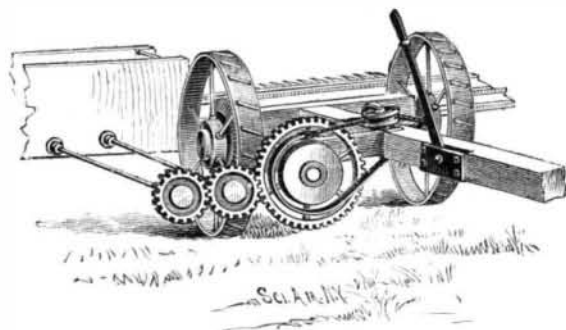


AN IMPROVED HEADER BRAKE.

This is a device patented by Messrs. Charles N. Hinchcliff and Horace E. Hall, of Spangle, Washington, to control the main driving shaft. A wooden disk is secured to the main spur or gear wheel, and a spring strap is arranged for connection with the header frame, a cord or chain being connected to the strap, the cord passing about a sheave and being secured to a pivotally mounted lever. By throwing the lever the strap is



HINCHCLIFF & HALL'S HEADER BRAKE.

brought to bear upon the peripheral face of the disk, and the momentum of the driving shaft will be checked.

AN IMPROVED STONE POLISHING MACHINE.

The illustration represents a machine for polishing granite or other stone, or for finishing or dressing the surfaces of other material, which has been patented by Mr. Willis A. Lane, of Barre, Vt. The machine is substantially built of iron throughout, and hangs on the boxes to the back shaft, which is supported by two brackets that can be bolted to any convenient place, leaving the back shaft to run free and enabling the machine to work over a large surface. The bottom bracket is made so that the machine can be plumbed in a few minutes, and thus readily made at all times to give an even pressure on all parts of the surface of the stone. The machine can be set up to work around the whole circle, so that several beds of stone can be set under the same machine at the same time. A mechanical arrangement attached to a screw provides for raising and lowering the machine by power, from the place where the workman stands, by means of a lever, without stopping the machine. Another attachment provides for raising and lowering the machine by hand. It is claimed that this is the only machine yet made by which this raising and lowering can be effected with such facility. The machine has steel-rimmed pulleys and steel shafting, with change of speed on front shaft, which is independent of the pulleys, and can be raised and lowered without raising the pulleys. The boxes are so made that they can be replaced at small expense when worn out, and the machine altogether is designed to be a most substantial, efficient, and time-saving mechanical construction. It is said to be already in use by some of the largest granite dealers in New England and the Middle States.

Peach Gum.

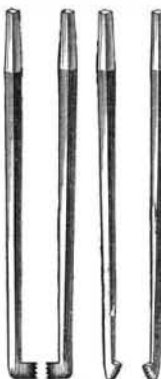
W. E. Stone, of Perdue University, Lafayette, Ind., gives, in a recent number of the *American Chemical Journal*, the results of his examination upon the carbohydrates of peach gum. He says:

The gummy substance secreted from the tissues of the peach tree contains those bodies which by hydrolysis yield arabinose and galactose. The occurrence of these bodies together under these circumstances is the more noteworthy from the fact that arabinose and galactose represent two distinct classes of carbohydrates, the true glucoses and the pentagluco-

ally found in such intimate connection with each other. The gum arabic is, I believe, the only other instance where such occurrence has been recognized, and in no previous case has the isolation and recognition of both these carbohydrates from a single homogeneous substance been accomplished.

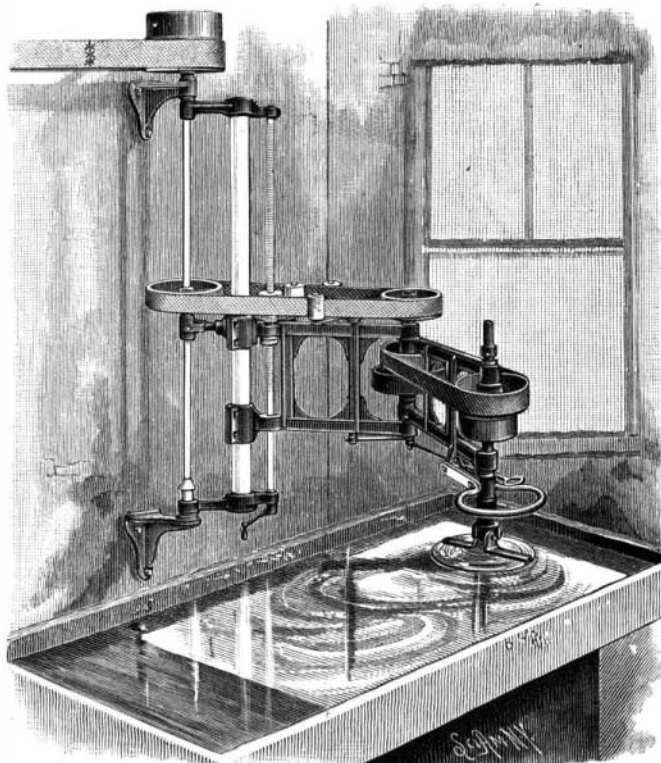
AN IMPROVED DENTAL TOOL.

The illustration represents another view of the "dental elevators" or "stump extractors" patented by Mr. Daniel Siddall, of The Dalles, Oregon, and recently noticed in these columns. The shank of the elevator, shown on the left, has a laterally extending end, one side of which is flat and the other side oval and convex, the outside edge having serrated teeth to engage the root of the tooth to be extracted and raise it entirely free from the gum, or sufficiently for it to be extracted by the forceps. The instruments are made rights and lefts, that the operator may choose one which will bring the proper bearing surface next the gum of the patient. In the elevator shown at the right the end pieces, instead of being rectangular, are fan shaped, and have a curved edge, so that the broad part of the edge or a corner of it may be brought in contact with the root.



AN IMPROVED GRAVITY HOIST.

The invention herewith illustrated is designed to utilize the force of gravity in raising filled buckets from the bottom of a pit or shaft. It has been patented by Mr. William J. C. Doyle, of Aspen, Col. In the main frame of the machine a shaft is mounted at right angles to the line of two inclined tracks or ways, and on this shaft is a large sheave, about which and over a guide sheave is passed a cable, whose ends are con-



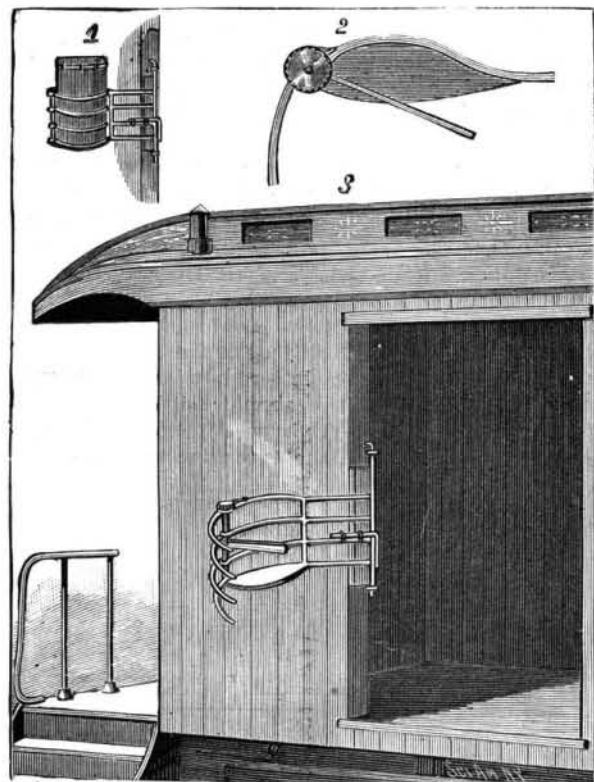
THE "GRANITE CITY" POLISHING MACHINE.

ected to car trucks on the inclined tracks. The upper end of the shaft carries a small gear that engages a larger gear mounted on a horizontal shaft extending over the pit or shaft from which it is desired to hoist material. On the latter shaft, and directly over the pit, is a sheave supporting a bucket-carrying cable with a bucket on each end. The large sheaves are preferably about four feet in diameter, one of the gears then being one foot and the other two feet in diameter, although these proportions may be varied, while in connection with one of the shafts is arranged a brake mechanism. In operation, as the raised bucket is dumped into the car at its side, and the brake mechanism is released, the filled car will move down the track and the empty bucket descend in the pit, and in so doing will draw up the other empty car and a filled bucket from the bottom of the shaft, the hoisting being thus continuously carried on. To prevent slipping of the cables they are provided with stops adapted to be received in depressions in the peripheral faces of the sheaves.

FURNITURE polish.—1 lb. olive oil, 1 lb. oil sauber, 1 oz. tinct. henna.

AN IMPROVED MAIL POUCH CATCHER.

A device capable of attachment to any mail car, and designed to certainly catch and securely hold a pouch until the latter is released by the mail clerk or other

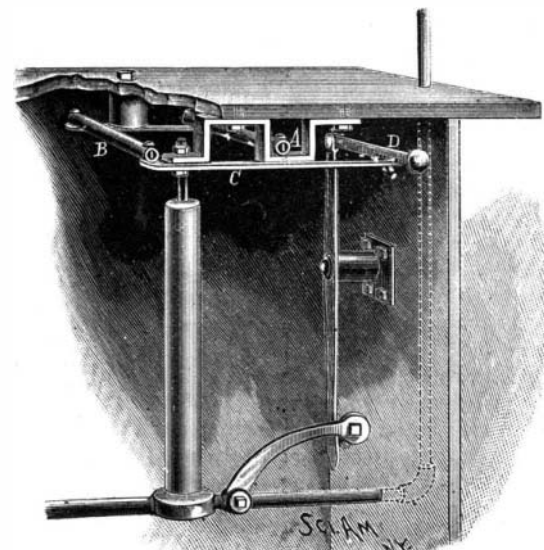


HATLESTAD'S MAIL POUCH CATCHER.

person in the car, is shown in the cut, and has been patented by Mr. John A. Hatlestad, of Moss Point, Miss. A series of horizontal bars, curved for a portion of their length, are connected by an intermediate and a rear vertical bar, the latter extending above and below, and its extremities being utilized to hinge the device in a car door. The outer ends of the horizontal bars each have an eye, and the lower one is flattened in its curved portion. An outer gripping arm consists of another series of curved bars, united at their inner ends by a vertical bar held to turn in the eyes at the ends of the other bars. Upon the upper end of this pivotal bar is a ratchet wheel, the teeth of which are engaged by a spring-pressed pawl, as shown in Fig. 2, the ratchet wheel being free to turn as the gripping arm is thrown outward to receive and clamp the mail, but preventing it from opening when closed until the pawl is detached from the ratchet by the clerk in the car. At or near the center of the upright of the gripping arm is secured a plate, which extends midway diagonally across the front of the gripping arm when the latter is open, but passes between the bars as the arm is closed. In operation, as the car advances, the mail pouch strikes this plate, forcing it to the rear, and thus swings the gripping arm in upon the body around the pouch. Should the force of the blow be very great, the body of the device will be forced to a contact with an elastic strip, secured upon the door jamb in its rear, when the rebound is likely to throw the device, without the assistance of the clerk, into the car, although, upon one of the bars of the body, at its inner end, is a handle to enable the mail clerk to readily draw in the device when desired. There is an angular beveled stop block on the lower end of the pivot rod of the gripping arm, fitting in a recess in the lower bar, to hold the gripping arm in proper position until the pouch strikes the diagonally extending plate.

AN IMPROVED AUTOMATIC REGULATOR.

The device represented in the accompanying illustration, patented by Mr. John Kilshaw, is especially



KILSHAW'S AUTOMATIC REGULATOR.



DOYLE'S GRAVITY HOIST