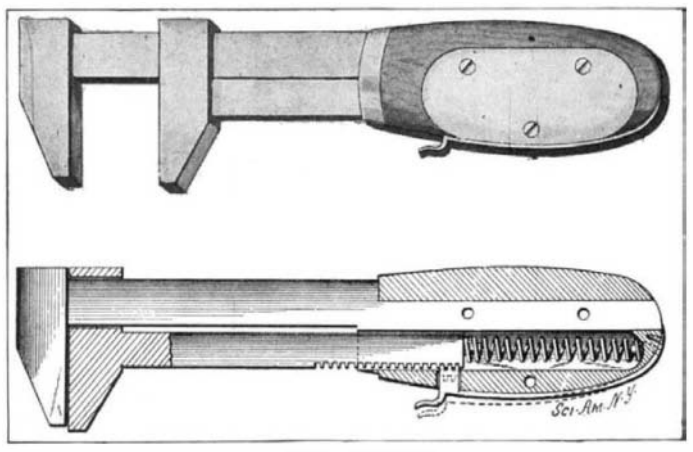
from the city water supply. The water power is led to two hydraulic cylinders, secured by means of brackets to the table or standard of the letter press. These brackets are hollow, to receive the pistons, and fulcrumed to each cylinder is a lever which, at its outer end, enters a slot in the bracket of the opposite cylinder, and bears on the top of the piston. The arrangement is such that the two levers lie parallel, and an equalizing lever is placed diagonally across them. The equalizing lever transmits pressure to a platen through a ball-and-socket joint, the socket being formed with a



A NEW WRENCH.

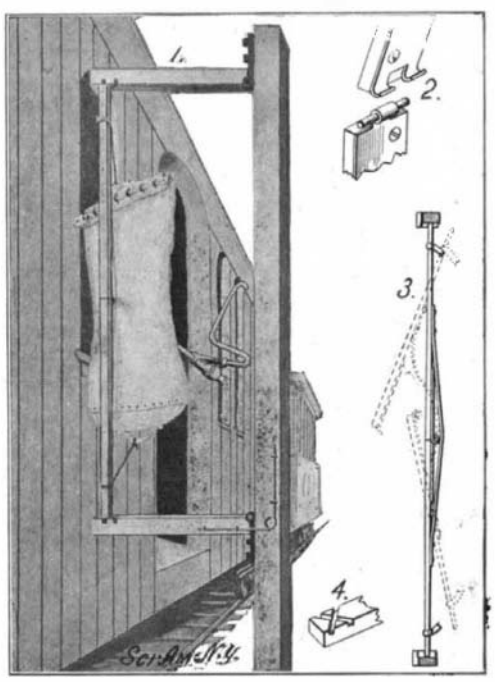
circular rubber cushion to take up any inequalities in the thickness of the book, and render the pressure uniform over the entire book surface. The copying book is pressed upward by the platen against a pressure plate, which is mounted on extensions of the cylinder bracket. The flow of water in the cylinders is controlled by a three-way valve, which is operated by a small hand-wheel conveniently placed near the top of the table.

A NOVEL MAIL-BAG CATCHER.

The essential requisite of a good mail-bag catcher is rapidity of operation, which means quick-acting devices to release the mail-sack when caught. This requisite seems to have been attained by William M. Falen, Wakefield, Kan., in a recently patented invention of his.

Mr. Falen's mail-bag catcher is provided with the usual bar and catching arm on the car. The novel features of his invention are to be found in the devices mounted adjacent to the roadbed. Upon a vertical post set in the roadbed, and provided with brackets, two horizontal arms are pivoted, the lower one of which is spring-controlled. These arms support between them the mail-bag holder, which consists primarily of two swinging members, separately hinged together by the peculiar form of hinge shown in Fig. 2. Attached to the two parts of the holder is a flexible connection such as leather, the purpose of which is to hold the two parts in alinement when not under strong pressure.

When the arm on the car comes into contact with the mail sack, the joint, formed by the hinged parts illustrated in Fig. 3, will be broken. The parts will separate and the bag will be swept into the car. Grooves at the ends of the horizontal arms between



A NOVEL MAIL-BAG CATCHER.

which the mail-bag holder is supported will cause this operation to take place without the sliding of the members of the holder in the grooves. When the sack and holder are removed, the horizontal arms previously referred to, will swing in toward the vertical post, the upper one by gravity, and the lower one by means of its spring. In Fig. 3 is shown, by dotted lines, the course which the members of the holder take in their operation.

A NEW WRENCH.

Thomas H. Barry, of Empire, Oregon, is the inventor of an improved wrench of the type having a fixed jaw on the end of a handle-lever, a sliding jaw on the lever, and an arrangement for holding the sliding jaw at a selected point on the lever.

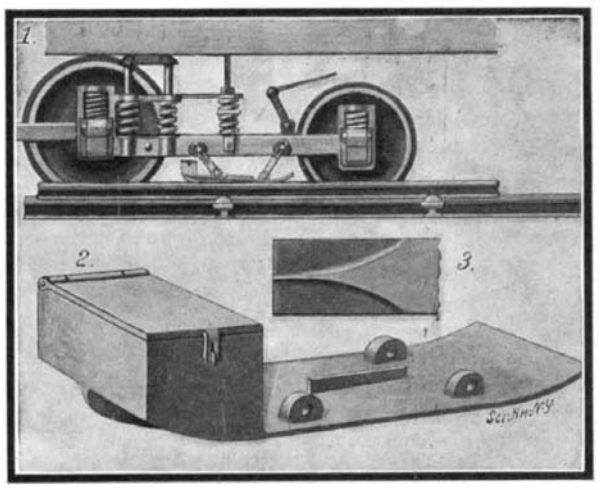
The handle-lever, with the fixed jaw at one end, has at the opposite end a shank reduced in width to form a shoulder. The movable jaw slides on the handle lever and is provided with a rack, the teeth of which are located on the edge near the free end. A handle-block is apertured to receive the shank, and abuts against the shoulder. The handle-block of the shank has a number of perforations for the reception of screws. These serve to secure the handle upon the shank of the handle-lever. The block has a longitudinal chamber parallel with its aperture, which chamber at one end receives the toothed end of the rack-bar. An expansible spring in the chamber presses upon the rack-bar, which is thus forced by the spring toward the fixed jaw.

The means for detachably securing the movable jaw at any point consist of a curved, resilient arm, secured by one end on the end of a handle-block, a laterally-projecting dog at the other end of the arm with teeth projecting through an opening in the handle block for engagement with the rack-bar teeth, and a catch-lip on the resilient arm adjacent to the dog.

In adjusting the wrench to engage a nut or the like, the wrench is grasped by its handle and the slidable jaw is pressed upon the object. Pressure is applied simultaneously with the manipulation of the catch-lip to release the dog from the rack-teeth, thereby locking the rack bar and jaw at a desired point of retracted adjustment. The release of the dog by manipulation of the catch-lip permits the spring to expand and to force the movable jaw into contact with the fixed jaw or into closed position.

A COMBINED THIRD-RAIL CONTACT SHOE AND SLEET REMOVER.

The introduction of the third-rail system of electric traction in our large cities has brought with it a most



SLEET-REMOVING THIRD-RAIL CONTACT SHOE.

serious problem, namely, the removal of the insulating layer of sleet that forms upon the third rail during the stormy weather of winter. Naturally the problem has not been left unattacked by inventors. Of the many devices that have made their appearance of late years, one of the most promising seems an invention patented by Mr. Henry Rosenfeld, 773 East 174th Street, Bronx, New York city, N. Y.—promising because the contact-shoe itself is made to remove the sleet, so that it is unnecessary to depend upon auxiliary scrapers.

Mr. Rosenfeld's contact shoe is provided at the bottom with divergent ribs that meet at the front end of the shoe in a sharp edge so as to form a plow. As the contact-shoe moves along, the plow cuts into the sleet, pushes it aside, and enables the conducting metal of the shoe to pick up the current. In order that the plow-like ribs may perform their proper function, the forward end of the contact-shoe is weighted. A box filled with metal balls constitutes the weight.

The machinery exhibit at the St. Louis Exposition will be novel in a great many respects as there will be shown a number of designs which are quite new. Among them will be a Worthington pump which is known as the multi-stage turbine centrifugal and differs in a great many features from the centrifugal with which engineers are so familiar. The pump, which will be placed on exhibition, will have a capacity of delivering 500 gallons of water per minute against a headway of 250 pounds per square inch and with high efficiency.

Brief Notes Concerning Patents.

There have been a number of claimants for the honor of having discovered Portland cement, but it has been pretty definitely settled that it belongs to Joseph Aspdin, a native of Leeds, England, and effort is now being made by a number of Englishmen engaged in engineering and industrial pursuits, to have a memorial raised to the man who has done such a great work for the building industries of the world. It is said that notwithstanding the fact that the discovery was made in 1813, it was not until eleven years after that he decided to take out patent papers. The value of the cement was soon appreciated, and among the first to make use of it was the great Brunel, who used it on the Thames tunnel, where it attracted a great deal of attention.

James W. Gladstone, of East Orange, N. J., a former employe of Thomas A. Edison at the latter's laboratory, has been accused, by the great inventor, of infringement and making unlawful use of the knowledge obtained while engaged at the Edison works. The suit involves the manufacture of the new storage batteries which Edison has recently put on the market and on which he has been at work for some time. Subsequently, a suit was brought against Edison by Gladstone to restrain him from making use of a process which is said to be essential in the manufacture of the batteries. The bill of complaint alleges that the improvements were invented by Felix de la Laude, of Paris, France, who patented them in this country in 1892 and in the following year sold the rights to William M. Offley, of Washington, D. C., who in turn disposed of them over a year ago to Gladstone.

At the Chicago Exposition, twenty-five girls were kept busy all the time the Fair was in progress engaged in counting the admission tickets. The average daily capacity of these persons was 120,000. It is anticipated that the daily admissions at the St. Louis Exposition will be greater than this by far, and it is proposed to do this work of counting the tickets by machine. The device has been submitted to the Admissions Department, and Chief E. N. White is now engaged in giving it a test to prove its accuracy and rapidity. The inventor claims that four of these machines will handle all of the pasteboards as fast as they are taken up; and if his hopes are realized, the machines will be a great improvement over the old way of doing this work. Another mechanical novelty which is being experimented with by this department of the great show, is a machine ticket seller. It is said that these machines will dispose of the tickets to visitors much more rapidly than the human ticket seller and without any possibility of error or dishonesty.

A patent was recently granted covering the process of beer preservation by electricity. The inventor is Francisque Crotte, of New York. A tube-like receptacle of copper is introduced into the keg of beer to be treated, and this is filled with some preservative, such as boracic acid or peroxide of iron, either in solution or solid form. The beer is then subjected to an electric current of a somewhat high tension for about ten minutes. This is accomplished by making the tube one of the electrodes while the other is formed by means of some suitable contact on the outside of the barrel. The current is said to induce a catoriphic transference of the preservative substance through the receptacle into the beer. By this means the organic germ of life in the beer is rendered harmless, so that the beer will keep a great length of time without deterioration. The infinitesimally small quantities of antiseptic are introduced into the beer under the circumstances favorable for the most effective action and the quantity involved is so small that there is no foreign flavor imparted to the beer.

An exhibition of patents and copyrighted designs and patterns is in progress during the months of September and October at Bayreuth, under the auspices of the Central Association of Inventors. It is said that there are 200,000 copyrighted patterns and 140,000 patents, which have some value but which are not availed of, for the reason that the inventors are not able to exploit their inventions. It is rare that an inventor is equipped to get his work before the proper people after he has completed an invention, and the Central Association was formed to do this for him. Every assistance is given to inventors, and those without means are given space free at the exhibition, and no charge is made for effecting a sale. A somewhat similar organization has been recently formed in Philadelphia. It is known as the Inventors' League, and has secured permanent quarters in the center of the city, which are open not only for the members but to all persons interested in this character of work. There is a model room where a permanent exhibition of the work of the members is held, and efforts are being made to attract the attention of investors and industrial people to the exhibition. There is also a reading room where there are a number of periodicals to be found as well as other reading matter likely to be of interest to the members in their work.