

New Agricultural Inventions.

Mr. G. R. Pierpont, of North Haven, Conn., has invented a new Straw Cutter, or machine for cutting hay, straw, etc., for feed. It has two cutting blades, pivoted together like a pair of scissors, operated by connecting bars and a double crank, and arranged at the end of the feed box, in connection with an adjustable gauge plate and guides.

An improved Machine for Separating Garlic from Grain, recently patented by Messrs. D. Shamberger and J. Carroll, of Beckleysville, Md., consists of a revolving cylinder having teeth or cards, in combination with a pressure roller at one side and a clearing brush at the opposite side, the grain being conducted off below the pressure roller and the garlic below the clearing brush.

Mr. N. D. Edmondson, of Crown Point, Ind., has designed an improved Sulky Scraper for grading roads, lawns, etc., in which the mechanism for holding the scraper in position for collecting or discharging the load, or carrying it from place to place, is efficient and readily controlled by the driver.

A light and strong Picket Fence, patented by Mr. C. H. Phelps, of Williamsfield, Ohio, is made by combining, with the pickets, longitudinal T rails formed of two side bars riveted to the pickets, and slotted top bars secured to the side bars by keys through the pickets. The posts are braced by anchors secured to the fence by brace rods and a yoke.

A new Gate, of the class in which a person on horseback or in a wagon is enabled to open or close the gate by operating a projecting lever, has been patented by Mr. B. B. Huntington, of New Richmond, Wis. Its advantage consists in simplicity of construction and being made without pulleys or wires.

A convenient Apparatus for Steaming Feed, which is claimed to generate steam with small consumption of fuel, and to furnish dry steam for heating, etc., has been patented by Messrs. D. D. Darling, L. L. Parshall, and F. H. Wendell, of Coldwater, Mich. It consists of a furnace with a central tube and coil of pipe, connected by a top and bottom pipe, with a tank having a central downward extending pipe for supplying water, a float, and a steam exit pipe.

Mr. S. Carnes, of Jonesborough, Ga., has made an improvement in Plow Stocks, intended to give increased strength and lightness. It consists in making the standard in two parts, bolted together at their middle and lower ends, one bar passing up and bending over the plow beam and adjustable vertically upon it, while the other bar is bent rearwardly to form a brace.

Mr. H. M. Freeman, of Lathrop, Mo., is the inventor of an improved Riding Attachment for Plows, which is claimed to be so constructed that the plow may be adjusted to work at any desired depth, that the frame is kept level whether the plow is running upon a level with the wheel or below it, and that the plow may be turned upon a square corner.

An improved Bale Tie, invented by Mr. C. H. Chase, of New Orleans, La., is a strip of sheet metal having one of its ends doubled over upon itself, the same being bent on a line drawn across the strip at an angle of 45°, so that the folded end forms a right angle with the main part of the strip. The folded over portion is returned upon itself and again bent forward, forming a U-shaped loop for receiving the opposite end of the tie, which has oblong apertures for receiving the bent end.

Mr. S. Ruggles, of Three Rivers, Mass., has patented a Potato Bug Exterminator, consisting of a poison reservoir carried on the back, and having two sprinkling tubes, so as to save time by operating on two rows of plants at once. Within the reservoir is a reciprocating stirrer, which is operated by an angular lever strapped to the arm.

An improvement upon the Corn Sheller patented August 17, 1875, by Messrs. W. H. Hall and C. S. Yingst, of Tiffin, Ohio, has been made by one of the original patentees, Mr. Hall. It relates to details of construction designed to produce a better article at less cost than heretofore practicable.

Mr. Henry Cutler, of Wilbraham, Mass., is the inventor of a new Grain Drier which is claimed to effect its purpose rapidly without danger of burning the grain. It consists of a cylinder, provided with suitable feed and discharge ducts, and heated by a current of hot air. In this is a revolving hollow shaft carrying steam heated arms, which constantly stir the grain.

Mr. R. W. Hazen, of Fremont, Neb., has patented an improved Ventilator for Corn Crib, for ventilating the mass of the corn, to prevent it from spoiling, hasten the drying, and bring it quicker into marketable condition. The invention consists in slotting the floor of the crib with air passages, and by a peculiar arrangement of boards and blocks preventing leakage of any shelled corn.

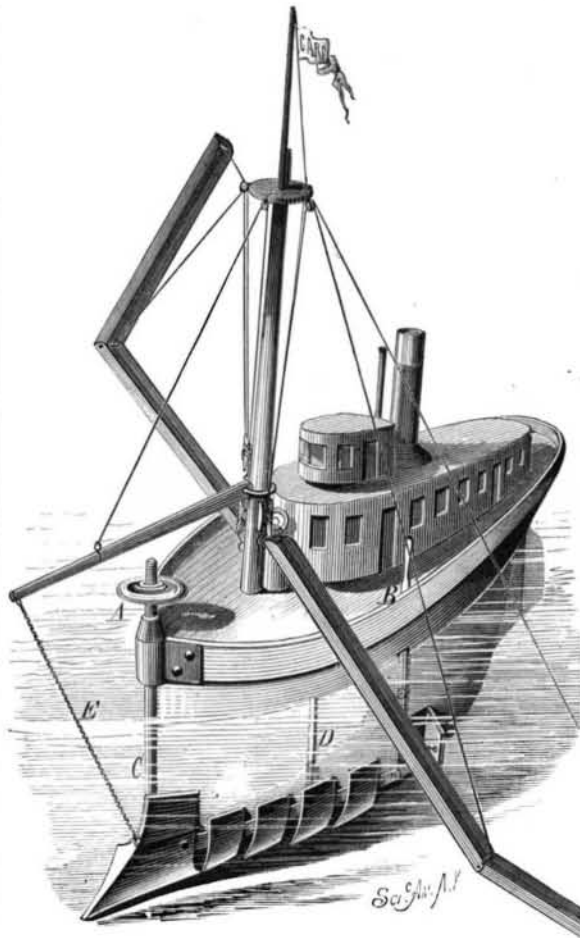
An improved Hay Press, invented by Mr. H. R. Smith, of Minnesota Lake, Minn., may be briefly described as a pressbox with a reciprocating follower, operated by suitable lever mechanism. The top and bottom of the pressbox are longitudinally slotted, the slots being wider at one end than the other, for the purpose of facilitating the passage of the bands in tying them around the bale. The follower is made of sections with enlarged heads, which leave spaces just wide enough for the passage of the bands.

A new Baling Press has been invented by Mr. J. H. Simonson, of East Norwich, N. Y. The peculiarity of construction is the means by which the power and resistance are

both applied to compressing the bale, and the automatic upward movement of the upper follower when the power is removed.

CARR'S IMPROVED DREDGER.

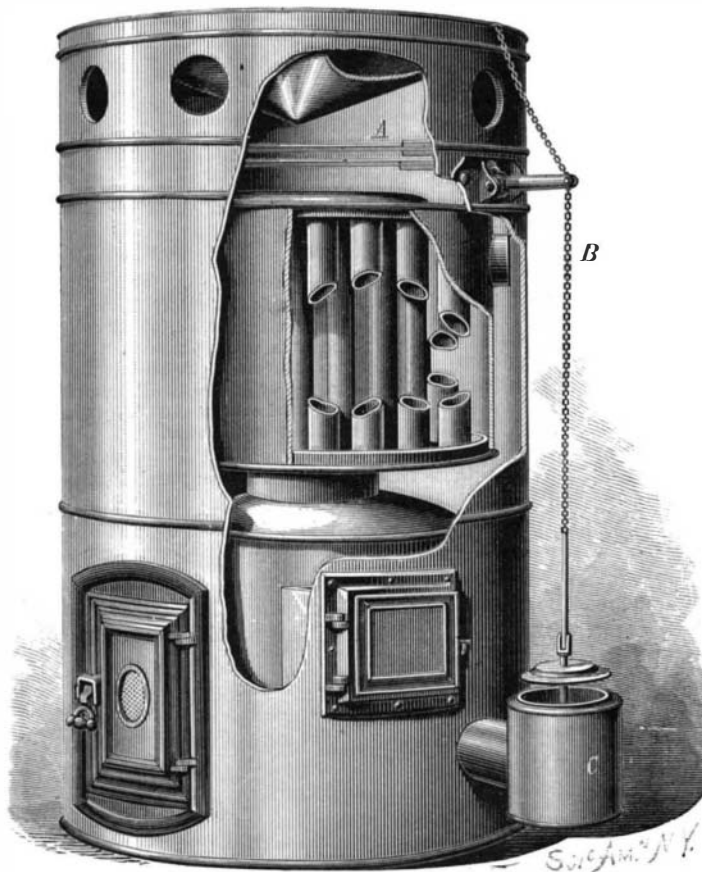
We illustrate herewith a new submarine excavator, designed to be attached directly to the bow and sides of a ves-



CARR'S IMPROVED DREDGER.

sel, and to be used for removing sand bars, submarine marshes, and other obstructions to navigation.

On the bow of the boat is an iron bar, to the lower end of which is secured a double mould-board plow. The upper end of the bar forms a screw rod, passes through a bearing, and is provided with a wheel, A. To each wing of the plow is pivoted a bar, and to these bars are attached several single mould-board plows. To the rear end of each bar is attached



HOLCOMB'S HOT AIR FURNACE.

a jointed lever, B, by means of which each series of plows can be raised or lowered, while all the plows can be lifted by the wheel, A. This adjustment being at the bow of the boat, if the vessel is stopped before it gets through an obstruction, the plows can be raised, and the boat backed and extricated. The plows may then be lowered again and work resumed. As the plows enter the bottom the material is loosened and swept away by the current. The front plow is firmly secured by a shield, C, and side bars, D, are provided to keep the side plows from swinging under the boat.

In case there is not enough current to remove the loosened matter, the inventor proposes to use a centrifugal pump, placed in the center of the boat, whereby the water can be raised and discharged into tank flats; or, by means of troughs on each side of the boat, can be discharged from thirty to forty feet from each side of the same, thus making a channel from sixty to eighty feet wide. When it is desired to lower the plows several feet below the boat, the chain, E, from the bowsprit relieves the increased strain on the upright plow beam.

Patented April 9, 1878. For further particulars address the inventor, Dr. Thomas B. Carr, Wilmington, N. C.

The Newton Photo-Plates.

At a recent meeting of the Photographic Section of the American Institute, in this city, examples of pictures taken by means of the emulsion or sensitized collodion of Mr. Henry J. Newton were exhibited. The author claimed that his emulsion plates were as sensitive to weak lights as any bath plates that can possibly be made; that they give all the detail in the shadows or dark places that it is possible to get by any process; that the emulsion keeps indefinitely; finally, that the Newton emulsion will do anything that can be done with the bath plate in one third of the time.

Mr. Bierstadt accepted the challenge of Mr. Newton as to bath plates, but at the same time stated that the Newton negatives there exhibited, done in eight seconds, and the prints therefrom, he had never seen excelled, if equaled, by any photographic process.

Mr. Mason, another distinguished photographer, pronounced the specimens perfect, the details in the shadows and high lights as finely rendered as any that he had ever seen.

A description of the Newton process was given several months ago in the SCIENTIFIC AMERICAN.

Adulteration of Soap.

The following receipt is extracted by *Dingler's Pol. Journal* from the *New Soap Boiler's Journal* (*Neue Seifensiederzeitung*): "Saponify 600 kilos. cotton seed oil, 200 kilos. tallow, and 200 kilos. bone oil, with potash lye at 18° in the usual manner. A thick mixture is then made of solution of potash, potato flour, and soluble silicate of soda, and two parts of soap are crutched thoroughly up with one part of this mixture, boiled, and mixed with more soda lye till the total weight rises to more than double that of the fatty matter originally present." *Dingler's Journal* remarks that when trade organs thus openly recommend sophistication caution is needful on the part of purchasers.

IMPROVED HOT AIR FURNACE.

We illustrate in the accompanying engraving an improved hot air furnace, the principal novelty in which is the automatic means for regulating the admission of cold air into the fire chamber. This device consists in a series of brass strips at A, connected together and aggregating a length of some fifteen feet. These are so arranged that the total movement due to their expansion is communicated to the chain, B, which passes around an arm and operates a double valve at C, in the air passage leading to the fire box. The contraction of the strips raises the valves and admits air to the furnace; their expansion due to an increase of temperature allows the valves to drop on the seats and so exclude air. It will be observed that the air is admitted at the side of the fuel, and that there is no damper in the smoke pipe. Smoke is thus caused to be consumed, and the fire is much more easily regulated.

The fire box is made of No. 16 wrought sheet iron, and is lined with specially prepared fire brick. The radiator contains 24 tubes, each 3½ inches in diameter, made of soft charcoal wrought sheet iron. The general shape of the furnace is such that the heat is diffused evenly over the inside. The conical cap on top deflects the heated air into the hot air pipes. It can easily be removed to afford access to the interior.

Patented April 16, 1878. For further particulars address the inventor, Mr. Henry Holcomb, Painesville, Lake Co., Ohio.

Live Hogs for England.

A number of butchers and provision dealers in Liverpool, England, have clubbed together for an experimental importation of live hogs from this country. They have purchased a steamer and had her fitted for the accommodation of 2,500 hogs between decks, besides a large number of cattle on the main deck. If the venture turns out well they propose to establish a full line of steamers for this business. Facilities have been provided for killing and dressing the hogs on board in case of necessity.

Six Years' Progress in Making Steel Rails.

The manufacture of steel rails was begun in this country in 1872. During that year 94,000 tons were made; in 1873, 129,000 tons; in 1874, 145,000 tons; in 1875, 300,000 tons; in 1876, 400,000 tons; in 1877, 420,000 tons. During the present year the product is expected to reach as many as 500,000 tons. In 1872 the average price of a ton of Bessemer steel rails was \$115. Now the average value is about \$42. Owing