

of rolls, which squeeze out this water with the sugar it has dissolved. A recent invention, which we illustrate herewith, provides means for regulating the flow of water through the bagasse, for registering the amount of bagasse passing between the rollers, and for sounding an alarm when the passage of the bagasse ceases. A general side elevation of a mill provided with these improvements is shown in Fig. 1. Three rolls, *A*, *B*, and *C*, are indicated, the roll *A* being driven by a pulley and belt, as shown in Fig. 2, which is a view of a portion of the opposite side of the machine. The shaft which carries roll *A* is provided at one end with a crank connected by a rod with the walking beam *D* of a double-cylinder pump, so that while the roll is turning, this pump will be in operation. Normally the pump serves to force water through the pipes *E* to the sprinkling head *F*. The latter is provided with a spring valve, which may be adjusted to limit the amount of water sprinkled on the bagasse. A pipe *G* connects the two cylinders of the pump, providing a by-pass. The latter is normally closed by a valve operated by the inclined rack-bar *H*. This bar also engages a pinion connected with a valve in the supply pipe *J* of the pump. The pinion also meshes with a rack *K*, connected to a vertically-movable cylinder *L*. The cylinder is slidable on a fixed piston, and is weighted down by a series of detachable weights. A pipe *M* communicating with the interior of this cylinder runs to a pair of smaller cylinders *N*, placed one at each end of the roll, *C*. The shaft which carries this roll is movable horizontally in its bearing, and is connected with pistons adapted to operate in the cylinders *N*. While the bagasse is passing between the rolls, it will keep the roll *C* in its outer position, thus lifting the cylinder *L* by hydraulic pressure, opening the valve of the supply pipe, *J*, and closing the valve of the pipe, *G*. The pump will, therefore, continue to supply the sprinkling head *F*. But as soon as the passage of bagasse ceases, the weighted cylinder will move back the roll *C*, cut off the supply of water, and by opening the by-pass *G* prevent the pump from forcing water into the sprinkling head. On the opposite side of the machine is the recording mechanism. When water is pumped into the sprinkling head it operates to lift a piston, *O*, raising an idle pinion, *P*, into mesh with the gear wheel *R* on the shaft of the roll *A*, and the gear of the recording mechanism *S*. The latter records the number of revolutions of the roll *A* while the sprinkling head is in operation, or in other words, while the bagasse is passing; but when this ceases the pinion drops, disconnecting the gear, while a small pinion *T* is thrown into mesh with the wheel *R*, and rings an alarm *V* to notify the engineer so that he may stop the machine. A patent on this improved cane mill has recently been granted to Mr. J. C. Searle, Lalamilo Post Office, Puako Pthi, Hawaii.

A NOVEL TOBACCO PIPE.

Many inventions have been made from time to time, with a view to preventing nicotine from being drawn up through the stem of the tobacco pipe and into the smoker's mouth. The latest invention along this line,



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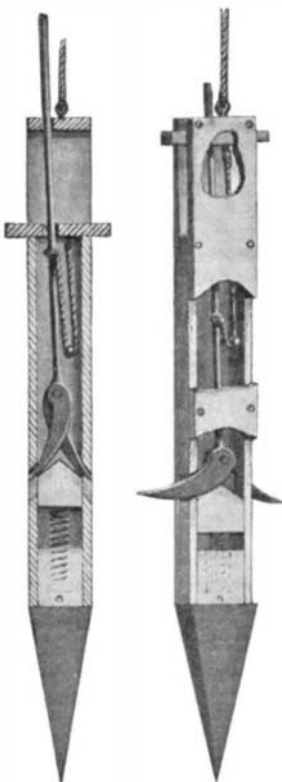
which we show in the accompanying engraving, is a radical departure from all previous designs. The pipe has the appearance of a pear, the bowl being entirely inclosed with the exception of a ventilation opening in the bottom. The body of the pipe is made up of three members, which are threaded together, as indicated in the drawing. The central member contains the bowl proper, or holder. This consists of a sleeve with wire netting over each end. The netting at the lower end is carried in a cap hinged to the tobacco holder. A suitable lining is interposed between the holder and the

body of the pipe. In use the bottom section of the pipe body is removed, and the holder is filled with tobacco. The latter is now lighted in the usual manner, and the section screwed on again. The top section of the pipe body is provided with a lining, which will absorb any tainted saliva or nicotine that passes up into the upper section. This lining can be removed at any time and replaced by a new one. As the tobacco is almost

completely inclosed, no sparks can pass out, and the pipe is thus rendered perfectly safe in almost any place. A patent on this improved tobacco pipe has been secured by Mr. Neal P. Shulin, of Butte, Mont., Box 1265.

ANCHOR FOR AIRSHIPS.

Pictured in the accompanying engraving is an improved anchor for airships invented by Mr. David Thomas, of 2526 Ocean Boulevard, San Francisco, Cal. The anchor is of the harpoon type, being adapted to



ANCHOR FOR AIRSHIPS.

penetrate into the ground when thrown from an airship, and having prongs or claws which will move out laterally and prevent the anchor from being dislodged. The design is such that the claws will not move out until the anchor has penetrated the ground to a predetermined depth. After the anchor is firmly fixed, the airship may be drawn down by winding up the anchor rope on a windlass. The body of the anchor consists of a hollow boxlike structure shod with a sharp metal point. The point is provided with a shank, which extends upward into the body of the anchor. Fitted in a socket in the shank is a compression spring, which at its upper end supports a slidable guide block. The claws or prongs rest on the guide block, and are hinged to a rod which has bearing in a cap at the top of the anchor. The rope attached to this rod passes under a peg, and is secured to a slidable crossbar near the top of the anchor, as shown in the engraving. The ends of the crossbar project through slots in the anchor body. When the anchor is driven into the ground, these projecting ends engage the surface of the ground, causing the crossbar to rise relatively to the anchor, and thus pulling down the rod and forcing the prongs out through slots in the side walls of the anchor. When it is desired to raise the anchor, enough earth is removed to allow the crossbar to slide to normal position, after which the anchor may be drawn up by pulling on the projecting end of the rod.

AN IMPROVED TROLLEY.

With the purpose of overcoming the common liability of a trolley to run off a trolley wire, an inventor in Texas has devised the double wheel trolley illustrated herewith. One of the wheels is secured to the trolley harp in the usual manner, while the other is mounted yieldingly therein. The latter, or auxiliary trolley wheel, is journaled in the forked end of a rod which fits in a tube secured to the harp. A spiral spring in the tube and coiled about the rod serves to press the auxiliary wheel outward. Both of the wheels serve as conductors for electric fluid, and owing to the peculiar manner in which the auxiliary wheel is mounted, it retains its true engagement with the trolley wire, irrespective of jumping or swinging of the pole. A cord is attached to the rod which carries the auxiliary wheel, and when it is desired to draw down the pole for the purpose of clearing crossings and overhead structures, this cord should be pulled,



AN IMPROVED TROLLEY.

so that when the pole is moved down, the auxiliary wheel also moves down in the harp. This avoids entangling the auxiliary wheel with overhead structures when the pole is drawn down. The spring-sustained wheel will bear yieldingly against the wire at all times during the operation of the trolley, and will take from the same

the shock incident to vertical movement of the trolley against the wire. Owing to the inertia of the trolley pole, the trolley in ordinary constructions often fails to follow the trolley wire when the latter is set swinging. In the present case the inertia of the auxiliary wheel is inconsiderable, and it will not fail to keep in touch with the trolley wire. It will be noticed that the auxiliary wheel-supporting rod is so mounted on the harp that it moves approximately tangent to the arc of the circle described by the end of the pole, and as a consequence will respond more quickly to the impulse of the spring, and will require less time to pass through the entire extent of movement with respect to the harp necessary to maintain the wheel in contact with the trolley wire than were it mounted to move perpendicularly thereto. The inventor of this improved trolley is Mr. G. E. Ward, Abilene, Texas (Box 28).

Brief Notes Concerning Inventions.

With a new model of the Colt automatic pistol just placed on the market, a novelty is being introduced in the shape of a holster and stock combined, which greatly enlarges the weapon's sphere of usefulness. Being taken from its case, the weapon may be attached to it and the combination made use of as a shoulder piece, and utilized in bringing down larger game than possible with the use of the pistol alone.

The matter of who is "next" in the barber shop often occasions unpleasant incidents, and the offended person may leave the place, never to return. To obviate these incidents, a mechanical device has recently been invented by which the patrons are summoned in proper order. It consists of a dial secured in a prominent part of the place. The patron has merely to glance at this at such times as his attention is attracted by the ringing of a bell, and when he sees the number which corresponds to that on a check which was handed to him as he entered, he knows it is his turn. This signal is given by the barber whose chair has just been vacated, by touching an electric button placed at a convenient point on the chair or fixtures.

Stone and mosaic floorings have been rendered expensive by the large amount of hand work required in the laying and finishing. After laying as carefully as possible, the method of giving the finish consisted of rubbing it down with a heavy stone and a suitable abrasive, such as sand. This stone was pulled back and forth by two men, and the operation was therefore a tedious and expensive one. A machine has been recently invented and used with great success in this work. It consists of a motor mounted on a four-wheeled truck, with several horizontally-mounted grinding wheels which are driven by the motor. The machine is guided by an operator, who rides upon it. The grinding wheels are thirteen inches in diameter, and are arranged to entirely cover a path thirty-three inches in width. These grinders make two hundred revolutions per minute, leave the floor in a perfectly finished condition, and when at work travel fifteen feet per minute.

William S. Meade, who is said to have made a fortune of \$250,000 in a process discovered by him for the preservation of meat, recently died in a New York lodging house, penniless. He originally came from Buffalo, N. Y., and drifted to the West, where he made his meat-preserving discovery. Afterward, while on the Pacific coast, he befriended an old sea captain, who claimed to know the resting place of a sunken treasure boat, and upon the captain's death Meade was bequeathed a number of charts and directions in cipher for locating the craft. Meade's whole fortune was wasted in an effort to find this boat. At his own expense he sent out three expeditions. Two of them came to grief on the coast of South America, and the third was abandoned after cruising along the coast of Chile and Peru for several years in search of the treasure. During the latter part of his life Meade made a living by peddling various articles in New York offices.

It is the common practice of nearly all trolley companies to keep the curves in the track lubricated by an application of grease. This is essential in order that the cars shall not jump the tracks when rounding the corners. The material made use of is a composition of tar, and it is frequently the cause of complaints from passengers and others who get it on their clothing. A suggestion to make use of water in this connection has been under trial at Sacramento, Cal., and it is said to have been successful in every respect. It is proposed to fit out each car with a small water tank, and with an outlet just over the track and in front of the wheels. Upon encountering any deviation in the tracks, this device is automatically put into operation, and a tiny stream of water is directed on the inner surfaces of the track, which is the part that comes in contact with the wheel in making the turn. This is said to answer all purposes. In view of the success of the experiment, a company has been formed to exploit the invention and to introduce it generally through the country.