b^2, therein, of an S-shaped or nearly so locking device pivoted to one of said arms or extensions, the forward arm of which locking device forms a locking jaw for connection with an engaging coupler, and the rear hook shaped arm of which projects into and is adapted to engage the front wall of said opening or recess b^2, in a manner and for the purpose set forth, and a locking pin adapted to engage the said locking device, substantially as described and for the purpose set forth. 2nd. In a car coupler, the combination, with a draw head provided with two arms or projections, of an S-shaped locking device hinged to one of said arms or extensions, provided with a front arm forming the locking jaw, and a rear arm or extension c^2, the latter being provided with notches therein, and a pawl adapted to engage the notches in said arm c^2, of said locking device to lock the latter, substantially as described and for the purpose set forth. 3rd. The combination in a car coupler, of a draw head provided with a pivoted locking device, substantially in form, of an S adapted to form connection with counterparts or projections with which such draw bar is provided, and retain such connection in the event of the breakage or undue removal of the pivot or locking pin, or both, in a manner substantially as described and for the purpose set forth.

No. 35,615. Heating Apparatus.

(Appareil de chauffage.)

Russell Bottsford, Cleveland, Ohio, U.S.A., 16th December, 1890 ; 5 years.

Claim.—1st. A heating furnace for the purpose described, comprising a combustion chamber with a closed top, and a magazine section partially enclosing the said combustion chamber and feeding fuel down upon two sides thereof, substantially as and for the purposes specified. 2nd. A heating furnace or stove, consisting of a grate section, a fire pot section and a combustion chamber partially enclosed within a magazine section, in combination with a manifold consisting of a plurality of water conducting tubes communicating with a head at either end common to all of said tubes, the parts being constructed, arranged and operating substantially in the manner and for the purpose set forth. 3rd. In a heater of the character described, a stove or furnace provided with a combustion chamber, and a magazine section, in combination with a manifold consisting of a plurality of tubes communicating to and with a head at either end of said tubes, said manifold being placed in an inclined position partially or wholly within said combustion section and adapted to be connected with a system of circulating water pipes, substantially in the manner and for the purposes described.

No. 35,616. Mode of Extracting and Extractor for Ores. *(Mode et machine pour extraire les minerais.)*

William Augustus Merralls, Kansas, Missouri, U.S.A., 16th December, 1890 ; 5 years.

Claim.—1st. The within described method or process of treating the concentrated placer mine or deposit gold, intermediate its passage from the concentrating mechanism to the amalgamator proper, consisting in collecting the flowing gold along with any remaining fine sand, and the water carrying the same, draining off the water and settling the pulp, mixing with the pulp a chemical solution consisting of chloride of sodium, cyanide of potassium, chloride of mercury, and water, and agitating by rotation the mixture until the gold is deoxidized or cleaned, and becomes coated with a film of mercury, substantially as and for the purpose described. 2nd. The within described method or process of treating the concentrated placer mine or deposit gold in its passage from the concentrators to the trap or traps of the amalgamator proper, consisting in collecting the flowing gold along with any remaining fine sand, and the water carrying the same, draining off the water and settling the pulp, mixing with the pulp a chemical solution consisting of chloride of sodium, cyanide of potassium, chloride of mercury, and water, placing pieces of iron amidst the mixture and agitating by rotating the whole until the gold is deoxidized or cleaned and becomes coated with a film of mercury, substantially as described. 3rd. The within described method or process of treating the concentrated placer mine or deposit gold in its passage from the concentrators to the trap or traps of the amalgamator, consisting in collecting the flowing gold, fine sand, and the water carrying the same, draining off the water, and settling the pulp, mixing with the pulp a chemical solution consisting of chloride of sodium, cyanide of potassium, chloride of mercury, and water, agitating by rotation the mixture until the gold is deoxidized or cleaned, and becomes coated with a film of mercury, and then bringing the mixture in contact with mercury or mercury covered surfaces for effecting complete amalgamation, substantially as described. 4th. The within described method or process of treating the concentrated placer mine of deposit gold on its passage from the concentrators to the amalgamated trap or traps, consisting in collecting the flowing gold, fine sand, overflowing gold slimes, and water carrying the same, draining off the water and settling the pulp, mixing with the pulp a chemical solution consisting of chloride of sodium, cyanide of potassium, chloride of mercury, and water, placing pieces of iron in the mixture, agitating the mixture until the gold is deoxidized or cleaned, and becomes coated with a film of mercury, bringing the mixture containing the thus prepared gold in contact with mercury or mercury covered surfaces, bringing water in contact with the flowing mixture, and finally subjecting the water used to a filtering operation and returning it clean for use, substantially as described. 5th. The combination of successively lower and finer revolving screens, stationary lateral sluiceways, inclined aprons, water distributing pipes, connecting gutter at end of last apron, a revolving settling deoxidizing cylinder having a man-hole, one or more water drains, cocks or faucets, and a pulp discharge cock or faucet, substantially as described. 6th. The combination of successively lower and finer rotary screens, lateral sluiceways, stationary inclined aprons, water supply distributing pipes connecting gutter at end of last apron, a revolving settling deoxidizing cylinder having a man-hole, an overflow passage or man-hole, one or more water drain cocks, a pulp discharge faucet or cock, and an overflow stationary settling box having a skimmer, substantially as described. 7th. The combination of successively lower and finer revolving screens, lateral sluiceways, stationary inclined aprons, water distributing pipes connecting gutter at end of last apron, a revolving settling deoxidizing cylinder having a man-hole, water drain cocks, and a pulp discharge faucet or cock, a chemical solution chamber, and an amalgamation consisting of a perforated trough, a vertical chamber having zigzag amalgamation plates, inclined amalgamation plates, one of which is formed with a side well for surplus mercury, and an endless chain mercury elevator, substantially as described. 8th. The combination of successively lower and finer revolving screens, lateral sluiceways, stationary inclined aprons, water supply distributing pipes, connecting gutter at end of last apron, a revolving cylinder having a man-hole water drain, cocks on different horizontal planes, a pulp discharge faucet or cock, an overflow passage or man-hole, drain pipes from the settling deoxidizing cylinder, stationary settling boxes, overflow pipes, a filter, filtered water return pipes, and a pump, substantially as described. 9th. The combination, with the revolving settling deoxidizing cylinder, having a man-hole, drain cocks, and a pulp discharge cock of water distributing pipes, and a chemical solution chamber having a connecting pipe, substantially as described. 10th. The combination of the revolving settling deoxidizing cylinder, having a supply man-hole and overflow passage or man-hole, drain cocks, drain gutter, stationary settling boxes, overflow drain gutters and pipes, water filter and return water pipes, substantially as described. 11th. The combination of successively lower and finer screens, lateral sluiceways, stationary inclined aprons, connecting gutters at end of last apron, a gate for changing the course of the water, and substances passed off from the aprons, two revolving settling, deoxidizing cylinders, each having an inlet and an outlet man-hole, water drain cocks, and a pulp discharge cock or faucet, substantially as described.

No. 35,617. Railway Gate.

(Barrière de voie de fer.)

Mortimer Birdsill Mills, Chicago, Illinois, U. S. A., 16th December, 1890 ; 5 years.

Claim.—1st. In a gate, the combination of a hollow post, a swinging arm supported on a shaft C, journaled in the post and carrying a pulley D^1, a bell-crank, pivotally supported inside the post and having its arm q, connected with the said pulley by a chain, or the like, a collapsible air-receiver, having a rod k, secured at one end to its diaphragm and at its opposite end to the arm q^1 of the bell-crank, and air-pressure mechanism communicating with the said collapsible air-receiver, substantially as described. 2nd. In a gate, the combination of a hollow post, a swinging arm supported on a shaft C, journaled in the post and carrying a pulley D^1, a bell-crank, pivotally supported inside the post and having its arm q, connected with the said pulley by a chain, or the like, a collapsible air-receiver supported outside the post near its base, a rod k, secured at one end to the diaphragm of the said receiver, passing thence into the post and pivoted at its opposite end to the arm q^1 of the bell-crank, and an air-pump H, communicating controllably with the said collapsible air-receiver, substantially as described. 3rd. In a gate, the combination of the hollow posts A, and A^1, having journaled in them the shafts C, carrying inside the post, pulleys D, connected underground between the posts, and pulleys D^1, and supporting the arms B, and B^1, bell-cranks E, and E^1, pivotally supported, respectively, in the posts A, and A^1, and connected, from their arms q, with the pulleys D^1, collapsible air-receivers G, and G^1, each having a rod k, secured at one end to its diaphragm and at its opposite end to the arm q^1 of a bell-crank, and air-pressure mechanism communicating controllably with the collapsible air-receivers, substantially as described. 4th. In a gate, the combination of the hollow posts A, and A^1, having journaled in them the shafts C, each carrying, inside its posts, pulleys D, and D^1, and supporting the arms B, and B^1, a tube F, extending underground between the posts and having chambers F^1, at its opposite ends, containing pulleys o, means, substantially as described, connecting the pulleys D, through the tube F, and chambers F^1, bell-cranks E, and E^1, pivotally supported, respectively, in the posts A, and A^1, and connected, from their arms q, with the pulleys D^1, collapsible air-receivers G, and G^1, each having a rod k, secured at one end to its diaphragm and at its opposite end to the arm q^1 of a bell-crank, and air-pressure mechanism communicating controllably with the collapsible air-receivers, substantially as set forth. 5th. In a gate, the combination of the hollow posts A, and A^1, having journaled in them the shafts C, each carrying, inside its post, pulleys D, and D^1, and supporting the arms B, and B^1, a tube F, extending underground between the posts and having chambers F^1 at its opposite ends, containing pulleys o, tubes F^2, extending from the said chambers into the posts, means, substantially as described, connecting the pulleys D, through the tubes F, and F^2, and chambers F^1, bell-cranks E, and E^1, pivotally supported, respectively, in the posts A, and A^1, and connected, from their arms q, with the pulleys D^1, collapsible air-receivers G, and G^1, each having a rod k, secured at one end to its diaphragm and at its opposite end to the arm q^1 of a bell-crank, and air-pressure mechanism communicating controllably with the said collapsible air-receivers, substantially as set forth. 6th. A gate comprising, in combination, hollow posts A, and A^1, shafts C, journaled in the posts and having, each, as integral parts thereof, a pulley D, and a pulley D^1, arms B, and B^1, supported on the said shafts, a tube F, extending underground between the posts and having chambers F^1, at its opposite ends, containing pulleys o, tubes F^2, extending from the said chambers into the posts, a rod n, in the tube F, chains m, and m^1, or the like, respectively connecting the pulleys D, with opposite ends of the rod n, and passing through the tubes F^2, and over the pulleys o, in the chambers F^1, bell-cranks E, and E^1, and connected, from their arms q, with the pulleys D^1, collapsible air-receivers G, and G^1, supported near the bases of the posts and each having a rod k, secured at one end to its diaphragm, extending pivotally supported, respectively, in the posts A, and A^1, and con-