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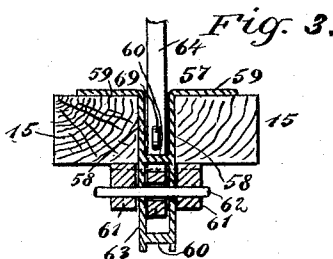
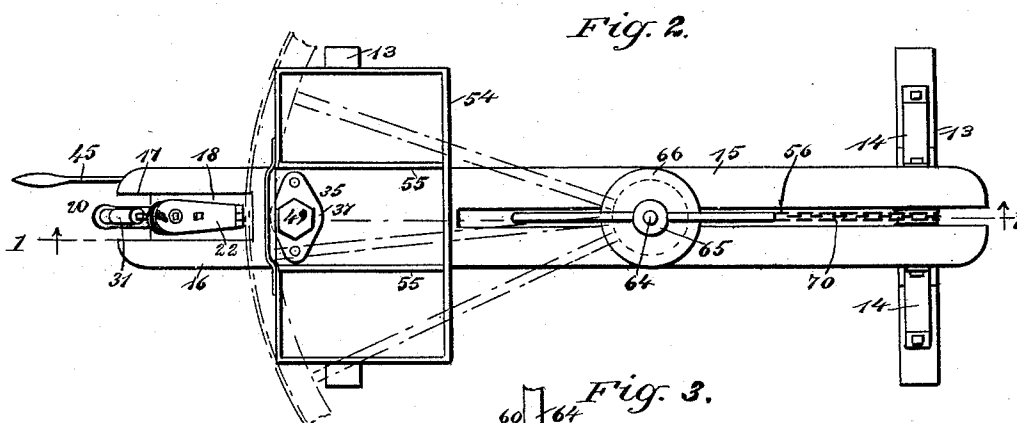
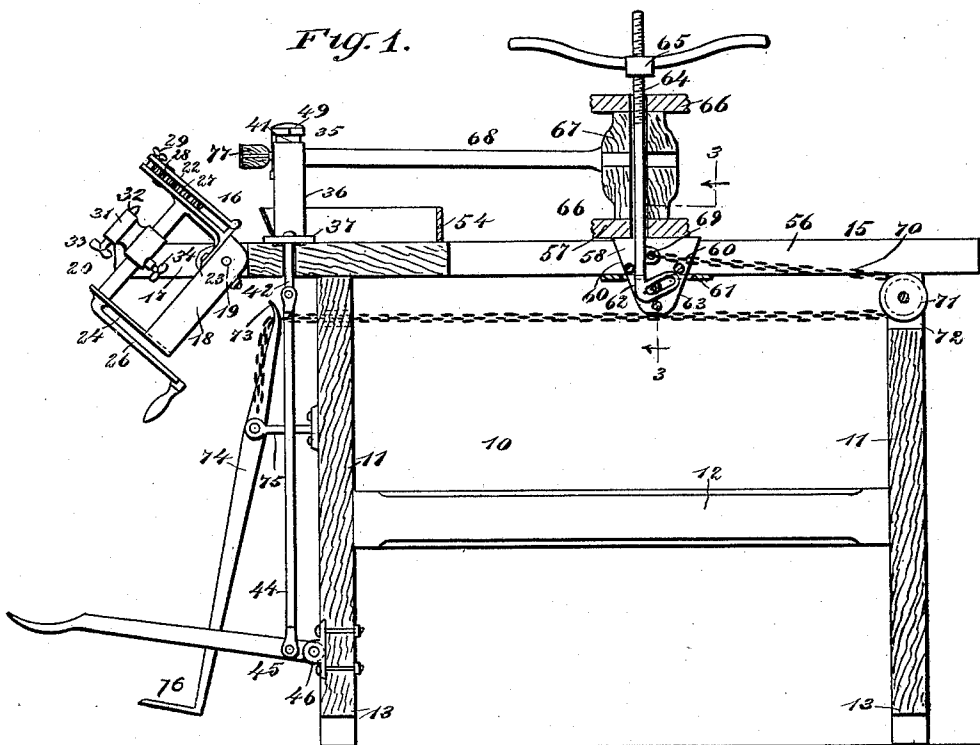
2 Sheets—Sheet 1.

M. MARTIN.

COMBINED WHEEL WRENCH AND BOLT CLIPPER.

No. 469,580.

Patented Feb. 23, 1892.



WITNESSES:

J. E. Criswell
C. Sedgwick

INVENTOR

M. Martin

BY

Munn & Co

ATTORNEYS,

(No Model.)

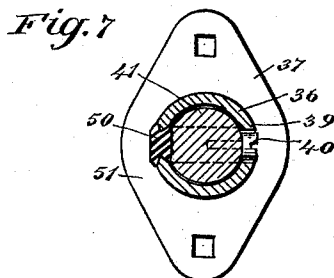
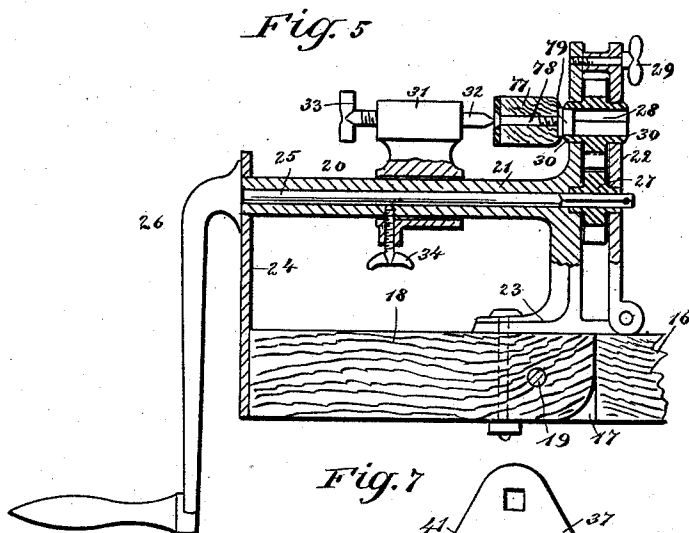
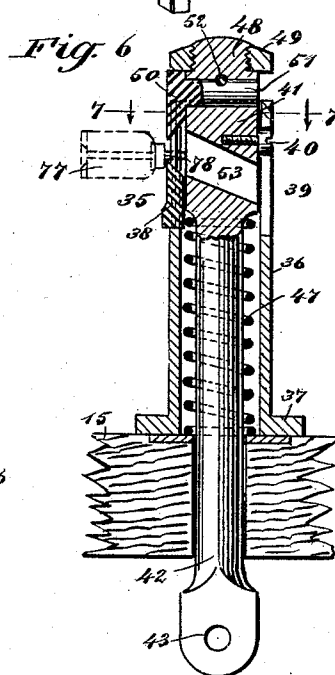
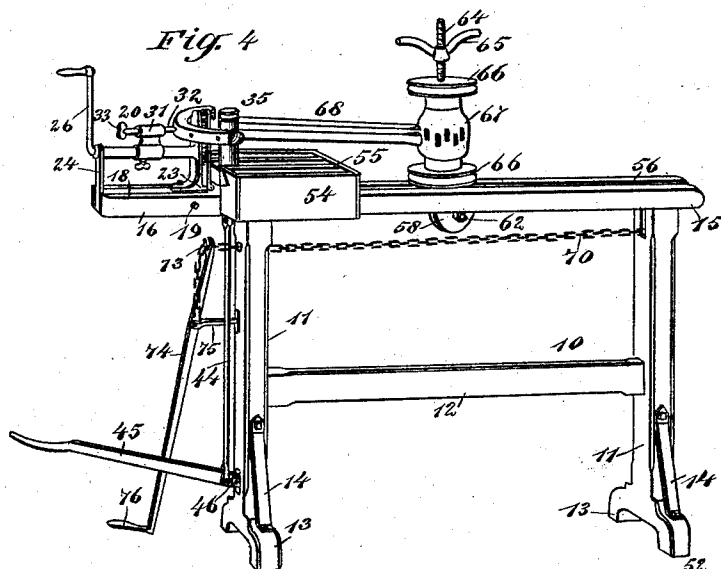
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UNITED STATES PATENT OFFICE.

MARSHALL MARTIN, OF WALLA WALLA, WASHINGTON.

COMBINED WHEEL-WRENCH AND BOLT-CLIPPER.

SPECIFICATION forming part of Letters Patent No. 469,580, dated February 23, 1892.

Application filed November 17, 1891. Serial No. 412,200. (No model.)

To all whom it may concern:

• Be it known that I, MARSHALL MARTIN, of Walla Walla, in the county of Walla Walla and State of Washington, have invented a new and Improved Combined Wheel-Wrench and Bolt-Clipper, of which the following is a full, clear, and exact description.

My invention relates to improvements in wheel-wrenches and bolt-clippers; and the object of my invention is to produce a simple, efficient, and easily-operated machine which is adapted to carry a vehicle-wheel and which may be rapidly operated to secure the bolts to the wheel tires and felloes and also to clip the bolts.

To this end my invention consists in certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a vertical longitudinal section of the machine, showing the wheel-wrench turned down out of the way and the bolt-clipper in position to clip a bolt. Fig. 2 is a plan view of the machine. Fig. 3 is a cross-section through the saddle on the line 3 3 in Fig. 1. Fig. 4 is a perspective view of the machine, showing a section of the wheel carried thereby and in position to have a bolt secured therein. Fig. 5 is an enlarged longitudinal section of the wheel-wrench. Fig. 6 is an enlarged vertical section of the bolt-clipper, and Fig. 7 is a sectional plan on the line 7 7 in Fig. 6.

The frame of the machine consists of a bench 10, which has end legs or standards 11, connected together by a cross-brace 12 and terminating at their lower ends in feet 13, which feet are also connected with the legs or up-rights by braces 14. The top of the bench is formed of a strip 15, which is secured to the legs and which at the front end of the machine projects forward, as shown at 16, and is slotted longitudinally at 17, so as to receive the block 18, which block is pivoted in the slot 17, as shown at 19 in Figs. 1 and 5, and which may be held in a horizontal position or allowed to tip, as shown in Fig. 1.

The wheel-wrench 20 is substantially like

the wrench for which I received Letters Patent of the United States No. 456,830, dated July 28, 1891. The wrench has a tubular body 21, which extends parallel with the block 18 and which terminates at its rear end in the housing 22, which housing is made in two parts and has a foot 23 at its lower end, adapted to be secured to the block 18. The front end of the body 21 is supported in a brace 24, which is secured to the front end of the block 18. A shaft 25 extends longitudinally through the body 21, the shaft terminating at its front end in a crank-handle 26, by means of which it may be turned, and at its rear end the shaft projects through the housing 22 and carries a cog-wheel 27, which meshes with the cog-die 28, carried in the upper portion of the housing, and this die has its ends made, preferably, of different sizes, and the ends project slightly from the face of the housing, so as to readily receive the nut of a carriage-bolt, and the projecting ends are also beveled, so as to enable it to enter or be embedded in the wood of a wheel, so as to grip firmly a nut which is held slightly beneath the surface of the wood. These projecting ends are shown at 30 in Fig. 5. The upper ends of the two parts of the housing are held together by a thumb-screw 29. A head 31 is held to slide on the body 21, and the head carries a chisel-nosed drill 32, which aligns with the cog-die 28 and is adapted to engage a wheel-bolt so as to prevent the bolt from turning, the drill being adjusted by a thumb-screw 33 in the opposite end of the head 31. The head 31 is secured in place by a thumb-screw 34, which projects through it on the under side.

The wrench above described is like that shown in my former patent above referred to, with the exception of the projecting ends of the cog-die, the supporting-foot for the housing, the brace 24 for the body, and the swinging block on which the entire wrench is mounted.

Immediately behind the wheel-wrench 20 and secured to the top of the bench 10 is a bolt-clipper 35, the body of which consists of a vertical barrel 36, which has a bottom flange 37 to facilitate its attachment to the bench. The barrel 36 is slotted vertically on its front side and carries a knife 38, the edge of the knife being at its upper front side, and the

barrel 36 is also slotted vertically in the back, as shown at 39, so as to receive the screw 40, which enters the plunger 41, and the screw 40, by striking against the upper wall of the slot 39, will limit the upstroke of the plunger. This plunger 41 extends downward through the barrel 36 and the bench-top 15, its lower portion being reduced to form a shank 42, which shank terminates at its lower end in a flattened perforated portion 43, which flattened portion is pivoted to the rod 44, which extends downward and is pivoted at its lower end to the treadle-lever 45, the said lever being fulcrumed in a lug 46 near the lower end of the front leg 11 of the bench. The plunger is normally pressed upward by a spiral spring 47, which encircles the shank of the plunger and is held within the barrel 36, and it will be seen that to depress the plunger one has merely to step on the treadle-lever 45. The plunger 41 projects above the top of the barrel 36 and has a reduced threaded upper end 48, which receives a nut 49, and the nut, by striking the top of the barrel, limits the downstroke of the plunger. The plunger carries at its upper end and on the front side a knife 50, which is similar to the knife 38 and aligns therewith and which has a shank 51, extending rearwardly through the plunger, the shank being held from displacement by a pin 52, extending transversely through it and the plunger. It will be seen that by adjusting the nut 49 to regulate the stroke of the plunger the distance between the points of the knives may be also regulated, so that as the knives become somewhat worn the nut may be loosened, so as to permit them to be forced nearer together. The plunger is provided with a transverse bore 53 to provide for clearance, which bore extends slightly at an incline through the plunger, the bore leading from behind the knives 38 and 50 to the slot 39, so that the bolt ends which are clipped off by the knives will roll down through the bore and through the slot 39 and drop into the box 54, which box is placed upon the bench-top and at the back of the bolt-clipper, as best shown in Figs. 1 and 4. The box 54 is divided by partitions 55 into compartments, the middle one being adapted to receive the clipped bolt ends and the other two being adapted to contain the bolts and nuts, respectively, which are used for fastening the wheel-tires to the fellyes.

The bench-top 15 is slotted from near its front end to its rear end, as shown at 56 in Figs. 1 and 2, and a wheel-carrying saddle 57 is held to slide longitudinally in the slot. This saddle 57 is provided with two similar side plates 58, which extend downward through the slot 56, as best shown in Fig. 3, and these side plates terminate at their upper ends in flanges 59, which overlap the top 15 of the bench and which are adapted to slide thereon. The side pieces are held apart by rivets 60, and the side pieces are embraced by a slotted plate 61, which rests against the under side of the top 15 and through which ex-

tends a pin 62, which pin extends also through the saddle and through the slotted and bent lower end 63 of the bench-bolt 64, thus forming a support for the bolt and permitting the necessary movement thereof. This bolt 64 extends upward through the saddle and extends far enough above the bench to project through any ordinary wheel-hub. It is provided at its upper end with a two-armed wrench 65, the central portion of which is threaded to fit the bolt, and the wrench is adapted to be tightened down upon the wheel-hub to clamp the wheel in place. The bolt is also provided with thick washers 66, which are adapted to be placed above and below the hub 67 of a wheel 68, and which will cause the wheel to be clamped in place without injury to either the wheel or the machine. By tightening the wrench 65 it will be caused to bear down upon the upper end of the hub, and the lower end of the bench-bolt will lift on the pin 62 and plate 61, and the hub will thus be clamped between the wrench and the saddle. By slotting the lower end of the bench-bolt 64 the wheel-hub is prevented from binding when the felly is raised over the wrench and bolt-clipper. On the back of the bench-bolt 64 is a lug 69, to which a chain 70 is secured, and the chain extends rearward through the slot 56 and over a pulley 71, which is pivoted in a recess 72 at the top of the rear leg 11, and said chain extends forward through the bench-legs and is adapted to be held at its front end by a claw 73, which is formed at the upper end of the lever 74, the lever extending downward along the front end of the machine and being fulcrumed in an arm 75, which is secured to the front leg 11. The lower end of the lever 74 terminates in a treadle 76, and by fastening the chain 70 in the claw of the lever and then forcing the lower end of the lever backward the chain will be tightened and the saddle drawn backward, thus holding the wheel 68 against the bolt-clipper or wrench, as the case may be, and as described below.

The operation of the machine is as follows: When the wheel is applied to the bench-bolt in the manner described, it may be clamped firmly in place by tightening the wrench 65, and then by the use of a bit and brace the necessary holes may be bored in the fellyes of the wheel and in the tire, if desired. The wrench is then loosened and the wheel pulled forward, the saddle meanwhile sliding on the bench-top, and the wheel-felly 77 is then lifted over and placed in front of the cog-die of the wheel-wrench, as shown in Fig. 4, so that the cog-die 28 will receive the nut 79 of the bolt 78, as shown in Fig. 5. The head 31 is adjusted so that the drill 32 will bear against the edge of the bolt 78, and then by turning the crank 26 the cog-die 28 will be revolved and the nut 79 rapidly and firmly turned home. The wheel-wrench is then tipped downward out of the way, as in Fig. 1, and the operator, by stepping on the treadle 76,