

NEW INVENTIONS.

Improved Breast Collar for Horses.

Mr. P. F. Hicks, of Bristol, Ontario Co., N. Y., has taken measures to secure a patent for an improvement in Breast Collars for horses, which consists in making the collar of such a form that the shoulder-blades of the animal are allowed free and expanded action when going fast or drawing heavy loads. The collar is an elastic one, with the lower part forming a loop, and the upper ends bent over at right angles with the sides of the bow. It is well known that the common stuffed collar has a kind of choking effect when a horse is drawing a heavy draft, and for this reason many have preferred the Dutch harness, which has no collar. This collar obviates that evil, and presents all the advantages of the stuffed one.

New Plan of Attaching Traces to Hames of Harness.

Mr. James Turner, of East Nassau, Rensselaer Co., N. Y., has taken measures to secure a patent for an improved mode of attaching traces to hames, which consists in placing a catch upon the lower ends of the hames, the said catch being a perforated slide working in a socket, the slide being attached to one of the hames and the socket to the other. A pin attached to a shank passes through the socket, and fits in the holes of the slide, and it can be placed in any hole in the slide, so as to expand or contract the hames to suit different sized collars. The traces are attached to the hames by the same catch, essentially, so that the trace can be so placed in the slide as to lengthen or shorten it, as may be required.

Improved Mode of Hanging Reciprocating Saws.

Mr. Edmund Booth, of the City of Philadelphia, has taken measures to secure a patent for a new mode of hanging reciprocating saws. A lever is employed which works freely in a vertical slot cut in an upright post. The lever is attached at one end to its link, which connects it to a spring secured to the top of the saw mill, and at the other end it is secured to the up guide-rod of the saw. The object effected by this lever is to prevent the saw from buckling—a common evil.

Improved Hoop for Cheese Presses.

Mr. John Beach, of De Ruyter, Madison Co. N. Y., has taken measures to secure a patent for an improved hoop for cheese presses, the nature of which consists in providing a hoop, having two equal parts, said parts being connected by a hinge on one side and a catch on the other, by which arrangement the hoop may be readily taken from the cheese which it encompasses, and also readily re-adjusted to it. Our farmers will see what this improvement is at once.

Improved Truss.

Mr. John North, of Middletown, Middlesex Co., Conn., has taken measures to secure a patent for a very useful improvement in that too-much required alleviator of human suffering, the body truss or supporter; it relates to a new and simple mode of attaching any pads, but more particularly the inguinal and umbilical truss pads, to the body springs, or to the abdominal or any other of the pads supporter, whereby their pressure on the part that has been rendered weak from a strain or any other cause, may be adjusted with the greatest precision.

Improvements in Grinding Mills.

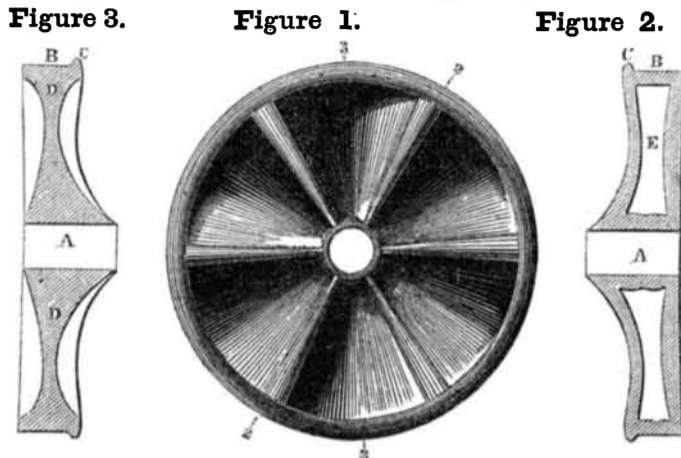
Mr. J. T. Harvey, of Murraysville, Westmoreland Co., Penn., has taken measures to secure a patent for an improvement in mills for grinding grain, which improvement consists in employing a burr stone having a conical cracker attached to its face, operating in combination with a conical-shaped case, to crack and partially grind the grain before it passes between the burr stones, all at one continuous operation, and all combined together in a very simple and admirable manner.

Another Rat Trap.

Mr. John I. Vedder, of Schenectady, N. Y., has taken measures to secure a patent for a new and improved rat trap, one, it is said by some, that will make the rats scarce wherever used. This rat trap not only makes the rat

catch himself, but drown himself at the same time, and more than that, he adds rat-murder to suicide, for in the act of nicking his own fate, he re-sets the trap for another rat without so much as leaving a solitary line of warning, like that which used to be on the old Schenectady canal packets, viz., "passengers are requested not to stand on deck under the penalty of being knocked down, killed, and drowned by the bridges."

WOODRUFF RAILROAD WHEEL.



The accompanying engravings represent the patented Wheel of Mr. Horace W. Woodruff, of Watertown, Jefferson Co., N. Y.

Figure 1 is a face view of the wheel; fig. 2 is a section taken at the line 2-2 of fig. 1, and passing through the hollow plate; figure 3 is a like section taken through the solid plate 3, of fig. 1. The same letters refer to like parts.

The nature of the invention consists in casting the wheel in one piece, with a chilled rim connected with a solid undivided hub by means of a plate, which, at certain parts, is single, and solid in the direction of the radii, acting in the manner of radial spokes, presenting curved lines, in concentric lines, on both faces, from hub to rim, and the whole constituting one casting. A is the hub with a central hole to receive the axle; B is the rim with a flange, C, as usual. The wheel is so moulded that its two faces are corrugated as represented in the engraving. The parts, D, D, are solid, so that imaginary radial lines from the hub to the rim, as at D, will pass through the solid metal. At these parts the external surface is curved on both faces of the wheel, extending from the ends of the hub to the edges of the rim, or nearly so, as at D, D, fig. 3. The flange side of the wheel extends outside of the plane of that face of the rim, and on the other face it coincides, or nearly so, with the plane of the rim; E are spaces between the solid parts, D; they are cast on cores, and form two plates between any two of the solid parts. The two plates gradually spread out from each other from each solid

part or spoke. These plates are, therefore bent or waved in lines concentric with the hub and rim, and the plates on the inner side are bent from hub to rim. On the outer face of the wheel the plates are partly bent and partly straight. The rim and hub are connected together by a plate, which, at certain parts, is single and solid in the direction of the radii, forming what may be termed radial spokes, and at other and intermediate parts double, and constituting hollow spokes. It is therefore a compound plate, giving support to the entire periphery of the rim, and acting as a brace to the ends of the hub and edges of the rim, to resist lateral strains; and the solid parts of the plate, constituting the solid spokes, give the required support in the direction of the radius; this support, being aided by the double parts of the plate (which are bent from hub to rim and in concentric lines), can yield to the unequal contraction, and thus enable the solid parts to resist the strain without breaking, which is due to unequal contraction. The claim is for "casting a railroad car wheel with a chilled rim and solid undivided hub, connected by means of a plate which is single and solid at certain parts, so that imaginary radial lines, from hub to rim, will pass through the said solid parts, and be double and bent in opposite directions, between the single and solid parts, and wholly or partly from hub to rim, the whole constituting one casting, as specified."

More information may be obtained by letter addressed to Mr. Woodruff, as above.

PROF. PAGE'S ECONOMICAL CONSTANT BATTERY.

Figure 1.

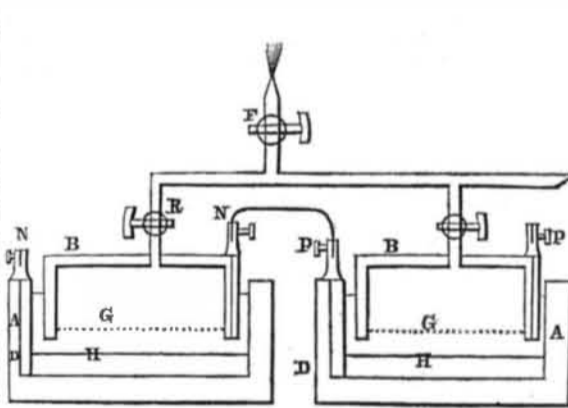


Fig. 3.



The accompanying engravings represent an Economic Constant Battery, invented by Dr. Page, of the Patent Office. His description of it is published in the last number of Silliman's Journal of Arts and Sciences. The battery is a modification of Kemp's, and was invented in 1838.

Figure 1 exhibits two economical batteries, constructed upon the basis of Kemp's, and involving the principle of Smee's battery. A is a square box of wood, made tight by pouring a quantity of warm shellac varnish into

it, and pouring it off after the wood has absorbed a sufficient quantity. If the outside of the box is first varnished it will always leak; B is an inverted wooden box, varnished in the same manner; G is the negative conducting plate of the battery; it is made of wire gauze or a perforated plate. The best material Prof. Page has found for this plate is a perforated plate of silver, platinized; this is expensive, and so is wire gauze. It occurred to Professor Page, that, by precipitating copper on coarse muslin, that this might be silverized and then

platinized so as to answer. Mr. Matthiot, of the Coast Survey, the author of the excellent articles on Electrotyping, &c., in our last Volume, says this is perfectly practical. Mr. Matthiot, from his own suggestions, has adopted this battery in some of his experiments, and thinks highly of it. [James Napier, of Swansea, Eng., took out a patent a number of years ago, for precipitating copper on cloth, muslin, &c., for making roofs of buildings, &c., Mr. Napier is a first-rate practical chemist.]

H is the amalgam of zinc; D its connection from the wire; P N are the poles of the battery. The connection with the zinc positive plate is made by passing a wire down through the wood, and connecting it with the platinized negative plate, G, in a similar manner. R is a cock of the pipe, F, which exhibits a jet of ignited hydrogen gas. The gas can be ignited by a spark from the battery. The object of the cover is to confine the hydrogen so as to drive it through the pipe, F, and use it for any necessary purpose. The gas which escapes from a galvanic battery, is hydrogen—it is one of the gases of the decomposed water. Figure 2 is a battery upon the same principle; A is the glass jar, to hold the acidulated water; B is the inner jar and hydrogen receiver; G is the perforated negative plate; E is a wire connected with and supporting the zinc plate; F is a wire connected with the negative plate, H. The stop-cock, S, and its pipe are connected with one pole of the battery through the medium of the wire of the helix surrounding the magnet, fig. 3. The spring wire, P, is attached to the plug of the stop-cock, upon turning which the spring wires are brought into contact and separated, producing the spark that ignites the jet. This magnet is well covered with cement, and concealed within the cover,—it is required to produce a spark of sufficient intensity to ignite the gas. The battery must be allowed to work so as to expel all the air before the gas is ignited; if this is not done, an explosion will surely be the result. When the battery is started, the wires at the top must be bent down till all the air is expelled.

Submarine Explorer.

An experiment was made with the submarine explorer (illustrated on page 81, this Vol. Sci. Am.), at the Navy Yard, Brooklyn, on Friday, the 5th inst. It was moved in water 35 feet deep, and at a signal from Com. Salter, it commenced descending. It was out of sight in ten minutes, and after remaining under water twelve minutes, the signal was given for it to rise. In 2½ minutes it was on the surface, at about twenty-feet distant from where it went down. The experiment was very satisfactory to the officers of the Navy Yard, but not to Mons. Alexandre, he thought they did not allow sufficient time under the water to test the qualities of his under water propeller.

The Wheeling Bridge Case.

The following are the leading facts in this important case—

1. The Wheeling bridge is 92 feet high, and has a clear span of 1,010 feet, being erected without piers.
2. The extreme floods in the Ohio, which the court allow to be considered in the cause, rise 30 feet high.
3. Boats with chimneys not exceeding 60 feet in height, can pass under the bridge on the highest flood recognized by the court.
4. There are seven steamboats, built recently, which have raised their chimneys to heights varying from 70 to 80 feet, and which claim the right to pass the bridge, in any stage of the water, without lowering their pipes.
5. To accommodate these seven boats, the Supreme Court has decided that this structure which cost more than two hundred thousand dollars, must be abated.
6. The plans of the bridge were published two years in advance of its erection, and no complaint or objection was made until the Bridge Company had expended their entire capital.

CHARLES ELLETT, JR., C. E.

Artificial noses and ears are now made of india rubber. Artificial hands, &c., are also made. It is generally believed that india rubber will never be required to supersede the material of which the great number of consciences are made.