

**Cost and Results of Some Recent English Strikes.**

A writer in *Fraser's Magazine* estimates that the engineers' strike, which began in February last and continued about 33 weeks, caused a loss of \$70,000 to the strikers. The average number of men out of employment during this time was 500. If no strike had taken place, their wages would have amounted to \$144,000. But they received from society funds about \$74,000, reducing their personal loss to \$70,000. Of notable strikes that have taken place within the last two years, that of the London masons, which lasted 33 weeks and threw 1,700 men out of employment, cost the strikers about \$130,000. The carpenters' strike in Manchester involved about the same number of men, and cost nearly as much. The strike and lockout of the boiler makers and iron shipbuilders on the Clyde cost the society upward of \$65,000, the estimated losses being \$1,500,000. The losses of the miners in the Durham strike are estimated at \$1,200,000. In the above strikes, excepting that of the engineers first mentioned, the strikers suffered disastrous defeats. While strikes are exceedingly expensive luxuries to the men, even when successful, the writer above cited maintains that the number of strikes from which the employes reap no advantage are extremely few, as compared with those from which they derive some benefit, proximate or remote. In illustration of what is sometimes gained by the strikers, he cites the builders' strike and lockout in London in 1859. About 24,000 men quit work, but many of these obtained employment elsewhere. The number engaged in the struggle was from 6,000 to 10,000. The whole number interested in the result of the contest was between 40,000 and 50,000. After spending upward of \$250,000, besides the loss in wages, the men were compelled to yield. But they gained the Saturday half holiday, which is now enjoyed by not fewer than 100,000 building operatives. This is computed to be a gain to the men of about \$2,800,000 a year, "if not in money, at least in money's worth." The writer claims that the employes get over their losses much more speedily than the employers. With the former, he says, it is a matter of temporary inconvenience, or, at most, of present suffering only; with the latter it means not merely a derangement of business for the time being, but in many cases future embarrassment, if not failure.

**The First American Rolling Mill.**

Mr. Thomas C. Lewis, of Portsmouth, Ohio, who was formerly an iron roll maker, in a recent letter to the editor of the *SCIENTIFIC AMERICAN*, states that his father, the late Thomas C. Lewis, was the maker of the first iron rolling machine erected in this country. This mill was put up at Middletown, Pa., 45 miles east of Pittsburg, in the year 1817, for the owners, Mason & Co. Mr. Lewis, Sr., came from Wales in 1815, when our informant was thirteen years of age. Our correspondent thinks that himself and his brother are the only persons now living who witnessed the making of the first bar of American rolled iron. This was the inauguration of what is now one of our most important branches of industry.

**NOVEL PEDO-MOTOR.**

The annexed engraving represents a new device for accelerating the motion of walking. It seems to occupy an intermediate position between the roller skate and the velocipede.

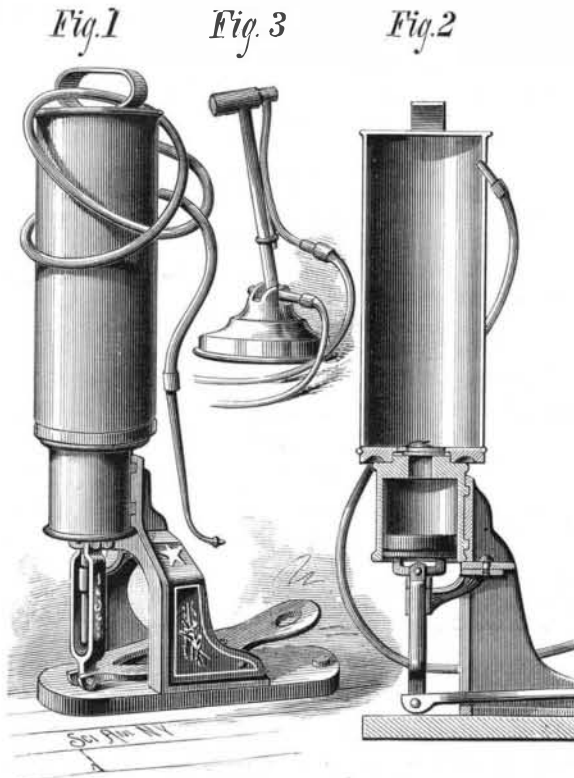
The invention consists of a frame supported on three wheels, two of which are small and employed only in supporting the main frame of the device, while the third and larger one is used both as a supporter of the frame and a driver of the machine. All of the wheels are furnished with rubber tires, and the larger one is fixed to a shaft extending across the frame and carrying a ratchet, also a loose pinion provided with a pawl capable of engaging the ratchet. A foot pedal is pivoted to the upper part of the pedo-motor frame, and carries a segment rack which engages the loose pinion on the drive wheel shaft. When the toe of the foot pedal is depressed the segment rack, by its engagement with the pinion, turns the drive wheel and propels the machine forward. The motion of the foot necessarily to impart a rotary motion to the drive wheel is exactly the same as that of the ordinary act of walking. For checking the motion of the pedo-motor a brake is provided, which is made to press upon one of the smaller wheels by pulling a wire or cord, which extends upward, and is provided with a hook or loop for attachment to some part of the clothing of the user. The pedo-motor is the invention of Mr. Richard Gornall, of Baltimore, Maryland.

**New Preservative against Scurvy.**

In reporting the reception of Prof. Nordenskjöld and the staff of the *Vega* at Nagasaki, the correspondent of the *North China Herald* notes that there was not a single case of scurvy during the whole voyage. This, he learns, was owing to the free use of a curious little berry that springs out of the eternal ice and snow during the short summer; it bears profusely, and has a taste like the raspberry, but more acid. The fruit is dried, and then mixed with the milk of the reindeer, and it can be carried in a frozen state for thousands of miles. There was also used a curious kind of food made from the whale's hide, which is pickled and eaten freely during the winter.

**IMPROVED BLOWPIPE.**

The annexed engraving represents a compact, simple, and efficient device for maintaining a continuous supply of air under light or heavy pressure for blowpipe use. The advantages of an invention of this character will be readily admitted by any one having had experience with the ordinary mouth blowpipe, as it not only saves a great amount of hard labor, but it delivers a steadier and stronger blast than it is



**BURGESS' PATENT PORTABLE MECHANICAL BLOWPIPE.**

possible to maintain with the mouth, and it also enables the operator to get a better view of his work, and permits of greater freedom in the use of the hands.

The general appearance of the blowpipe is shown in Fig. 1, and its internal construction will be readily understood by referring to Fig. 2, which is a central vertical section. The pump cylinder is mounted on an arched standard, and contains a piston having a valve opening upward. This piston is connected with the foot pedal by a forked connecting rod, and is moved by a slight and easy motion of the foot. The upper end of the pump cylinder is closed, with the exception of a valve aperture, which is covered by a valve, opening upward into a cylindrical air reservoir secured to the upper end of the pump. Near the top of the air reservoir there is a nipple, to which is attached a flexible tube communicating with the blowpipe.

The manufacturers furnish either the ordinary blowpipe or the compound blowpipe, represented by Fig. 3. The machine is light and portable, weighing but twelve pounds



**GORNALL'S PEDO-MOTOR.**

and measuring twenty-four inches in height. The pump cylinder is two and a half inches in diameter with three inch stroke.

This device will be invaluable to a large class of artisans, and especially useful to dentists, jewelers, chemists, assayers, metal workers, miners, and others who desire a strong steady blast for reducing, fusing, soldering, etc. It may be used to advantage in connection with the small melting furnaces now so largely in use. It is also of great utility to machinists and steam, water, and gaspipe fitters in making alterations and repairs, as it admits of the local application of a strong heat, and thus obviates the necessity of removing the parts. The blowpipe may be used effectively in connection with a gas, alcohol, or oil flame.

The pipe outlet is much smaller than in the mouth blowpipe, to permit of maintaining a pressure which may

be increased or diminished by a quick or slow motion of the treadle. The air chamber is easily filled, and when charged affords a constant supply of pure air. It is claimed by the manufacturers of this blowpipe that the pump possesses many advantages over the bellows or bladder, as a pressure of many pounds is readily sustained with but little exertion.

Further particulars may be obtained from J. Elliott Shaw, No. 154 South Fourth street, Philadelphia, Pa.

**MECHANICAL INVENTIONS.**

Mr. George Stewart, of High Point, N. C., has patented an improved spark arrester. This is an improvement in the class of smoke stacks in which the ascending sparks and cinders are diverted laterally by an inverted cone and strike upon inclined flanges or wings, whereby they are extinguished and pulverized before escaping from the stack.

An improved drilling machine has been patented by Messrs. Nicholas Rimmel and Mathias Rimmel, of Kewaskum, Wis., for operating drills for drilling holes in metal, and also for holding auger bits and other tools for boring wood. It consists in a drill stock connected with a shaft rotated by a crank or band wheel and gearing and held in a stationary frame, and in a device for feeding the work to the drill by means of a table placed on a shaft held in vertical guides and connected by levers with a treadle.

Mr. Elias A. Wible, of Folsom, Cal., has patented an improved vehicle axle formed of a socketed tube and a wooden stick, in combination with an interposed layer of rubber. There is a hole leading through the axle to the shaft, and provided with a case, a cup, and a screw, for the purpose of lubrication.

Mr. Gustave Wedel, of San Francisco, Cal., has patented an improvement in the class of binders for folios, or a series of detached leaves; it consists of metal strips doubled longitudinally to form lips or clamping edges, between which the leaves are secured.

Mr. John Kenmuir, of St. Joseph, Mo., has invented an improved twelve bells striker for clocks, the object of which is to furnish a clock for use in Masonic lodges, which shall be so constructed that it may be made to strike twelve low bells whenever desired, which will strike at no other time.

Mr. William W. Mackey, of Galion, O., has patented an adjustable gauge for cutting bevels for miter joints with a circular saw, and for cutting them on opposite ends of the moulding without changing the gauge. It consists of two gauges pivoted at one end to the sliding bed on the side next to the saw, and having the opposite ends pivoted to levers or arms having longitudinal slots, which are crossed and secured together and to the bed by a set screw passed through the slots at the junction. These arms are designed to be graduated so as to permit the gauges to be set readily at any desired angle to the saw.

Mr. Richard Cotter, of Virginia City, Nev., has patented a machine for tarring flat and round wire ropes, which is so constructed as to coat the ropes thoroughly with tar, force the tar into the crevices of the ropes, remove the surplus tar, and prevent it from running down the ropes.

Mr. Warren H. Guthrie, of Florence, N. J., has patented an improved screwdriver having a jaw on each side of the blade, the two jaws being connected by a right and left thumbscrew passed through a slot in the blade, whereby the ends of the jaws can be moved to and from the blade, and thus adapted to clasp screw heads of various sizes.

Messrs. William F. Flanagan and Daniel A. Sager, of Pine Wood, Tenn., have patented an improved automatic let-off mechanism for looms, for letting off the yarn from the yarn beam at a uniform speed from the first to the last end of the warp, the speed of the yarn beam being increased in proportion to the decrease of the yarn on the beam.

Mr. Ansel T. Green, of Minneapolis, Minn., has patented an improved belt stretcher. It consists in fixing gear wheels on the heads of the two long side screws of the stretcher, and in arranging two corresponding pinions on a crank rod in such a manner that when the pinions are thrown in gear with the gear wheels both screws will be worked simultaneously; and it further consists of a graduated clamp for the more accurate adjustment of the sides of the belt, of hinged screw sockets for the quicker attachment and removal of the stretcher, and of a thumbscrew nut of novel construction.

Messrs. Jabez C. Terry and Herbert J. Terry, of Springfield, Mass., have patented an improved button lathe designed for turning buttons into finished shape from blanks previously prepared; and instead of operating upon the principle of a cutter formed to suit the pattern of button, it employs a single cutting tool, which, by a variety of adjustments, that may be effected either by hand or automatically, permits the button to be turned and finished according to any desired pattern.

The same inventors have also patented an arrangement of revolving gripe for holding the stock, which are held normally together by spring pressure, but have a treadle connection for separating or retracting them, and a cutter head revolving in a plane at right angles to the plane of revolution of the gripe, or parallel with the axis of the latter, which cutter head is combined also with a treadle connection for causing the cutter head to approach the axis of the gripe at the will of the operator.