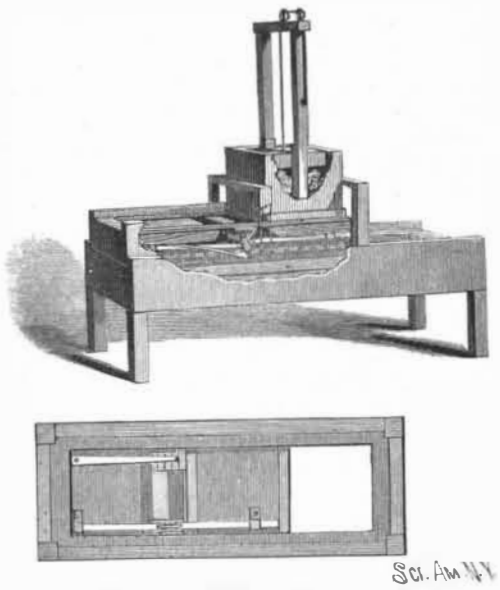
AN IMPROVED VEGETABLE CUTTER.

A machine for cutting up cabbages and other vegetables is illustrated herewith, and has been patented by Mr. Johann A. W. Iusti, the small figure showing a bottom view of the machine. The supporting frame has rails, on which a sliding frame is mounted to be reciprocated beneath a cabbage receptacle, a weight



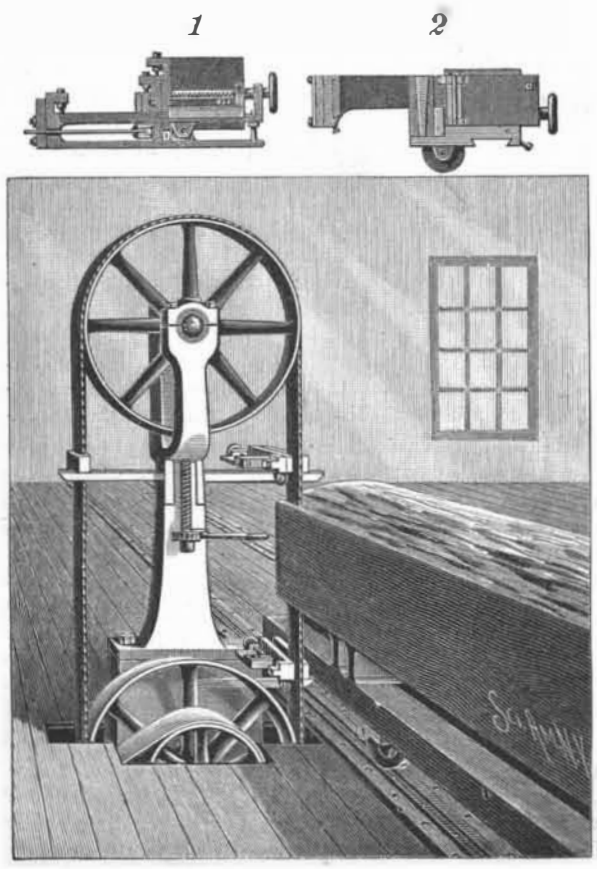
IUSTI'S VEGETABLE CUTTER.

box being held between uprights to press the vegetables in the receptacle against the cutters. In the bottom of the receptacle are strips having metallic friction plates, against which move friction plates on the reciprocating sliding frame, the bottom of the frame also having friction plates moving over friction plates on the rails. The frame has a transverse opening through which the knives alternately project, and through which the cabbage passes as it is cut. Beneath the frame is mounted a rock shaft carrying adjustable cutters, which may be moved to vary their projection, and may also be detached for sharpening. The cutters are alternately held in position for cutting by a spring. The frame may be reciprocated by hand or other power, and in each direction of movement of the frame one of the cutters projects upward through the slot, the other cutter being then out of the way.

For further particulars with reference to this invention, address the patentee, or Mr. C. Kerrison, Jr., Charleston, S. C.

AN IMPROVED GUIDE FOR BAND-SAWS.

A guide for band-saws, in which the parts may be readily and expeditiously manipulated, and the guide adjusted to any width of saw, is illustrated herewith, and has been patented by Mr. Charles R. Backer, of No. 1221 West Indiana Street, Evansville, Ind., Figs. 1 and 2 showing a plan view and longitudinal vertical section of the device. The guide-bed is ribbed, and has pivoted spaced jaws sliding upon it, one jaw having an adjustable clamping block on its outer end and the opposite jaw upon the same end, with an opposing fixed clamping block, there being angular guide blocks adjustable upon the guide-bed, the vertical members of these blocks projecting upward between the opposing jaws, and having grooved contiguous



BACKER'S GUIDE FOR BAND-SAWS.

faces, with metal blocks screwed in the grooves. The jaws are adjustable endwise and laterally. The contiguous faces of the vertical members of the guide-blocks have dove-tail or wedge-shaped grooves in which wedge-blocks are inserted, the guide-blocks being preferably of iron or steel, and the wedge-blocks of brass. The latter blocks are adapted to form a guide for the heel or inner side of the saw, while wooden blocks constitute a guide for the outer or cutting edge. The device is adjusted to any width of saw through the screw shown in Fig. 1, and may be constructed and adapted for either a right or left handed mill.

A Telegraph Man Outwitted.

A few days ago several men from the electric light station dug a hole for an electric light pole opposite one of the finest residences in Malden, Mass. The owner of the residence, in the meantime, secured a man and told him to go up into the woods and dig the first tree he could find, and hurry back and place it where the hole for the electric light pole was. Before the men commenced to raise the electric light pole, the owner of the residence invited them to come into his cellar and take a drink, which they all did. There the owner detained them long enough to allow the man sent for the tree to come back and plant it. The others did not dare to remove the tree, so they put the pole into their wagon and drove off.

AN IMPROVED SASH FASTENER.

A simple locking device, whereby the upper and lower sash of a window may be simultaneously locked, irrespective of the position that the upper sash may occupy, is illustrated herewith, and has been patented by Mr. John H. Buettner, of No. 108 Pleasant Street, Cincinnati, Ohio. In our illustration, the dotted lines show the position occupied by the parts of the device when the sash is not locked. A plate is attached to the inner face of the window frame, just above the lower sash, there being a stop-pin near the upper edge of the plate, and another similar pin near its center.

BUETTNER'S SASH FASTENER.

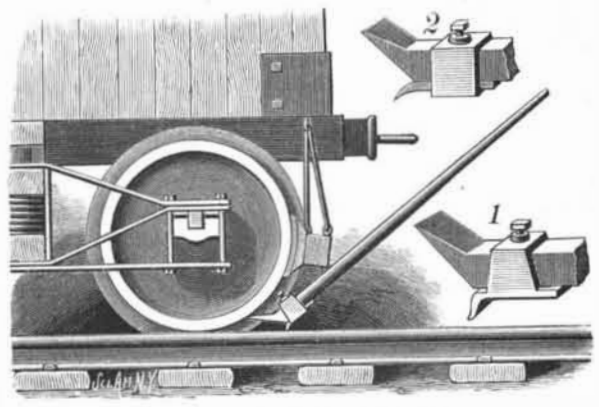
At each side of the center a locking arm is pivoted, the upper one curved downward and outward, and having an elastic bearing-block, preferably of rubber, secured in its horizontal extremity. The lower arm is slightly curved from its pivotal point, and has near its extremity a lug extending at right angles to the body. Each of the arms has a spur near its pivotal point, these spurs being adapted to engage each other when the upper arm is essentially at a right angle to the lower one. When the upper arm is pressed downward, so that its rubber bearing-block will press against the inner side of the upper sash, the spur on this arm bears against the spur on the lower arm, forcing the latter outward, when the other end of the lower arm is carried inward until it engages with the lower sash, upon the upper surface of which its lug has a positive bearing. The further the upper arm is carried downward, the tighter the lower arm binds against the lower sash.

Attraction of Gravitation.

At the recent Royal Society soiree Mr. C. V. Boys, F.R.S., contributed a portable apparatus for demonstrating the attraction of gravitation. The movable beam consists of two little masses of lead only one centimeter long, to which a galvanometer mirror is attached, and this system is suspended by one of Mr. Boys' filaments of quartz, by which the action exhibited is rendered possible. Around this can be moved a cylinder which carries two cylindrical lead weights each weighing a kilogramme, and the attractive influence of the heavier masses from the little movable beam was indicated by the movement of a spot of light through some fifty divisions of a scale fixed at the further end of the room. He forms filaments of quartz by means of a bow and arrow, the tail of the arrow being attached to a lump of molten quartz, the latter being drawn out into an excessively fine thread during the flight of the arrow, as if it had been a filament of melting sealing wax. A second experiment shown by Mr. Boys was designed to show the extraordinary insulating properties of quartz. In this experiment a pair of gold leaves forming an electroscope are supported on a little rod of quartz ¾ in. long, and although the surrounding atmosphere is kept saturated with aqueous vapor, the gold leaves retain their electrical charge for several hours, although, if glass were used instead of quartz, the charge would be dissipated in a few seconds. Moreover, the quartz may be dipped in water and replaced with its surface studded with globules of water, and it appears to insulate as well as before.

AN IMPROVED PINCH BAR.

The bar shown herewith, for moving or starting cars on railways, has been patented by Mr. Peter C. Forrester, of Wilkeson, Washington Ter. The bar proper is of the ordinary form, pointed with steel at its nose end,

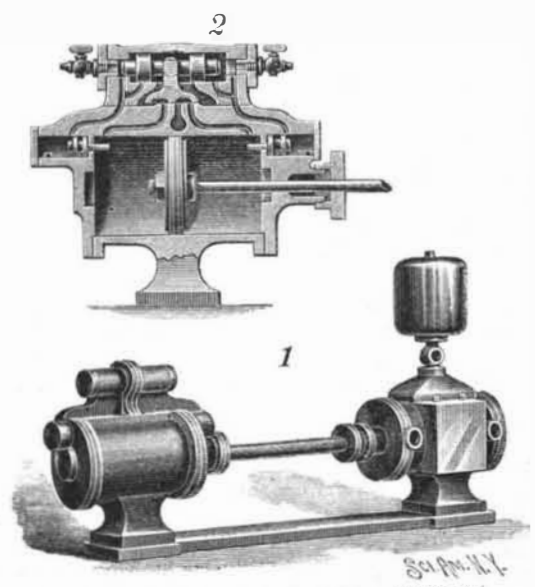


FORRESTER'S PINCH BAR.

where it bears upon the car wheel. A fulcrum piece or attachment, to bear on the rail, is made in the form of a sliding block, adapted to be readily slipped on or off the bar, as shown in Fig. 1. It is made with a sharp tooth on its under side, pointed with steel, to take a firm bite on the rail, and is fastened in the required position by a set screw, or may be so secured by a wedge or ferrule. Fig. 2 shows a modified form of the fulcrum piece or sliding block, in which the tooth, instead of being made integral with the sliding block, is made in a separate piece, and held in position by clamping it to the bar within the slotted body of the sliding block.

AN IMPROVED STEAM-ACTUATED VALVE.

The illustration herewith represents the valve arrangement of a steam pump in which the valve controlling the main piston is actuated by steam, and is in its turn controlled by other valves which have their action governed by main piston. This valve forms the subject of a patent issued to Mr. John W. Gheen, Astoria, Oregon. Fig. 1 represents the application of the valve to a pump complete, and Fig. 2 is a vertical longitudinal section of the steam cylinder end of the pump. The steam chest is constructed above the main valve to form a cylinder, to receive within it a piston attached to the valve, this piston having double heads and reduced opposite terminal extensions, arranged to work as pistons in and out of reduced cylindrical chambers at opposite ends of the body of the cylinder. Steam is admitted to the valve chest between these heads in the usual way. At opposite ends of the main cylinder are two small cylinders, connected intermediately of their length by passages with the reduced terminal chambers of the valve cylinder, these passages being again connected by branch passages with the enlarged portion of the valve cylinder, so that the heads of the piston portion of the valve may control them. The small cylinders in each end of the main cylinder have each a live steam port and an exhaust, and within them pistons work freely as independent valves, each having a stem normally projecting within the main cylinder. These valves are operated in one direction by the main piston coming in contact with their stems, and are moved by the pressure of steam on their backs in an opposite direction. This invention is not only applicable to direct-acting pumps, but also to direct-acting engines for other than pumping purposes.



GHEEN'S STEAM-ACTUATED VALVE.