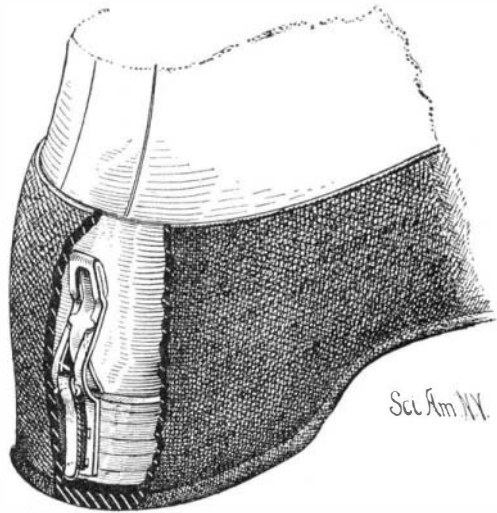


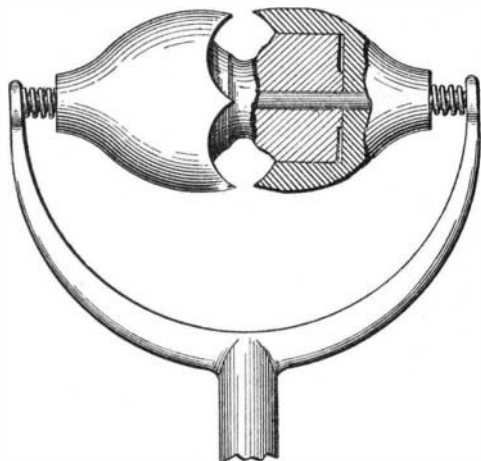
ODDITIES IN INVENTIONS.

FASTENING DEVICE FOR OVERSHOES.—Unless one's overshoes fit very snugly it is often quite difficult to keep them on the shoes when walking over muddy roads. As the same person often wears shoes which vary greatly in shape, it is sometimes impossible to find a single pair of rubbers which will fit them all snugly. The simple little clip which is shown in the accompany-

**FASTENING DEVICE FOR OVERSHOES.**

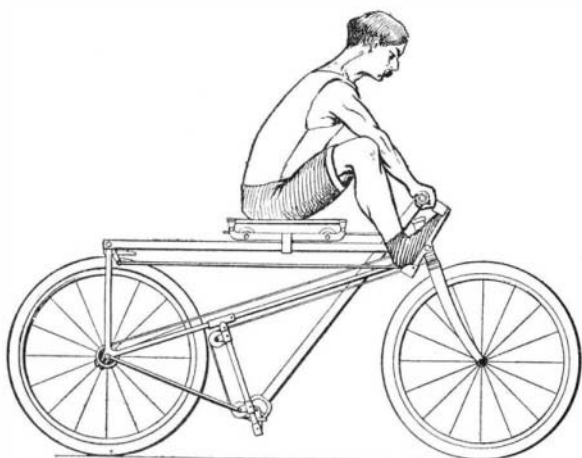
ing illustration should therefore be found very useful to many people. It consists of a metal strip provided with a tongue which fits into a pocket formed at the heel of the rubber on the inner surface. The upper edge of this clip presses against the back of the overshoe while a second or locking tongue fits into the crease formed between the heel and the upper of the shoe, thus securely fastening the overshoe in place. When it is desired to remove the overshoe it is simply necessary to apply pressure against the heel, which serves to flex the locking tongue out of engagement with the crease.

TROLLEY WHEEL.—New forms of trolley wheel are constantly being patented, showing that the trolley problem has not yet been satisfactorily solved. One of the latest forms is shown herewith. In this con-

**TROLLEY WHEEL.**

struction it will be observed that the trolley wheel is covered by two shields which are independently rotatable on the trolley shaft. These shields are formed with hooked members which overhang the trolley wire and prevent it from slipping off the trolley wheel. The shield pieces are normally held in the position illustrated by two coil springs on the shaft. If, under extraordinary conditions, the wire should leave the trolley, in replacing the wire the shields would move apart against these springs under the pressure of the wire bearing against the curved edges of the hooks.

BICYCLE WITH ROWING ATTACHMENT.—Rowing enthusiasts will find in the bicycle illustrated herewith a very excellent and delightful means of exercising their muscles at times when rowing is unseasonable. The saddle of this bicycle is mounted on trucks which

**BICYCLE WITH ROWING ATTACHMENT.**

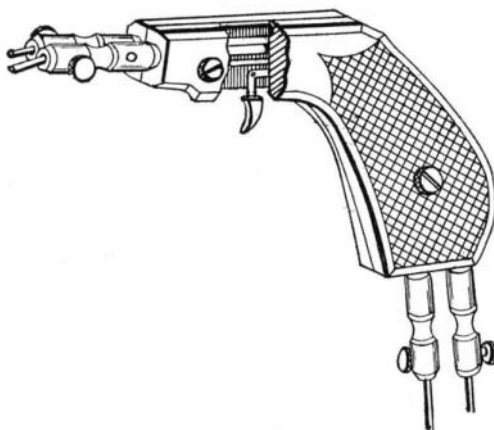
are adapted to run on two horizontal bars of the bicycle frame. The bicycle is driven by a reciprocating movement of the handle bar in a manner simulating that of rowing. A cord connects this handle bar with the rear bicycle wheel which is rotated by the common pawl and spring mechanism. The handle lever is fulcrumed at its lower end in a universal joint. On twisting the handle bar in one or the other direction the front forks are, by means of cord and pulley connection, turned in the corresponding direction, thus affording a means for steering the wheel. Two foot-rests are provided on the front forks and are so arranged that by pressing down the toes a brake will be set on the rear wheel.

FIREMAN'S SUIT.—The type of fire which is most dreaded by firemen is that in which volumes of stifling smoke and noxious gases are emitted. To enable firemen to successfully cope with fires of this kind a Colorado inventor has designed a type of garment resembling a diving suit which we illustrate herewith. This garment is composed of gas-tight material which hangs from the helmet and is strapped about the man's waist. The garment is formed with sleeves which are tightly secured at the wrists to prevent entrance of

**SUIT FOR FIREMEN.**

smoke or gases. The air within the garment is kept pure by means of proper chemicals stored in a box on the man's back. A glass-covered opening is placed directly in front of the fireman's eyes, and light is furnished by an electric lamp secured to the outside of the garment. This arrangement enables a fireman to work with impunity in places where otherwise it would be impossible for him to remain on account of the gases and smoke.

ELECTRICAL INSTRUMENT FOR CAUTERY.—We show herewith a simple form of electric switch which will

**ELECTRIC INSTRUMENT FOR CAUTERY.**

facilitate the use of electricity for cauterizing purposes, particularly in the nostrils, mouth, and throat. This instrument is arranged somewhat in the form of a revolver, so that it can be conveniently held in the hand. The current may be turned on or off at will by pressing the trigger. From our illustration it will be observed that the trigger forms one arm of a bell crank whose other arm, when the trigger is operated, serves to press a contact spring into engagement with the contact plate, thereby closing the circuit to one of the cauterizing wires, the other being normally connected to the battery. The cauterizing wires are held in binding posts and can be readily removed and replaced by wires of different shape and size when desired. The construction and shape of the instrument is such that it will not interfere with the operator's view when performing the cauterizing operation.

Brief Notes Concerning Patents.

Thaddeus A. Neeley, of Muncie, Ind., the inventor of the roller skate, expired on December 4 at his home, in the 60th year of his age. He was for many years engaged in the manufacture of the roller skates.

Albert A. Honey, a resident of Chicago, Ill., and the inventor of the underground trolley system bearing his name, died from a stroke of paralysis at the Chicago Union Hospital early in December. He was an old-time telegrapher and was one of the first three operators employed by the Associated Press in that city. He was afterward employed by the Union Pacific and the Northern Pacific roads. Up to a few months before his death he was the president of the Magnetic Equipment Company, but was compelled to resign on account of ill-health.

A hinged trolley harp, the object of which is to facilitate the removal and replacement of the trolley wheel of electric cars, has been invented by Thomas Kelch, the master mechanic of the South Covington & Cincinnati Street Railway Company, and is regularly used on the cars of that company. By removing the cotter at the side, one arm of the hinge may be opened and the wheel slipped from its bearings and another put in its place. The work of changing a wheel can be done in one-fifth the time required with the ordinary harp. It is adapted for use with almost any kind of wheel and there is no space for the wire to get between the harp and the wheel. A copper spring carries the current from the wheel to the pole.

The solar salt industry, which at one time was a great business in Onondaga County, N. Y., has been almost wiped out by the competition from the West, but there are still in operation in New York a few plants where salt is obtained by the solar process. In this industry it is necessary frequently to manipulate the covers of the vats wherein the brine is in the course of evaporation, and as the vats are quite numerous, the services of many men are required for this work. Judge William G. Cady, of Syracuse, has recently invented a method of operating these covers by horse power, so that one animal and a boy can move 160 covers in six minutes. This represents the work of ten men. It is estimated that this device represents a saving of ninety per cent in the labor employed around one of these establishments. It is said that it will be the means of reviving the old industry in this part of the country.

A Manchester printer has devised a machine of wide value to the printing trade. This comprises a cheap, reliable, automatic system for feeding the paper to letterpress printing, lithographic, ruling, and other machines. Hitherto this work has had to be accomplished by hand labor, but by this machine the services of the unskilled hand-feeder are dispensed with altogether. This automatic feeder will do in ten days the same amount of work that takes twelve days to do by hand. The invention is of the most simple construction, having no delicate or complicated working parts to get out of order. It can be adapted to every kind of press, ruling machine, and folding machine, and will feed any size and quality of paper, one sheet at a time, and no more. Should it, however, owing to bad paper, chance to take two sheets or, on the other hand, fail to take a sheet at all, both the feeder and press would instantly stop dead together. It can be put into gear and out of gear in a second, enabling the press to which it is attached to be used for hand-fed runs when required and is unfailingly accurate in its register.

A short time ago the work of demolition of the great Burden water wheel at Troy, N. Y., was commenced, but the action aroused such a great amount of opposition that the work was stopped, and an effort is being made to have the wheel restored and allowed to stand to the memory of Henry Burden, who was its designer and builder, and whose iron mill it operated for many years. The wheel is said to be the largest construction of the kind ever erected and therefore it has a double interest. The wheel is sixty feet in diameter and twenty feet wide. It has thirty-six huge buckets. The journals of the great wheel are 16½ inches in diameter and 18 inches long and it has 264 spokes, each 1½ inches in diameter. The wheel was first put into operation in 1849 and ran almost continuously until 1895, when the works were abandoned. Making two and a half turns per minute, this wheel ran the entire plant, which consisted of one rotary squeezer and muck-bar train, five 9-inch trains for rolling horseshoe and rivet iron, five or six rivet or spike machines, about thirty punching machines, machine shop, roll lathes, shears, and other machinery called for about a rolling mill. At this plant Henry Burden invented and improved a number of processes. The most important and the one for which he is chiefly known is the horseshoe-making machine, which was one of the greatest inventions of the time. Burden also invented the rotary squeezer, which is in use in all mills where iron is made by the puddling process.