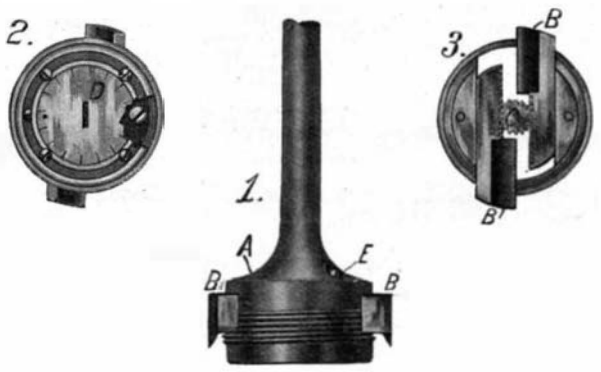
Patent Department

ADJUSTABLE BORING TOOL.

An improved form of boring tool of the class adapted to cut larger openings than are usually formed with an auger or bit, has recently been invented by Mr. John Dowling, of Olympia, Washington. The tool comprises a shank terminating at its lower end in



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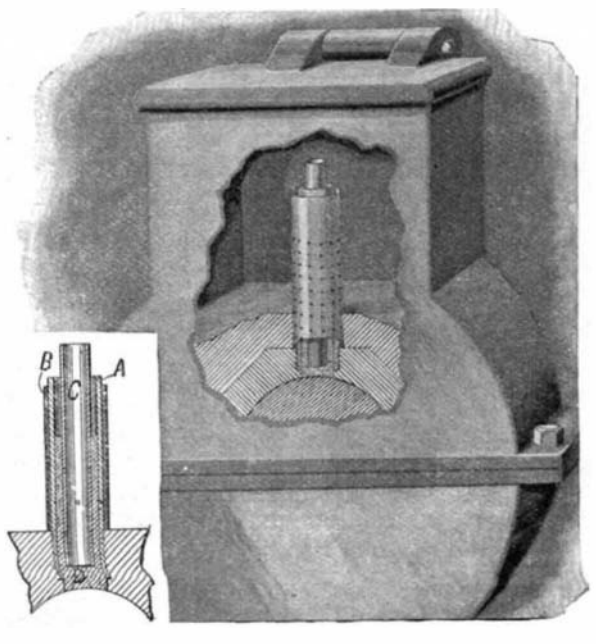
an enlarged body, as shown at *A* in the engravings. The threaded portion of the body consists of a cap which is secured to the tool by means of screws threaded into the bottom. The main body of the instrument is formed with a transverse slot in which a pair of cutters, *B*, are seated. These cutters are held in place by the cap just referred to. The bodies of the cutters are formed with rack teeth adapted to engage a pinion, *C*, as shown in Fig. 3. This pinion is journaled at its upper end in the body of the tool, while the opposite end projects through the bottom of the cap and is secured to or formed integral with a plate, *D*. The latter is revolubly secured to the bottom of the cap by means of screws. At the center of the plate is a slot adapted to receive a screw driver whereby the pinion may be turned and the cutters moved outward, or drawn inward to any desired extent. The plate, *D*, is graduated to indicate by its position the diameter of opening for which the cutters are set. In use a hole is first drilled to receive the body of the tool, and then when the cutters are set at the proper sweep, they are firmly secured by means of screws, *E*. The boring then proceeds, the threads on the cap serving to feed the body of the tool into the work. When it is desired to increase the diameter of an opening that is too large to snugly receive the threaded portion of the body of the tool, a thimble or sleeve is provided which is both internally and externally threaded. This thimble is screwed over the cap and its external thread serves to feed the tool into the work. If desired, a second thimble may be screwed over the first, and by having several thimbles of various sizes the tool may be adapted to a wide range of work.

LUBRICATOR FOR STREET RAILWAY MOTORS.

The armature bearings of street railway motors are, as a rule, lubricated with grease which does not operate until the bearings have become heated by friction. Such friction entails a considerable loss of power and causes the bearings to become worn in a short time. In the accompanying engraving we illustrate an improved lubricator adapted for using oil, and thus obviating the difficulties encountered in other lubricators. The lubricating oil is contained in a reservoir or chamber in the housing in which the armature



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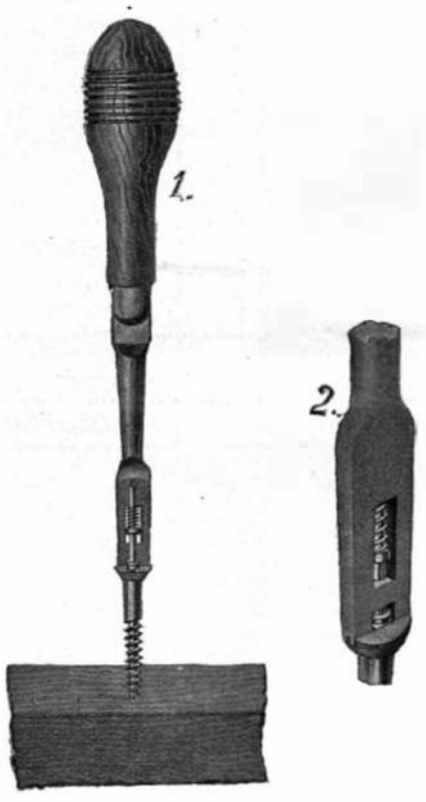
shaft or car axle is journaled. Threaded at its lower end into the journal bearing is a tube *A*, which, near the journal, is formed with an aperture. This aperture preferably flares inwardly. Over the tube *A* is a casing *B* which is perforated to form a screen. Within the tube *A* is a tube *C*, open top and bottom, which carries a sleeve of felt. The latter projects below the tube *A* and bears against the axle. In use the lubricating oil passes from the chamber, through the perforations of the screen *B*, and through the aperture of the tube *A*, into the felt which surrounds the inner tube, *C*. The felt takes up and retains the oil and applies the same to the journal bearing. The outer screen, *B*, serves to prevent sand, dust, dirt, and other foreign matter from coming into contact with the felt. The inner tube, *C*, is also formed with apertures which facilitate the distribution of oil on the felt in starting up the motor in the morning or after filling the oil box. The inventor of this improved lubricator is Mr. John W. Hinchcliff, of Jackson, Miss.

SCREW DRIVER WITH A CENTERING DEVICE.

The difficulty of seating a screw driver in the head of a screw when the work is in an unhandy or obscure place, has led Mr. Clemence E. Hoffman, of Thomaston, Conn., to devise a radically new form of screw driver, which is here illustrated. This screw driver differs from the ordinary in having a double tip and a spring-actuated centering pin. The pin is mounted in a suitable bore in the screw driver and at the lower end it carries a rounded centering head, the tip being cut away at this point to allow for the head. A recess is formed near the lower end of the screw driver, exposing the pin, which, at this point, carries a spring seated between the upper end of the

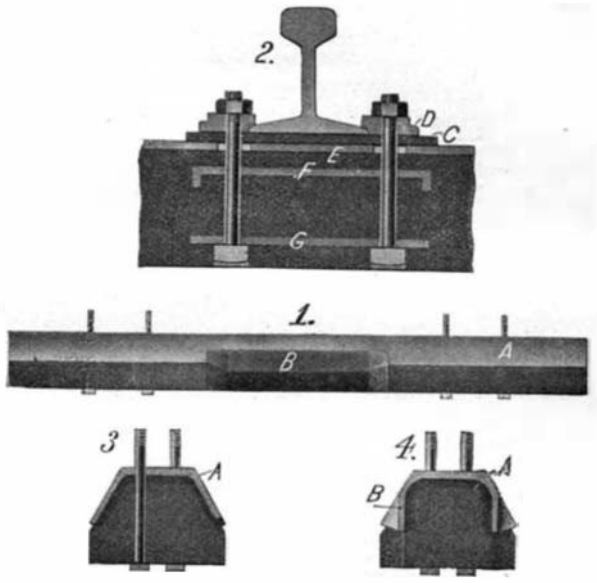


SCREW DRIVER WITH A CENTERING DEVICE.

recess and a shoulder on the pin. This spring serves to press the pin downward so that the head projects beyond the tip of the screw driver. In using the screw driver it is necessary to have screws of a special form, such as are clearly shown in the engraving. The screw heads are provided with a double groove and a central recess adapted to receive the centering head. In operation the screw is set in position and the screw driver tips are quickly applied to its head. The centering head of the pin can now be moved across the upper face of the screw head until it lodges in the central recess. The screw driver will then be forced downward, and at the same time rotated. As this takes place the centering pin will serve as an axis on which the screw driver may turn, and when the tips arrive over the grooves in the screw head, they will at once drop into position, after which the screw driver may be used in the ordinary manner. The screw driver, having a double tip, is much stronger and less apt to break than those having one tip. The invention is applicable to round-headed machine screws and round-headed wood screws, as well as to the type of screw shown in the illustration.

ARMORED-CONCRETE RAILWAY TIE.

In the accompanying engraving we illustrate an improved railway tie of the armored-concrete type. The tie is simple in construction and comparatively inexpensive to manufacture, as it employs only such materials as may be commonly found in the market. The plate shown at *A* is an ordinary trough plate with its flanges flaring outwardly. In order to prevent endwise displacement or creeping of the plate, the flaring flanges are bent to vertical position at various points. as indicated at *B*. In constructing the tie the trough is inverted and filled with concrete, which is molded to the desired thickness. Near each end of the tie a pair of bolts are molded in the concrete with their heads bearing against a plate imbedded in the bottom of the tie and their threaded ends passing through the armor *A*. These bolts are adapted to receive clips, such as shown at *D*, for securing the rail to the tie.

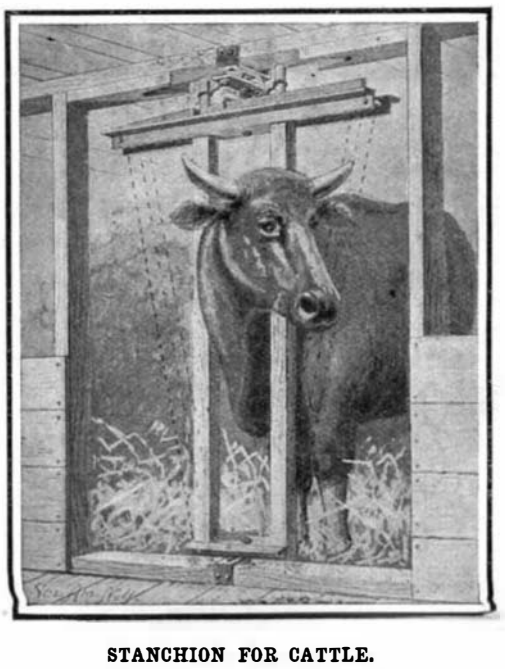


ARMORED-CONCRETE RAILWAY TIE.

Fig. 1 shows a special construction for supporting an insulated rail, such as the power rail of an electric railroad. A plate *C* of wood, fiber, or other insulating material, is placed between the rail and the armor *E*. The bolts which hold the clips *D* are countersunk and bear against a plate *G*. In order to provide additional strength to the tie, a plate *F* is embedded therein. The clips *D* are of unique form. They consist of solid blocks of metal so cut as to present the appearance of two square plates, one displaced with respect to the other, and overhanging it on two adjacent sides. Evidently, if the clip is reversed, the opposite two sides of the second plate will overhang the first plate. This provides four edges for each clip, which may be used to overlap the base of the rail and secure it to the tie. The inventor of this railway tie is Mr. Henry S. Kilbourne, 330½ Deaderick Street, Nashville, Tenn.

STANCHION FOR CATTLE.

In order to give to cattle a certain liberty of motion when in their stalls, Mr. John H. McGuire, of Heuvelton, New York, has invented an improved stanchion, which we illustrate herewith. This stanchion is so arranged that it may be rotated, or be moved forward and backward by the animals secured therein. It comprises a pair of upright bars pivoted at the bottom so that they can be swung toward or from each other. After placing the head of the animal between these bars, they are swung together and their upper ends are secured by means of a spring latch. A pair of guide rails serve to guide the motion of the bars. These rails are carried on a pivot bolt, the upper end of which engages a slot in a bracket secured to the ceiling or beam overhead. The block to which the lower ends of the bars are hinged is also mounted on a pivot and the pivot is free to move in the slot in a bracket secured to the floor. These slots are arranged to permit a limited forward and rearward motion to the bars, which have as well a pivotal motion on the pins. The upper ends of the bars are connected by links to a plate mounted on the upper pivot bolt. The latch or locking bar is also mounted on this pin below the plate and is connected therewith by a spiral spring. The latch is formed with notches on opposite sides in which the upright bars are held against the



STANCHION FOR CATTLE.