

**IMPROVED DOUBLETREE.**

In the improved sway bar of a doubletree, whiffletree, or neck yoke, represented in our engraving, the strength of the wooden portion is materially increased by a brace rod, so that the bar may be made much lighter while still furnishing the necessary strength.

Each end of the sway bar is fitted with a cap or thimble, whereby it is protected from abrasion and splitting, and to which the clevises are attached in the ordinary way—set up at the ends of these caps. By the use of nuts, it is obvious that any degree of tension can be given to the brace rod, and, at the same time, the caps will be tightly secured to the ends of the bar.

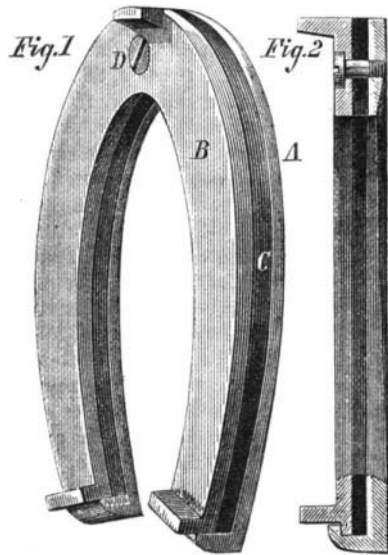
The brace rod, as will be seen, passes through the staple by means of holes made for the purpose at proper distances from the rear side of the sway bar Fig. 2. By using the rod in connection with the wood, as described, the draft on the rod and pressure on the wood are both endwise, thereby, it is claimed, combining the utmost strength of both materials. These doubletrees, whiffletrees, and neck-yokes have, we learn, been thoroughly tested with success. With not very expensive machinery, it is stated, they can be manufactured with great facility. Two arrangements of the device are shown in the separate figures in our illustration.

This improvement is covered by two patents obtained through the Scientific American Patent Agency. For further particulars regarding sale of rights or sale of territory, etc., address A. N. Case, Kingsville, Ashtabula county, Ohio.

**TODD'S IMPROVED HORSESHOE.**

Mr. George H. Todd, of Montgomery, Ala., has recently invented a novel horseshoe, which seems well suited for use on city pavements. The object is to afford an elastic resistance to the step, thus avoiding that pounding action upon the stones which injures the hoof and renders so many city horses valueless. Nature has made the hoof elastic, and to confine it, in a bar or kindred inelastic shoe, produces a similar effect to that of inclosing the human foot in an iron boot. As the abrasion of the covering upon the human member causes corns, so does the badly formed or adjusted shoe produce similar infliction upon the feet of horses, subjecting them to temporary and often permanent lameness. Mr. Todd's invention is, therefore, desirable in both a humane and an economical sense, as it aims to restore the elasticity which is lost by the necessary protection of the shoe, and thus to preserve the animal for longer service.

The plan adopted is represented in perspective in Fig. 1, and section in Fig. 2, in the annexed engraving, and consists in making the shoe in two parts, A and B, and confining between them a layer of rubber, C. The portion, A, which is nailed to the hoof in the ordinary manner, may be made of common iron, and the lower part, which takes the shock and wear, of hardened steel or other suitable metal. The two portions and the rubber between them are connected by the screw, D, and the lugs in the ends of part, B, which enter



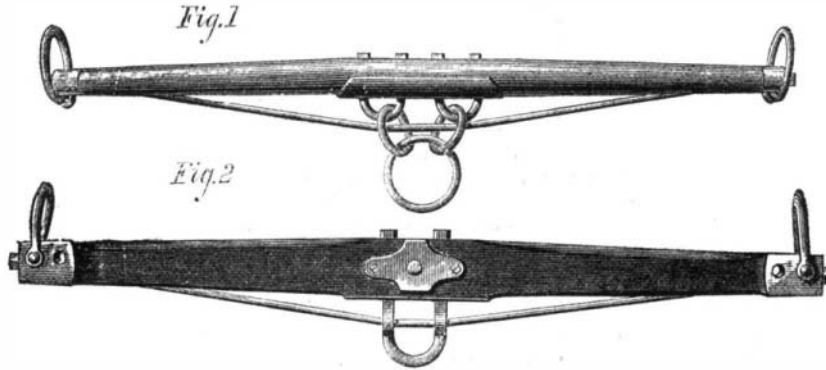
indentations in part A, as shown in the sectional view, Fig. 2. It will be observed that the rubber intercepts the force generated by the impact of the shoe and the ground, and by its yielding reduces the shock before the same reaches the animal. We are informed that there is no permanent spreading of the rubber by compression, and that it answers admirably the above purpose for which it is intended. The inventor states that he was enabled to use a horse when thus shod, which, when wearing the ordinary shoe, was too lame to use.

There are advantages other than those noted, which readily suggest themselves. The shoe is rendered much lighter, and the wear comes almost entirely upon the outer portion; the rubber can be cheaply renewed; the foot piece will out wear a number of the outer plates.

The form of shoe, as represented in our engraving, is somewhat modified to adapt it for trotting horses, to gain greater lightness. To this end the outer piece, with the exception of the toe, through which the holding screw passes, is cut down on its inner side to a mere rim, curved in section, inside of which the rubber, also diminished in size, is

placed as before. The inventor informs us that, instead of making the rubber simply to line the shoe, it may be left a flat piece, extending entirely across the under portion of the hoof. When thus arranged, the latter may be stuffed and the tow or other material held closely in place, the under surface of the rubber serving as additional foothold. The durability of the portion which is directly nailed to the hoof, offers also an additional advantage, in that, when once accurately fitted, the shoe remains so for an indefinite period, and hence the chances of the animal being injured from improperly adjusted shoes are necessarily not so great as when old ones, on wearing out, are constantly replaced.

Further particulars may be obtained by addressing the in-

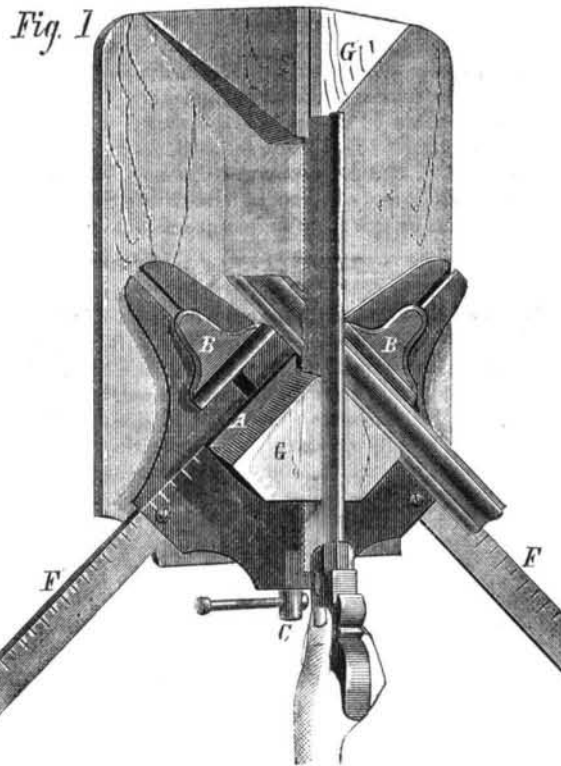


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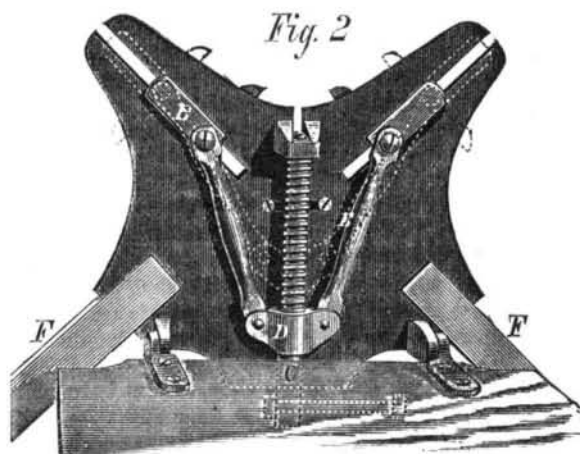
ventors as above, or the shoe itself may be seen at the store of Spies, Kissam & Co., 279 Broadway, New York city.

**IMPROVED MITER MACHINE AND FRAME VISE.**

Our engravings represent a simple, cheap, and durable device, by means of which frames can be easily made and put together without requiring the work of a skilled mechanic. It consists of a miter box for cutting the ends of the material to proper angles, and a vise which holds the frame firmly while being fastened together. The apparatus, which is



constructed of iron, has on its table a square, A, Fig. 1. B B are two movable blocks which clamp the moldings to be mitered against the sides of the square by pressing against the backs of the pieces, and thus not injuring the faces. The clamps are moved back and forth by a screw, C, on which travels a block, D, Fig. 2, to which are pivoted arms, E, which are connected with blocks, B, underneath the table, as shown. The latter is hinged to the bench, and in Fig. 2 is represented as turned up so as to show its under side. The



motion of the screw and adjacent parts is indicated by the dotted lines.

After one end of the molding is mitered, the piece is placed on the other side of the square, and its extremity

adjusted to such a mark on the measuring arm, F, as denotes the length desired. It is then immediately cut by the saw, thus obviating the trouble of measuring and marking each side of the frame, and also the liability of mistakes. After the pieces are mitered, they may be placed on the square and clamped tight by the blocks, when they can be readily nailed together. Thus constructed the sides will be accurately fitted, as, being firmly held during the fastening, they cannot move out of square. This operation repeated for the other corners, completes the frame. If, in fastening, it is found that the molding has become sprung or twisted, the joint, we are informed, may be quickly made perfect by running the saw through it, thus enabling the operator to use

moldings which would, in the ordinary manner of working, be of little utility. The saw guide blocks, G, are of wood. One is screwed within the square and the other to the bench. The latter may be made to slide back and forth so as to be brought against the molding. As the blocks wear away, they can be brought together, the screws underneath working through slots for the purpose.

The machine may be hinged to the bench as shown, or may be imbedded in the latter flush with the surface. A circular saw may be employed instead of the hand instrument, if desired.

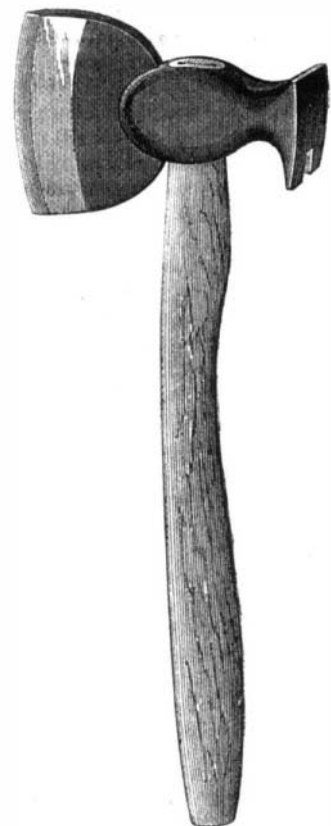
For further particulars address the inventor, Mr. James H. Van Ness, Charlotte, N. C.

**Electrical Currents from Albumenoid Substances.**

M. Becquerel has shown that, when two heterogeneous liquids are separated by an organic membrane or by a capillary space, they give an electric current capable of producing chemical and mechanical effects, reduction of metals, and double decomposition, etc. M. Onimus finds that the interposition of a layer of albumenoid matter (white of egg, albumen of blood) has the same electro-chemical results. Thus with the solutions of sulphate of copper and of oxalate of potash, separated in a tube by albumenoid substance, beautiful blue crystals of oxalate of copper and potash are obtained. The phenomena, he points out, may throw light on the formation of phosphate of lime in animals.

**JENKINS' PATENT COMPOUND HATCHET.**

This hatchet is formed simply by punching the blade out of sheet steel, about No. 12, with a hole near the top. The blade is then set in a mold and a head cast on it, the melted iron uniting through the hole and forming a perfect fastening. It is then tempered, ground, and finished.



It is claimed that, in this manner, a hatchet carrying a good cutting edge, and having a head sufficient for ordinary purposes, may be manufactured at a comparatively small cost.

Patented through the Scientific American Patent Agency. The entire right for sale, or a license to manufacture on a royalty may be obtained. For further particulars address Mr. J. Jenkins, Coulter street, Germantown, Pa.

THE French expedition which has been exploring Terra del Fuego reports the finding, in the interior, of a large lake, 15 miles in circumference, surrounded by luxuriant vegetation, and literally covered by an army of wild fowl, among which the most abundant were ducks and geese. These regions are inhabited by rude but hospitable tribes; the women especially are very affable and obliging. One of them, in exchange for some pieces of sugar and common handkerchiefs, gave the leader of the expedition an object to which she attached an immense value, and which she preserved as a relic—the lid of a sardine box.