

Human Refrigeration.

Some experiments which seem to throw light on the physiological effects of bathing have been recently made by Dr. Paul Delmas, of Bordeaux. The action of cold and heat on the human system was studied by subjecting the whole body, except the head, of a healthy and robust subject to refrigeration with water at $+10^{\circ}$ C., in a suitable apparatus, the time of exposure varying from 15 seconds to 5 minutes. In some cases heat was applied previously. The pulse and temperature were noted all the time, and every five minutes in succeeding hours; the temperature by means of a thermometer placed in the mouth. The following effects were observed: During application of the cold, while the subject shows every sign of very intense sensations (painful or otherwise), the temperature of the body scarcely varies at all, or varies at most one to two tenths of a degree, from that noted before; and previous heating does not affect this result. If, immediately after the application of cold, the subject remain perfectly still, after having been carefully dried and dressed, so as to avoid all active muscular movement, the temperature still varies little or not at all; but if he exert himself actively (in dressing, running, or walking), either immediately after the cold application or after a time of immobility, so as to bring on all the external phenomena of cold reaction, the temperature suddenly falls. The reduction persists several hours, and is more pronounced the stronger the sensation of heat in the subject. On the other hand, if chill continue or reappear owing to long immobility or suspension of exercise, the animal temperature does not fall, or immediately rises again. The amount of lowering of the temperature two or three hours after a cold application was, in eleven cases out of twelve, 0.1° to 0.6° . The *maximum* in a very vigorous subject never exceeded 1.3° . At the commencement of the cold application the pulse suddenly becomes very quick; after 10 to 15 seconds the velocity rapidly diminishes; and at the end of the experiment has returned to the previous figure or below it. If the subject, carefully dried and dressed, keep quiet, the retardation of the pulse stops or progresses slowly; but in the opposite case it is very pronounced, and persists the more the subject gives signs of energetic reaction and a general sensation of heat. Two or three hours after the cold application the pulse showed (in eleven cases out of twelve) two to twenty pulsations fewer than before the experiment.

IMPROVED VALVE-GEAR FOR ENGINES.

A novel device for reversing a steam engine is shown in the annexed engraving. The arrangement is such as to admit of reversing the valves when the engine is either at rest or in motion.

The crank pin projecting from the crank disk, A, is elongated so as to be capable of engaging either of two lugs projecting from the face of a wheel, B, mounted on the inner end of a shaft placed on the axial line of the main shaft. The shaft of the wheel, B, carries a crank or eccentric which operates the slide valve, and it is driven by the engagement of the crank pin with one of the lugs. When the engine is to be reversed the wheel, B, is turned so as to bring the opposite lug into position to be engaged by the crank pin. The valve is shifted by this operation, and when the engine is started its motion will be reversed.

To reverse the engine while in motion, an appliance consisting of a lever pivoted to the engine bed and carrying a shaft having friction wheels, C, D, at opposite ends, is brought into use.

These wheels are capable of engaging with the wheels, A, B, as shown in the detail view, and the wheel, C, is made smaller than the crank disk, A, so that when it is brought into engagement with the crank disk it will communicate motion to the wheel, B, through the friction wheel, D. By this means the wheel, B, will be turned ahead much more rapidly than its normal rate of speed, the valve will be reversed, and the lug on the opposite side of the wheel, B, will be engaged by the crank pin, and the engine will move in a reversed direction.

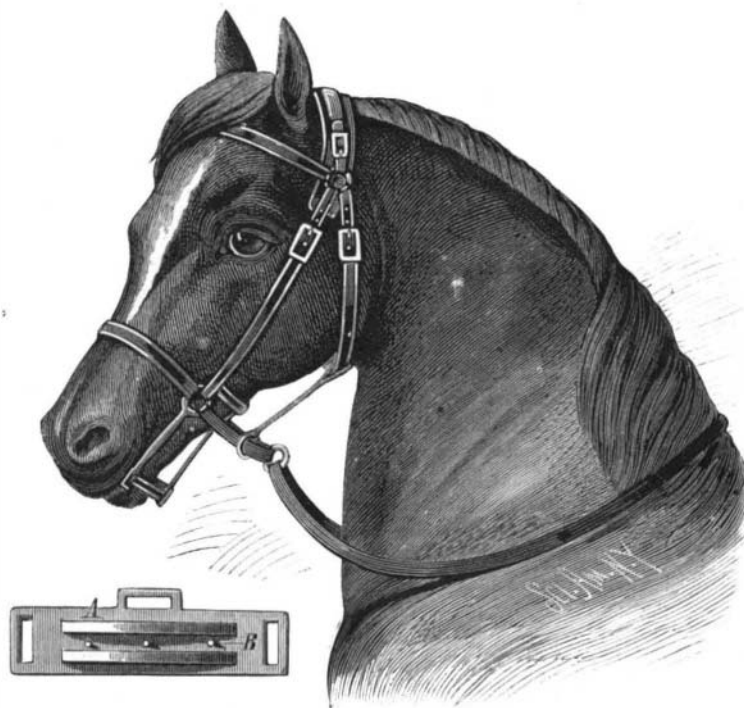
When the crank shaft carries a regular crank instead of the disk and crank pin, said crank is provided with a projection for engagement with the lugs on the wheel, B.

These lugs may be secured to the wheel, B, by means of bolts working in slots, so as to enable the stops to be adjusted in order to regulate the lead of the valve.

This invention was lately patented by Mr. Peter Jossierand, of Hockley, Texas.

HALTER TO PREVENT HORSES FROM CRIBBING.

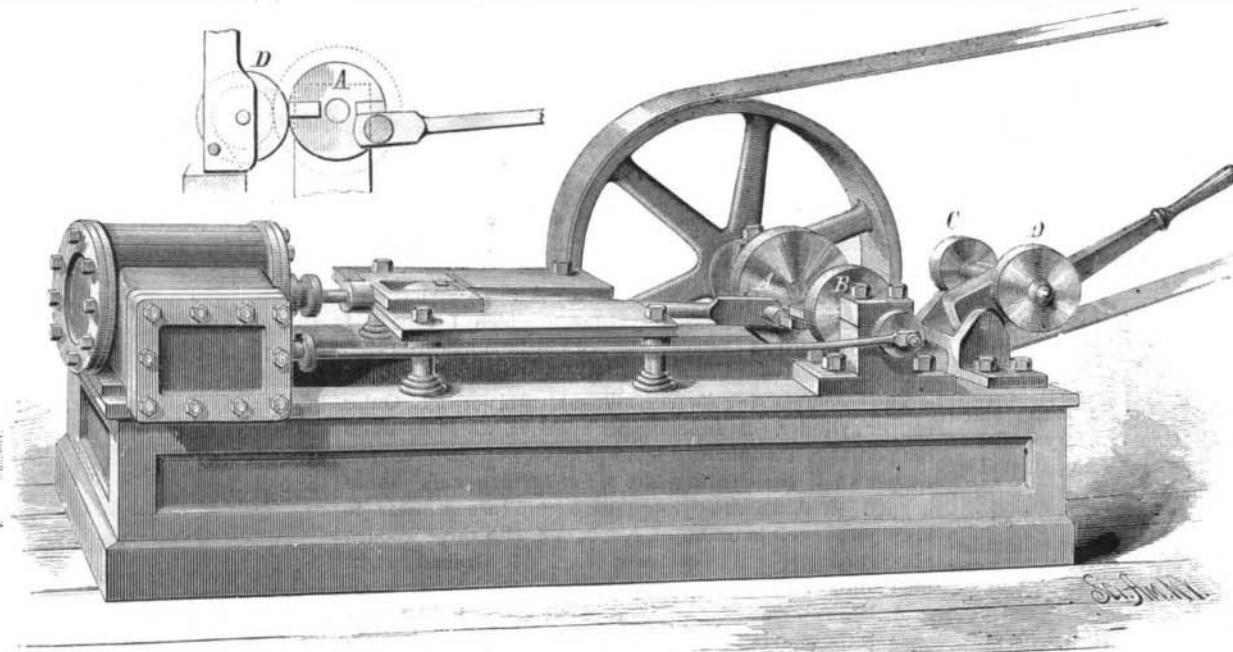
The engraving shows an attachment to be applied to halters to prevent horses from cribbing and for curing them of this habit. The invention is shown in use in Fig. 1, and in detail in Fig. 2. A plate, A, carrying a row of spikes, B, is connected with the halter by means of rigid arms and straps, and is held beneath the animal's under lip. Ordinarily the spikes are prevented from pricking the horse by the curved

**MADDEEN'S HALTER FOR PREVENTING HORSES FROM CRIBBING.**

springs arranged on opposite sides of the row of spikes; but the motion of the horse in the act of cribbing compresses the springs and brings the horse's lip into contact with the points of the spikes.

This attachment does not in any way interfere with the free movement of the head and mouth, but when the horse drops his lower jaw and seizes the manger, as in the habit of cribbing, the spikes will prick the under lip and the habit is soon broken up. This attachment is equally useful for vicious horses, as it prevents them from biting and tearing their blankets.

The invention has been thoroughly tested, and its merits are approved by horse trainers and owners. It was recently patented by Mr. Ambrose Madden, and is being introduced by Messrs. Madden & Sullivan, P. O. box 283, Asbury Park, N. J., who should be addressed for further information.

**JOSSERAND'S VALVE-GEAR FOR ENGINES.****MISCELLANEOUS INVENTIONS.**

Mr. Louis Prince, of Nashville, O., has patented an improved car door operating mechanism for street or elevated railroads, arranged with transverse seats extending the entire width of the car, and provided with a series of doors upon the sides of the car which communicate separately with each seat. The object of the invention is to provide means for operating a series of such doors simultaneously from the end of the car, so that they may be under the control of the driver or conductor.

Mr. Johann W. R. Vogdt, of Potsdam, Prussia, Germany, has patented a curtain formed of a series of vertical strips or bands of cloth, or other suitable material, alternately attached to two rollers pivoted parallel to and adjoining each other in the top of the window casing, and provided with suitable cords or devices for rotating them both at the same time.

A blind adjuster and fastener, so constructed as to hold blinds in any position into which they may be adjusted, and prevent them from rattling, and which at the same time can be operated from the inside of the window and without raising the sash, has been patented by Mr. Charles L. Rainhart, of Catskill, N. Y.

A new attachment for basket handles, which is simple and durable, has been patented by Mr. Amedee Hourdeaux, of Lichtenfels, Bavaria, Germany. It consists of a staple passing through an eyelet at the end of the handle and through two slotted disks on the outer and the inner sides of the wicker work of the basket; the ends of the staple are then lapped down on the surface of the inner disk to prevent the staple from being drawn out by the handle.

Mr. Samuel P. Fraley, of Columbus, O., has patented a broom-brush that may be cheaply made by mechanical means, and is held together independently of the holder and handle without the use of stitches.

An improved terra-cotta kiln has been patented by Mr. Alfred Hall, of Perth Amboy, N. J. The object of this invention is to construct the doors of kilns for burning terra-cotta in such a way that the heat will be distributed equally through the door and the other parts of the kiln, so that all parts of the kiln will have a uniform temperature, and all the articles will be burned evenly.

Heretofore, where bells have been used for giving notice of fire, either by a general alarm or by striking the number of the signal box, much confusion has resulted from indistinct alarms or errors in counting. In some cases the fire alarm telegraph has been arranged to strike the number of the box, and bells not connected with the system are rung by hand, and it is of frequent occurrence that the box number is not heard at all except by the bell ringers. Mr. John H. Tilley, of Newport, R. I., has invented a transmitter for fire alarm telegraphs that will first act to give a

general alarm, and, after an interval, strike the box number and repeat the number, as required, thus calling attention, first, to the fact of the fire by an alarm which is likely to be heard, and then giving the locality.

Mr. David Untermeyer, of New York city, has patented an improvement in the class of necklace clasps which are provided with spring catches or fastenings for attaching the neckchain or necklace proper.

A rowing vehicle has been patented by Messrs. Charles E. Tripler and William H. Roff, of New York city. The object of this invention is to furnish wheeled vehicles that are operated by hand levers, and so moved that the operator, in propelling the vehicles, pulls the hand levers in substantially the same manner that the oars of a boat are pulled.

Messrs. Henry J. Mark and William F. Martinek, of St. Louis, Mo., have patented a wrapper or jacket for bottles and analogous articles having spiral or diagonally arranged grooves or corrugations.

Mr. William T. McLean, of Sidney, Ohio, has patented an improvement in the class of earth scrapers or scoops having a thin metal body, formed preferably of rolled sheet steel, and a wooden back, which is secured to the body by means of clamps, etc. The improvement consists in the arrangement of the devices for securing the wooden back to the steel body of the scraper, and in providing the latter with a single longitudinal steel wearing piece or shoe, which is arranged centrally, and beveled on the sides and front end.

Amedee G. Sébillot, of Paris, France, has

patented an improved apparatus for the recovery of waste sulphuric acid. The object of the invention is to improve the product obtained from treating argentiferous ores, as well as to save the acid used in the process.

An automatic fire extinguisher has been patented by Mr. Edward Bocker, of New York city. The object of this invention is to furnish mechanism to be connected with the faucets of water pipes, and so constructed that upon the rise of temperature in case of fire the faucets will be opened automatically and discharge water.