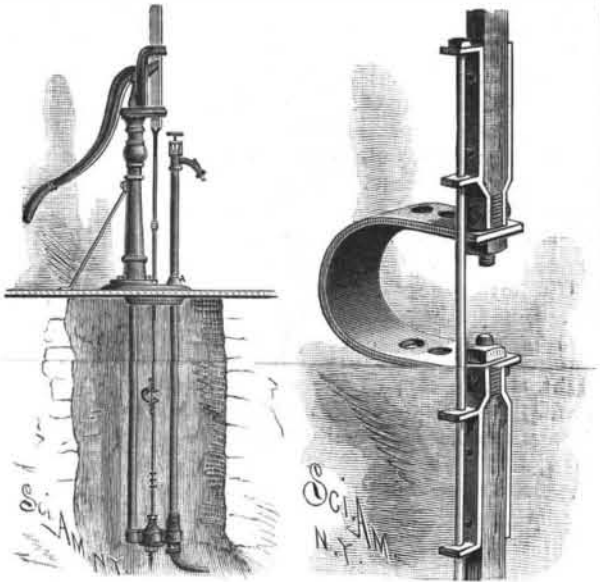


## AN IMPROVED PITMAN OR PUMP ROD.

The device herewith illustrated, which has been patented by Mr. John Fay Loomis, of Shelby, Iowa, is designed to render the pitman or pump rod used with a windmill or for similar purposes elastic in the direction of its length. This is effected by the interposition of a U-shaped spring, or elastic cushion, between two sections of the pump rod, the different holes shown in the arms of the spring giving a greater or less range of spring movement, according as the sections are adjusted in the holes closer to or farther from the bend of the spring. At the side is a guide rod, arranged in offsets near the ends of the pump rod sections where the spring is inserted, to preserve the alignment of the sections. One of our illustrations shows the invention

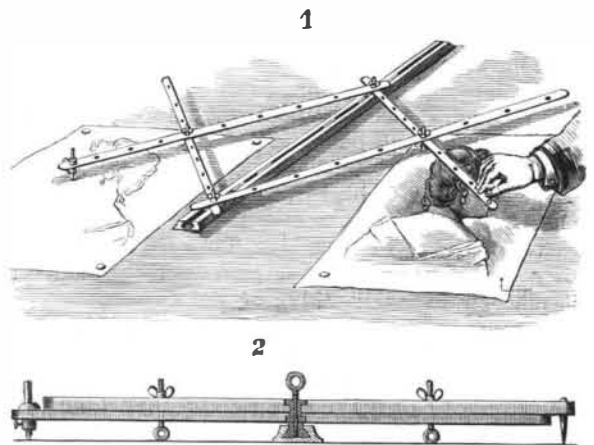


LOOMIS' PITMAN OR PUMP ROD.

as applied to a pump, and the other is an enlarged detail view. This device is calculated to take up excessive strain and jar, and also to cause a shorter stroke for the pump piston in proportion to the increased speed of the wheel, thus rendering the pump more uniform in its action.

## AN IMPROVED UNIVERSAL PANTOGRAPH.

The invention herewith illustrated provides a pantograph which will not only copy, enlarge, and reduce drawings, but is also adjustable for reversing them and for caricaturing. The arrangement of the pivoted bars and the series of holes therein will be readily



RICHE'S PANTOGRAPH.

understood from the illustration, as well as the purpose of the central longitudinal bar and its slides, a cross sectional view in Fig. 2 showing the groove in the central bar in which the slides move.

To copy an engraving, the arms are balanced as shown in the picture, their motion being limited by the stationary pivot shown at the lower end of the central longitudinal bar. A tracing point in one arm of the pantograph is then carried by the hand over the details of the picture, which are reproduced by the pencil carried by another arm. Enlargements and reductions are effected by placing further in or out, in the holes shown, the bolts pivotally connecting the cross arms, thus increasing the leverage of either the pencil or the tracing point. When it is desired to use the pantograph in caricaturing, the connection between the bars is made unsymmetrical, so as to either elongate or otherwise distort the picture being copied. In employing the pantograph for reversing, pivotal screws are inserted in both slides, and the slides themselves left free to move in the central longitudinal slot. Lines then drawn parallel with the central bar, and by the sliding of the pantograph therein, will be made by the movement of the entire pantograph, and will be parallel, but when drawn at right angles to the bar they will be formed in opposite directions on its opposite sides, reversing the picture. Thus a face looking

toward the right in the original can be made looking toward the left in the copy, and all of the lines drawn by the instrument when so adjusted will be reversed.

This invention has been patented by Lieut. Charles S. Riché, U. S. Corps of Engineers, Willet's Point, L. I., N. Y.

## A New Alloy.

A new alloy has been discovered by Herr Reith, of Bockenheim, which is said to practically resist the attack of most acids and alkaline solutions. Its composition is as follows: Copper, 15 parts; tin, 2.34 parts; lead, 1.82 part; antimony, 1 part. This alloy is, therefore a bronze with the addition of lead and antimony. The inventor claims that it can be very advantageously used in the laboratory to replace vessels or fittings of ebonite, vulcanite, or porcelain.

## A REVOLVING SELF-VENTILATING CHURN.

A churn which automatically effects a practically perfect ventilation of the churn body when in operation, and is designed to closely regulate the temperature of the air supplied, is shown in the accompanying illustration, the apparatus having been patented by Mr. Robert C. Boekler, of Mankato, Minn. The churn body is preferably slightly oval, and on the side carrying the operating crank handle it is journaled, by a shouldered shaft or gudgeon, fixed to a plate secured to the side of the body, having a bearing in a short standard, the bottom portion only of which is seen in the illustration. The opposite journal, being the one fully shown in the picture, is a double pipe or tube, one within another, a metal plate fixed to the body giving a good bearing, and the plate having a suitable collar and gland to form a stuffing box, by which the escape of any liquid from the churn may be prevented. The inner pipe is open at its inner end to the interior of the churn body, and at its outer end is connected by a short flexible tube to the discharge passage of an air pump, secured near the top of the standard, and operated from the shaft journaled therein as the churn is revolved. The pipe supplying air to the pump is laid in a coil in a tub or suitable receptacle in which ice may be placed, so that the air will be cooled in passing through the pipe, its outer end terminating in a rose nozzle or strainer, to prevent the passage of insects or dust with the air drawn in. When churning is to be done indoors in cold weather, this air-cooling apparatus will not be needed, but the pipe leading thereto may be disconnected, and its open end led to the outer air through a suitable opening in door or window. This air-supplying pipe may also be used, on disconnecting it from the air pump, for introducing water to the interior of the churn without removing the cover. The outer portion of the double pipe forming the journal is for the egress of the air thus forced in, after it has performed its mission of abstracting the gases and animal heat from the cream being agitated within the churn body, and thoroughly aerating the same. The inner end of this pipe is fitted with a cap of conical crimped form, adapted to prevent the passage of drip liquid into the tube, and its outer end is bent over at the top, and fitted with a rose head to prevent the passage of flies or other insects to the inside of the churn. The shorter of the two standards on which the churn body is journaled is hinged to the base, to allow the churn body to be readily removed, and the cover, which is firmly clamped down with cross pieces, is fitted with a glass, to allow of the ready inspection of the contents of the churn body.

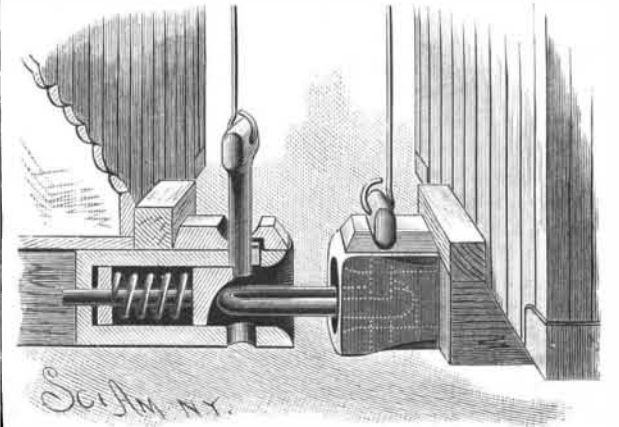
The inventor who has devised this apparatus was led thereto by his experience as a cooper in making churns for farmers. Where large, old fashioned, dasher churns were called for, it would be with the direction that the hole in the lid be made considerably larger than the handle, that air might thus be carried in and out of the churn. This is considered an essential to the making of good butter, no less than for expediting the process, and the inventor has sought to fully supply this want in revolving churns.



BOEKLER'S IMPROVED CHURN.

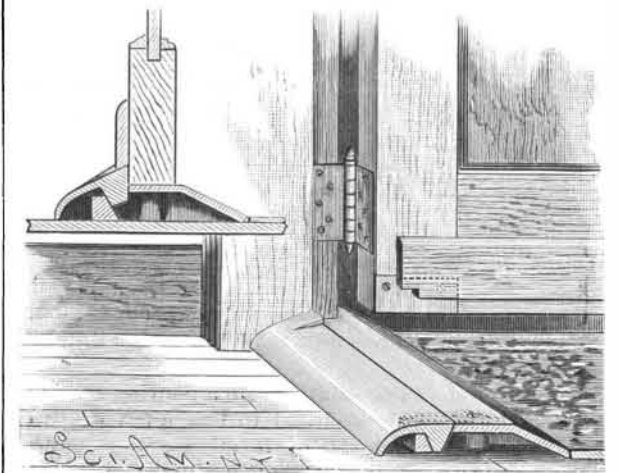
## AN IMPROVED CAR COUPLING.

The invention herewith illustrated presents a device by which cars will be automatically coupled on coming together, thus relieving trainmen from the dangerous work of going between the cars for this purpose. The chambered head of the drawbar has the usual vertical aperture, and within the chamber is a follower having its head beveled or cut away on the lower part, a spring being placed between this head and the rear



SELF'S CAR COUPLING.

wall of the chamber. The pin is cut away at its lower end to form a shoulder, and has a lug projecting laterally from one side in position to rest upon the top of the drawbar when the pin is withdrawn from the coupling link, as shown in the sectional view to the left, the view at the right hand of the picture showing in full and dotted lines all the parts in coupled position. The coupling pin has a T-shaped head, which rests in a transverse notch of the drawbar covering, preventing the pin from turning when the cars are coupled. When the link enters the chambered head of the drawbar, it pushes back the follower and releases the pin, which drops and effects the coupling, the uncoupling being effected by withdrawing the pin by means of a rod extending to the top of the car. The



ALLYN'S CARPET AND WEATHER STRIP.

coupling pin may, however, be turned so that the coupling will not operate, thus enabling trainmen to push the cars without coupling them.

This invention has been patented by Mr. Lavega Self, and for further particulars address Mr. J. G. Clarkson, of Arcadia, Iron County, Mo.

## A COMBINED CARPET AND WEATHER STRIP.

A construction adapted to be placed beneath a door, to serve the purpose of a finishing strip at the edge of the carpet, and which, when the door is shut will operate automatically to tightly close the bottom seam against the admission of cold air, is shown in the accompanying illustration, and forms the subject of a patent recently issued to Mr. D. L. Allyn, of Bloomington, Ill. It is composed of two longitudinal sections, the inner one fixed in its place by screws, and both chambered on their under sides, hook lugs from the under side of the inner section engaging lugs on the under side of the outer section. The latter has, on its end next to the hinged side of the door, an upwardly projecting lug, which, when the door is closed, is struck as by a cam by the inner lower end of the door, or by a wear plate thereon, causing the faces of the lugs connecting the longitudinal sections on their under sides, to ride upon each other thus lifting the inner side of the outer section so that it will rest against the side of the door bottom as shown in the sectional view. A moulding across the lower outer side of the door is cut away sufficiently on its lower inner corner on one end of the outer section, and the lower edge of this moulding is undercut to receive and form a tight joint with the inner edge of that section as it is raised by the closing of the door, its outer edge resting upon the floor. This outer section is readily detachable for cleaning purposes.