

MECHANICAL INVENTIONS.

Mr. William Rowe, of Biddeford, Me., has devised and patented an improved lock, which can only be locked or unlocked by a person acquainted with the combination of the several parts to which these parts have been adjusted. The invention consists in a combination lock constructed with a sliding bolt provided with two tongues fitting into recesses in two side disks on two spur wheels engaging with pinions mounted on a shaft and its surrounding sleeve, both the shaft and sleeve having each a hand at the outer end, these hands being over a dial in the outer surface of the lock casing. The spur wheels are loosely mounted on pintles attached to slides, by means of which the lock can be adjusted to be opened at a certain position of the hands on the dial. At all other positions of the hands the lock cannot be opened, and to open it the hands must be returned to their original position on the dial, for thereby the inner mechanism will be brought to its original position, permitting the tongues on the bolt to pass into the recesses in the cog wheel.

An improved oatmeal machine has been patented by Mr. Anton Heinz, of Muscatine, Iowa. In this machine the oats enter a trough-like receptacle, one side of which is formed by a plate, which may be stationary or movable, having recesses or passages for reception of the oats and discharge of the same. In connection with this plate the inventor employs for cutting the grain knives which may be movable or stationary (being movable the plate is stationary, or *vice versa*). The size or grade of the product is regulated by providing interchangeable plates having large and small recesses, or providing suitable adjustable means for increasing and diminishing the size of the recesses.

Mr. William J. Barber, of Covington, Ind., has patented an improved prospecting drill, which is simple, light, durable, can be transported very readily, and can be operated conveniently by one man. The invention consists in a drill held adjustably in a stock having its lower end grooved spirally, and provided with a loose ring with a projection resting on a cam wheel pivoted to a suitable frame, also carrying an adjustable circular plate provided with a tubular casing for a pressure spring and the drill stock, which plate is also provided with a tubular guide on the same diametrical line with the casing, and for the purpose of guiding the drill. The cam plate is provided on its inner surface with studs, which enter the spiral grooves of the stock when the cam wheel rotates, thereby rotating the stock and the drill held therein.

IMPROVED WASHING MACHINE.

The annexed engraving shows an improved washing machine recently patented by Mr. Benjamin F. Cokely, of Vinton, Iowa. The box of this machine is composed of two circular side pieces and a curved zinc bottom secured to the side pieces with intervening strips of cloth saturated in paint to prevent leakage. The curved zinc bottom is provided with rounded transverse slats upon which the clothes rest.

The convex rubber is composed of two parallel semicircular boards having semicircular notches in which are secured parallel round rods. The rubber is provided with vertical arms connected at the top by the handle by which the rubber is operated.

The rubber is hung on a rod bent twice at right angles, so that it may be lifted out of the box and supported out of the way when desired. When the rubber has been thus swung over and out of the box, as shown in one of the views, sufficient space intervenes between the end of the box and the end of the rubber for the introduction of a wringer which is clamped to the end board of the box. The washed clothes in the box are then introduced by the operator into the wringer, which conveys the clothes into the rubber, which thus serves as a receptacle for the clothes after having been wrung, the open bottom allowing the water remaining in the clothes to escape between rounds.

It will be observed that both ends of the box are raised. This is especially necessary for that end of the box in which the rod is journaled, so that when the clothes are under the rubber the rod may be level.

While operating the machine the clothes may be shifted in the box by slightly raising the rubber at intervals by the handle without interfering with the regular motion of the machine.

By the peculiar construction of rubber, with an open space between its side boards and opening between the rods forming its bottom, in the oscillations of the rubber the water is prevented from being thrown out of the box at its ends.

Further information in regard to this useful invention may be obtained by addressing the inventor as above.

American Railway Superintendents.

The Association of American Railway Superintendents met in annual convention in this city April 19, Peyton Randolph, of the Virginia Midland Railroad, in the chair. The main work of the day was a consideration of train rules and signals. The idea was to adopt a system for use on all the railroads of the country. At present, it was said, one road

used the signal to stop that another did to start. Where roads joined, the signals were oftentimes conflicting and dangerous. Major E. T. D. Myers, of the Richmond, Fredericksburg and Potomac Railroad, said that it was found that everybody's rules were different and that nobody's were carried out at the Spuyten Duyvil disaster. A code of whistle signals was considered and recommended to a committee appointed to prepare a code for adoption. A code of conductors' signals was also recommended for adoption.

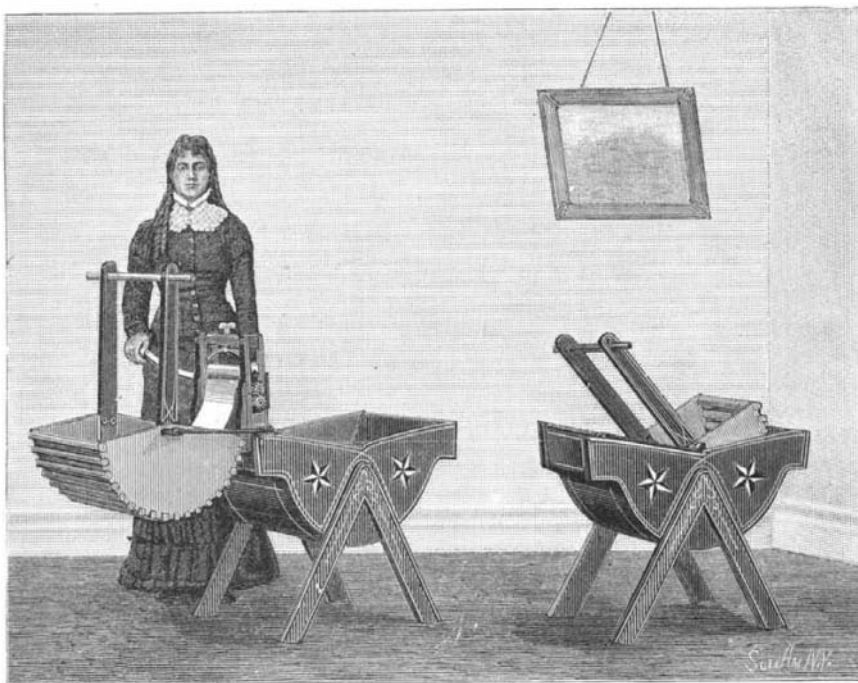
SIR CHARLES WYVILLE THOMSON.

Sir Charles Wyville Thomson, the distinguished naturalist, who died recently at the comparatively early age of 51, was the son of Mr. Andrew Thomson, a surgeon in the H. E. I. C. S.



SIR CHARLES WYVILLE THOMSON.

He was educated at Merchiston Castle School, and subsequently at Edinburgh University. In 1850 he was appointed Lecturer on Botany in King's College, Aberdeen, and in the following year held the same post in the Marischal College and University of Aberdeen, while subsequently he became successively Professor of Natural History in Queen's College, Cork, and Professor of Mineralogy and Geology in Queen's College, Belfast, where he helped to found a museum in connection with the College, and to organize a School of Art under the Science and Art Department. He was vice-president of the jury on Raw Products at the Paris Exhibition of 1867, and in the two following years he went on scientific dredging expeditions in the Lightning and the Porcupine. In 1870 he was chosen Regius Professor of Natural History in the University of Edinburgh, and in 1872 he was placed at the head of the scientific department of the famous Challenger



COKELY'S WASHING MACHINE.

deep sea exploring expedition, an appointment for which he was eminently fitted by his various scientific attainments. On the return of the Challenger, after her three years and a half cruise round the world, Professor Thomson received the honor of knighthood. The collections obtained during the voyage were deposited at Edinburgh, and Sir Charles undertook the work of reporting the scientific results of the cruise, a task which he partially achieved by the publication, in 1877, of the first volume of the "Voyage of the Challenger." He was also the author of "The Depth of the Sea," and of numerous contributions to scientific periodicals. Our portrait is from the London *Graphic*.

RECENT INVENTIONS.

An improved hub for vehicle wheels has been patented by Mr. James Newmon, of White Oak, Ala. This hub insures wheels superior in durability, strength, and facility of manufacture and repairs. This wheel has its hub formed of the threaded tube provided with an annular flange, the tapering nuts having concave inner ends, and the ring plates provided with beveled annular projections and clamped to the spokes by bolts.

A novel power indicator and recorder has been patented by Mr. George Wale, of Paterson, N. J. The object of this invention is to obtain constant indication and permanent record of power taken from main driving shafts. This is an ingenious combination of mechanism in which a graduated dial is revolved by friction connections, and is controlled by a varying pressure.

Mr. Isaac Van Zandt Jones, of Salado, Texas, has patented a simple and convenient press for baling cotton, bay, tobacco, and pressing other materials. The invention consists in a combination of right and left hand screws with a peculiarly constructed toggle joint, the object being to increase the power of the press as the compression progresses.

Mr. John George Fischer, of Flemingsburg, Ky., has patented an improved adding machine. As many columns as may be desired, provided the sum of each one does not exceed one thousand, may be added by this device, and the work be done with great rapidity and correctness.

An improved combined hay tedder and rake has been patented by Mr. Will R. Johns, of Rockford, Ill. The object of this invention is to simplify the construction of hay tedders and rakes, and lessen the cost of their manufacture and reduce the friction and resistance so that they may be drawn by single horse.

Mr. Josiah N. McConnell, of Lawrence, Kan., has patented an improved flour bolt. The object of this invention is to increase the efficiency of flour bolts, economize space, and lessen the cost of construction. The end frames of the bolt are made of gas pipes connected by screw couplings, and are designed to be so made that they can be separated easily. They are connected at the top and sides and at the bottom of the first conveyer by boards secured to them by joint bolts or by rods running the whole length of the bolt. The boards form a base for the doors and a support for the hopper boards. The bolt is thus made in two or more separable sections, so that it can be readily taken through the door or window of the mill, allowing the bolt to be put together at the manufactory and shipped ready for use.

Mr. Erastus B. Barker, of New York city, has patented an improved photographic plate holder constructed with slide apertures or slots both at the sides and ends, whereby a slide may be inserted either at the side or end of the plate holder as desired. The holder has a novel arrangement of the cut-offs and the slides, the cut offs serving to guide the slides. This invention is equally applicable to both single and double plate holders. The same inventor has patented a camera box and sliding support provided with adjusting attachments, whereby the camera box may be conveniently changed from a horizontal to a vertical position, and *vice versa*, without disturbing the position of the sliding support or the focusing screws, and without removing the under frame of the support from the tripod.

Mr. William C. Seaton, of Quebec, Quebec, Canada, has patented an improved signaling apparatus for preventing the occurrence of collisions at sea, and to otherwise decrease the dangers incident to navigation by the use and application of a signal code and apparatus, by means of which a vessel may indicate her course, point of sailing, condition—whether in stays or hove to—course designed to be pursued, etc., and may direct an approaching vessel what course to pursue, may clearly indicate starboard and port sides of the vessel, and may communicate other necessary information, and by means of which lighthouses may be unmistakably identified, whereby a frequent cause of disaster to vessels is removed. The invention consists of a lantern provided with suitable lenses and with novel mechanical devices for producing flash signals of any desired combinations, duration, and frequency, mechanism for indicating inboard the number or character of the signals, mechanism for regulating the time or speed of the signals, and other novel mechanical combinations; and it consists, further, and in combination therewith, of lanterns for exhibiting fixed colored lights, and provided with novel devices for displaying and eclipsing the lights and for indicating their character inboard. There is a device for distinguishing the port from the starboard side of a vessel; and devices for signaling with the flash and fixed lights in two separate lanterns or in one lantern. The inventor provides a signal code based upon and interpretable only by means of the combinations of these signals, intended for the use of sailing vessels, steamers, and lighthouses.

BOILING POINT OF ZINC.—The author's experiments, several times repeated, show a temperature of 930°.—*J. Violle.*