

**The French International Exhibition of 1878.—Regulations for Foreign Exhibitors.**

The Commissioner General of the French International Exposition of 1878, to be held in Paris, has published the regulations for exhibitors. We extract the following from the articles relating to foreign contributions:

Article 5. Packages from abroad containing products destined for the Exposition must bear as distinctive marks the letters E. U., surrounded by a circle and traced by a brush. They are to be addressed to the commissioner of the exhibitor's country. Such packages will also bear the following indications, namely, the colors or emblems of their national flag. Foreign commissioners are expressly requested to inform the Commissioner General, at as early a date as possible, as to the form of address and special signs for recognition which each may adopt.

Article 6. Both French and foreign products will be admitted within the Exposition from January 1, 1878, to March 30, inclusive. These dates are subject to the revision of the Commissioner General.

Article 7. The Exposition is constituted a custom house depot. Foreign products entering under customs laws may do so up to March 15.

Articles 8 and 9. These relate to the building of structures for heavy machinery, etc., under the direction of the Commissioner General. Work thereon may begin by December 1, 1877, and must be finished by February 15, 1878.

Article 10. Everything must be in place and in order by April 15. This provision will be rigidly enforced, and the Commissioner General will dispose of all allotted space either not occupied or incompletely occupied on that date.

Articles 11 and 12. Packing boxes must be emptied at once, and removed. If the exhibitor does not do this, the Commissioner General will have it done. Exhibitors must also take care of their own boxes, no place for storing them being provided.

Article 14. All exhibits must be removed by December 15, 1878. After that date they will be stored at the exhibitor's expense; and if not then removed before June 30, 1879, they will be sold for the public benefit.

**NEW BOOKS AND PUBLICATIONS.**

**THE USE AND ABUSE OF THE STEAM BOILER.** By Stephen Roper, Engineer. Philadelphia, Pa.: Claxton, Remsen, & Haffelfinger, Publishers, 624 Market street.

The author says in his preface that "the great mistake of many writers on the steam boiler and steam engine is that they write too much." This is peculiarly his own error, and the unnecessary existence of the present book proves the fact. It appears to be devoted to advertising a well known boiler insurance company, several boilers in common use, and some of the author's inventions. Such practical information as is given is useful, but is obtainable in much more condensed form in other works. The book, however, serves one good purpose in reminding us that we have not received that amended copy of Mr. Roper's previous production, in which he promised to give credit to the SCIENTIFIC AMERICAN for extensive extracts taken from our columns without a word of recognition; nor has he yet explained why he publishes a notice which we wrote of one of his works, garbled with self-flattering interpolations of his own.

**DAVID AND ANNA MATSON.** By Abigail Scott Duniway. Price \$2.00. New York city: S. R. Wells & Co., Broadway.

This is claimed to be a poem, and the author informs us that she has "sniffed the bland breeze of the broad Mississippi" and "listened all rapt to Niagara's groan." She now has an opportunity to "sniff," and listen to the groan of the public.

**HOW TO SING.** By W. H. Daniell. Price 50 cents. New York city: S. R. Wells & Co., Broadway.

The author, an experienced music teacher, has condensed into this little manual a great many useful suggestions on the development of the voice. The work is written in colloquial style, is pleasantly readable, and can be commended to vocalists of all grades.

**Recent American and Foreign Patents.**

**NEW MECHANICAL AND ENGINEERING INVENTIONS.**

**IMPROVED STONE-DRESSING MACHINE.**

John C. Miller, Bridgewater, Va.—This has reference to a machine for grinding or dressing the ends or heads of grave and other stones into any required shape in rapid and convenient manner, without danger of injuring the slabs by cutting or otherwise. The invention consists of adjustable supporting pieces and holding planks, between which the stones are secured head downward, to be ground or dressed by a reciprocating trough with a metallic shaping plate containing sand and water.

**IMPROVED LOCOMOTIVE.**

William Holdsworth, Traverse City, Mich.—This is an improvement in the class of locomotives provided with wheels mounted on vertical axes and adapted to work in contact with a rail laid equidistant between the parallel rails, upon which the locomotive is supported in the usual way. The improvement relates particularly to parts for varying the pressure of the driving wheels upon the central friction rail, and for guiding and supporting said wheels while permitting their lateral and vertical adjustment.

**IMPROVED SHIP'S WINDLASS.**

Joseph L. Dickenson, Hempstead, N. Y.—This inventor makes the plug, which connects the chain wheel of a windlass (which reverses loosely on the shaft) with a fixed wheel, in sections. The object is to enable the movable wheel to be readily disconnected from the fixed wheel, so that the anchor may be easily let go, if need be, during the process of weighing.

**IMPROVED ANTI-FRICTION BEARING.**

James Warren and George Wilkes, Monroe, Iowa.—This consists of an arrangement of rollers of peculiar form, and bearing plates adapted to the rollers in such a way that the journals of the shaft to which they are applied will be relieved from end thrust, the object being to relieve the journals and steps, of vertical and other shafts that are subjected to end pressure, from strain and friction.

**IMPROVED VALVE GEAR FOR STEAM ENGINES.**

George E. Tower, Annapolis, Md.—This invention is designed for marine engines, but is applicable to others as well. It relates to a means for adjusting and working the main valves of an engine, whether the same be applied to the side or head of a cylinder. The chief feature of the invention is a shifting lever mounted on a rotating eccentric or crank, and connected with a rocking frame or equivalent device, which is capable of vibrating or remaining stationary while the engine is running. When the rocker is station-

ary the movement of the lever is least eccentric or irregular, and the valves cut off at about seven tenths of the stroke. But when the lever attains its greatest eccentricity, the valves cut off at about two tenths of the stroke. Between these limits the movement of the valves may be regulated at will. The variation in the position and movement of the lever is, in this instance, effected by an irregular cam, whose adjustment with the rocking frame shifts the point of connection between it and the lever, such point being stationary, or vibrating in the arc of a circle, correspondingly.

**IMPROVED FEEDER FOR HORSESHOE MACHINES.**

John W. Chewing, Jr., Shadwell Depot, Va.—This invention relates to certain improvements upon the horseshoe machine for which letters patent were granted the same inventor, August 29, 1876, and it consists in the construction and arrangement of a device for feeding the bar, from which the shoe is made, to the machine, whereby the operation of the same is rendered automatic.

**IMPROVED LOCOMOTIVE.**

John Westcott, Tocoi, Fla.—This invention relates to a novel construction of a locomotive for drawing cars which are supported upon swiveling pedals that slide in lubricated channeled rails, and it consists in pivoting the supporting pedals in laterally adjustable bars, whereby they are made to adapt themselves to the channeled rails so as to obviate binding, and whereby also they are adapted to roads of different gage.

**IMPROVED HORSE POWER.**

Isaac Joyner, Jonesborough, Miss.—This invention consists of a wheel with spider frames that support an interior drum or cylinder, of sufficient size for the horse to walk in, the power being transmitted by a friction wheel, in contact therewith. One of the radial frames supports an outermost circle that forms, with suitable levers and friction shoe, an effective brake mechanism.

**NEW HOUSEHOLD INVENTIONS.**

**IMPROVED SAD IRON.**

H. B. Evans, St. Charles City, Mo.—This invention consists in a self-heating sad iron, having a removable fire box or drawer, a detachable top, and an inner partition for throwing the heat in a downward direction, the main object of the invention being to heat the bottom of the iron and keep the top comparatively cool.

**IMPROVED CARPET CLEANER.**

Sarah B. Stearns, Duluth, Minn.—This consists of a number of alternately working spring arms, with beaters or whips fastened to the ends, which are operated jointly with revolving dusting brushes at the ends of radial arms. The dusting brushes may be detached and replaced by scouring brushes to be used in connection with a suds trough.

**IMPROVED VENTILATOR.**

Henry A. Buzzell, St. Johnsbury, Vt.—This consists of a drum attached to the stove pipe, the drum being connected by pipes and funnels with the story below and with the upper and lower part of the room, to draw off the air to the chimney.

**IMPROVED CLOTHES DRYER.**

John F. Jaques, Moline, Ill., assignor to himself and John W. Bartlett, of same place.—This is a folding frame of peculiar construction, provided with cords for supporting clothes, forming a convenient clothes rack, and which is capable of being folded into a small compass.

**NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.**

**IMPROVED CISTERN.**

James Kennon, Jamestown, Ohio, assignor to Mary E. Kennon, of same place.—This is a walling for wells and cisterns, made of sections, or in one continuous piece of burned clay, with top covering, the upper edge or seat of the sections being made wider than the lower to support thereon the next, and form a kind of shoulder for the surrounding earth.

**IMPROVED DOOR LOCK.**

Gustav Winter, Denver, Colorado.—This consists of a door lock with two or more bolts and tumblers, which are so arranged in connection with the key hole guard plates, pivoted to the casing of the lock and operated by the bolts and key, that the key hole is closed at the side opposite to that from which the key is introduced.

**IMPROVED CARRIAGE TOP.**

George F. Knight, Carroll, Ohio.—This invention consists in making the top of a buggy or other vehicle of sheet metal, the same being fastened to an internal frame and braced by bolts, six in number, while the top is connected with the seat frame by front and rear braces, the latter being jointed and the former rigid. This construction is found to greatly facilitate the trimming of the top, as that can be done before the frame is bolted on, and therefore at much less cost than in the usual way.

**NEW AGRICULTURAL INVENTIONS.**

**IMPROVED TOBACCO SUCKER GERM DESTROYER.**

Joseph H. Knaus, John R. Harford, Walter C. Knaus, and Andrew J. Furr, Boonsborough, Mo.—The object of this invention is to improve the construction of the tobacco sucker germ destroyer for which letters patent were granted to Joseph H. Knaus and John R. Harford, January 11, 1876. In using the instrument, the handle is grasped in the hand, with the fingers beneath the cross bar, and the cavity between the arms is placed against the tobacco stalk, directly over the sucker germ, and is pressed against said stalk with sufficient force to cause a cutter to project against said germ. The cutter is then rotated, and cuts out and destroys the germ, so that it will not grow again.

**IMPROVED FARM GATE.**

William H. Richardson, Sheboygan Falls, Wis.—This is an improvement in that class of gates which slide open and shut over rollers, so that they may be operated with more facility, in less space, and not be so liable to get out of order. The invention consists in clamping two rim-grooved wheels to a gate bar so that each will revolve upon a rigid hollow bearing, through which the clamping bolt passes.

**IMPROVED REIN HOLDER.**

George W. Waters, Center, Mo.—This consists of a bar of wood having straps adjustably attached, for strapping the bar to the shoulders, and for connecting the reins to the bar, the object being to provide a device for guiding teams while plowing, or doing other similar work, which will permit of the free use of the hands and arms.

**IMPROVED GARDEN RAKE.**

Anna Maria Suydam, Waterloo, N. Y.—A blade of segment shape, with sharp edge, is bent in one piece with the tines, and forms a stiffening back for the same. It is made in line with the handle, and at about a right angle to the tines, and serves to clean and cut away the small patches of grass and bits of weed that are left in hoeing in the garden paths.

**IMPROVED NOSE RING FOR SWINE.**

Edmund S. Richards, Tripoli, Iowa.—The sharpened ends of a piece of wire are passed through the gristle of the hog's nose, bringing a roller on the wire just in front of said nose. Small leather washers are then placed upon the sharpened ends of the wire, and the said ends are bent down upon the outer sides of the said washers, securely fastening the ring to the hog's nose. When a hog with this device attempts to root, the roller turns upon the wire, and the hog can make no impression upon the ground.

**IMPROVED HAY LOADER.**

Joseph Richter, Laketown, Minn.—This invention relates to certain improvements in that class of devices which are designed for loading wagons with hay, straw, or grain. It belongs to that type of loaders in which an adjustable rake gathers up the hay and delivers it to an endless revolving apron provided with teeth, which apron is operated by a band and pulley connection with one of the driving wheels, and delivers the hay to the top of the wagon. The improvement consists in the particular construction, arrangement, and adjustments of the loading devices.

**IMPROVED METHOD OF CHECKROWING CORN.**

Charles B. Maclay, Delavan, Ill.—The convexity of the ground, passed over by a planter or seeder, necessarily modifies the distance between the hills planted. The gain or loss in this respect is noted, and may be corrected in this machine by means of an expandible wheel. A chain passes around this wheel and also a collar on the axle of the machine, so that the rotation of the wheel may cause the reciprocation of the seed slide. The wheel is expanded, more or less, to cause the slide to work more or less quickly, and thus drop the seed in hills a greater or less distance apart.

**NEW TEXTILE MACHINERY.**

**IMPROVED PICKER CHECK.**

Robert Davidson and John Richardson, Fall River, Mass.—This is an improvement in the class of friction devices designed for gradually arresting the picker staffs of power looms, in place of suddenly stopping them, as commonly practised. It relates to the means of attaching the friction strips to the shuttle boxes, and of adjusting the angle of the strips to each other, for varying the friction exerted on the picker staff. By means of adjustable brackets, the binders may be set nearer or farther from each other, and thereby the binding force of the check device increased or decreased.

**NEW MISCELLANEOUS INVENTIONS.**

**IMPROVED CROQUET Mallet.**

Harry Malin, Pleasantville, Pa.—This is an improved croquet mallet that will not bruise the balls, and makes them last much longer, while it requires a lighter stroke in playing. It has rubber caps or facings at the ends.

**IMPROVED PORTABLE FIRE ESCAPE.**

Herbert R. Houghton, New York city.—This fire escape consists of a wire rope having a series of cross bars or rests interlaced and lashed thereto, the said rope having a loop formed at its upper end, with an extension end, for convenience of escape upon the main rope. The whole is suspended by a snap hook caught in an eye, which is screwed to the floor of a room. As its weight is only about five lbs., it is suitable for the use of travelers and residents in hotels, for whom it is especially designed.

**IMPROVED MACHINE FOR MOUNTING PHOTOGRAPHS.**

Robert Sheane, Listowell, Ontario, Canada.—This invention consists of a box of two parts hinged together so as to open and close together with uniform action. In the lower part is a glass plate resting on a rubber or other elastic cushion, and in the upper part is a follower with an adjusting screw. The cards on which the photographs are to be mounted are put in the upper part, and pressed down one after another on the pasted pictures lying back upon the glass, which are thus pasted to and mounted on the cards by closing down one part of the machine on the other.

**IMPROVED POCKET BOOK FASTENER.**

Daniel M. Read, New York city.—This invention is an improvement upon that for which the same inventor has already received letters patent, and relates chiefly to the construction of the fastening attached to the strap encircling the pocket book, which is composed of a flat sheet metal top plate and a channeled bottom plate. The top plate is provided with an end extension, which is bent back over the end of the flap of the pocket book, to cover, protect, and confine said end, and the bottom plate has a lengthwise depression or channel forming a corresponding raised portion, in which are formed three holes to receive the pin fixed in the base plate.

**IMPROVED CIGAR HOLDER.**

John Hutton, New York city.—This is a skeleton holder consisting of the mouth piece in combination with the spring arms and semicircular clips which grasp the cigar. It is made in one piece from hard rubber.

**IMPROVED PROCESS OF LITHOGRAPHING TRANSFERS.**

Charles R. Biedermann, St. Louis, Mo.—This invention consists mainly in dispensing with the preliminary treatment of the stone for causing it to absorb fluid matter beneath its surface, which is effected by hardening the copy on paper into a solid type by the application of nitric acid, and transferring, and fixing the hardened copy upon the stone by heating the same to blood heat, without chemical treatment of the stone.

**IMPROVED COMBINED GAS METER AND CARBURETER.**

John M. Cayce, Franklin, Tenn.—Mr. Cayce's present invention relates, first, to an improved gas-measuring apparatus, adapted for use, like other meters, in dwellings and other buildings, and also for performing the function of a secondary motor for operating an air-carbureting apparatus. The chief element of the apparatus is a bi-chambered wheel or cylinder, of what may be termed annular segmental form, which is partially immersed in water or other liquid, suitable for sealing its open ends, and is oscillated upon its axis by the passing current of gas required to be measured, each reciprocating movement thereof causing the vibration of a weighted lever, and thereby the reversal of a four-way cock, by which the gas current is caused to enter one chamber of the wheel while the other is discharging its contents, and vice versa.

**IMPROVED DRESS CLASP.**

Alexander L. Fyfe, London, England.—This clasp is adapted to be attached to a chain provided with a hook for attachment to the waistband. The dress is held in a clip, which consists of a pair of jaws, cupped or hollowed, and having on one a spring pad or cushion which fits in the hollow of the other, and thus securely retains the dress. The pad consists of a disk of metal, cupped or hollowed, with a spiral spring behind it, and is fitted in the hollow of one of the jaws. The jaws are provided with a runner, so formed as to embrace and compress them firmly together at the point where the dress is held. The runner may be of any desired form, and the back of the jaws may be corrugated or roughened transversely to ornament them, and at the same time retain the runner more securely in position.