E. S., of Iowa.—We estimate the horse power of your boiler to be 145. A twenty inch belt will not drive more than 80-horse power. It is impossible to say from the data you give what is the reason for the slipping of your belt, but the presumption is that it is too small for the work.

J. W., of Mich.—You can prevent the slipping of a rubber belt running on wood pulleys, to some extent, by chalking the pulleys. If however, slipping occurs, the presumption is that the belt is too narrow to do the work demanded of it or it is running too loosely.

M. S., of La.—You can undoubtedly raise water to the hight of 34 feet by the centrifugal pump you describe, the amount of horse power required depends upon the amount to be raised and the condition of your pump.

W. W. S., of Ind.—There is little doubt that general protection from lightning can be afforded to a town by a proper number of well constructed lightning rods properly put up. We do not, however, think your scheme practicable.

L. Y., of N. Y.—The undulating motion of vessels at sea has often been employed as a motive power for pumps, etc. We have doubts however of its practicability as a means of propulsion for the vessel itself.

H. S., of Ohio.—The ordinary solder, two parts tin to one of lead will flow smoothly on tin when dipped, by previously putting sal-ammoniac on the surface to be covered.

J. B., of Tenn.—A good cement for holding labels upon a metallic surface is a thickish varnish of gum shellac dissolved in alcohol.

W. F., of Mass.—Your proposition to make the exhaust steam, smoke, and ashes discharge into a receiver or tank placed in front of a locomotive is in our opinion impracticable.

A. C., of N. Y.—The sponge is generally recognized as belonging to the animal kingdom. You could have settled your bet by reference to Webster's dictionary.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

COTTON SEED PLANTER.—Nathan Breed, Jeffersonville, Ind.—This invention has for its object to furnish an improved cotton seed planter, which shall be simple in construction and effective in operation.

TUG BUCKLES.—D. S. Butler, Otterville, Mo.—This invention has for its object to furnish an improved tug buckle, strong, durable, simple in construction, reliable in use, and easily buckled and unbuckled, while at the same time holding the tug securely and receiving the draft strain squarely.

MEDICAL COMPOUND.—W. H. H. Peters, Tuskegee, Ala.—This invention provides an efficient remedy for treating rheumatism, neuralgia, gout, and diseases of nervous origin.

WELL PIPE DRIVER.—L. M. Rumsey and W. P. Smith, St. Louis, Mo.—This invention relates to important improvements in machines for driving pipe in the process of constructing "drive wells" for obtaining water, and for other purposes of a similar nature.

BUCKET.—James H. Tomlinson, Chicago, Ill.—This invention relates to a new and useful improvement in buckets and pails, and all bailed vessels of a similar nature.

HOT BLAST OVEN.—Samuel Thomas and John Thomas, Hokendaugua, Pa.—This invention relates to a new and useful improvement in ovens or apparatus for heating air for smelting iron in blast furnaces.

APPARATUS FOR CUTTING GLASS.—Frank Bowly, of Winchester, Va., has recently taken out a patent for a convenient apparatus for cutting panes of glass to the exact size required, which is designed for glaziers' use, and for country stores where glass is retailed. It consists, in general terms, of a ruled board having a row of pins arranged along each lateral margin, any two of which are employed to hold a movable rest gage, against the edge of the latter one edge of the glass pane is placed, while the opposite end is trimmed or cut. The pins are separated by inch spaces, and a stationary rule of straight edge is used to guide the diamond. It is a simple and useful device.

ROTARY STEAM ENGINE.—Alfred Bailey, Oswego, N. Y.—This invention consists in the novel arrangement of steam and exhaust ports, whereby the steam from the boiler is constantly entering the cylinder, and constantly exhausting therefrom. It also consists in the novel construction of the abutments slides, and in the mechanism provided for reversing the motion of the engine.

CORN PLANTER.—M. M. Sprinkle, Rochell, Va.—The object of this invention is to construct the seed-distributing device in such a manner that it shall operate more perfectly than heretofore.

SIFTER FOR FLOUR, ETC.—E. C. Hickman, Washington, D. C.—The object of this invention is to provide for public use a cheap and convenient device for sifting flour, etc.

REGULATING CLEVIS.—Elias Evans, Montgomery, Ala.—The object of this invention is to provide for public use a clevis of novel form and construction which can be easily adjusted so as to make the plow cut a furrow of any desired depth, and which will be light, strong, and durable.

STOVE.—Margaret Armstrong, West Alexander, Pa.—The object of this invention is to provide, in connection with a cooking stove of a certain pattern, an ornamental attachment adapted, when in position, to conceal the griddles and change the outward appearance of the stove, making it a handsome parlor stove.

BUCKLE.—Wm. Mac Lean and James H. Harris, Vermont, Ill.—This invention has for its object the connecting of buckles with straps without the use of stitching; and to this end, it consists in providing a buckle, with two loops at its rear end, one above another, the lower loop being for the retention of the fixed end of the strap, and the upper loop for the reception of the end after passing the tongue of the buckle through the strap.

BOILERS AND FURNACES.—I. C. Pennington, Paterson, N. J.—This invention has for its object to economize the use of fuel used in heating steam boilers, and reverberating and other furnaces, by using the heat escaping with the products of combustion for heating the air to support combustion before it is introduced into the fire box.

DRAWBRIDGE ALARM.—Thomas S. Hall, Stamford, Conn.—The object of this invention is to so construct and arrange the fastening device of a drawbridge, that the same when closed will interrupt the current through the wires of a battery, while, when open it will cause a connection between the same to be established, and a circuit produced. Thereby an automatic signal is produced for warning railroad trains approaching the bridge from either side when the bridge is open, while, when it is closed, the signal of danger will not be displayed.

SELF-ADJUSTING RAILROAD SWITCHES.—William L. Yantis, Brownsville, Mo.—This invention has for its object to improve the construction of switches or turnouts, so that they may be self-operating, not requiring the service of a switchman, and at the same time may be safe and reliable, being always in proper position.

TOY.—Daniel Willis, Jersey City, N. J.—This invention relates to a new toy of that class in which figures of animals, such as horses, etc., are arranged in front of a toy cart or wagon, the object of the invention being to impart to such figures a motion similar to that of living animals, so that when the toy vehicle is drawn ahead, the animals in front will move in a life-like manner.

COMPOSITION FOR CLEANING GRANITE, FREESTONE, AND MARBLE.—M. L. Ivers, Oneco, and G. L. Cooley, Plainfield, Conn.—This invention relates to a new composition for cleaning the surfaces of granite, freestone, marble, and all other kinds of stone employed in buildings, graveyards, monuments, and for other purposes, to free them from vegetable impurities, and to remove all blemishes.

ANTI-FRICTION METAL.—A. B. Cook, Manchester, Tenn.—This invention relates to a new metal to be used in journals, bearings, and boxes of all kinds, and has for its object to be less expensive and more effective than any other metal or metallic compound now in use.

FILE-CUTTING MACHINE.—F. Schultz, Hoboken, N. J., and C. Renne, New York city.—This invention relates to a new machine for cutting files, which is of such simple construction and arrangement that it cannot readily get out of repair, and that it can be manufactured at a cost much less than that for which file-cutting machines can now be made.

CONNECTION FOR SWITCH ALARMS AND SIGNALS.—Thomas S. Hall, Stamford, Conn.—This invention relates to a new mechanism and action of the switch connection, and to a new manner of protecting the connecting lever.

DESULPHURIZING BITUMINOUS COAL.—David Morgan, Hammondsville, Ohio.—This invention relates to an improvement in separating sulphur from bituminous coal, and thereby rendering it more suitable for the purposes for which it is used.

DRILL.—L. M. Rumsey and W. P. Smith, St. Louis, Mo.—This invention relates to a new and useful improvement in drills for penetrating earth or rock for obtaining water or for other purposes.

COMBINATION BRUSH.—Joseph Marshall, New York city.—This invention relates to a new and useful improvement in brushes for cleansing purposes, more especially designed for flesh brushes, but applicable to other uses, and consists in the combination of bristles or hair (or their equivalents) with sponge.

COTTON CULTIVATOR.—Samuel C. Darden, Connersville, Miss.—This invention relates to a new and improved machine for cultivating cotton, whereby much manual labor is saved, and it consists in a machine so constructed that it may be changed in its parts to adapt it for different purposes or for cultivating the cotton plant during the different stages of its growth.

SLUG BALL FOR FIREARMS.—James Curtis, Chicago, Ill.—This invention relates to an improvement in musket balls, whereby they are made more effective in battle at close quarters than balls of ordinary construction.

PAPER POLISHER.—H. T. Cushman, North Bennington, Vt.—This invention is intended to remove a difficulty experienced by all who require to make erasures of letters, words, or marks made on paper with ink, in polishing or restoring the surface of the paper to permit re-writing thereon without blotting.

SOLDERING-IRON HEATER.—Josiah Burgess, Zanesville, Ohio.—This invention consists in the combination with a naphtha burner of a furnace for heating soldering irons, so arranged as to control the heat generated to the best advantage for accomplishing the purpose.

REFLECTING ATTACHMENT FOR MIRRORS.—Charles J. Hartmann, London, England.—This invention relates to improvements in reflecting attachments for mirrors: and it consists in connecting the extension tubes employed for suspending a reflector for throwing the image of the back part of the head or other part of the person upon the mirror to the top of the said mirror by a universally jointed connection; also in connecting the reflector to the said tubes by a similarly jointed connection, whereby the said reflector may be readily adjusted to any required position, or be turned around to one side out of the way when not required for use.

MUSICAL INSTRUMENT.—Frederick Suter, Williamsburgh, N. Y.—This invention relates to a new musical apparatus, which is operated by means of keys on a fingerboard like the pianoforte. The invention consists in the employment of metallic disks, or plates, for the purpose of producing sounds in the requisite succession said disks or plates being secured to a suitable framework, so that they can be struck by hammers at the will of the operator.

MANUFACTURE OF SUGAR.—Louis J. F. Margueritte, Paris, France.—This invention relates to a new process for extracting sugar and increasing its produce in manufacture, refining, and forming it into loaves by means of alcohol. This process is based on the decomposition of the molasses by an energetic acid amidst the alcohol, to such a diluted degree that the sugar may be held in dissolution, but instead of obtaining the precipitation through the aceton (or pyro-acetic spirit), ether, etc., it is proposed to obtain it by more simple and direct crystillization.

HULLING MACHINE.—S. R. Hockman, Urbana, Ohio.—This invention relates to improvements in hulling machines, such as are used for hulling corn, barley, rice, and other grains, the object of which is to provide a more simple and economical machine than those now in use.

MACHINE FOR FORMING BITS FOR AXES.—Luke Chapman, Collinsville, Conn.—This invention relates to improvements in machines for shaping the steel bits for axes, and other similar tools, to facilitate fitting and welding them to the polls.

BEDSTEAD FASTENING.—Thomas O'Keefe, Appleton, Wis.—This invention consists of metal plates for screwing on to the face of the posts, or side rails, having two or more hooks projecting at right angles from the face at one edge, to be used in pairs, one on the post with the hooks facing upward, and the other on the side rail with the hook facing downward, and so arranged that the hooks of the plate on the rail will engage with and be supported by those on the post.

SPRING HINGE.—H. B. Middaugh, Mansfield, Pa.—This invention relates to improvements in spring hinges, designed to hold the door either in an open or closed position. It consists in the application to the back of the leaf to be screwed to the joint, of a coiled spring under suitable tension, which may be adjusted, the face end of the said spring being engaged with the edge of the other leaf of the hinge.

METHOD OF COLORING THREADS, FABRICS, ETC.—Carl Gunther, Berlin, Prussia.—The object of this invention is to provide means by which metallic foil can be secured to the fabrics or around threads and fibers, that it will not be removable by wear or water, and that its luster and brilliancy will not be destroyed. It has been a subject of considerable research to detect a means of gilding and silvering fabrics and threads, so that the metal applied would not wear off and destroy or injure the flexibility of the material. By this improved process the threads are left as flexible as they were before, and they can be folded at will, without breaking or injuring the metallic covering.

VELOCIPEDE.—Henry Thompson, Mobile, Ala.—This invention relates to improvements in velocipedes, designed to provide a simple and efficient arrangement for obtaining the motive power, by a rising and falling movement of the operator applied to an operating lever, similar to the motion of riding on horseback, and for imparting the same to the front wheel of a machine preferably having three or more wheels.

How to Get Patents Extended.

Patents granted in 1855 can be extended, for seven years, under the general law, but it is requisite that the petition for extension should be filed with the Commissioner of Patents, at least ninety days before the date on which the patent expires. Many patents are now allowed to expire which could be made profitable under an extended term. Applications for extensions can only be made by the patentee, or, in the event of his death, by his legal representative. Parties interested in patents about to expire, can obtain all necessary instructions how to proceed, free of charge, by writing to

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