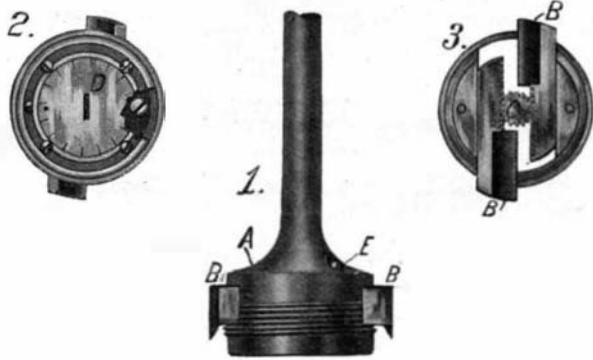




ADJUSTABLE BORING TOOL.

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

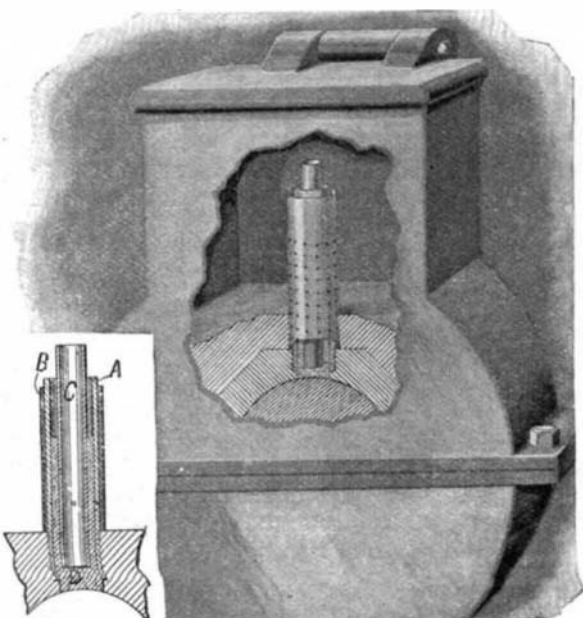


ADJUSTABLE BORING TOOL.

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 revolvably 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

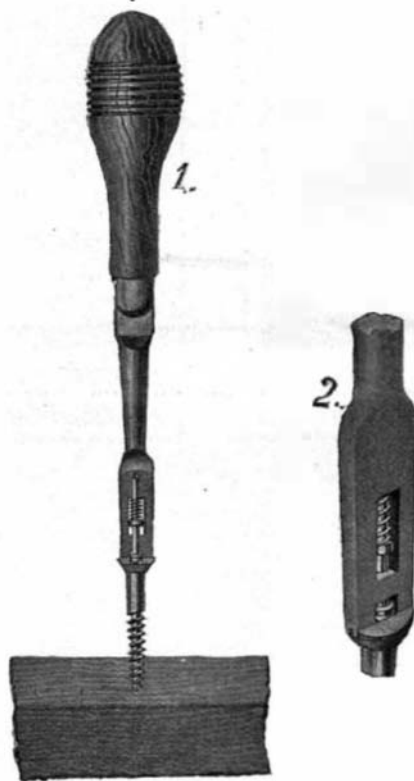


LUBRICATOR FOR STREET RAILWAY MOTORS.

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



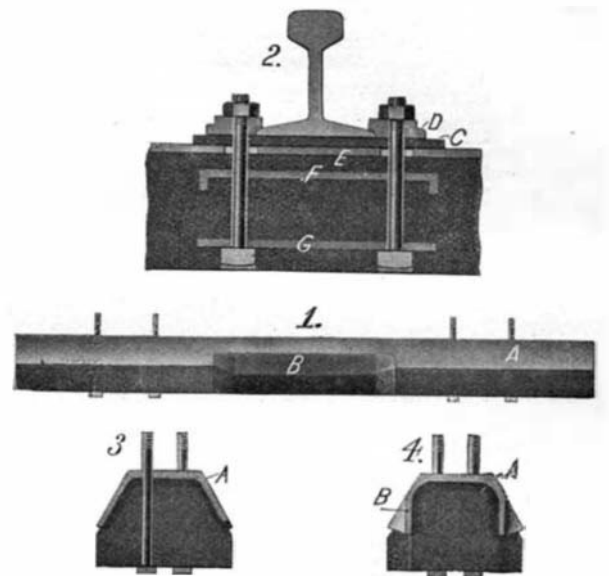
SCREW DRIVER WITH A CENTERING DEVICE.

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.

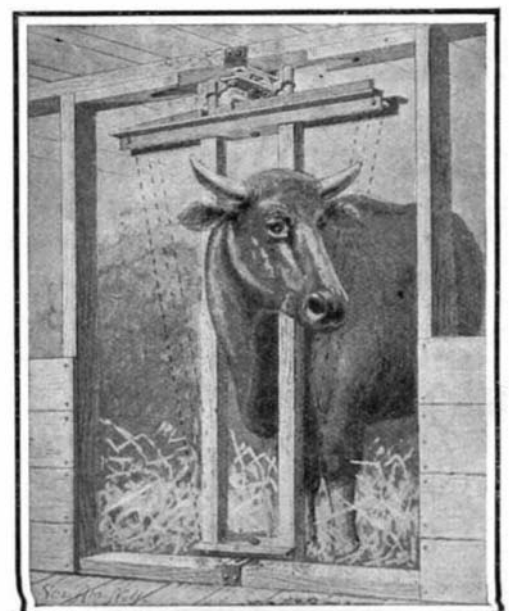


ARMORED-CONCRETE RAILWAY TIE.

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.

tension of this spring, so that when the latch is turned clear of the bars they will swing to the position shown by dotted lines in the engraving. When the bars are drawn together the spring reacting on the latch causes the latter to snap over the ends of the bars and lock them fast. The bars are not centrally pivoted at their lower ends, and their upper ends are cut away at one side so that by reversing one or both of the bars the stanchion may be adjusted to three different sizes to accommodate different sized animals.

RECORDING AUTO SPEED METER.

This ingenious device should meet with great favor among automobile owners, as it fills a long-felt want for an instrument that will give a written record of the performance of the machine for twenty-four hours.

The record forms a diary by which the automobilist can see at a glance how many miles have been run during the twenty-four hours, the exact moment the start was made from any point, and the exact moment the destination was reached, as well as the number of miles covered, the rate of speed between each mile post, and also the number and duration of the stops.

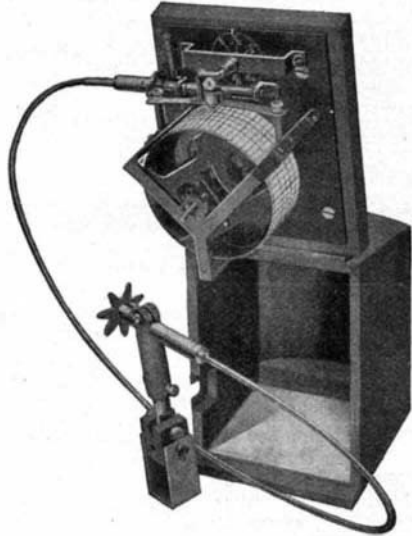
The chart is 12 inches long, divided into four sections of six hours each. These are sub-divided into hours, half hours, quarters, and 5-minute spaces. As the hour spaces are 2 inches long, the records of each mile are very legible; in fact, 60 miles an hour can be recorded without difficulty and easily read at a glance.

As an illustration of such a record, suppose a run was to be made from New York to Philadelphia, the start being made at 9 o'clock A. M. From 9 o'clock to 9:45 thirty records are made; this shows thirty miles were covered, at a rate of speed of forty miles an hour. From 9:45 to 10 o'clock no records are made or the chart is blank, showing the machine was not in action during that period. From 10 until 10:15 fifteen records are made, or a speed of sixty miles an hour has been accomplished; and so on until Philadelphia is reached at 1:40 P. M., when the last record is made. The records show that it took four hours and forty minutes to cover the entire distance. The

total number of records gives the number of miles, and the time between records indicates whether the machine was making 12, 20, 30, or 60 miles an hour.

The construction is exceptionally rigid, so that no amount of jarring can disarrange the mechanism or affect the accuracy of the clock movement. The case can be made of polished mahogany or aluminium, and the outside dimensions are only 5 x 4 x 3 inches, so that very little space is taken up on the dashboard.

The principle of construction is shown in the ac-



RECORDING AUTO SPEED METER.

companying illustration. The clock movement is supported on a stationary shaft, around which it revolves, carrying a drum on which the record sheet is attached. The clock is geared to revolve four times in twenty-four hours, and one end of the shaft has a spiral thread so arranged that one revolution of the clock and drum causes the record chart to move horizontally one-quarter of an inch. In this way the records of the second, third, and fourth period of six

hours are entirely distinct from each other. The spiral screw is engaged in such a manner that the clamp can be released and the drum instantly revolved or set, so that the recording pen can be brought to any desired minute or point on the chart so as to register the time of starting the machine.

On the automobile is an adjustable clamp having a sprocket engaging with another sprocket mounted on the hub of the wheel. Each revolution of the wheel is carried up to the recording instrument on the dashboard by a flexible shaft having mounted at its upper end a pivotally supported worm shaft arranged to mesh with the gear wheel. This gear wheel has the required number of teeth, so that one revolution of the wheel represents an exact mile covered by the automobile wheel. The gears can be arranged to correctly record a mile regardless of the diameter of the automobile wheel.

Mounted in the center of the gear wheel is a shaft having at its end a cam engaged with a pen lifter, so at the complete revolution of the gear wheel or at the completion of the mile the cam allows the pen to drop down and make the recording mark on the chart.

A novel feature of the arrangement of the gear wheel is that it can be disengaged from the worm shaft and revolved by hand so as to bring it to zero, thus avoiding the necessity of running the machine a portion of a mile before the starting point can be recorded.

The pen is made of non-corrosive metal so as not to become clogged by the ink. The capacity of the pen fountain is sufficient to carry a week's supply of ink without refilling. The pen is suspended on a flexible steel band, so that no amount of jarring will cause a false record to be made or allow the ink to come out excepting at the completion of a mile or when the pen is allowed by the cam to mark the record.

The entire construction of the instrument is such that any one can mount the instrument on an automobile without difficulty. A patent covering its construction has been secured by C. F. Iszard, 241 Hansberry Street, Germantown, Philadelphia, Pa.

RECENTLY PATENTED INVENTIONS.
Pertaining to Apparel.

BODY-CONFORMER.—C. MUNTER, New York, N. Y. This corset device is adapted for rectifying the shape of the body at the hips and lower portion of the trunk, wherein a pliable material, such as cotton or silk cloth fabric, is cut in such a way as to be given a skin-tight fit to the body at such points by reason of the peculiar shape of the device, and, further, by reason of an arrangement of laces running through eyelets, the individual laces being joined to belt-straps connected by a buckle or its equivalent at the front of the device.

APRON-SUPPORTER.—J. G. KOUNTZ, Wells-ville, Ohio. In this instance, means provide for supporting aprons worn by butlers, hotel-waiters, etc., and especially where the support is removed in laundering, and the inventor has for his object improved supporting means not only adapted for effectively supporting an apron on the user of the article, but which shall be readily attachable and detachable, providing for interchange of aprons, as occasion requires.

CLASP.—J. W. ALBIN and D. C. RICKETTS, Babylon, N. Y. This clasp is such as used for garment-fasteners. The invention is especially applicable in the construction of cuff-holders, but is for use in various connections. The device may be readily applied, and has a desirable flexibility, adapting the same to movements of the parts of one's body.

MIXED WHALEBONE FOR BODICES.—E. M. BOSSUET, 49 Boulevard Haussmann, Paris, France. This stay is extremely flexible and can be folded upon itself many times without breaking and the combination is much more resistant than the genuine whalebone, while possessing all its flexibility. The invention comprises a stiffener of two strips of resilient flexible material acting as a spring and a thin sheet of cork of a width and length equal to the strips, and interposed therebetween and to which the same are glued.

Electrical Devices.

INTERLOCKING TERMINAL BASE.—L. STEINBERGER, New York, N. Y. Mr. Steinberger's invention relates to terminal bases used in telephony and analogous arts, his more particular object being the production of built-up terminal bases of composite characters made of separable parts capable of interlocking and provided with appropriate electrical conditions. Preference is given for the use of the well-known insulating material designated as "electrose," in the construction of the base-sections. It has many of the properties of hard rubber.

INSULATOR-PIN AND SUPPORT THEREFOR.—L. STEINBERGER, New York, N. Y. The more particular object in this case is to provide a type of pin which can be securely mounted upon a cross-arm in such manner as to protect the same against undue action of moisture and also against strains due to the weight and to the swaying of the wire or cable. Another object is to provide a cross-arm which will less readily retain snow or

moisture and to insulate this support more effectively, especially the portion adjacent to the insulator-pin.

INSULATING-CLAMP.—T. B. LEE, Charlotte, N. C. The main object of the inventor is to improve upon devices now in use, and to provide a clamp upon which as much strain may be put as may be necessary to hold the wire from slipping and to give it such clamping effect as to throw a required amount of friction on the wire, and to allow for more or less slipping over the top of the insulator. It consists broadly of an insulator-clamp comprising two separate sections to embrace the insulator-neck and suitable means for clamping the sections together.

INDICATOR.—C. VERSTEEG, Ashton, S. D. The present invention is an improvement over the device shown in Letters Patent formerly granted to Mr. Versteeg, and comprising an open electric circuit, including a signal to be operated by the contact of the terminals of the circuit, said terminals being arranged within the bin in position to be moved into contact by the movement of the grain when it reaches a predetermined depth in the bin, and in means for preventing the direct contact with the grain of the contact-points, while permitting their movement toward and from each other.

ELECTRIC MEDICAL APPARATUS.—C. VAN BERGH, Winnipeg, Manitoba, Canada. An object of the invention is to provide means for interrupting a current generated by a battery of any suitable kind, and, furthermore, to provide an interrupter which may run at very low speed and is noiseless in its operation. A special form of motor operates at such low speed that the current passing through it may be interrupted, and the intervals are so controlled as to correspond in time with the pulsations of the heart of the person treated.

Of Interest to Farmers.

PORTABLE FEEDER FOR THRESHING-MACHINES.—D. STILL, Milton, Ore. The improvement comprises a portable wagon-like body mounted on wheels for transportation, provided with longitudinal and transverse feed-aprons and picking and feeding devices, whereby grain is fed to an elevator leading to the feed-table of the thresher, the body being also provided with a derrick to facilitate the loading of the grain into the same and the feed-aprons of the device being connected by a suitable power-transmission shaft and universal joint to the power mechanism of the thresher.

CORN-HUSKING MACHINE.—W. S. RUSE, Twin Bluffs, Wis. In the present patent the invention has reference to certain improvements in corn-husking machines, and, more in detail, involves an attachment for said machines whereby the machine is prevented from clogging up, and all danger to the operator is obviated.

VINE AND WEED CUTTER.—C. F. HIRSH, Minonk, Ill. One purpose of the invention is to provide a cutting attachment adapted for ready application to any type or size of cultivator and which will accomplish most effective work in killing any kind of weeds or

vines that may be outside a row of corn, for example. It not only cuts and eradicates vines or weeds, but it pushes them midway between the rows.

Of General Interest.

DEVICE FOR INSERTING EXPLOSIVE CHARGES.—R. TORRAS, Brunswick, Ga. The invention refers to a device for use in connection with the insertion of explosive charges beneath stumps, rocks, sunken ships, or other bodies which it is desired to remove; and the object thereof is to provide a device simpler in construction and easier to operate than any heretofore known.

MUSIC-LEAF TURNER.—F. W. MCNEIL, St. Louis, Mo. The object of the invention is to provide a device by which the leaves may be turned either to the right or left by a musician using either a knee-lever or one of the handles. It comprises a plurality of pivoted arms having clamps to hold the leaves and provided at their pivot with segmental pinions which are successively engaged by racks carried by a sliding bar which is actuated by a pawl upon the movement of an operating-rod to either the right or the left.

APPLIANCE FOR SLIDING DOORS.—M. LOGAN, Plymouth, Ind. The object of this improvement is to provide a door with an effective and comparatively inexpensive means to keep it in engagement with the supporting rail or track and to prevent looseness or shaking at the bottom of the door, which, if unguarded, is the source of serious inconvenience, especially in windy weather.

APPARATUS FOR EXTRACTING BY-PRODUCTS FROM WOOD.—T. NEWNHAM, White Springs, Fla. This patent provides an apparatus for distilling wood, whereby essential oils and other useful products are obtained therefrom—such as turpentine, creosote, tar, and alcohol—by one continuous distilling operation without the necessity of interrupting the operation at any time to feed a new supply of wood or to draw off the by-products.

CAN AND MEANS FOR VENTING AND CLOSING SAME.—J. W. HEARN, New Orleans, La. The invention relates to cans and means for closing the same—such, for instance, as shown and described in the Letters Patent of the United States formerly granted to G. H. Dunbar. The object is to provide a can and means for venting and closing the same arranged to allow convenient venting of the filled can during the steaming and cooking process and to permit ready sealing of the can after the cooking and venting process is completed.

CAN-OPENER.—F. GARRECHT, Idaho City, Idaho. One object of the invention is to so construct the opener that it will lie flat on the top of the can where it is usually applied and have no projecting points from it, which is a source of much inconvenience in packing cans where this style of opener is used. Another object is to prevent accidental displacement of the opener from the top of the can.

CLINICAL THERMOMETER.—W. P. GRAFTON, 1 The Village, Old Charlton, Kent, England. The invention relates to clinical ther-

mometers in which the return of the mercury to the bulb is brought about either by shaking or by centrifugal action; and the object is to enable the operation to be performed with the minimum of trouble and without the liability of the thermometer slipping from the fingers and being broken.

VAULT-COVER MOLD.—J. H. DENNEY, Portland, Ind. In this operation of the device a series of wood forms are placed in position on a pair of strips and a lower matrix is placed thereon. An upper matrix is then placed in position, being retained in it by the top wood forms. The plastic material is then poured into the space between the matrices through the perforations for the reception of prints for cores, and after the setting of the cover it is removed from the mold.

THIMBLE.—E. BARNETT, Atlanta, Ga. In the present patent the object of the invention is to provide a new and improved finger-shield, more especially designed to facilitate the fastening of pin-tickets to cloth or other articles of merchandise without danger of injury to the fingers of the user.

Hardware.

HASP-FASTENER.—C. L. BAILEY, Morris, Ind. Ter. The invention is particularly adapted for use in connection with a hasp and staple, and to so construct the latch that it will be carried by the hasp in position for locking engagement with the staple, and, further, to so construct the said latch that the latch and hasp may be simultaneously operated by one hand, thus rendering the device desirable upon barn and similar doors as well as upon the doors of twine-boxes for reapers, binders, and the like.

Machines and Mechanical Devices.

COMBINATION POWER-MACHINE.—G. M. VROOME, Castleton Corners, N. Y. The patent shows a mechanism for producing power with the rise and fall of the tides and the invention provides a pit or well the top of which has inlets and outlets for the tidal water. A float has a guided movement in the pit and carries a rack-bar, which operates through suitable gearing and drums to raise a weight as the float rises, and as the tide recedes the downward movement of the weight serves to give a movement to a power-shaft in the same direction as the movement given directly to it by the float.

PULVERIZER.—N. SPURGIN, Ottawa, Ill. The principal objects of the invention are to provide means whereby the material upon entering the machine can be acted upon by a stronger force than that applied after the material is partially pulverized and to provide means for adjusting the walls of the pulverizer-chamber in such a manner as to take up wear and yet furnish a substantially circular interior at all times. It is especially adapted for use in disintegrating clay and similar substances.

MACHINE FOR MAKING COMPRESSED BUNGS.—C. SEYMOUR, Deñance, Ohio. This machine makes compressed bungs from a flat stick of wood and is arranged to insure a complete automatic action for feeding the stick