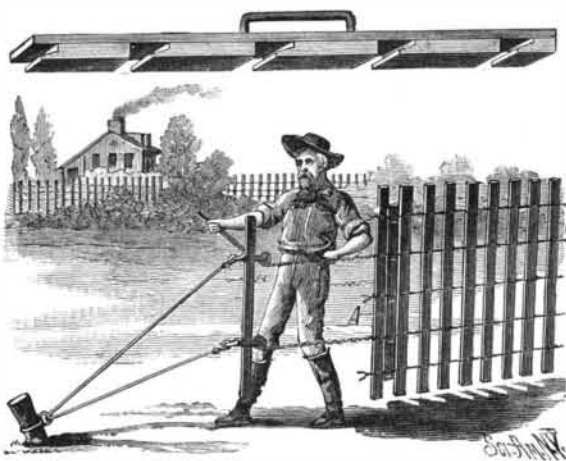


**IMPROVED FENCE CLAMP.**

The object of this invention, which has been patented by Mr. William H. Kirby, of Warsaw, Ky., is to provide a simple, easily applied, and efficient clamp to be temporarily attached to wire picket fences for stretching the panels preparatory to securing them to the post, and for holding them under tension while they are being secured. The clamp, shown in the upper view, is formed of a bar of iron or steel, and is provided with angled notches, which slip down over the wires of the

**KIRBY'S IMPROVED FENCE CLAMP.**

fence between two of the pickets, the number of notches and the distance between them being arranged to correspond with the wires of the fence to be stretched. Secured to the bar are two chains that lead to any convenient mechanism for tightening the panels. After one panel has been strained and secured, the chains are loosened and the bar removed and transferred to a new panel, and so on in the case of each panel of the fence. This improvement does away with all bolts, and consequently saves much time.

**WATER GAUGE FOR STEAM GENERATORS.**

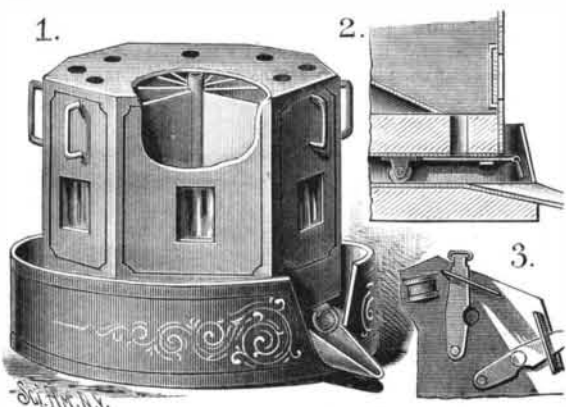
The engraving herewith presents a water gauge having an inner and outer glass tube, each end of each of which is provided with a suitable stuffing box. This construction obviates the danger of the glass being broken by sudden changes of temperature, as it is liable to be when of the ordinary pattern. A small opening in one of the stuffing boxes admits a slight circulation of air in the space between the tubes; but with this exception the inner tube is perfectly protected by the outer one from violent draughts of cold air, which would otherwise be liable to break it when heated by hot water and steam from the boiler. The tubes are protected by guard rods held in plates formed upon the elbow pipes, connected to the globe valves, in the usual way. The outer tube also serves to magnify the contents of

the inner one, so that the condition of the boiler can be more accurately ascertained than with the common single glass.

This invention has been patented by Mr. William Young, of Easton, Pa.

**REVOLVING SHOT CASE.**

This shot case is so arranged as to hold various sizes or grades of shot and to discharge any quantity, as ordered by the customer. The interior of the holder is divided by radiating partitions into a number of compartments, in each of which is fitted an inclined plate which directs the shot to a discharge hole made

**STEARNS & WELLS' REVOLVING SHOT CASE.**

through the floor, as shown in the sectional view, Fig. 2. In the top of the holder are holes through which the shot is placed in the compartments, and in the side walls are panes of glass, one for each division, so that the size of the shot can be readily discerned. The holder is so mounted upon a base that it may be revolved, in order to bring either of the compartments over a chute, to deliver any quantity or grade of shot desired. The discharge opening of each compartment is provided with a cut-off lever (shown in the bottom plan view, Fig. 3), by means of which the requisite quantity of shot may be allowed to flow from the holder to the chute, and thence to a bag or other receptacle for delivering to the customer.

This invention has been patented by Messrs. Frank Stearns and George L. Wells, of Creighton, Mo.

**SHEEP SHEARING TABLE.**

The sheep shearing table herewith illustrated consists of two parts—a main and auxiliary table—supported by suitable legs. The main table is for supporting the body of the sheep, while the other, which is held in the same plane as the first, supports its head. The front corners of the main table are formed with projections, which are each provided with a hook for holding the legs of the sheep, and between the tables is a space through which the front legs of the sheep swing when he is turned from one side to the other in shearing. Hooks are attached to the back of the main table to receive bails of stocks for holding the sheep when turned upon the side opposite to that shown in the engraving. The sheep's head is held to the auxiliary table in such a manner as to permit considerable freedom and give a degree of comfort to the animal while confined for shearing. Secured to the tables in a simple way is an apron, held in an inclined position to receive the wool as it is clipped. The apron is so arranged as not to interfere with the turning of the sheep.

This table furnishes an absolute fastening, for the legs and head, and which can be easily and quickly applied by one person. The sheep is held in an easy position in which it does not suffer nor struggle. The sheep can be instantly turned, without lifting and without breaking the fleece or scattering the wool, and the fleece when wholly removed is ready for tying for market, with the clean side out.

This invention has been patented by C. B. and J. B. Phelps, of Northville, Cumberland County, Tenn.

**Lightning Melts a Lead Water Pipe.**

Through the courtesy of Mr. W. F. Stewart, of Hermitage, Pa., we have received an account of the melting by lightning of a lead water pipe on the place of Mr. R. H. Abbey, of Corry, Pa. Water is brought to the buildings from a spring, 80 rods distant, through a lead pipe of half inch bore, at a depth of two feet. Water ceased running about the middle of last May, just after a thunderstorm, and all attempts to force it through failed. In September, Mr. Abbey dug down and found the difficulty to be some 15 rods from the spring, where a section of pipe, 3 or 4 inches long, was found to be melted and fused, so as to be nearly solid. This was cut out and new pipe put in, but still the water failed to run.

Two other melted sections, but not so completely as the first, were found, one about 7 feet above and the other 6 feet below the first. When these had been replaced, a full stream was obtained at the barn. On the west side of the pipe, opposite where it had been melted, the turf had been torn up for a distance of 30 feet or more, and from 1 to 2 feet wide and 6 to 8 inches deep. About 8 feet from the pipe this had forked, one part extending to the middle and the other to the upper fused point. This disturbance had been noticed at the time the water stopped flowing, and "consequently," Mr. Abbey concludes, "when I found the fused pipe, I was satisfied it was the work of lightning."

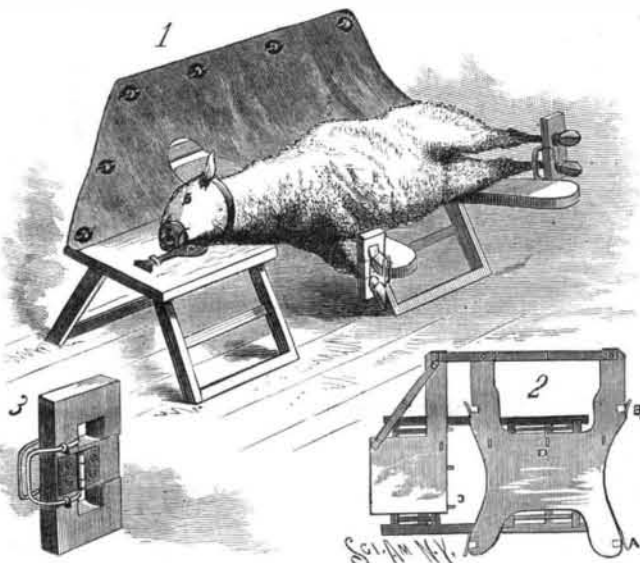
**A New Cement from Slag.**

Selected blast furnace slag is, while it is in the molten condition, run into water, and is thereby reduced to a fine state of subdivision. To this finely divided slag, after it has been carefully ground and screened, a certain proportion of slaked lime, also passed through a fine sieve, is added, and the mixture is thoroughly amalgamated and ground together in an apparatus called by the inventors a "homogenizer"—an appliance consisting of a revolving drum, partly filled with a certain number of metal balls, resembling somewhat in its action the machinery often employed for quartz crushing. Here the lime and the slag particles are acted upon by the continuous blows of the numerous balls, and are crushed to an extremely fine powder. Moreover, their molecules are mechanically brought into the closest possible contact. By this means it is claimed that a "flowery, silky" powder is produced, capable of filling all the interstices in the materials to

be aggregated better than the "sharp, sandy, and granular powder" of Portland cement. Indeed, it is asserted that this treatment will improve Portland cement made in the ordinary way. The process of "homogenizing," as compared with simple mixing, effects a vast improvement in the quality of the slag cement, its tensile and compressive strength being thereby almost doubled. This is the entire process of manufacture.

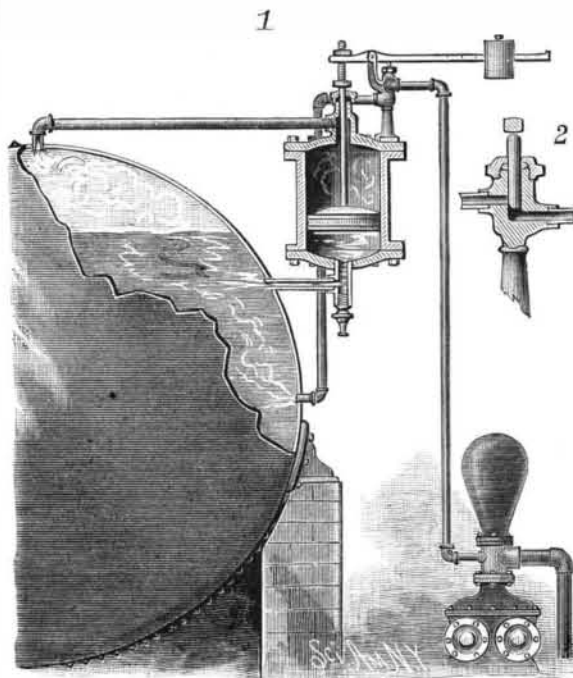
**FEED WATER REGULATOR.**

By means of this regulator, which is the invention of Mr. L. P. Foss, of Kalamazoo, Mich., the level of the water in a boiler may be maintained constantly at a uniform height. Inserted in the feed pipe is a valve operated by a float working in a chamber connected with the boiler above and below the water line. The chamber is provided with heads, the lower one of which has a T connected with the boiler below the water line, and also a valve for removing the water from the chamber when desirable. In the upper head is insert-

**PHELPS' SHEEP SHEARING TABLE.**

ed a T communicating with the steam space in the boiler, and the upper end of which is formed with a stuffing box, through which passes a rod carrying on its upper end adjustable nuts. To the upper head is secured a pillar, supporting a valve casing—shown enlarged in the sectional view, Fig. 2—and an arm. The valve serves to close the passage leading from the feed pump to the water space of the boiler. In the arm is pivoted a lever, having a weight on its longer arm, while its short arm enters between the adjustable nuts. This lever operates the valve when steam passes through a stuffing box in the top of the casing.

The pump works continuously, and discharges under a pressure greater than that in the boiler, and the weight is adjusted to counterbalance the float. The water level in the chamber is always the same as that in the boiler, so that the movement of the float will always correspond with the rise and fall of the water in the boiler. When the water level is high, the float rises and permits the weighted arm of the lever to hold

**FOSS' FEED WATER REGULATOR.**

the valve to its seat, and thereby prevent the flow of water. When the water falls, the float descends, and the water under pressure from the pump raises the valve and opens the passage to the boiler. Should the water, from any cause, continue to flow, the float will rise and bring the lower nut into contact with the short arm of the lever, which will be pressed upward to assist the weight in holding the valve to its seat.