

cent to said receiving rolls so timed as to make one revolution to two or more revolutions of the receiving rolls, a bevel gear on the same shaft with the clutch roll, a pawl normally holding said gear against rotation, and having one end projecting beyond the line of contact of the receiving rolls, a counter train in mesh with the bevel gear, connections between the clutch roll and bevel gear adapted to lock the said parts together when the pawl is released from the gear by the envelope passing between the rolls, substantially as described. 14th. In a counter for envelopes or analogous machines, the combination with the receiving rolls through which the envelopes pass, of a counter train, a gear mounted on the shaft between said counter train and receiving rolls and normally held against rotation, a pawl fulcrumed on the shaft of one of the rolls adapted to hold said gear against rotation having one end projecting beyond the line of contact of said rolls, mechanism for positively raising said pawl to clear the edge of the envelope as it enters between the receiving rolls, and immediately releasing the same to bring it into contact with the envelope passing between the rolls to hold the pawl out of engagement with the gear, a clutch device fixed to and rotating with the shaft of the gear, adapted to lock the gear to the shaft when the pawl is out of engagement therewith, and means for positively lifting the pawl out of engagement with the envelope to clear the edge as it leaves the rolls and release the pawl to engage the gear to hold it against movement when the envelope falls to pass through the receiving rolls at the proper time, substantially as described. 15th. In a counter for envelopes or analogous machines, the combination with the receiving rolls, of a counter train, connections between said receiving rolls and the train controlled by the envelope passing through the rolls to transmit motion from the said rolls to the counter train only when an envelope passes between said receiving rolls, a chain below the receiving rolls, means for pushing the envelopes upon said chain successively, and means for moving said chain, with connections between the counter train and the operating means for the chain arranged to move the chain one section at a time upon the completion of a package of envelopes of a predetermined number, substantially as described. 16th. The combination with an envelope or analogous machine, of the receiving rolls through which the envelopes pass, a counter train, connections between the receiving rolls and the counter train, normally out of action and set in motion by the passage of envelopes between the receiving rolls to cause the train to count one envelope at a time, a shaft journaled below the receiving rolls, a chain operated by said shaft, means for pushing the envelopes upon said chain as they fall from the receiving rolls, a gear loosely mounted on said shaft, connections between said gear and an operating part of said machine for continuously rotating the same, an arm fixed upon said shaft and a clutch between the gear and said arm normally out of action, with connections between said clutch device and the counter train adapted to throw the clutch device in action and lock the gear to the shaft upon the completion of the count of a predetermined number of envelopes by the train, substantially as described. 17th. In a counter for envelopes or analogous machines, the combination with a counter train, of a chain comprising a series of sections, a shaft for operating the chain, a gear loosely mounted on said shaft, an arm fixed to said shaft, a disc fixed to the gear and rotating therewith, a spindle journaled on said arm having a locking pawl held normally out of engagement with the disc, and a tappet arm on the opposite side thereof, a spring-actuated bell crank lever mounted upon the frame of the machine with one arm normally in contact with the said tappet thereby holding the pawl out of engagement with the disc, an arm on the shaft of the last gear of the counter train provided with a side cam rotating in the path of the other arm of the bell crank lever adapted to move the same to release the tappet arm, upon the completion of a revolution of the last in the counter train, substantially as described. 18th. The combination with an envelope or analogous machine, of the supplemental frame secured to the main frame below the delivery of the machine, the receiving rolls through which the envelopes are passed, a counter train, mechanism between the receiving rolls and train for causing the latter to count one envelope at a time as the envelopes pass between the receiving rolls, a chain below the receiving rolls composed of sections adapted to receive each package of envelopes of a desired number, a shaft for operating said chain held normally against rotation, a clutch disc loosely mounted upon said shaft, connections between said disc and the main shaft of the machine for continuously operating the same, an arm fixed to the shaft, a pawl carried thereby, a bell crank lever fulcrumed upon the frame with one arm projecting through a slot in the same and adapted to hold the pawl out of engagement with the rotating disc, a cam carried by the sleeve of the last gear of the counter train arranged to engage the other arm of the bell crank lever and force it down to release the pawl and permit it to lock the arm and disc together, whereby the said arm may make one revolution to move the chain one section, substantially as described. 19th. The combination with the receiving rolls from which the envelopes are discharged downwardly, of the bottom plate or table upon which they fall, the chain comprising a series of sections adapted to be held in position to receive the envelopes, means for intermittently moving the chain at right angles to the table, the reciprocating pusher plate below the receiving rolls, and connections between the pusher plate and the main driving shaft for reciprocating the same, whereby the envelopes are successively pushed into the chain, substantially as described. 20th. The combination with the receiving rolls through which the envelopes are passed, the bottom

plate or table below the receiving rolls upon which envelopes fall, and the main driving shaft, a cam thereon, a bell crank lever fulcrumed to the frame of the machine having one arm held in contact with said cam, a pusher plate connected to the other arm of the bell crank lever located below the receiving rolls, a chain upon which the envelopes are to be placed adapted to be held with a section opposite the pusher plate, and means for moving said chain intermittently at right angles to the table, whereby the envelopes are pushed successively into a section of the chain, substantially as described. 21st. The combination with an envelope or analogous machine, of the receiving rolls through which the envelopes are passed, the table upon which the envelopes fall, the chain-supporting structure comprising the frames having guideways thereon secured to the machine at right angles to said table, the chain composed of a series of links each having Z-shaped lugs, and pintles passing through said lugs connecting the separate links together, the ends of said pintles resting upon the guide-ways on the frames, and sprocket-wheels around which the chain passes, with means for pushing the envelopes upon the chain, and means for moving said chain, substantially as described. 22nd. The combination with an envelope or analogous machine, of a mechanism for discharging the envelopes downwardly, a table upon which the envelopes fall, a chain comprising a series of sections formed of a plurality of links hinged together, frames for guiding said chain, a driving shaft mounted in bearings upon the machine, a sprocket-wheel on said shaft between the frames of the chain structure, a second sprocket-wheel mounted in adjustable bearings on the said frames, with means for rotating the said shaft to move the chain at right angles to the table, substantially as described. 23rd. The combination with the receiving rolls, of a counter mechanism for envelopes or analogous machines, the table or bottom plate upon which the envelopes fall from the rolls, the pusher plate reciprocating below the receiving rolls across the path of the envelopes, a chain upon which the envelopes are pushed, mechanism for operating the pusher plate, a spring buffer having a pivoted finger depending therefrom against which the envelopes are pushed, and the rock shaft mounted above the chain provided with fingers projecting normally below the top of the envelope in line therewith, with means for vibrating said rock shaft to raise the fingers out of the path of the envelopes and lower the same after the envelopes are pushed on the chain to confine the same within the chain, substantially as described. 24th. In an envelope or analogous machine, the combination with the chain, the receiving roll and the mechanism for pushing the envelopes upon the chain, of the means for holding and retaining the envelopes in upright position in the chain while being loaded, consisting of the spring buffer with a pivoted finger against which the envelopes press on one side, a rock shaft mounted above the chain provided with fingers adapted to engage the upper part of the other side of the envelope, and means for intermittently vibrating said shaft to raise the fingers out of the path of the envelopes as they pass to the chain, substantially as described. 25th. In an envelope or analogous machine, the combination with the chain and the mechanism for loading the envelopes upon the chain, of the buffer against which the envelopes press on one side, a rock shaft mounted above said buffer provided with downwardly-projecting fingers adapted to hold the envelopes in upright position, a lever fulcrumed to a fixed part of the machine having a slotted connection to an arm on the rock shaft, a spring normally holding the other arm of said lever upward, thereby depressing the finger thereon, a pin carried by a rotating part of the machine arranged to engage the other arm of the lever so as to depress the same as each envelope is loaded upon the chain, thus raising the confining fingers out of the path of said envelope and lowering the same to hold the envelope in position, substantially as described.

#### No. 53,091. Furnace for Steam-Generators, etc.

(Fornaise pour générateurs à vapeur, etc.)

Robert B. Carsley and John H. Batts, both of Keyport, New Jersey, U.S.A., 3rd August, 1896; 6 years. (Filed 11th June, 1896.)

*Claim.*—1st. A furnace-grate or fire-bed having its fuel-supporting surface composed wholly of rotatably mounted grate-bars having right and left-hand intermeshing spiral flanges, those having right-hand spiral flanges alternating in position with those having left-hand spiral flanges, and connecting gearing for simultaneously rotating all of the bars, those with left-hand spiral flanges in one direction and the others in the opposite direction, substantially as set forth. 2nd. A furnace-grate or fire-bed having its fuel-supporting surface composed of rotatively mounted grate-bars having right and left-hand interlocking spiral flanges, the spiral flange 2, on one bar being convex or rounded and the interspace on the adjacent bar being concave to receive the flange 2, and having means for simultaneously rotating adjacent bars in opposite directions, substantially as set forth. 3rd. A furnace-grate or fire-bed having its fuel-supporting surface composed wholly of rotatably mounted hollow grate-bars furnished with right and left-hand interlocking spiral flanges, and jet apertures in the hollows between said flanges, means for rotating said bars simultaneously, adjacent bars in opposite directions, as described, and means for admitting steam to the fuel, through said bars, substantially as set forth. 4th. A furnace-grate or fire-bed having its fuel supporting surface composed of rotatably mounted grate-bars having right and left-hand interlocking spiral flanges, means for simultaneously rotating said bars, those adja-