipes *F*, stuffing boxes *G*, bars or frame *I*, chains *K*, and shaft *J*, combined and arranged with the grate *C*, crown sheet and water space of the boiler; the tubular grate for holding the balls attached to a central vertically adjustable tube *C*, and connected at the centre part to a coil *F*, circulating around and between the balls, and returning to the central tube or directly to the water space; the combination of a coil *F*, with the balls *B*, and their supporting grate *D*, whether the grate be adjustable or not for the production of the balls and for generating steam in the coil *F*, extended into the fire space above the balls for amplifying the generating power of the boiler; the return pipes *Y*, in the crown sheet and the sides of the furnace; a series of hollow dampers or gates, arranged in the flues and having connections for a water circulation through them to utilize the escaping heat, the aid dampers *W*, geared so as to be turned simultaneously in opposite directions; the return flues *A*, from the crown sheet through the water space to the bottom with the water dampers *W*, in them as described for economizing the escaping heat.

No. 3025. JOHN W. BOOKWALTER, Springfield, Ohio, U. S., 20th January, 1874, for 15 years: "Steam Generator." (Générateur de vapeur.)

Claim.—The combination in a steam generator with a wrought

metal shell of a series of cast metal tubes and tube-shoots, the latter being cast in one piece with the tubes as specified.

No. 3026. LOUIS COTÉ, St. Hyacinthe, Que., 20th January, 1874, for 5 years: "Machine for Forming Boot and Shoe Stiffeners." (Machine à former les contreforts de chaussures.)

Claim.—1st. A mandril of a spherical, spheroidal or other shape *B*, fixed upon a rotating shaft and revolving in a corresponding matrix *C*, constructed and operating as set forth; 2nd. An elastic cushion or springs placed between a matrix and its supports, in combination with it, and a compressing mandril, constructed and operating as set forth.

No. 3027. FRANCIS H. WHITMAN, Harrison, Me., U. S., (Assignee of E. H. Woodsum), 20th January, 1874, for 15 years: "Block Fitting Machine." (Machine à ajuster les cales.)

An improved railway sleeper has been invented, the improvement in which consists in the insertion of a block of hard wood into the softer wood of the sleeper. The present invention relates to a machine for cutting and boring the blocks simultaneously.

Claim.—1st. The device as described by means of which blocks are cut and bored simultaneously for the purposes set forth. 2nd. The combination of the shaft *B*, vertical shaft *H*, saw frame *C*, *C*, shaft *E*, with its cutters *F*, *F*, treadle *D*, movable frame *L*, shafts *I*, and *K*, compound levers *O*, *P*, *R*, and lever *W*, as described.

No. 3028. JOHN HEWITT, Grimsby, Ont., 20th January, 1874, for 5 years: "Sad and Fluting Iron." (Fer à repasser et à tuyauter.)

Claim.—A smoothing, polishing or glossing iron *A*, provided with a fluting roller or rollers *D*, which is or are used in combination with an independent fluting board *e*.

No. 3029. JOHN HEWITT, Grimsby, Ont., 20th January, 1874, for 5 years: "Improvements on Fluting Plates." (Perfectionnements aux fers à tuyauter.)

Claim.—A fluting plate *B*, in combination with a smoothing iron *A*, and an independent fluting board *e*.

No. 3030. JOHN HEWITT, Grimsby, Ont., 20th January, 1874, for 5 years: "Glossing and Fluting Iron." (Fer à apprêter et à tuyauter.)

Claim.—1st. A smoothing iron *A*, the front end of which is bevelled off so as to form a polishing and glossing rib extending the entire width of the iron and transverse to the longitudinal plane of its ironing surface; 2nd. In combination with a polishing and glossing iron *A*, a detachable fluting plate *B*, the forward end of its fluting ribs being bevelled off.

No. 3031. HIMAN FRANK, Pittsburg, Penn., U. S., 20th January, 1874, for 5 years: "Regenerative Gas Furnace." (Régénérateur à gaz.)

Claim.—1st. The regenerator *m*, constructed of bricks having vertical and transverse openings running through them. 2nd. The longitudinal flues running through the walls of the regenerator through which the products of combustion pass to the stack in combination with the chambers and transverse openings in the walls through which the air and gas pass to the combustion chamber; 3rd. The valve *a*, set in a removable frame *b*, and operated by the handle *c*; 4th. The valve *a*, with its removable seat *b*, and handle *c*, in combination with the gas and air flues of a furnace or other of them and so arranged relatively thereto, that the aerial and gaseous currents or either of them can be regulated at the will of the operator; 5th. The dome-shaped valve *h*, in combination with the flues *c*, *d*, and *e*, for reversing the aerial and gaseous currents of a regenerative furnace, at the option of the operator; 6th. The air and gas flues arranged in relation to the dome-shaped valve so that by the operation of the valve the respective currents may be directed into either one of two passages at the will of the operator; 7th. The valve *h*, having extended ends *h*₁, *h*₂, whereby the aerial and gaseous currents of a regenerative furnace may be cut off at the pleasure of the operator; 8th. The construction and arrangement of the air and gas ports of a furnace, in connection with a suitable damper so that the inflow of air and gas may be regulated at the pleasure of the operator; 9th. A valve device operated by a single motion and acting so as to open or close simultaneously in relatively equal proportions, the air and gas ports which lead to the combustion chamber, whether of equal or different sizes to increase or reduce the inflowing currents in relative proportions whether such currents are relatively equal or not; 10th. A valve device in combination with each of the several parts of a furnace whereby to regulate the amount of heat at any desired part of the bed; 11th. The tile *o*, placed in the throat of the furnace to divide the inflowing volume of gas and air into a number of smaller currents for the purpose of causing their more intimate admixture prior to their entrance into the furnace bed; 12th. The fire bridge *q*, having a contracted or reduced opening *q*, in combination with the tile *o*, for the purpose of causing the more intimate admixture of the inflowing air and gas; 13th. The fire bridge *q*, made removable as described.