

**A HAND-PROTECTING SAD IRON HOLDER.**

This holder is one which may be quickly attached to the handles of smoothing or other heated irons, to protect the hand from heat, either in contact or by radiation. The handle portion is in two sections, hinged together along one side, and is made preferably of sheet metal, such as heavy tin, its edges beaded or wired, or having a narrow flange, which incloses an outer covering of plush, felt, or cloth. In the upper section of the holder-handle is a lining of felt, or other non-conductor of heat, over which is a layer of hard pasteboard, to receive directly the pressure of the operator on the iron handle. To the ends of the holder is attached a guard, which curves around and broadens in its lower portion, so as to shield the hand from the heat arising from the body of the iron, and prevent contact with the hot



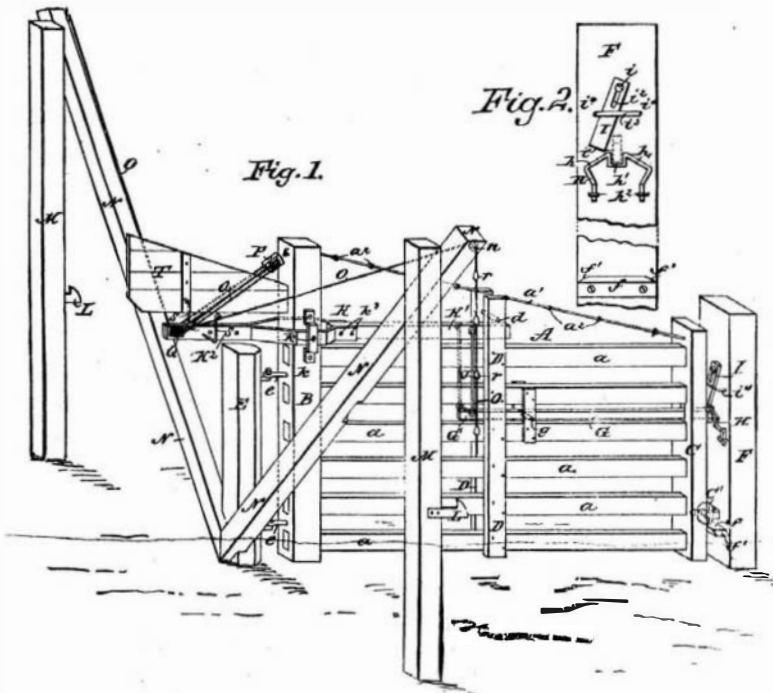
McINTYRE'S SAD IRON HOLDER.

shanks. The holder is soft to the hand, holds the iron firmly, and will fit different sizes of handles.

This invention has been patented by Mr. William M. McIntyre, of Room 3, Union Station, Pittsburg, Pa.

**AN IMPROVED GATE.**

The invention herewith illustrated provides for the construction of a gate which may be opened and closed by persons in vehicles or on horseback without dismounting, as well as those on foot. Fig. 1 is a perspective view showing the gate closed in position, and Fig. 2 is a broken face view of the latch post. A is the gate, with rails, a, an inner upright, B, an outer upright, C, and intermediate ones, D, at either side of the gate in the middle, made fast to the rails. A brace rod, a<sup>1</sup>, connects the uprights, and is provided with barbs, a<sup>2</sup>, to prevent stock from rubbing against the lever which



STONE'S IMPROVED GATE.

unlatches the gate. E is the hinge post at one side of the roadway, from which bars, N, extend, carrying gate operating cords, which may also be used as braces for the posts, M, set along the side of the roadway, and carrying catches, L, on which the gate may be latched open. G is the latch bar of the gate, pivoted at g, and is connected at its inner end by links, J, with a weighted lever, K, pivoted to the upright, B. O O indicate the operating cords of the gate, attached to the back end of the weighted lever, K, and passing through a double sheave or pulley block, P, swiveled to the head of the upright, B, thence through separate sheaves at the back end of the lever, and over pulleys, n, one at the head of each brace, N, on the roadway at either side of the gate, and terminating in the hand grasps, r. In connection with the latch, shown in detail in Fig. 2, is a lock bar, I, which stops the swing of

the gate with the latch bar directly over the notch made for it.

A wind vane, or fan, T, is fixed to the rear upright of the gate, to assist in opening and closing it when the wind is strong. By pulling the cord, O, the gate may be opened till it latches on the post, M, opposite the side of approach, and after passing through the gate may be closed by the similar cord on that side.

This invention has been patented by Mr. William G. Stone, of Ellisville, Ill.

**ORE SEPARATING MACHINE.**

This machine separates the dry gold dust from the sand, dirt, gravel, etc., with which it may be mixed. The shaft carrying the drum, which is cone-shaped, is journaled at a slight inclination in the supporting frame. The larger lower end of the drum is open, and the smaller upper end is closed by a head having a central aperture, through which projects the spout of the hopper. Spikes project from the inner surface of the drum for the purpose of breaking up the lumps of dirt, etc., passed through. Below and in the rear of the drum is a pan suspended by links, so that it can rock in the direction of its length. The end next the drum is higher than the other. The bottom of the pan is formed with transverse pockets. A spring secured to the frame and pan is so arranged as to pull an end plate on the latter against a cam mounted on a shaft journaled on the end of the frame, and provided at one end with a fly wheel, and at the opposite end with a beveled gear wheel engaging with a beveled wheel on a shaft extending along the side of the frame and provided with a crank for turning it. A belt passes around a pulley on this shaft and around the drum. An endless screen belt passes around a second pulley on this shaft and around a pulley at the other side of the machine, this belt being directly below the larger end of the drum.

The sand, dirt, etc., containing the gold dust is dumped into the hopper, from which it passes into the drum, which is revolved by its belt. The lumps are broken up, and drop from the drum upon the screen belt; the larger ones are carried by the belt to one side of the machine and deposited, while the sand, etc., drops upon the pan, which is vibrated by the cam and spring; the sand slides down the bottom of the pan, and drops from the lower end, and the gold dust collects in the grooves or pockets. The drum, screen belt, and pan are all operated from the side shaft, which can be turned by hand or by power.

For information concerning this invention, address the Gideon Ore Separating Machine Company, care of Mr. Jacob Sims, Council Bluffs, Iowa.

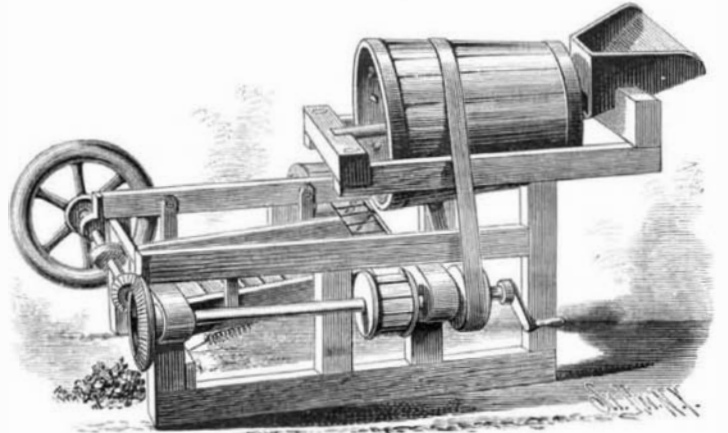
**Compressed Steel.**

Further tests of the new French treatment of steel for rendering it tough appear to confirm its value, imparting to it also a fineness of grain, an increased hardness, and a notable accession of strength to withstand rupture; this effect being most marked in the case of highly carbonated steel, and in this respect the metal is made to resemble tempered steel, without being in all points identical with it. The cause of this alteration in physical condition is attributed to the rapid heating and no less rapid cooling of the metal; that is, when the red hot steel is first strongly compressed, which is the peculiar feature of this process, the conversion of the mechanical energy into heat serves to raise the temperature of the entire mass, at the same time that the particles of the metal are more closely cemented together; this effect is followed by a rapid cooling, due to the contact of the plates of the hydraulic press with the surfaces of the metal, and the very close pressure materially increases this conducting effect of the cold metal.

**COMBINED CALIPER, PROTRACTOR, AND BEVEL.**

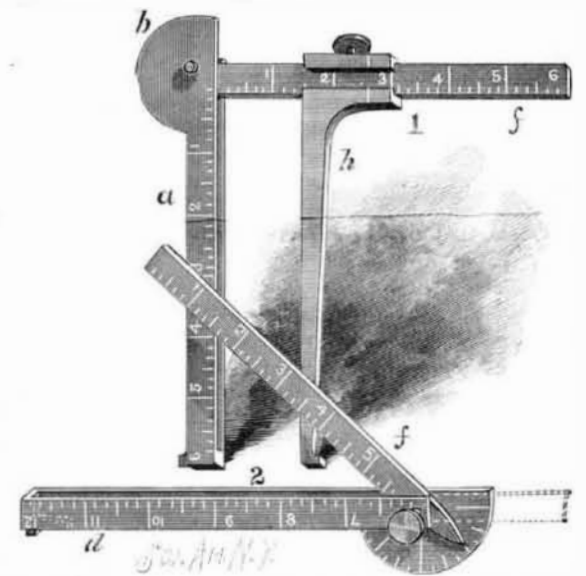
Formed on one end of the graduated arm, a, is a protractor, through the center of which passes a thumbscrew, on which is placed one end of the arm, d, the other end being attached to a pointer riveted to the arm, a, on the opposite end from the protractor; the outer face of the arm, d, is graduated. On the thumbscrew, and between the arms, a and d, is placed the arm, f, having graduations on both faces, and being formed with a pointer which indicates on the graduation, representing degrees and subdivisions on the protractor. The caliper arm, h, slides on the arm, f, upon which it may be held by means of the thumbscrew. The slotted arm is provided with a mark to read the

measurement of the inside caliper, and the outer end is formed with a point. When the caliper arm is detached, the tool can be used as a common rule by turning the arm, f, in the opposite direction from the arms, a and d, and fastening the three together in this position by the thumbscrew; the graduations then indicate a continuous measure from one end to the other. The arms, f and a and d, are used to measure bevels with, the de-



GIDEON'S ORE SEPARATING MACHINE.

grees being shown on the protractor by the pointer. By setting the arm, f, at right angles to the others, a square can be formed. When arranged as shown in Fig. 1, the tool can be used as inside or outside calipers; the outside caliper is taken between the edges of the arms, and the measurement is read on the arm, f, as indicated by the inner edge of the caliper arm, h; the inside caliper is taken between the pointers on the arms, a and h, and the measurement is indicated by the mark on the slotted arm.

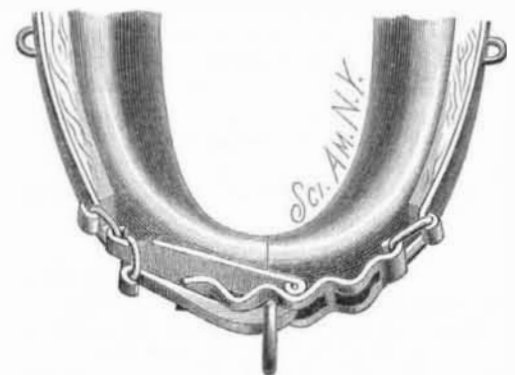


COMBINED CALIPER, PROTRACTOR, AND BEVEL.

This invention has been patented by Mr. Frederick W. Woodhull, of Lincoln University, Pa.

**AN IMPROVED HAME FASTENER.**

The principle on which this hame fastener operates is plainly shown in the illustration herewith. It consists of two levers pivoted together, each having a differently projecting hook at its outer end, together with a metal strap, also carrying a hook, and provided with a series of corrugations, in each of which is a slot extending in the direction of the length of the strap. One of the lever hooks and the hook of the metal strap are passed through the links, rings, or eyes, on the lower ends of the hames, when the other lever is passed through one of the slots of the metal strap and then through the pole strap ring, and swung up to the first lever and locked, by a ring



KILLEBREW'S HAME FASTENER.

passing over the hooks of both levers, thus holding the pole strap ring in one of the corrugations. The device is especially designed not to cut the collar, and so the hame will not get loose when once fastened.

This invention has been patented by Mr. Samuel Killebrew, of Brownsville, Tenn.