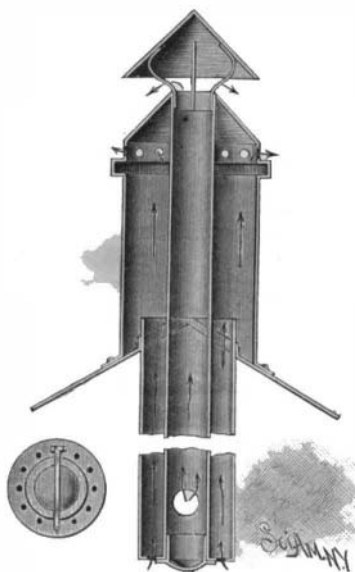


COMBINED CHIMNEY AND VENTILATOR.

The central flue or chimney proper is upheld by an exterior casing provided with a foot plate arranged to be secured to the roof of the building. This foot plate extends inward toward the flue, but does not touch the flue, there being connected to the inner flanges of the plate an incasing tube extending downward and with-



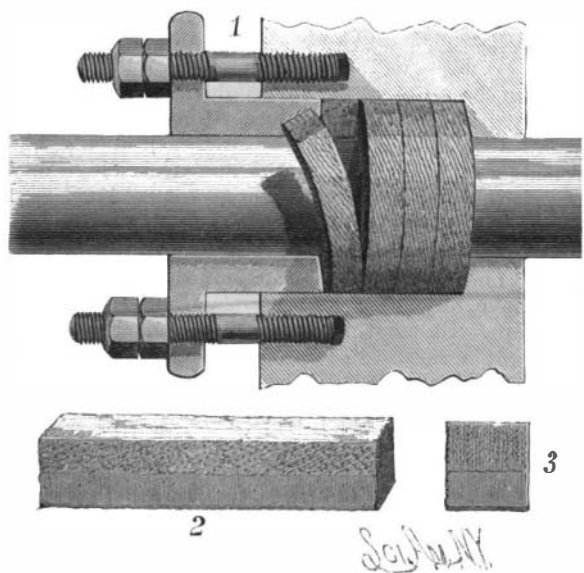
EBERHART'S COMBINED CHIMNEY AND VENTILATOR.

in the apartment where the stove is located. The bottom of the flue is closed by a perforated ring and a soot box held in position by a clasp, while above the flue there is a conical cap. The exterior casing is rectangular and the top is pyramidal. It will be seen that there is a continuous air space reaching from the lower to the upper end of the flue. This space acts as an outlet for the vitiated air of the apartment, which finds an escape through openings in the top of the casing. This current of air, besides ventilating the apartment, prevents any excessive heating of the casing or inclosing tube. The stove pipe is inserted through a hole as shown in the lower part of the cut. This chimney is easily cleaned, and, as its entire weight is supported from the roof, it may be placed in any position desired.

This invention has been patented by Mr. John S. Eberhart, of Laporte City, Iowa.

WHITE RUBBER BACK (SQUARE PISTON PACKING).

Anything which will add to the durability and efficiency of the packings used in steam engine cylinders, valves, and stuffing boxes cannot fail to command the earnest attention of engineers and mechanics, and we therefore illustrate a recently patented improvement of the New York Belting and Packing Company in this direction. That part of the packing which comes in contact with the piston rod is made of successive thicknesses of cotton duck, cemented together with an elastic lubricating compound; but a dark rubber has heretofore been used, with which, under the high temperature to which such packings are often subjected, the rubber back loses its elasticity, and fails to act as a spring to keep the packing against the piston rod. The improved packing is designed to overcome this defect by combining with fine Para rubber a special



AN IMPROVED PISTON PACKING.

lubricating compound, capable of withstanding a high degree of heat for a long period. This packing is warranted to stand a temperature of 50° F. higher than the regular dark rubber piston packing, and to endure 300° F. for a long period. It may be applied in separate pieces, as washers, as shown in our illustration, or in a continuous piece with the ends skived off to make a square fit. Figs. 2 and 3 are side and end views of this description of packing the convenience, durability,

and satisfactory working of which, even as heretofore furnished, have long made it a favorite with those having charge of the running of steam machinery.

This packing is made only by the New York Belting and Packing Company, No. 16 Park Row, New York city.

Natural Gas for the Cambria Iron Company.

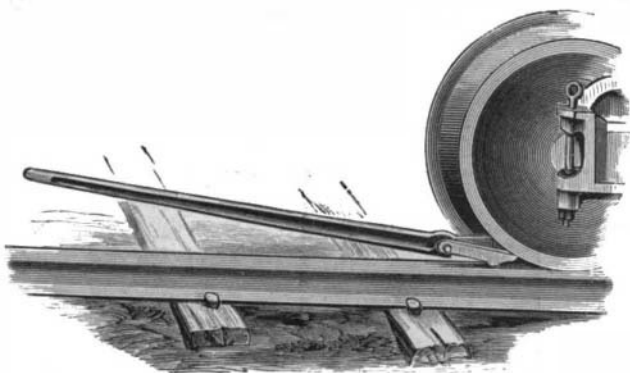
The new natural gas district at Grapeville, Pa., some miles south of the now famous town of Murrysville, promises to be of increasing importance. The second well has been drilled, and affords a larger show of gas than the pioneer boring. Four or five additional wells are being put down, and the future of the district is regarded as assured. A ten inch pipe line has been projected to carry the gas to Johnstown, a distance of about thirty-five miles. It is designed to supply the large iron and steel works of the Cambria Company, and also the 30,000 citizens making up the population of Johnstown and the associated boroughs. About five miles of the line have now been laid, and a large force of men are pushing the work forward. It is probable that the line will be completed some time in August or September.

We are indebted to Mr. John Fulton, M.E., for our information and for the following analysis of the Grapeville gas:

	By Volume.	Heat Units developed by Combustion of 100 Liters.
Hydrogen (H).....	7.05	21,866.13
Carbon dioxide (CO ₂).....	0.58	0.00
Oxygen (O).....	0.16	0.00
Ethylene (C ₂ H ₄).....	0.17	2,519.92
Carbon monoxide (CO).....	0.22	860.00
Marsh gas (CH ₄).....	35.08	297,548.56
Ethane (C ₂ H ₆).....	28.87	447,171.47
Nitrogen (N).....	27.87	0.00
	100.00	769,765.98

A COMPOUND LEVER PINCH BAR FOR MOVING CARS.

The bar herewith illustrated has a short lifting arm or nose adapted to bear with its sharp or edged end against the face of the car wheel, with a pivoted ful-



SHELDON'S COMPOUND LEVER PINCH BAR.

crum portion made bifurcated and straddling the lower end of the handle and the other nose, so as to rest on the top of the rail. The fulcrum is formed by a removable bar of steel inserted in a socket in the under side of the pivoted portion, and the noses of the two portions that come in contact with the wheel are also removable, and formed of the best tool steel, case-hardened, so they can be changed to use all edges, and when worn out can be replaced by new ones at a trifling cost. It will thus be seen that the bar works on the wheel in two places, the lower nose exerting principally a lifting action, while the upper one tends to turn the wheel, so by the joint action of both the wheel is moved with facility and with greater speed, by a less application of power, than with ordinary pinch bars. This bar will work on a frosty track without trouble; and, although the patent therefor was issued only about three months ago, it is already meeting with an active demand, especially from tanners, foundrymen, mill owners, and manufacturers generally who have occasion to load freight direct into cars on side tracks leading to their establishments, some testimonials of representative houses of this class speaking very highly of its efficiency.

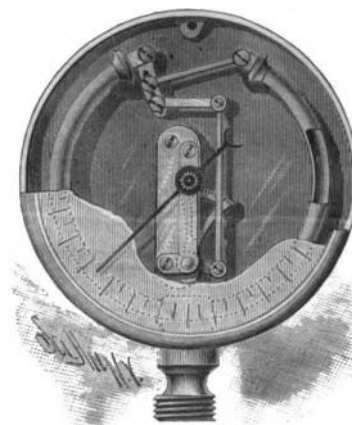
This invention has been patented by Mr. Mark A. Sheldon, whose address is Corry, Pa. Further particulars will be found in our business and personal column.

Steamboats Wanted.

On the northern shore of that beautiful body of water just back of New Orleans known as Lake Pontchartrain lies the Parish of Saint Tammany. It is noted among the parishes of Louisiana for its healthfulness, much of the land being fully a hundred feet above the level of the lake. The country is gently undulating and contains a number of mineral springs, some of which, such as those at Abita, have become noted places of resort. The present steamers, running at the rate of only eight miles an hour, have refused to carry the mails daily to Covington, a distance of 45 miles from New Orleans, for \$4,800 per annum. It is believed that a good, swift service would build up this section into a charming suburb of New Orleans.

PRESSURE GAUGE.

The pointer is mounted on the end of a shaft carrying a pinion engaging with a segmental pivoted rack formed with an arm to which is pivoted the lower end of a rod, whose other end is pivoted to one end of an angle lever, having a segment shank pivoted to the end of a curved spring tube, having its adjacent ends closed in the usual manner. This shank is formed with a segmental slot, through which are passed two screws into an adjusting plate on the back of the shank. The lower screw serves to clamp and lock the plate in place.



KUNKLE'S PRESSURE GAUGE.

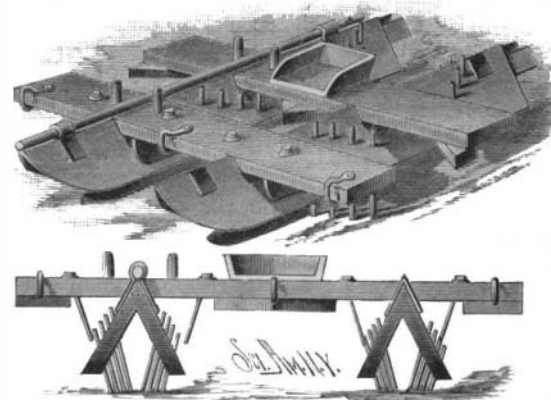
and the other serves as a pivot for one end of a rod pivoted to the opposite end of the spring tube. When the movement of the pointer over the dial is not quick enough, the plate is raised and then locked in place, and when too rapid the plate is lowered. The plate can be adjusted up or down the full length of the slot without changing the position of the index at its starting point, and at the same time the gauge will be made to run fast or slow, just as required. The gauge can thus be adjusted very easily and rapidly without removing or interfering with the pointer, which is a matter of considerable importance, especially when a number of gauges are to be adjusted.

The spring tube is secured at its center in a tubular neck which is firmly held in the casing. The front edge of the case has an internal screw thread, into which screws the neck of the crystal holding ring; a spring ring holds the crystal or glass in place.

This invention has been patented by Mr. E. B. Kunkle. Further particulars can be had from Messrs. E. B. Kunkle & Co., of Fort Wayne, Ind.

LISTED CORN CULTIVATOR.

The engraving represents a light and durable cultivator, the invention of Mr. A. I. McCandless, of Vining, Kansas, adapted for cultivating listed corn for the first, and possibly the second, time. One of the two troughs is rigidly connected to the cross bars, while the other is movably connected. Mounted in the sides of the troughs are steel pins arranged in sets; the pins in the forward set are placed in lines converging toward the front, while the others converge toward the rear. All the pins project about two and a half inches below the level of the bottom of the troughs, and all are at a slight angle toward the rear. The forward cross bar carries a half moon cutter at each side of each trough. The movable trough can be moved outward or inward between limit pins, its upper edge being formed with recesses, through which the cross bars pass, and being provided with metal straps encircling a rod arranged above the cross bars, as shown in



MCCANDLESS' LISTED CORN CULTIVATOR.

the upper view. Upon the under side of the rear cross bar are arranged four stops. The front cross bar has three clevises, so that the device can be drawn by one, two, or three horses. In use, this cultivator will be found to bring down the loose earth to the corn, without covering it up, and all weeds on the slopes will be cut down by the cutters. The slight play given to one trough enables it to follow any irregularities there may be in the laying out of the rows.