trimming machines, driven by a fifty-five horse power engine, and a belt running directly to the floor for the firm. The boiler is located under the rear pavement, remote from the press room, thus preventing the heat and dust from entering the department. The same exact methods and squares are observed in the working of this branch of the establishment as in every other. The hickey is located in the rear building or annex. Here the pamphlets, almanacs, etc., are stuffed and covered, giving employment to a large number of young women, whose skill and swiftness in their work are admirable to witnesses.

The shows existent department occupies two floors of the rear building. Framed charts, lithographic show cards and other work of a similar nature are turned out here in immense quantities. The moulding is done in the morning, and then smoothed, polished, and finished, plain, in gilt, or in colors, as ordered. It is then cut into proper lengths by suitable machinery, tacked, and joined, and made ready for the reception of the lithographed cards and other devices for finishing.

These cards, as received from the printing department and chromo printers, are stretched, sized, varnished, and made ready to be passed to the packing department, where they are banded, an abbreviated description being stencilled upon the package. Then they go to the shipping department for address and shipment.

It might appear upon cursory thought that a business of so much detail, and performed by necessity into as many departments, each distinct in its nature and methods from all the others, would unavoidably run into confusion at some points, but such is not the case in this concern. While each department is responsible to its particular head for its running and results, the several heads or chiefs are responsible in return directly to the managing partner of the business, so that, though the operations of the house extend nearly over the whole world, the vast business is carried on with utmost smoothness and regularity.

NEW SWINGING GATE.

A simple and very effective automatic gate is represented in the enclosed engraving. It presents none of the objectionable features found in the class of gates operated from overhead, and has but few parts, all of which are substantial and durable.

Fig. 1 shows the gate in perspective, the horizontal connecting rods being exposed to show the connection of the various parts. Fig. 2 is a side elevation of the upper gate hinge, and Fig. 3 is a plan view of the lower gate hinge. This gate may be connected with the automatic gate. This gate can be made of wood or iron, or of both materials combined, and it may be of any style to suit the general design of the house to which it is applied.

The gate is supported at the top by a bracket, A, attached to the front of the building to receive the plate of the bar, B, the latter having a heart-shaped opening for receiving the plate of the bracket, C. The bar, B, is rigidly attached to the upper end of the vertical rod, D, which is offset to bring its lower section axially in line with the plate of the bracket, C. The rod, D, is journaled near its lower end in a bracket secured to the side, and carries a horizontal stud upon which rests the portion of the hinge attached to the lower part of the gate. This part of the hinge is forged to embrace the rod, D, and bent downward forming inclined planes, and when the rod is turned the horizontal pin passes under one or the other of the planes. This combination assists in opening or closing the gate, as will presently be described. The connecting rod, E, is consist of iron or steel rods bent so as to form two cranks at right angles to each other, and one end of each rod has a lever arm connected by a horizontal rod with a lever secured to the bottom of the vertical rod, D. The horizontal connecting rods are made adjustable as to length to compensate for any accidental change in the position of the trip rod.

This gate is readily operated by a light curiosity containing one person, and its action is quick and sure. The operation of the gate is as follows: The vehicle wheels operate, through the trip rods, E, and the connecting rods to turn the vertical rod, D, in the usual manner of such gates. It is well understood by those familiar with such devices that the vehicle on its pivot, so that the pivot occupies one of the sides of the heart-shaped opening, and may be moved rearwardly a sufficient distance so that its point will engage with the cuts formed on the bracket, C, and is thereby held in position. When the car is moved forward, it draws the bar forward and the pivot returns its place in the apex of the heart-shaped opening.

The horizontal stud in the rod, D, turns around the heart-shaped orifice in the bottom of the vertical rod, D, and the connecting rod is held by the tilting mechanism, so that it offers no impediment to the opening of the gate by a passing carriage.

A double gate may be made on this plan by simply adding another arm to the lever at the bottom of the rod, D, and connecting it by a rod to a corresponding arm of a similar mechanism on the second gate.

This gate was recently patented by Mr. Nathan H. Long, of Muscat, Indiana.

MISCELLANEOUS INVENTIONS.

Mr. William DeWort, of Philadelphia, Canada, has patented an improvement in ventilating houses, by which purer outside air than that immediately contiguous to the building is supplied to interiors. He passes the air through a conservatory, in which the plants purify the air, using a pipe with an outside spiral coil of metal, through the pipe to the plants, and purifying the air so purified into the building to be ventilated.

Mr. Harrison Owens, of West, Texas, has patented a coffee roastor, which can be used in the oven of an ordinary stove, and which contains the means of roasting coffee to a uniform degree, and its action is quick and sure. The operation of the gate thus avoids interference with his gait and obtains greater ease of draught.

Mr. William B. Ewing, of Pensacola, Fla., has patented a timber crib designed to prevent loss from the breaking assumer of timber rafts. It is a rectangular crib or cage composed of timbers securely fastened together, and a series of cross-clamps, with screws and nuts for holding the confined timber in place, one end of the crib being open, so that the crib can be opened for loading and unloading, the hinged end being provided with a roller to facilitate the movement of the timber. Both ends of the crib may be hinged when three lengths of lumber lying lengthwise are loaded on the crib.

Mr. James A. McClaffey, of Philadelphia, Pa., has patented an Iowa sandal. The sole is of wood, leather, or rubber, etc., perforated with numerous small holes. The objection to such sandals is thus removed. The sandal is designed to grip the common foot gear.

Mr. Frank S. Osborne, of Bellevue, N. Y., has patented a horse pole. An adjustable sectional collar is held in place upon the horse by suitable bands or straps, and has a forward and upward projecting pivoted bar or stake whose butt rests on a sharp-pointed spring, which pierces the horse's breast when the free end of the stake is pressed downward as the horse attempts to get over a fence.