

heat, he would have abandoned his own in the belief that it was worthless. We do not think the case on which a beneficial idea has been appropriated by another in a different form.

The complainant delayed rather than hastened the direct application of heat employed by the defendants.

It may be said the claim necessarily uses the terms "product of combustion" in a sense other than that imputed to them by the court, and the word used in reference to a device in which the direct radiation of rays from the fire was impossible, necessarily they must have contemplated something else, what this something else is is not stated. The court is asked to presume there is some unknown "product of combustion" beside heat, which can be conveyed through the apertures in the side walls upon the bread.

It is argued, if the court will but imagine some improved incident to combustion, then the original device embodied a mode in which it might be employed in baking, and thus it would lay the foundation for the claim made in the release. The answer is: We know of no such quality; all the product of combustible material in this process is the heat evolved, and, as the original patent provided no mode for its application, the subsequent claim for it is void.

Although our judgment goes upon another ground, and we have not, therefore, fully considered whether the patent for this combination is valid, because no invention is involved in making it, still such is our strong impression. We apprehend the new mode, which dispenses with smoke hoods and separating walls surrounding the baking chamber, depends far more upon the modern use of fuel, which can, without injury, be consumed directly beneath the dough, than in any discovery on the part of the complainant or anyone else in the application or law of a new principle of heat to baking. But, however this may be, previous patents had, in express terms, pointed out the mode and claimed as a benefit the direct application of heat to a baking chamber. The attention of those engaged in this department of industry had been directly challenged to this subject, and, what we deem somewhat material upon the mere question of invention, they had combined a furnace and chamber for the direct application of heat with an endless chain or apparatus for moving the bread over the fire. The reel is an old and familiar device. We should feel that we were carrying the doctrine which protects slight inventions to the last limit, if we were to hold the combination of the reel and furnace in this case involved invention. We have no disposition to deprive this species of property of its due protection. When an meritorious invention is presented, every disposition is felt to protect it from spoliation by the employment of other devices, where it is apparent the idea of the complainant has been employed. We decide this case against the complainant because convinced that the only had the patentee no notion whatever that he had included in his device what is claimed in the release, but because neither the patent, specification, nor model would have suggested it to any one else.

The bill will be dismissed with costs.

(S. S. Fisher and John E. Hatch, for complainant.
Edmund Boyd, for defendants.)

NEW BOOKS AND PUBLICATIONS.

MANUAL OF DETERMINATIVE MINERALOGY, WITH AN INTRODUCTION ON BLOWPIPE ANALYSIS. By George J. Brush, Professor of Mineralogy in the Sheffield Scientific School. Price \$3. New York city: John Wiley & Son, 15 Astor Place.

Professor Brush and Professor S. W. Johnson have for many years had control of one of the most important of our technical schools; and the Sheffield students are well grounded in the methods described in this volume, the greater part of which was compiled, some time ago, especially for their use. It is a work of the greatest practical value, and the classification is very exact and descriptive, and yet simple and clear. Although much has lately been written on the subject of blowpipe analysis, it is not probable that the branch of study is nearly exhausted; and Professor Brush's treatise carries it down to the latest date, exemplifying the processes with well-executed illustrations. We recommend this work to the attention of the scientific world.

A NEW TREATISE ON THE ELEMENTS OF MECHANICS, ESTABLISHING STRICT PRECISION IN THE MEANING OF MECHANICAL TERMS. Accompanied with an Appendix on Duodenal Arithmetic and Metrology. By John W. Nystrom, C. E. Philadelphia: Porter and Coates, 223 Chestnut street.

Mr. Nystrom has published a work which is likely to be of value to engineers and students of mechanical physics. It contains numerous problems in statics and dynamics, many of which are new to science, and are solved with clearness and originality. Most of the solutions are illustrated by diagrams. The treatise is exhaustive, and contains the author's researches into the statical condition of the heavenly bodies. The appendix contains some remarkable speculation as to the use of systems of numeration with other bases than 10, such as the duodenal (base 12) and the senidenal (base 16); but the disadvantage of making a change in a matter of such everyday usage is far greater than anything that can be gained by a more symmetrical method, especially when (as we recently showed in the case of the French meter) the supposed improvement is merely theoretical.

BOOK-KEEPING SIMPLIFIED: THE DOUBLE ENTRY SYSTEM BRIEFLY, CLEARLY, AND CONCISELY EXPLAINED. By D. D. Waggener. Price \$1 in cloth, 75 cents in boards. Philadelphia: D. B. Waggener & Co.

This is a neat and useful little work, written with clearness and illustrated with specimen pages of the various account books.

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]

From December 19 to December 24, 1874, inclusive.

- BOILER FURNACE.—W. C. Ford, Brooklyn, N. Y.
- CAN.—F. D. Brodhead, Boston, Mass.
- LIFE PRESERVING BELT.—R. W. Newbery, New York city.
- NEEDLE.—H. M. Jenkins et al., New York city.
- PUMP CYLINDER, ETC.—G. F. Blake, Boston, Mass.
- SPRINGS.—R. Vose, New York city.
- STEAM BOILER.—W. C. Ford, Brooklyn, N. Y.
- SURGICAL NEEDLE.—H. M. Jenkins, New York city.
- VAULT LIGHT COVER.—J. T. Foley et al., New York city.

Recent American and Foreign Patents.

Improved Sulky Harrow.

David Saigeon, Wattsburg, Pa.—The harrow is made in three sections, each section being formed of three S-shaped parallel bars, connected by cross bars. The S-bars are secured to each other, at their points of intersection, by the shanks of the harrow teeth, which pass through holes in the said bars, and are secured in place by nuts screwed upon their upper ends. The nut of the central tooth of the next to the rear cross bars of each section is made with a loop, to which is secured a chain. The other ends of the three chains are so connected that all the sections may be controlled by a lever at the driver's seat. There are also devices whereby the point of draft attachment may be adjusted as required, and also whereby the sections are allowed to conform to irregularities in the ground.

Improved Range.

Edwin O. Brinckerhoff, New York city.—The invention consists in the combination of the circulation and exit flues in connection with an elevated boiler, to adapt it to be heated by the products of combustion as they pass from the range to the chimney; in the arrangement of the circulation and exit flues in connection with the elevated oven to adapt it to be heated by the products of combustion, as they pass from the range to the chimney; in the arrangement of the circulation and exit flues of the elevated ovens, in connection with each other, to enable the products of combustion to be conducted around both or either; in the arrangement of the base dampers, in connection with the base flues of the elevated boiler, to enable the direction of the products of combustion around the boiler and ovens to be controlled as desired; in the arrangement of the top dampers in connection with the exit flues to enable the direction of the products of combustion through said flues to be controlled as desired.

Improved Harvester.

George Foster, Clarksville, Neb.—The essential feature in this device consists in an arrangement of knives, fingers, and endless bands, whereby the grass, after being cut, is deposited at the inner side of the platform in the rear of the drive wheels, so as to be out of the way of the machine at its next round.

Improved Railroad Switch Signal.

Hiram Corrad, York, Pa.—This is a railroad signal consisting of one or more torpedoes, which are moved upon the rail by the switch mechanism.

Improved Grain Weighing Apparatus.

William N. Julian and Joseph H. Bussert, Tarlton, Ohio.—There is a platform for the bag to rest on, and a ring for holding the mouth of the bag. They are suspended from the short arm of a scale beam, so as to have a slight rising and falling motion, and the platform is jointed to the frame. By suitable construction, when the receiving hopper on the scale beam goes down, the spout will be closed, and when the weight goes down it will be opened, so that the grain may be continuously spouted into the hopper while the filled bags are removed and empty ones put on, and the beam is caused to work a rock lever by a rod and arm, to turn a system of registering disks.

Improved Safety Guard for Wagons and Carriages.

Thomas Joyce, New York city.—This is a metal frame secured to the axle near each hub, and suitably braced. Should the axle break or a wheel be crushed in, or otherwise break down, the guards will come in contact with the ground and slide along it, preventing the wagon body from dropping so low as to throw out those riding, and enabling the wagon to be drawn home or to the repair shop without trouble.

Improved Horse Hay Rake.

Joshua Evered, Hopewell, N. Y.—In this wheeled horse hay rake the pivoted wire teeth are elevated by a lifting bar. The teeth slide through the staples, and turn on a fixed rod, while the bar makes a quarter revolution around the axle as a center, until the driver disengages pawls and ratchets by reversing a lever, when the teeth and lifting bar resume their former position.

Improved Wheel for Vehicles.

William M. Hoffman, Topton, Pa.—A wedge-shaped and notched metallic key is applied to the end of the spoke at a point near the side facing a beveled cushioning block, and is forced into the spoke end on the driving is set completely in the hub mortise a sufficient portion of the spoke end is carried sideways to lock or bind with the beveled block, so that a perfectly secure fastening of the spokes is produced, while at the same time, by the wooden cushioning side blocks, a certain degree of elasticity is obtained.

Improved Car Coupling.

John C. Sauserman and George W. Anthony, Newport, Pa.—The coupling link is formed in the shape of an arrow, with spear-shaped head and wider slotted rear part, that is coupled by a strong vertical pin, passing through perforations of the drawhead whenever it is desired that the link shall project far enough to couple with the adjoining drawhead. The retention of the link in this position is secured by means of its concave rear end, which rests against a second lighter pin. The middle part of the link is acted upon by the rounded-off jaws of vertical lever frames, which are firmly pressed against the link by strong springs. The entering spear head of the link strikes against the jaws, forces them sideways till the head has passed the same, when they lock firmly on the link and couple the same.

Improved Press.

Benjamin J. Day, Evansville, Ind.—The follower has a couple of bars sliding forward and backward horizontally under the feeding hopper and in the press case. The bars have a toothed rack, with which the driving shaft gears. The said shaft is geared to the main driver in order to work the follower forward and quickly, to utilize it for a beater, and also to apply great force for compressing the beaten hay. There is a head to the case, constructed in sections to admit of fastening the hoops after the bale is pressed and before it is released. The said sections are hinged to the case, and provided with weighted catches to hold them closed, and to automatically fasten them. The invention also consists of a fork, which closes over the opening through which the hay is put into the pressing case when the pressing begins, to hold the loose hay with which the hopper may be filled during the pressing, until the follower goes back behind it. Comb bars are combined with the follower and the press case, to prevent the matters to be pressed from gathering between the follower and the top of the press case. Lastly, a straining device is combined with the block attached to the baling band and the press head.

Improved Cutter Head.

Benjamin Pearson and Horace W. Pears, Newburyport, Mass.—This invention consists of a rotary cutter, in which two blades are arranged side by side, and separated by a disk of thin metal projecting from the face of other disks, all so contrived that the cutters may be used for cutting the gains in the end of the felly for the ferrule by which they are connected. The disk of thin metal between the cutters runs against the ends of the felly, to gage the cutters to the felly lengthwise, and the disks from which the cutters project serve to regulate the depth of the cut.

Improved Method of Forming Metal Seams.

Mortimer M. Camp, New Haven, Conn.—This is a method of uniting or seaming the edges of a shell or pipe by means of a grooved flexible metal bar, the edges being inserted in the grooves, and the metal clamped or compressed thereon.

Improved Portable Cover for Vapor Bathing.

Frank Leslie, New York city.—This cover is a tube made of any suitable kind of flexible material, tapering from the base upward, and having a hoop at the ends to expand the tube to the proper diameter, and one or more intermediate hoops or bands to keep the cover expanded when in use, and allow it to collapse after the manner of a Chinese lantern, to enable it to be compressed and carried in a trunk or bag by travelers, and be used as occasion may require. The head of the bather is protruded through the aperture, and leather, serving as a collar, is drawn tightly around the neck. Straps set upon the shoulders of the bather, and serve to relieve the neck of the bather of the weight of the cover. The vapor is generated within the cover by means of a suitable apparatus.

Improved Egg Carrier.

Wendell Weis, St. Paul, Minn.—This invention consists of securely interlocking strips, forming the cells for the eggs, in connection with a hinged and protecting top partition applied thereto. The hinged top part folds readily over the folded-up cell strips, so that not more space for return shipment is required than heretofore.

Sugar Cane Stubble Digger and Cultivator.

Henry Von Phul, Jr., and James Mallon, Holly Wood, La.—This is an improved stubble digger and cultivator, which can be readily adjusted to the width of rows, and to different depths. It consists of rotating disks, with pivoted curved prongs or teeth, being placed loosely on lateral shafts, which turn in suitable side bearings, being adjustable therewith in vertical direction on the supporting frame by crank-shaft, rack, and lever mechanism.

Improved Sulky Plow.

John A. Kneeder, Grant, Pa.—This is an arrangement of cranks whereby by operating a lever the driver can lower and raise the forward ends of the plow beams to cause the plows to work deeper or shallower in the ground, or to cause them to run out of the ground. By operating another lever, the plows may be raised from the ground, and held suspended while turning, and while passing from place to place.

Improved Wagon.

Jacob Becker, Jr., Seymour, Ind.—This invention relates to novel means whereby the rear wheels of a vehicle may be made to track with the front wheels while turning, as well as at other times, but yet they are not permitted to make too short and abrupt a turn.

Improved Strainer.

John Lipman and Martin Friedberg, Toledo, O.—This is a concave perforated, or reticulated, strainer, having a rim fitting closely to the interior circumference of the tumbler or other vessel, and fastening spring books for retaining the strainer firmly thereon. The device prevents the pieces of lemon or other substances from being carried into the mouth, and admits, therefore, the more convenient drinking of iced beverages.

Improved Attachment for Whiffletrees.

Richard Mansfield, New York city.—This improved mode of attaching whiffletrees is designed for street cars, in which the strain is mainly thrown on the staples or clevis connecting the whiffletrees to the draft eyes of the sway bar or car, so as to cause their rapid wear-out. It consists of a clevis attached by a cross bolt and nut to a recessed clip or band encircling the whiffletree or sway bar, to be connected by a detachable draft eye, attached by a screw nut through a square perforation of the socket bolt, to the ends of the whiffletree, or by a link to the car.

Improved Steam Cylinder Lubricator.

Joseph Kukulcorn, Brooklyn, N. Y.—This is an improved lubricator for steam cylinders, which consists in a reservoir with a central tubular stem, surrounded by a sleeve of the cover or top part. The sleeve is provided with an adjustable screw plug, having air channels for conveying a greater or smaller quantity of oil to the stem, or interrupting the supply of oil altogether. A grooved steam-acted valve and stationary bottom plug of the lubricator are provided, so that any required quantity may be fed in connection with the stroke of the piston.

Improved Wall Paper Striping Machine.

Jacob J. Janeway, New Brunswick, N. J.—This improved machine for striping paper hangings is so constructed as to enable the paper passing through the machine to be readily clamped and released without stopping the machine, and will heat and partially dry the middle part of the paper, so that the work may be done more rapidly, and so that the paper may dry evenly when hung upon the rack, thus adapting the machine to be run by power.

Improved Ice Receptacle for Corpse Preservers.

Friedrich Wesemann, Brooklyn, N. Y.—The ice receptacle is applied on ordinary corpse preservers by means of detachable supporting slide pieces and projecting lugs. The cover serves for the preserver and for the ice receptacle, being made in one piece, with a central smaller lid for inserting the ice into the ice box. As the cold air descends from the ice receptacle and settles on the corpse, it causes the rapid and complete cooling of the same along every part, and not at special parts only, keeping the body thereby in a perfect state of preservation.

Improved Windmill.

Thomas J. Ingels and Millard F. Ingels, Atchison, Kan.—In this invention a supplementary pivoted vane is so connected with the revolving wings or sails as to throw them out of the wind when the latter is too violent. There is an arrangement of parts, whereby a single-toothed bar connects with and operates devices for adjusting and regulating the position of the wings or sails.

Improved Water Closet Apparatus.

Archibald McGilchrist, New York city.—This is an improved water closet apparatus, so constructed as to render the use of a trap unnecessary, and at the same time to prevent any unpleasant odor from escaping through the pipe. It shuts off the water automatically and guards against an overflow, while allowing a sufficient amount of water to flow in after the valve has been closed. When a ball valve is raised, the contents of the basin and case will flow off through the sewer pipe. As the water lowers in the case, a float contained in a separate case sinks and opens a small valve, allowing the water to flow into an upper valve chamber. The arrangement of the valves is such as to cause the water to flow into a siphon-shaped pipe, and through it into the basin. When the ball is lowered into place, the water rises in the case, raises the float, and shuts off the water pressure.

Improved Scrubbing Brush and Mop Holder.

Michael Bigler, Marr, Pa.—This invention consists in conjoining two scrubbing brushes by a plate having a median neck which is grasped by a pair of gripper jaws that may be detached and used to hold the mop rag.

Improved Hemp Dressing Machine.

George Davis, Elizabeth, N. J.—For automatically varying the motion of the delivering rollers according to the quantity of material passing, the shaft has cone pulleys, which are geared with corresponding reverse cone pulleys on the driving shaft by an independent belt for each. The pulleys have loose belts with which tighteners are arranged to act alternately, the tighteners being on a rock shaft, which is held by a weighted lever when the hemp is running light so that the belts of the two smaller pulleys run loose, and the motion is given by the largest pulley; but when the quantity increases and raises the upper roller, levers connected to it raise the weighted lever, which first tightens the belt of the smaller pulleys in succession, giving a faster motion. By the diminution of the quantity passing through the rollers the weighted lever falls, and the reverse results are obtained.

Improved Car Coupling.

Thomas L. Shaw, Laurinburg, assignor to himself and Hugh G. Fladger, Lilesville, N. C.—The top part of the drawhead is provided with a central vertical guide recess, which is concentric to a round lateral pin, and extended slightly into the interior bottom part, for the purpose of admitting a tumbler. The tumbler swings with its concave part around the pin, and serves as a support for the raised coupling pin, when resting in nearly vertical position on the bottom part of the drawhead. The pin drops into the usual top and bottom perforations of the drawhead, and is guided along a vertical concave front recess of the tumbler guide pin. The hook extension of the tumbler projects from below into the recess of the guide pin, and retains thereby the pin in raised position ready for coupling. The entering link strikes the lower front part of the tumbler, and carries the same in the guide recess in upward direction until it assumes a nearly horizontal direction, closing completely the upper part of the recess. The coupling pin is raised for uncoupling by hand, and causes, by the withdrawal of the link, the instant forward sliding of the tumbler, until the same assumes a nearly vertical position on the bottom part of the drawhead, and supports on its forward projecting hook end the pin in raised position, ready for coupling automatically on the entrance of the link.

Improved Brick and Tile Machine.

Hiram L. Huntington, Keyport, N. J.—In this improved brick and tile machine, there is a series of contracted throats radiating from the axis of the mud-mixing shaft below the mixer, through which throats the mud or clay is forced into receivers by pushers, which, in foreing it through, press it sufficiently for the bricks and tiles. When a receiver full of clay has been pushed out, a wire cutter rises up in front of the mouth of the throat and separates the mass in the receiver from the remaining portion; then the bottom of the receiver rises and carries the pressed clay against a series of wire cutters extending across the receivers, and separating the clay into bricks, which are then removed, the receiver bottom goes down, and the pusher goes back, ready for another operation. Each set of apparatus is operated in succession, and all the moving parts are worked directly from the extension of the mixing shaft below the mixer.