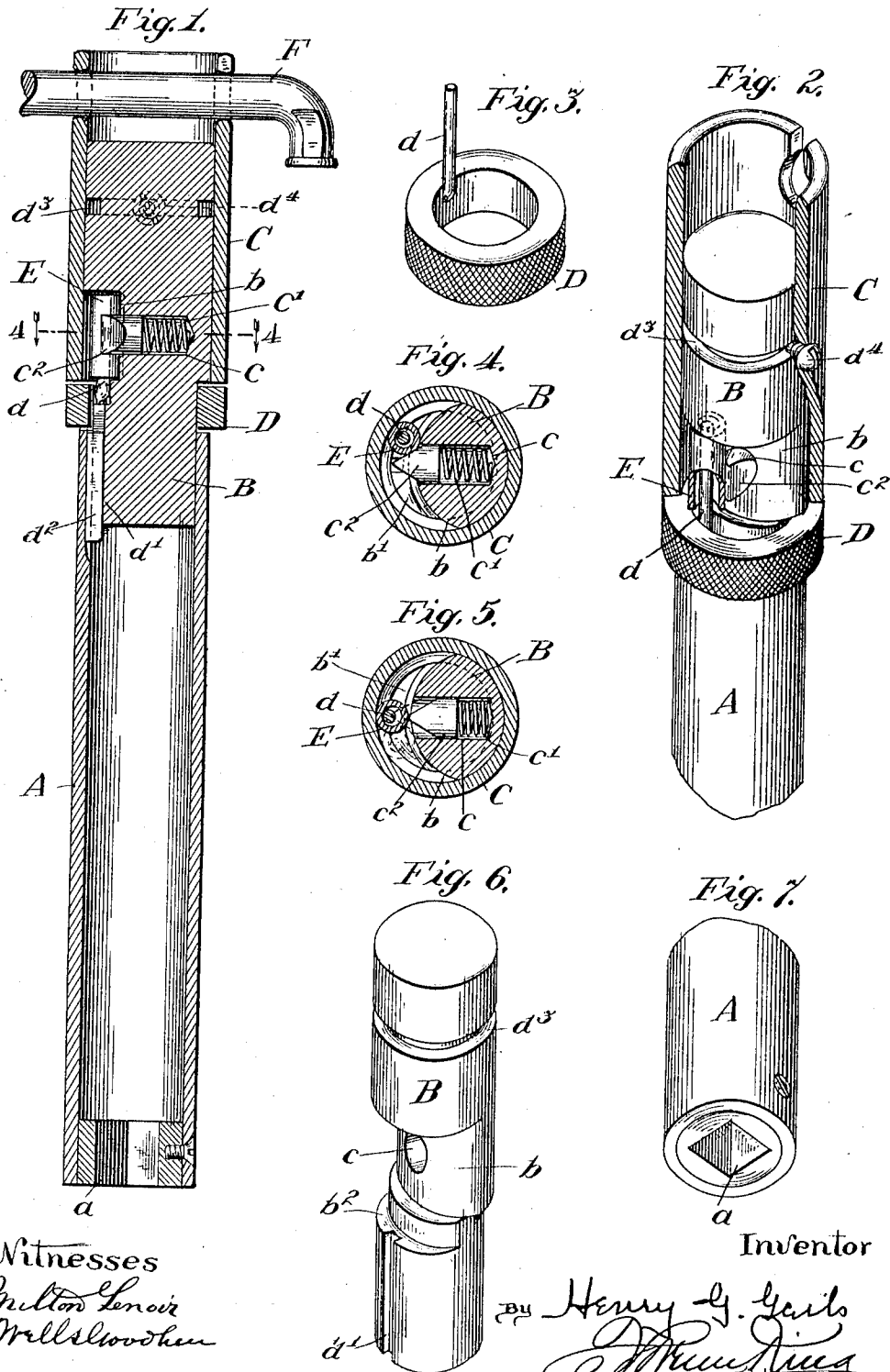


H. G. GEILS.
 REVERSIBLE FRICTION ROLL AUTOMOBILE WRENCH.
 APPLICATION FILED JULY 22, 1912.

1,061,367.

Patented May 13, 1913.



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REVERSIBLE FRICTION-ROLL AUTOMOBILE-WRENCH.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY G. GEILS, a citizen of the United States, residing at Chicago Heights, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Reversible Friction-Roll Automobile-Wrenches, of which the following, taken in connection with the drawing, is a description.

The primary object of my invention is the production of a reversible friction-roll wrench, which is designed to be used more particularly in connection with automobiles, but the device is so constructed that the many features of advantage embodied in the combination and arrangement of parts make it very desirable for use wherever such tools are needed.

The principal object of my invention is to provide such a tool having mechanism whereby a gripping surface is had at all times no matter which way the tool is being turned, by means of which the device is more effective for the purpose for which it is intended, much time is saved in the operation of the tool, with the result that the purpose sought is much quicker accomplished.

My invention is very simple in construction, comprises few parts and is so made that it combines a minimum of cost to manufacture with a maximum of efficiency.

In the accompanying drawings I have illustrated what I now consider the preferred form of my invention, although I do not desire to be limited to the precise details there shown or to the exact size or positioning of the parts, and in these drawings Figure 1 is a vertical sectional view through the center of the device; Fig. 2 is a perspective view of the wrench-head inside the sleeve, a portion of the sleeve being broken away; Fig. 3 is a perspective view of the collar; Fig. 4 is a transverse sectional view taken on line 4-4 of Fig. 1; Fig. 5 is a view similar to Fig. 4 but with the roller compressing the spring plug in passing over it. Fig. 6 is a perspective view of the wrench-head and Fig. 7 is a perspective view of the socket end of the barrel.

In Fig. 1 is shown the complete device with all the parts assembled, A representing the barrel which is provided at the lower end thereof with a closure having a socket *a* for engaging the object to be turned or operated upon. The socket in this instance is represented as being square, but as is obvi-

ous it may be hexagon or any other shape desired.

B, shown more clearly in Fig. 6, is the wrench-head. The shape and design of this wrench head is an important feature in my invention, and by means of which, cooperating with the mechanism hereinafter described I am enabled to secure a gripping surface with every movement of the wrench.

C is a sleeve having upon the inside thereof a smooth surface its entire length, inside of which is arranged the operative mechanism of my device.

The wrench-head B is formed of a solid piece of metal which is round at each end thereof, and is near the longitudinal center a portion of its length, formed into an oval-shaped surface *b* to provide, when the device is assembled a crescent shaped chamber *b'* between one side of this oval shaped surface and the inner wall of the sleeve C, shown more clearly in Figs. 4 and 5. A socket *C'* is provided at approximately the center of this oval shaped section, and extends transversely nearly through the same.

A coiled spring *c'* is positioned within this socket and seated thereon and filling the bore of the socket is a wedge-shaped plug *c²*, the operation of which will be hereinafter described.

D is a collar having a roughened surface on the outside thereof. Extending upwardly from the inside of this collar is a pin *d*. The collar surrounds the wrench-head just below the oval-shaped surface *b* and between the lower end of the sleeve C and the upper end of the barrel A.

d' is a key extending longitudinally of the wrench-head along the lower end thereof, or that portion of the wrench head which fits inside the barrel A. A corresponding key way is provided on the inside of the barrel contiguous thereto, and fitting inside of these key ways is a key *d²* which holds the parts together and prevents one from turning upon the other. The top portion of the wrench-head B is provided with a circumferential groove into which extends one or more set screws *d⁴* passing through the wall of the sleeve C.

Mounted upon the pin *d* and positioned inside the crescent shaped chamber *b'* is a friction roller E which bears against the inner wall of the sleeve, and is held in that position by the spring pressed plug *c²* bearing against it. The operation of this roller

affords the gripping surface necessary in the operation of the wrench, the contact always being perfect no matter in which direction the device is being operated. The roller E bears against one side of the wedge shaped plug c^2 when the device is being turned in one direction and when reversed to operate in the opposite direction the roller is passed over the plug by compressing the same into the socket against the tension of the spring c' as shown in Fig. 5, so that it will bear against the opposite side of the wedge, always maintaining its gripping surface against the inner wall of the sleeve C.

When the device is to be used the part to be operated upon is engaged by the socket a at the end of the barrel, the turning operation being accomplished by means of the handle F which extends transversely of the upper part of the sleeve C.

I claim:

1. In a wrench, the combination of a sleeve, a head having a reduced portion part of its length, one surface being continuous with that of the head, the other surface being oval and providing a crescentic chamber between this surface and the inner wall of said sleeve, a roller positioned between the wall of the sleeve and the reduced portion of the head, and means for forcing said roller into frictional engagement with the sleeve, substantially as described.

2. A wrench having a head provided with an oval shaped section near the center thereof, a smooth bored sleeve forming a crescent

shaped chamber between the inner wall thereof and the oval shaped section, a barrel keyed to said wrench head, a collar surrounding said wrench head between the barrel and sleeve, a pin projecting into the aforesaid chamber, a friction roller mounted in said sleeve, a wedge shaped plug movable in a socket extending transversely into the oval shaped section of the wrench head, means for holding said plug into engagement with the roller and forcing it against the inner wall of the sleeve.

3. A wrench having a head provided with an oval shaped section near the center thereof, said head having a circumferential groove near one end thereof, and a longitudinal key way at the opposite end a barrel keyed to one end of said head, a smooth bored sleeve inclosing the opposite end of said head, means engaging the aforesaid groove and securing the head and sleeve together, a friction roller movable between the sleeve and the oval shaped section of the head, means cooperating therewith to reverse the action of said roller and to keep it in frictional engagement with the sleeve, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HENRY G. GEILS.

Witnesses:

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