

**WARNER'S IMPROVED DRY PLATE HOLDER.**

One of the most serious annoyances a photographer has to contend with in the present day of lightning dry plates is a leaky plate holder, particularly when the latter is composed of one or more separable parts,

ranged to fly outward by a miniature spiral spring between them, as the slide is withdrawn, and effectually close the slit, may be seen in Figs. 1 and 4.

In removing the sensitive plate, the pivoted clamp is first turned up. At once the springs underneath force

one end of the plate up and out of the holder, when it is easily caught with the fingers and slipped out. This feature of the holder is quite important, since in ordinary holders the operator is obliged in many cases to dig out, as it were, the plates with the fingers, being very apt to injure or scratch portions of the film. Fig. 3 is an enlarged view of the rigid angular strip. Fig. 4 shows the pivoted clamps down, when holding the plates. The dotted line indicates the position when thrown up.

Fig. 5 represents another form of a rigid angular strip, intended to be substituted for that shown in Fig. 3, with the bevel side downward, and in conjunction with two spring clamps, bent in the shape of a half bow, secured to the inside end of the holder in place of the pivoted clamp. With this latter device the plate is inserted by dropping it into the metal beveled strips and pulling back, with two fingers, the spring-forked strips. When these are released and fly forward, they securely grasp the plate. To remove the latter, the forked strips are pressed back, allowing the plate to be lifted out. Pivoted flat pieces of brass on the inside of the holder (not shown) are arranged to hold the spring forks back while the plate is put in or taken out. The bevel shape of the stationary clamp is intended to accommodate different thicknesses of glass. The holder being made in one piece is perfectly tight, while the arrangement of the clamps permits uneven and rough-edged plates to be quickly and easily inserted.

Further particulars may be had from the patentee, Mr. M. P. Warner, 69 Lincoln Street, Holyoke, Mass., who, we understand, desires to negotiate for the sale of territorial rights.

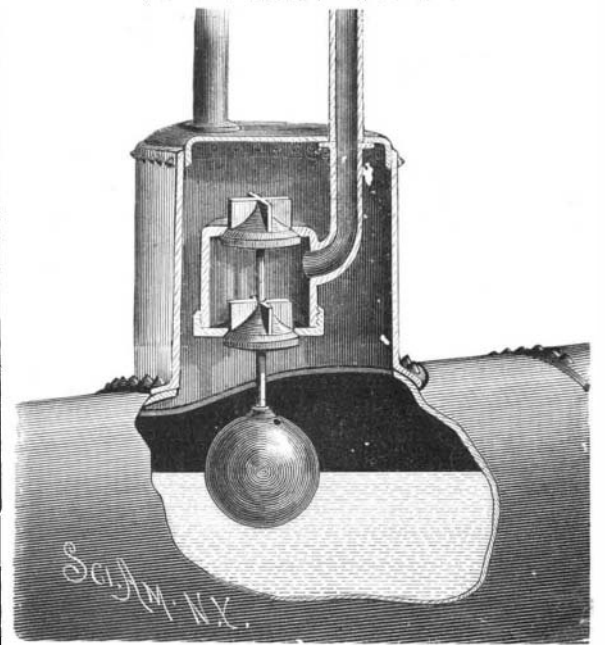
The object of the invention herewith illustrated is to provide for the perfect insulation and protection of underground conductors. In constructing such a conduit, each of a series of glass plates is provided with longitudinal recesses upon both upper and lower surfaces; the recesses in the upper face of one plate are arranged to register with those in the lower face of the other plate. Each plate is also formed with longitudinal ribs upon one face and with correspondingly shaped grooves in the other face, so that when one plate is applied to the other, the ribs will enter the grooves and the plates will be held against lateral

movement. In building a conduit, the plates of one layer or series are arranged so as to break joint with those of the other layers, a proper binding material or cement being interposed between each series. This binding material holds the plates together, and insures the perfect insulation of the wires. By varying the size of the recesses, the plates may be arranged to receive single wires or couples of such size as may be required. The wires are insulated from the earth and from each other, and are protected against the action of water.

This invention has been patented by Messrs. Hans Loesner and M. De Bravura; further particulars may be obtained by addressing the former at No. 84 West Broadway, New York City.

**FEED WATER REGULATOR.**

The accompanying engraving represents a balance valve feed water regulator which is entirely inclosed within the steam and water chamber in which it acts, and which requires no stuffing box for its stem, to impair or interfere with its freedom of action. In the engraving, the device is shown situated in the dome of a boiler. At the delivery end of the pipe leading from the pump



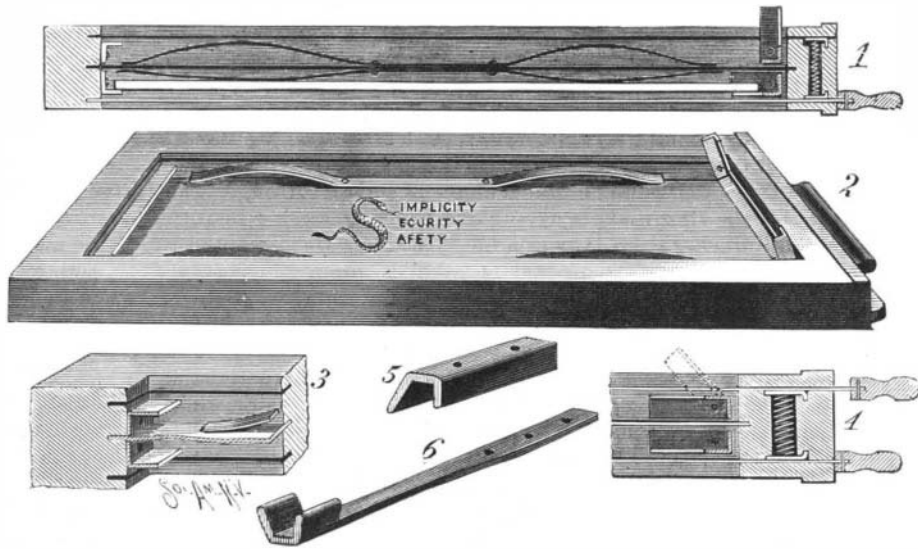
**ADERHOLD'S FEED WATER REGULATOR.**

is a valve box made in two sections, screwing together, and fitted with two disk or puppet valves, one of which is arranged to close an opening in the upper section, while the other closes an opening in the lower section. These valves are connected by a common stem, so that they virtually form but one balance valve, which opens downward. Each valve is formed with wings or guides, arranged to fit the openings, for the purpose of steadying and directing the double valve in its movement. The lower valve is connected by a central rod with an open float, as shown.

It is evident that as the water lowers, the valve will descend and permit the passage of steam through the outlet pipe to the pump or injector, or to a whistle. And when the water again reaches its normal level, the valve will be closed by the float, to which steam is admitted to equalize the pressure and prevent collapse. This action of the valve is automatic, and in case of any sudden leak in the boiler, unnoticed by the engineer, the valve will open to admit of the pump supplying more water. And it may, if desired, be made to blow a whistle or give an alarm in case of the pump failing to supply water, by using an extra valve for that purpose. The valve moves easily, without friction, and is perfectly balanced. When one pump is supplying more than one battery or boilers, the regulator is placed at the discharge end of the feed pipe, either above or below the float; if above, the opening in the float is protected, so that water cannot fill it as it enters the boiler.

This invention has been patented by Mr. Alexander J.

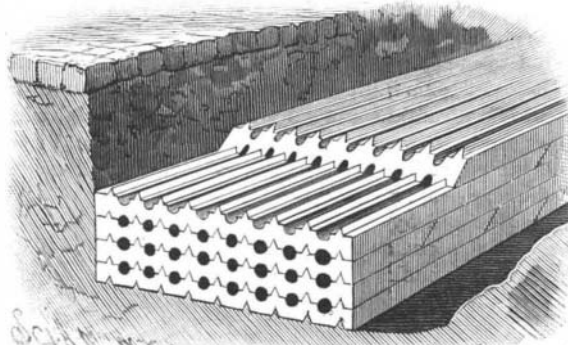
Industries.



**WARNER'S IMPROVED DRY PLATE HOLDER.**

since the slightest trace of light entering at some minute crevice will frequently damage a day's work. By its simplicity, solidity, and ease of operating, the holder here shown possesses features very desirable for out of door photography, in that it is perfectly light tight, strong, and compact.

Fig. 1 represents a longitudinal section, in which the upper slide is withdrawn. The body of the holder consists of a light hardwood frame, having a metal septum or division in the center, upon each side of which are riveted very light flat steel springs, shown clearly in



**CONDUIT FOR UNDERGROUND CONDUCTORS.**

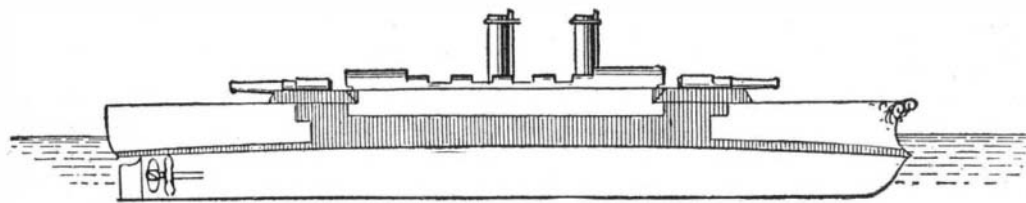
Fig. 2. In the lower half of the holder (Fig. 1) may be seen a plate in position. An angular metal strip is rigidly secured on the left hand end of the inside of each plate compartment, intended to hold one end of the sensitive plate, while at the opposite end is a movable or pivoted angular strip or clamp, provided with projecting ends, which, when thrown up, permits the sensitive plate to freely drop down into the holder, resting, as it were, upon a bed of springs.

To insert the plate, the holder is held with its narrow end resting on a support at a slight angle, then the exposing slide is withdrawn, and the plate, film side out toward the operator, is slid over the spring under the left hand angular strip. In this position the other free end of the plate projects slightly above the holder. The right hand clamp is now turned down over the end of the plate, pressing the same down into position. The springs compensate for any variability in the thickness of the glass. Hence the film side of the plate remains always in the same plane and in focus. The exposing slide is next inserted, and the holder is filled ready for use.

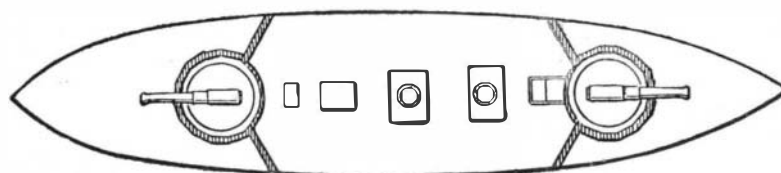
Special cut off light valves, consisting of plates with one side bent down, forming an angle, to prevent slipping, and also ar-

**CONDUIT FOR UNDERGROUND CONDUCTORS.**

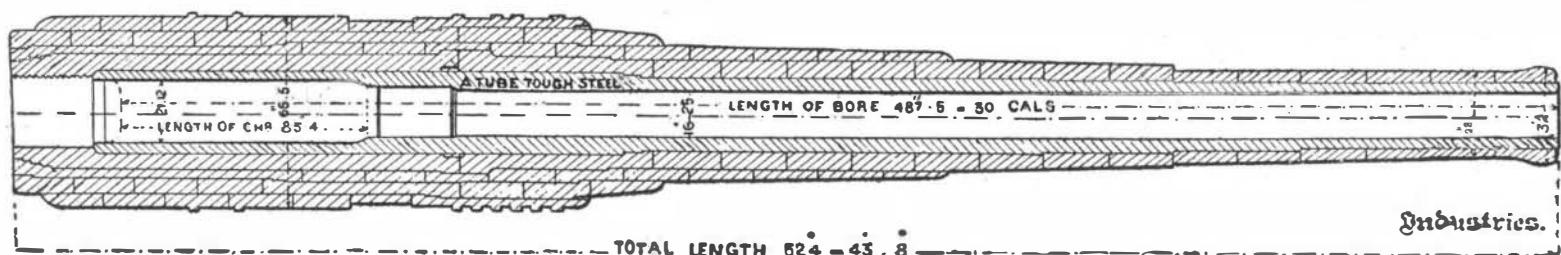
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**ELEVATION.**



**PLAN.**



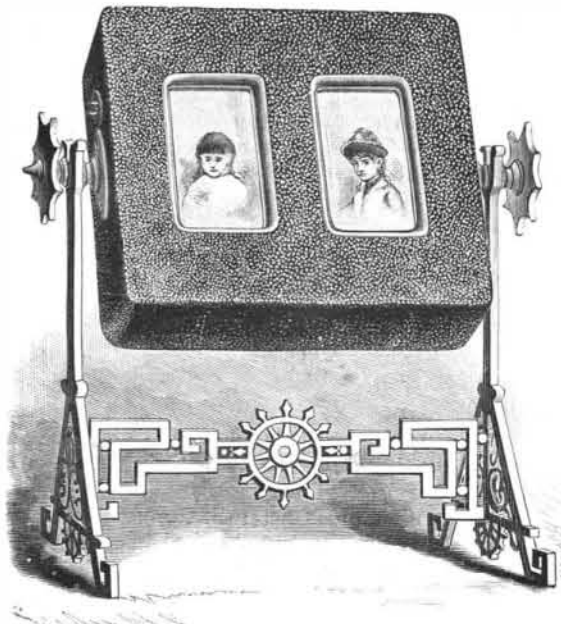
**LONGITUDINAL SECTION.**

**THE NEW 110 TON GUN FOR H. M. S. BENBOW.—CHARGE, 900 LB.—PROJECTILE, 1,800 LB.—[For description see page 245.]**

Aderhold, whose address is care of Birmingham Ice Factory, Birmingham, Ala., at which place one of these regulators is now in use. One-half interest in this patent is for sale.

**A NOVEL PICTURE EXHIBITOR.**

The simple and inexpensive device here illustrated is for showing pictures, especially photographs. It is artistic in appearance, and may be easily handled to allow the pictures to be viewed with greater comfort than by means of an ordinary album. The picture-



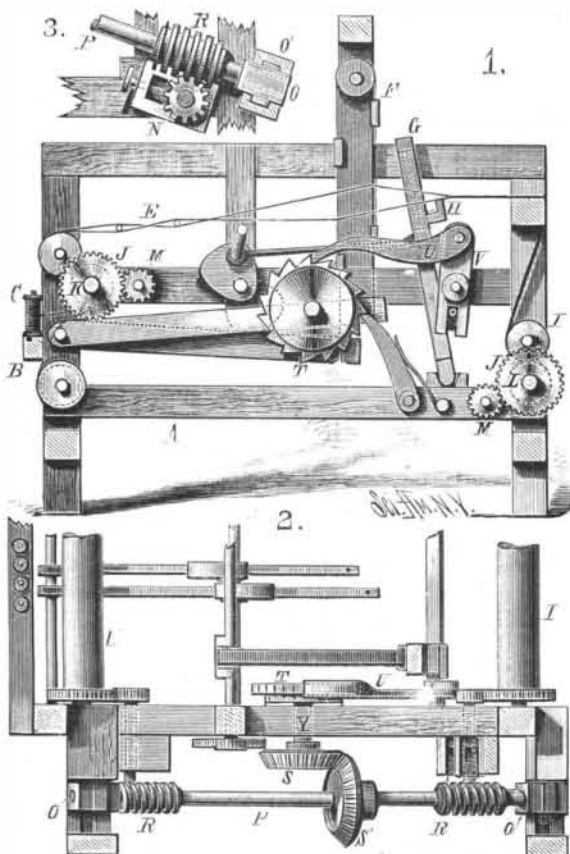
**BOOS' NOVEL PICTURE EXHIBITOR.**

holding case is made with a main body portion to which is hinged a cover or lid, and both the front of the body and the cover are formed with suitable openings, through which the pictures may be viewed. The case is provided with fixed opposite end studs, journaled in the forked upper ends of side posts fixed to an ornamental stand. The studs have neat hands, which may be grasped conveniently to slowly rotate the case on the stand. Within the case are picture slides, so arranged that as the case is revolved the pictures will appear in rotation before the openings. The pictures are so arranged that part may be seen through the openings in the body of the case and the others through the openings in the cover. The capacity of the case, or the number of pictures it will contain, depends upon its depth. There is no complicated mechanism to get out of order, as the parts are all very simple.

This invention has been patented by Mr. Arthur M. Boos, of 570 Main Street, Buffalo, N. Y.

**TAKE-UP AND LET-OFF MECHANISM FOR LOOMS.**

By means of this mechanism a given length of warp is let off intermittently from the warp spools or from



**WILLIAMS' TAKE-UP AND LET-OFF MECHANISM FOR LOOMS.**

the warp beam, as the case may be, in weaving, and the cloth taken up as woven. Fig. 1 is a side elevation of a loom for weaving cloth, with this improved mechanism attached; Fig. 2 is a top view of a part of

a loom, showing the take-up and let-off mechanism; and Fig. 3 is a detail view. In the drawings, A is the frame of a loom of the usual form and construction, upon which are mounted the several operating parts employed in weaving, consisting of the creel, B, with the spools, C, thereon, warp, E, let-off roller, K, heddles and harness, F, lay, G, having race board, H, cloth roller, I, and take-up roller, L. One of the two similar cog wheels, J, is secured to the end of a let-off roller, K, and the other is secured to the take-up roller, I. These wheels are geared into pinions, M, mounted upon shafts, to the opposite ends of which are secured like pinions, N, which mesh with worms, R, on the ends of a shaft journaled in bearings on the outside of the frame. Near the center of the shaft are two bevel wheels, SS', having an equal number of teeth, and one being upon the shaft, P, while the other is upon the shaft, Y, at the other end of which is mounted a ratchet wheel, T.

To operate the ratchet wheel at the proper time to let off, through the mechanism connected therewith, the required length of warp at each beat of the lay, a pawl, U, is pivoted to the upper end of the vibrating lever, V, the lower end of which is slotted to receive a pin extending from the lay, so that at each beat of the lay the pawl will turn the ratchet wheel a given distance, by which the let-off roller, K, is revolved to supply the length of warp required, and the take-up roller, L, revolved to take up the woven cloth on the roller, I. The latter roller is driven by friction by the other, upon which it rests, so that it will take up the same length of cloth as the roll increases in diameter. Above the let-off roller, K, is placed an independent friction roller, the warp, E, from the spools passing between these rollers. To vary the length of the warp to be let off, the pinions, M, are changed to larger or smaller ones, as the case may require. To permit the worms to be disengaged from the pinions for shifting the latter, and also to enable the weaver to draw up the cloth to have access to the interior of the loom for repairs, the bearings, O, of the shaft slide outward on the brackets, O'. A stop pawl prevents the backward movement of the ratchet wheel.

This invention has been patented by Mr. Matthew Chapman Williams, of Wilkinsonville, Mass.

**Passenger Lift for the Eiffel Tower.**

The enormous height of this proposed French Exhibition tower renders a hydraulic lift, in which passengers could perform the whole journey in one operation, quite impossible; and a succession of shorter lifts, requiring frequent changes, would naturally be considered too cumbersome by the public who will use the tower. On the other hand, the employment of a winding engine and a lift similar to those used in mines would not be sufficiently safe, and for these reasons M. Eiffel has devised a new type of lift, in which the whole ascent can be made in one journey, while at the same time it presents absolute safety. The main idea of the lift is that of a huge screw and nut. Below the lift cage is placed a trolley, with three or more wheels running upon an equal number of rails, which ascend spirally, and thus form a screw having so many threads. The trolley will be revolved either by an electric motor or by a water engine; but the cage will be prevented from revolving by guide bars. Thus the passengers will not feel anything of the rotary motion of the trolley underneath; and by selecting the pitch of the screw sufficiently small, any degree of safety against a too rapid descent can be obtained.

**Gluing up Stock.**

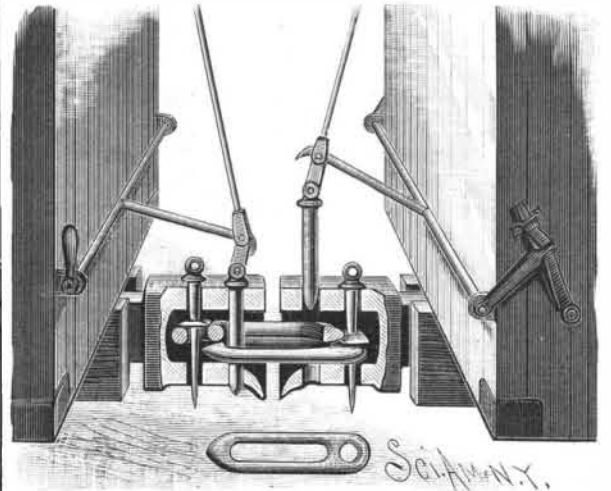
When the pattern maker is at work on a very thin pattern, he is obliged to use his stock made in two parts glued together, so as to bring the grain of the wood across each other, to keep the pattern from splitting; but there is another tendency to be provided for. A very little of the shrinkage in wood comes with the grain; it is nearly all found in its width, and the Boston Journal of Commerce says it makes one of the best hydrometers when glued together crosswise, curling and warping the stock in both ways, a feature that is not desired in pattern making. Besides, the ends are very likely to show by extending beyond the finished work as soon as the least change takes place in the absorbing of moisture; and in many respects it would be much better for the pattern if the right angle grain laying was not resorted to in the make-up of the stock. When two thin parts are to be glued together for the purpose of avoiding the tendency to split, they can be placed at a slight angle with each other, instead of at square across with the grain. This will give them all the cross laying that is required, and avoid much of the tendency to warp or shrink away from the edges.

**IMPROVED CAR COUPLING.**

The drawhead is provided with the usual link recess, and is formed with two sets of coupling pin apertures, one being arranged to receive a retaining pin formed with a tapering point, while the other receives a removable coupling pin. The latter pin is connected to an arm carried by a horizontal cross shaft mounted in brackets on the end of the car. Each

end of the shaft is provided with lever arms, one of which is arranged to engage with a notched spring, so that the coupling may be held in a raised position, as shown at the right in the engraving. The coupling link, shown in the lower part of the cut, is formed with a slot and a circular aperture through which the retaining pin passes, while the slotted end extends outward beyond the drawhead. The outer end of the link is pointed, and the forward edges are rounded off. In order to hold the link in a horizontal position, the retaining pin is provided with a flange which rests upon the link, the weight of the pin thus serving to hold the link in proper position.

By making the pins tapering, they may be firmly seated within or disconnected from the flanges. When the cars are to be coupled, the coupling pins are held in their raised position. As the cars approach, the ex-



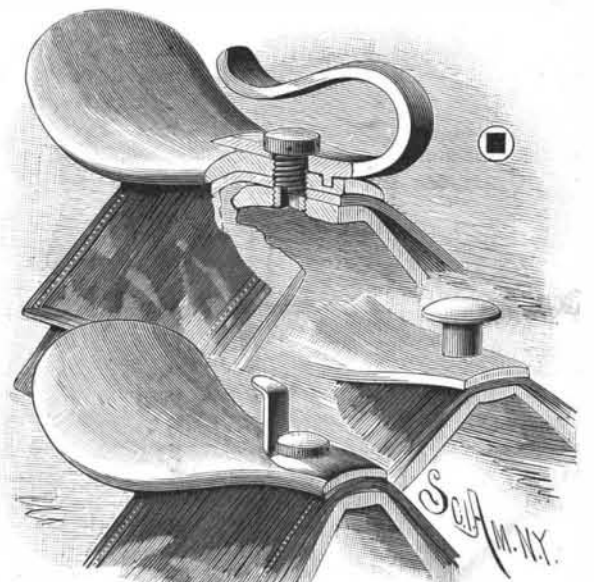
**DIETZE'S SAFETY CAR COUPLING.**

tending ends of the links will enter the recesses of the drawheads, one link riding above the other; and when they have reached the position indicated in the engraving, the levers are released from the springs to permit the coupling pins to fall through the links and couple the cars. In operating this coupling, it is unnecessary to enter between the cars either to couple or uncouple. Suitable rods are provided, in order that the parts may be manipulated from the top of the cars.

This invention has been patented by Mr. August O. Dietze, of Syracuse, Nebraska.

**IMPROVED SADDLETREE AND CHECK-HOOK.**

The saddle is fitted upon the upper side of the saddle tree, and is formed with an aperture coinciding with a screw-threaded aperture in the center of the tree. The lower portion of the check-hook fits upon the saddle, and is formed with an aperture to coincide with the two others, so that the hook and saddle may both be secured to the tree by a single screw inserted from the top. In this arrangement there is no danger of the screw working out, and it is impossible for it to come in contact with the horse's back and do injury. The head of the screw is formed with orifices for turning it beneath the upper part of the hook, and the lower end of the screw is formed with a square socket, as shown in the small cut, extending up into the screw, so that in case of breakage a square instrument may be inserted in the socket from the upper side of the tree for turning out the remaining portion of the screw, so that a new one can be turned in. This permits of having the repairing done without injury to the saddle. The check-hook is prevented from turning upon the screw by a small stud project-



**PALMER'S IMPROVED SADDLETREE AND CHECK-HOOK.**

ing from its under side, and entering a recess formed in the saddle. The two lower views in the engraving illustrate different forms of check rein holders.

This invention has been patented by Mr. D. W. Palmer, of Detroit, Maine.