

vices to coast between the actuating-screw, head, box, and pin so as to practically absorb friction between the moving parts, rendering the device more durable and easier of operation and increasing the mechanical efficiency of the hoisting-engine.

COIN-CONTROLLED VENDING DEVICE.—G. W. MEREDITH, Wichita, Kan. In the present patent the invention is a division of a prior application for a patent for a cigar-vending machine, which was formerly filed by Mr. Meredith; and it consists in the novel mechanical features whereby a deposited coin is made the intermediary through which one or more cigars held in the cells of a carrier-belt are discharged into range of possession by the purchaser.

CIGAR-VENDING MACHINE.—G. W. MEREDITH, Wichita, Kan. The invention relates to vending-machines, in which individual articles of merchandise are discharged from a stock held for sale by means of a manually-operated handle. Although applicable to sale of other merchandise in packages of nearly uniform size, it is especially intended for the sale of cigars. The machine is constructed in its entirety as a cigar-case in which cigars are arranged in their original boxes, with quality, brand, and price exposed to view for selection. It is for use in hotels, clubrooms, barber shops, and other places. Mr. Meredith has invented another cigar-vending machine in which articles of merchandise are discharged from a stock held for sale by working and manipulating an operating-handle, and although applicable for the sale of any kind of package articles of somewhat uniform size, it is especially intended for the sale of cigars. His machine provides for an extension of the function of the machine for the sale of one for five cents, two for five cents, three for five cents, one for ten cents, three for ten cents, one for a quarter, or any number for a single coin value up to one dollar.

UNIVERSAL EXCAVATING AND GRADING MACHINE.—W. GILMORE, Meridian, Miss. The principal object in this case is to provide for universal adjustment of the parts to permit working under various conditions, and especially to provide for excavating under a railroad-track without removing the track, so as to cut down grades without discontinuing the trains for any length of time and to do the work at greatly-reduced cost on account of the rapidity of the machine in handling large amounts of earth.

SAWING-MACHINE.—S. J. GRAY and J. HORNING, Oakland, Cal. The object of the improvement is to provide a novel machine of the endless-saw type adapted for cutting in any position—either vertically, horizontally, or at any desired angle. A further object is to provide means for cutting at any height desired, whereby trees may be cut near or far from the ground and large or small logs sawed with equal facility.

APPARATUS FOR SORTING CHIPS.—H. POWERS, Lincoln, N. H. The tank or receptacle is filled with water, into which the screened-out knots and large chips are discharged and in which the knots by their greater specific gravity sink, while the lighter chips float, in combination with a series of perforated pipes arranged close to the water level, the issue-orifices all being faced in one direction, whereby the floating chips are continuously carried away by a surface current produced by a series of impinging jets of water or air and under the influence of which the floating chips are carried over a spillway and delivered to an elevator to be carried up to the rechipper.

ELEVATOR DRIVING MECHANISM.—V. W. MASON, Providence, R. I. The invention is especially applicable in mechanism of the elevator driving class which is driven by an electric motor. It relates especially to reversing mechanism, and concerns itself also with the connection from the motor to the mechanism. The object is to provide a reversing mechanism which will operate to apply a brake automatically immediately upon the arresting of the forward motion and prior to the reversal of the motion.

MEASURING ATTACHMENT FOR PAPER-BOX MACHINES.—A. BELL, New York, N. Y. The invention refers to improvements in attachments for machines employed in placing the paper covering on the sides and ends of pasteboard boxes and covers, the object being to provide a simple means whereby the desired length of material may be accurately measured, thus resulting in a considerable saving of paper at the overlap.

CLOCK.—A. D. GARY, Lavonia, Ga. The invention comprises the combination with the clock-train having an escapement shaft and wheel, of a plate having a laterally-extending arm, a pallet for engaging the escapement-wheel mounted on the arm, a pendulum mounted to swing upon the plate, and a connection between the pallet and pendulum. The plate is provided with a bearing for engaging the escapement-shaft and a slot leading therefrom to permit removal and attachment of the plate, and a rod secured to the plate and extending therebelow to swing the plate.

BEATING-IN DEVICE FOR LOOMS.—J. K. DALKRANIAN, New York, N. Y. The object of this invention is to provide a device arranged to insure a proper beating in of the weft and the pile-warp-threads loops, to hold the beaten-in parts in position during the formation of the following row of pile-warp-threads loops,

and to keep the pairs of ground-warp threads properly separated for the pile warp-threads needles to pass between adjacent pairs of ground-warp threads. This is a division of the application for Letters Patent of the United States for a pile-fabric loom, formerly filed by Mr. Dalkranian.

JIG OR ORE-CONCENTRATOR.—A. C. CAMPBELL, Asheville, N. C. The device comprises an inclined riffle upon which the ore is deposited and along which it is driven by an intermittent air-blast. The dense stuff settles upon the riffles and is blown through them, while the less dense matter is carried to a dam at the lower end of the river whence it flows off through a pipe.

MOTOR-TOOL HOLDER.—C. B. HASTINGS, New York, N. Y. The invention pertains to motor-tools such as are adapted to be held in the hand when applied to the work. The object is to produce a holder having means for guiding the tool in a vertical plane and having a construction enabling the tool-holder to be readily adjusted, so as to change the elevation at which the tool operates.

AUTOMATIC STOP FOR HOISTS.—F. H. KOHLBRAKER, Nanticoke, Pa. The object here is not only to provide a throttle-valve cut-off mechanism that may be operated by the cage should it rise too high in its shaft by overwinding of the hoisting-engine drum, but to provide means whereby the valve or valves may be closed and the brake set to instantly stop the engine should any of the parts become deranged, such manual operation taking place without disturbing the automatic device, thus saving time and trouble of resetting said device, as is necessary with the construction shown in a former patent granted to Mr. Kohlbraker.

Prime Movers and Their Accessories.

BOILER-FLUE.—A. VAN WALTERS, Gallon, Ohio. The invention refers to flues or tubes as constructed in modern tubular boilers, and is especially useful in connection with steam-boilers of the locomotive or marine type. The object is to provide a boiler-tube which effects a lasting and hermetically-tight joint between the tube and the flue-sheets, which can be easily removed and replaced when worn out, and which tends to decrease the troublesome incrustation encountered in steam-boilers.

PYROMOTOR.—W. W. FRENCH, Fort Branch, Ind. In this patent the improvement refers to motors, the more particular object being to produce a motor controlled directly by heat upon the principle of the expansion and contraction of one or more metallic members. It further relates to means whereby the expansion and contraction of the metallic members or member is caused to produce an appreciable degree of motion.

EXPLOSION-ENGINE.—H. D. DIBBLE, Mystic, S. D. The object of the invention is to provide a gas or explosion engine arranged to utilize the motive agent to the fullest advantage and to use a small portion of the hot residue from a previous explosion to compress the same to the igniting-point with a view to ignite the incoming new charge.

Railways and Their Accessories.

AUTOMATIC AIR-BRAKE AND STEAM COUPLING.—O. E. LAIB and E. B. WITTE, Trenton, N. J. The principal objects of the improvement are to provide means for effecting making an air-tight joint between two air-brake-system cars when the latter are coupled together and for automatically allowing an escape of air from each car when the cars are uncoupled or when one is released from the other; furthermore, to prevent the escape of all the air from the air-brake system in an uncoupled car, only allowing enough to escape to set the brakes, and to apply the device to both freight and passenger cars.

GRAIN-DOOR.—W. S. GILLELAND, Newkirk, Oklahoma. The invention comprises the combination with a car having a door-opening provided with a sill, of doors hinged to the sides of the opening, a plurality of catches on one of the doors and a plurality of rock-levers pivoted to the other. The levers have their outer ends provided with flanges for engaging the catches, the inner end of levers being extended to form a handle. A bar connects the inner end of said levers to constrain them to move in unison, one being provided with an integral lug for directly engaging the sill when the flanges are engaged with the catches. This prevents movement of the doors with respect to the sill.

CAR-UNLOADING APPARATUS.—A. BUCKER and A. CROCHER, Minerva, Ia. The invention relates to apparatus for unloading sugar-cane from cars into the feeder for cane-mills. It is an improvement upon that form of device in which a large rake is attached to and carried by a horizontally-reciprocating frame, which frame is hinged to swing vertically about a horizontal axis at one end, so as to be raised and lowered to permit the rake to operate in any horizontal plane.

CAR-FENDER.—M. WICK, New York, N. Y. The principal objects of the inventor are to provide means for automatically releasing a series of movable elements when a portion of the fender comes in contact with an obstacle so as to lift the obstacle upon a platform and hold it thereon without stopping the car or running any danger of throwing the obstacle under the wheels, provided it is approximately the size of a human body.

CAR-FENDER.—C. HAGER and T. D. FINLIE, New York, N. Y. In the present patent the invention is an improvement in side fenders for street-railway cars, the same being attached to and pendant from the body of a car and hanging outside of and parallel to the wheels, so as to practically inclose and prevent access to the space between the ends or platforms of the car. Messrs. Hager and Finlie have invented another improvement in the class of car-fenders which are detachably connected with the fronts or platforms of street-cars and adapted to be lowered from normal position in case of emergency.

Pertaining to Recreation.

GAME DEVICE.—R. D. MARTIN, Tampa, Fla. The object of the game is to completely wrap a string around a mast with the intention of making the ball strike the mast at a chosen point. The ball having a flexible connection with the mast, any impulse given to the ball will cause the string constituting such connection to wind around the mast and likewise unwind of its own accord. The purpose is to provide a portable game requiring the exercise of considerable skill.

Pertaining to Vehicles.

COOLER.—D. MC RA LIVINGSTON, New York, N. Y. The invention is more particularly intended for the coolers of motor-vehicles propelled by explosive-engines. It consists in a cooler having lapped joints at the side edges formed by means of return-bent or inwardly projecting portions formed along the opposite edges of one plate or wall and outwardly-projecting plain portions on the two side edges of the companion plate or wall of the conduit through which the fluid to be cooled passes. In order that the hooked edge portions may be formed, slits at the angles are produced. Mr. Livingston has invented another cooler and the improvement is intended principally for embodiment in the coolers of motor-vehicles propelled by explosive-engines, and the present relates especially to that form of cooler in which conduits are so bent as to present a diamond figure, the bends of the conduits being diagonal to the vertical and horizontal.

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Prof. Anthony Barker, 1164 Broadway, N. Y. City.

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Inquiry No. 8216.—Wanted, makers of invalid rolling chairs with power attached.

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Inquiry No. 8218.—Wanted, flexible cloth, air-tight, capable of holding a pressure of three inches of water; or factory which treats cloth with paraffine or other chemicals.

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Inquiry No. 8220.—For manufacturers of "cotton-flock" for the wall-paper printing trade.

Inquiry No. 8221.—For makers of styptic pencils in quantities.

Inquiry No. 8222.—Wanted, the address of the Crown Cap Co., manufacturers of the metal cap for bottles; also for makers of similar bottle caps.



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Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

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(10036) H. M. writes: The SCIENTIFIC AMERICAN, of May 19, 1906, contains an answer to some queries from A. X. (9976) that

is, to say the least, different from the information that is generally to be found in the Notes and Queries column. Your paper has the reputation of being a conservative scientific journal, reasonably accurate, and one that never stoops to persiflage. But this time the bounds were overstepped, with the usual result—the ridicule of the editor acted as a boom-crang. In attempting to make sport of a letter from a schoolboy, he made some mistakes that are more mirth-provoking than the errors of the student. Among other things he says: "This letter claims to come from a high school, from a scholar, we assume." Now in the El Paso high school we are taught that the term scholar is applied only to a learned man, or one having great knowledge of literature or philology. Of course, etymologically considered the word scholar means "one who learns from a teacher," but good usage does not countenance its use with that meaning. Again he says: "A body weighs more on the top of a mountain than it does at sea level, at any time, since it is farther from the center of the earth on the mountain top." Our physics teacher taught us that the maximum weight of a body is at the surface of the earth (at the sea level). Of course, a body weighs more at the poles than it would at the equator, because in the former position it is nearer to the center of the earth. But, "if a body is removed above the sea level, as on the top of a mountain or in a balloon, the distance d between it and the center of the earth is increased and by reference to formula

$F_g = \frac{Mm}{d^2}$ we see that its weight is diminished."

(Hoadley's "Physics," p. 62). Fair play demands, Mr. Editor, that you publish an answer to your explanation in as prominent a place as was the original article. I am going to watch with interest to see if you dare publish this letter. In conclusion, give the next boy a chance, for he will get over his carelessness, and please do not publish any more erroneous answers to questions dealing with elementary physics. A. Thank you, my lad, we are much under obligation to you for setting us right. Over forty years' experience as a professor has taught us to welcome correction, even from a high school scholar, and even on a point where the error was one of the types simply, or at most one of inadvertence. It was so evident that "more" had been printed, where "less" should have been printed, that we had not supposed even the most captious and hypercritical would waste a postage stamp in telling us the mistake, which we saw as soon as the paper came from the press. It was so plain a slip that any one would be stupid not to see it. Oh, yes, we do dare, we are bold and bad enough to dare to print your letter, impertinence to an older person and all, and to say that we do not believe the teachers of the El Paso high school teach their students and scholars—we hope there are scholars there—any such manners as are found in your letter. As to your limitation of the use of the word "scholar," we doubt if El Paso will be able to make this use of the word universal, especially as both Webster and the Century do not give it first place. The Standard says, "When used without qualification, the word is understood in this latter sense"—that is, "one who is thoroughly schooled, an erudite person." We agree with this usage, and wish it might become general. Our use of the word was in connection with the qualifying phrase, "from a high school," and, as we understand English authorities, was correct. Of course, one is quite at liberty to restrict the sense of a word in his own use of it as he pleases, but one has no right whatever to find fault with another as you do for using that word in any sense authorized by any good authority. In this you overstep the bounds of good taste, as among gentlemen. We note with pleasure that you bear witness to the general and "reasonable" accuracy of the SCIENTIFIC AMERICAN, and that it does not stoop to persiflage. Persiflage is a very fine word for a high-school scholar to use. It means literally to whistle. And most high school boys do considerable of that. We shall be glad to hear from you again at any time, but will not publish another letter from you of the sort you have sent us this time.