

by Mr. John B. Hampton, of Pomeroy, Ohio, consists of a bar adapted to be fastened to the bridle by rivets, having a slot through it and on either side thereof underneath a transverse recess for the reception of the studs projecting from either side of the end of the loop, which are passed through the slot in the plate, and then turned so as to rest in the said recesses, and thus form a swivel joint.

Mr. James McMurray, of East Portland, Oregon, has patented an improvement in cooking utensils. The object of this invention is to provide kettles, saucepans, and other cooking vessels with straining and steaming attachments, which shall be so constructed that they may be readily applied to the said vessels, and attached and detached, as required, and which shall be simple in construction and inexpensive in manufacture.

An improved machine for washing and beating silk and other threads and yarns when in the skein, has been patented by Mr. George Morlot, of Paterson, N. J. It is simple in construction and convenient and effective, removing all loose fibers and foreign particles, and forcing the water into and through all parts of the thread.

An improved tire shrinker has been patented by Messrs. George H. Stroud and John A. Shuman, of Sugar Run, Pa. The object of this invention is to provide a tire shrinker that will work effectually, and yet require no great exertion of power. It consists in combining with a movable plate and jaws a forked connecting rod, pivoted to the jaws, and a lever operated disk.

An improved brake for baby carriages, patented by Mr. William F. Wallberg, of Brooklyn, N. Y., is so constructed as to lock the wheels automatically whenever the handles are released, so that it will be impossible for the carriages to start forward accidentally.

An improved signal lantern, patented by Mr. Thomas S. Easterbrook, of Toledo, O., consists of a lantern globe having two opposite quarter sections colored, and the two intermediate ones uncolored, which globe is set in a lantern frame that has attached to it two quarter section metallic plates that are set opposite each other, so that by turning the globe the colored sections or lights of the globe may be covered by the plates and the uncolored or white lights only be shown, or the colored light be shown and the white be covered.

An improvement in window blind fasteners has been patented by Mr. William H. B. Allen, of Cambridge, Mass. This invention consists in a blind or shutter fastener operating to retain the blind open or closed and fitted for convenient manipulation. The inventor makes use of a pivoted catch and lever hung on the stile of the blind, which locks with the hinge staple to hold the blind in either position.

An improvement in dumping carts has been patented by Mr. George B. Wiestling, of Mont Alto, Pa. The object of this invention is to furnish carts, wagons, cars, and other vehicles so constructed that their bodies may be raised vertically, and also set in inclined positions, to facilitate the dumping of their contents.

The Eclipse of the Sun.

The line of totality of the eclipse of Sunday, January 10, crossed Central California and Southern Nevada, and penetrated nearly to the Great Salt Lake in Utah. Only in California, however, could favorable observations be taken, because the eclipse occurred so near sunset. Prof. Frisby, of the United States Navy, was sent, with a corps of observers, armed with powerful instruments, to the Pacific coast, and Prof. Davidson, with another corps of observers and a 6½ inch equatorial telescope, more powerful than the one Piazzi Smyth lugged up the Peak of Teneriffe, went into the Salinas Valley, which furrows the coast range, about 200 miles south of San Francisco, and within from 15 to 25 miles of the Pacific. Besides these, many private observers made elaborate preparations for observing the eclipse from various points within the line of totality. Apparatus for photographing the eclipsed sun was plentifully provided.

The first report came from Fresno, about 150 miles southeast of San Francisco, and within ten miles of the line of totality. The weather was perfectly clear. The first contact was visible at 2:45 P.M., and at 3:53 the observation became total.

As the last ray of sunlight disappeared, a corona of clear white light, entirely encircling the moon, flashed into view, brilliant at the edge of the moon and paling toward the outer limit of the halo. Next along the border, on the lower left third of the moon, appeared an irregular fringe of brilliant, sparkling primitive red and purple light, while at the top of the moon there was a bright yellow triangle of light equal in height to one-sixth of the diameter of the disk; a similar but smaller triangle appeared at the center of the right side of the moon, and from the upper and lower right side broad faint rays were projected. This appearance lasted thirty-one seconds, the corona remaining one minute longer. The sun disappeared behind the coast range before the eclipse had entirely passed.

The only other dispatch from parties of observation, up to Jan. 14, came from Prof. George Davidson, of the Coast and Geodetic Survey, stationed at Mount Santa Lucia (5,700 feet above the sea), just south of Monterey, Cal., and but a short distance from the Pacific Ocean. Prof. Davidson says:

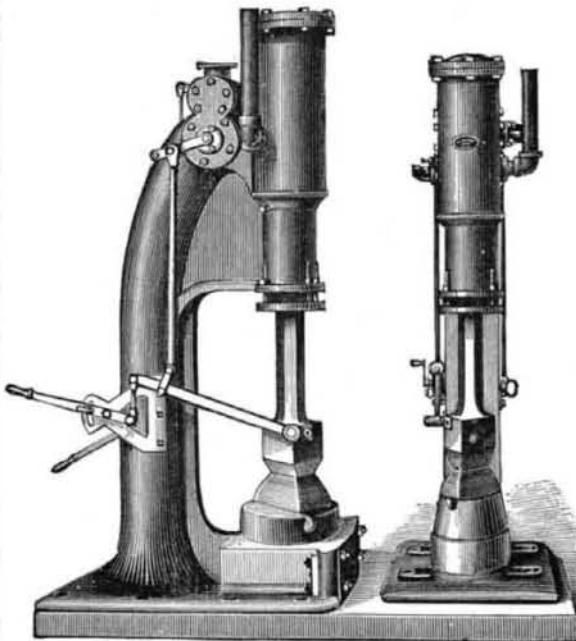
"After five days of fierce winds, rain, sleet, and snow, with a temperature of eleven degrees, the weather cleared on Sunday, and we had good observations both at the beginning and the ending of the totality. The totality lasted thirty-two seconds. The shadow was seen coming over the

Pacific Ocean. There was a brilliant corona and red flame. Latitude and transit observations were obtained.

The United States Naval Observatory party, under Prof. Frisby, at the same station, are said, in a dispatch from Soledad, to have made successful observations. The first contact was within one and a half seconds of computed time.

IMPROVED STEAM HAMMER.

The annexed engraving represents two sizes of an improved steam hammer invented by Mr. David Bell, of Buffalo, N. Y. These hammers are very simple in construction and substantially built. The single column standard, the cylinder, and the bed piece are cast in one piece. The die block is cast separately and fitted in the bed plate.



BELL'S IMPROVED STEAM HAMMER.

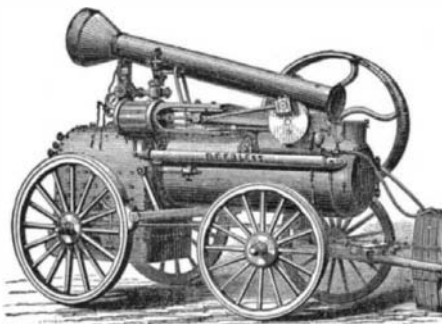
One of the hammers shown in the engraving has an eight inch cylinder and eighteen inch stroke, and the other has a ten inch cylinder and twenty-two inch stroke.

All the parts are very strong, and it is self and hand acting, and takes steam at both ends of the cylinder. The ten inch cylinder at ordinary steam pressure will strike a blow of from four to five thousand pounds. The stroke is perfectly automatic and can be made light or heavy as desired.

The hammer was shown by Mr. Bell at the Exhibition of the Mechanics' Institute held in Buffalo some years ago. The judges reported that it was the best hammer for forging and general blacksmith work on exhibition. Since that time he has made several improvements upon it, so as to perfect the invention, and it is now being used in six of the largest machine shops in Buffalo and also in other parts of the country, and all who have had experience with it pronounce it the best hammer in use.

THE PEERLESS PORTABLE STEAM ENGINE.

The annexed engraving represents a portable engine for agricultural and other purposes, which, in general design, completeness in construction and operation, ranks among the best of its class. It is built with a view to strength, compactness, durability, and efficiency.



THE PEERLESS PORTABLE STEAM ENGINE.

The boiler, which is of the locomotive type, has a fire box of unusual length, and so arranged that the fire is completely surrounded by water. The tubes, which are lapwelded, vary in number in different sizes of the engine, from twenty to fifty-five; in size from two inches to two and a quarter inches; in length from twenty-eight inches to fifty-two inches.

The smoke box, fire door, ash pan, steam blower, smoke stack, and other adjuncts, are neatly and conveniently arranged, and the boiler is provided with the necessary appurtenances, such as steam and water gauges, blow-off cocks, etc. The engine cylinder and the steam chest are combined in one casting, which is bolted at one end to a flange on the end of the frame or bed plate. This arrangement permits of the free expansion of the cylinder, as it rests upon a bracket attached to the boiler, and the boiler is free to expand and contract without straining either the engine or itself.

The saddle or bearings for the crank shaft are of the kind used in first class stationary engines, and are arranged to adjust from four sides, upper, lower, right, and left, with

improved simple arrangement by which the bearings can be adjusted by persons who are inexperienced in the use of machinery, cannot be made too tight, and therefore can never be ruined from this cause. The bearings are made very large, and will run a long time before any adjustment is necessary. The support between the boiler and these bearings is cast hollow, through which all the water while cold, used to feed the boiler, must pass on its way to the pump, absorbing the heat which would otherwise cause the bearings and journals to become very hot. This valuable improvement, covering the new feature of a water passage between the boiler and the crank shaft bearings, for the purpose of keeping the journals and bearings cold, is secured by letters patent. When the water is not required in the boiler, the flow is kept up by opening a valve and allowing the water to return to the tank from which it was taken, thus keeping the bearings always cold, and never allowing the pump to become dry, but always working and ready to supply the boiler with water when required.

The engine and boiler can be mounted on a strong substantial truck or wagon, as represented, or on sills. All the parts are interchangeable, and none but the best materials are used, and the workmanship is of the best.

Further information may be obtained from the Geiser Manufacturing Company, Waynesboro, Franklin county, Pa.

MECHANICAL INVENTIONS.

An improvement in speed-accelerators has been patented by Mr. James Schofield, of New York city. The object of this invention is to convert slow or slight motion into rapid or extended motion by the intervention of ropes or chains and sheaves, for the purpose of propelling boats, vehicles, machinery, and the like. The invention consists, essentially, of a sliding carriage containing several sheaves, and fixed on a reciprocating rod, while over said sheaves and sets of corresponding standing sheaves fixed opposite, and at a distance, a rope or chain is passed back and forth in such a manner that a slight movement of the carriage will produce a very extended or accelerated movement of the bight of the rope or chain, or of objects attached to it.

An improvement in vehicle-wheel hubs has been patented by Mr. Lucius S. Edleblute, of Cincinnati, Ohio. This invention is an improvement in the class of metal wheel-hubs in which the spoke tenons or butts are clamped between flanged collars, one of which is adjustable on the axle-box to adapt it for convenient adjustment or removal, and it pertains to a peculiar construction and arrangement of parts which cannot be clearly described without an engraving.

Mr. Benjamin Slusser, of Sidney, Ohio, has invented an improved elevator for warehouses and other buildings, constructed with a view to securing greater safety against the sudden fall of the elevator platform from the breakage of the rope, and to provide against persons falling through the hatchways in the several floors. The invention consists in a novel automatic clutch for arresting the descent of the platform in the event of the sudden breakage of the rope, and in the peculiar means for opening and closing a set of automatically operated trap doors for the hatchways, which are opened above and closed after the platform in rising, and also opened below and closed above the platform in descending, so that at no time is the hatchway left open.

Mr. Lovren E. Hogue, of Sandy Lake, Pa., has invented an improved injector in which the lifting and forcing tubes are so constructed and arranged with regard to each other that the pressure may range from forty to one hundred and fifty pounds without requiring any change in their adjustment, the said construction and arrangement enabling the quantity of water to be so graded that three or more different quantities of water may be injected into the boiler.

The New Industrial Art School.

The new free school for workers in metal and wood was opened January 13, at No. 31 Union Square, under the management of the trustees of the Metropolitan Museum of Art. The object of the school will be to teach carvers in wood, engravers on gold, silver, steel, and other metals, and others how to design artistically, so as to do away with the old-fashioned method of designing from copy, and in this way to enable the workers to obtain higher prices for their work. The project had been long before the trustees of the Metropolitan Museum of Art, and the establishment of the school is due in great measure to the efforts of Messrs. Robert Hoe, Jr., William L. Andrews, W. E. Dodge, Jr., and Edward C. Moore and Professor Thomas Egleston. The school will be open from 7:30 to 9:30 P.M. The first class will be for workers in wood, and the above named gentlemen have invited workmen from the art establishments of the city who possess a knowledge of drawing and who wish further instruction to attend. A class for workers in metals has also been organized. The students will be allowed to copy from models brought from the collections of the museum. Many manufacturers have promised to do all they can toward making the school a success.

The industrial importance of schools of this nature can scarcely be over-estimated. Wherever they have been undertaken they have shown themselves the most efficient aids in raising the character of industrial art and the social and financial condition of the artisan. It is to be hoped that the young artisans of New York will be prompt to avail themselves of the privileges now offered them.