US 20030190571A1

(19) **United States**

(12) **Patent Application Publication**

Paleno et al.

(10) **Pub. No.: US 2003/0190571 A1**

(43) **Pub. Date: Oct. 9, 2003**

(54) **COMBINATION GAS CYLINDER STRIKER AND WRENCH DEVICE**

(76) Inventors: **Michael L. Paleno**, Dingmans Ferry, PA (US); **Daniel T. Pirl JR.**, Dingmans Ferry, PA (US)

Correspondence Address:
ROGER M. RATHBUN
13 MARGARITA COURT
HILTON HEAD ISLAND, SC 29926 (US)

(21) Appl. No.: **10/117,770**

(22) Filed: **Apr. 5, 2002**

Publication Classification

(51) **Int. Cl.**[7] **F23D 1/00**; F23Q 1/02

(52) **U.S. Cl.** **431/253**; 431/273

(57) **ABSTRACT**

A combination gas cylinder striker and wrench device for use with a gas cylinder having a cylinder valve with a valve stem. The combination is made of a pair of wire frame members that are manipulatable to strike a spark for igniting a flammable gas form a gas cylinder. A gas cylinder wrench is affixed to one of the wire frame members. The gas cylinder wrench has a raised boss having an opening therethrough that is sized to interfit with the valve stem of the gas cylinder. The raised boss stabilizes the affixation of the wrench to the wire frame member by being force fitted into a U-shaped area of the wire frame member.

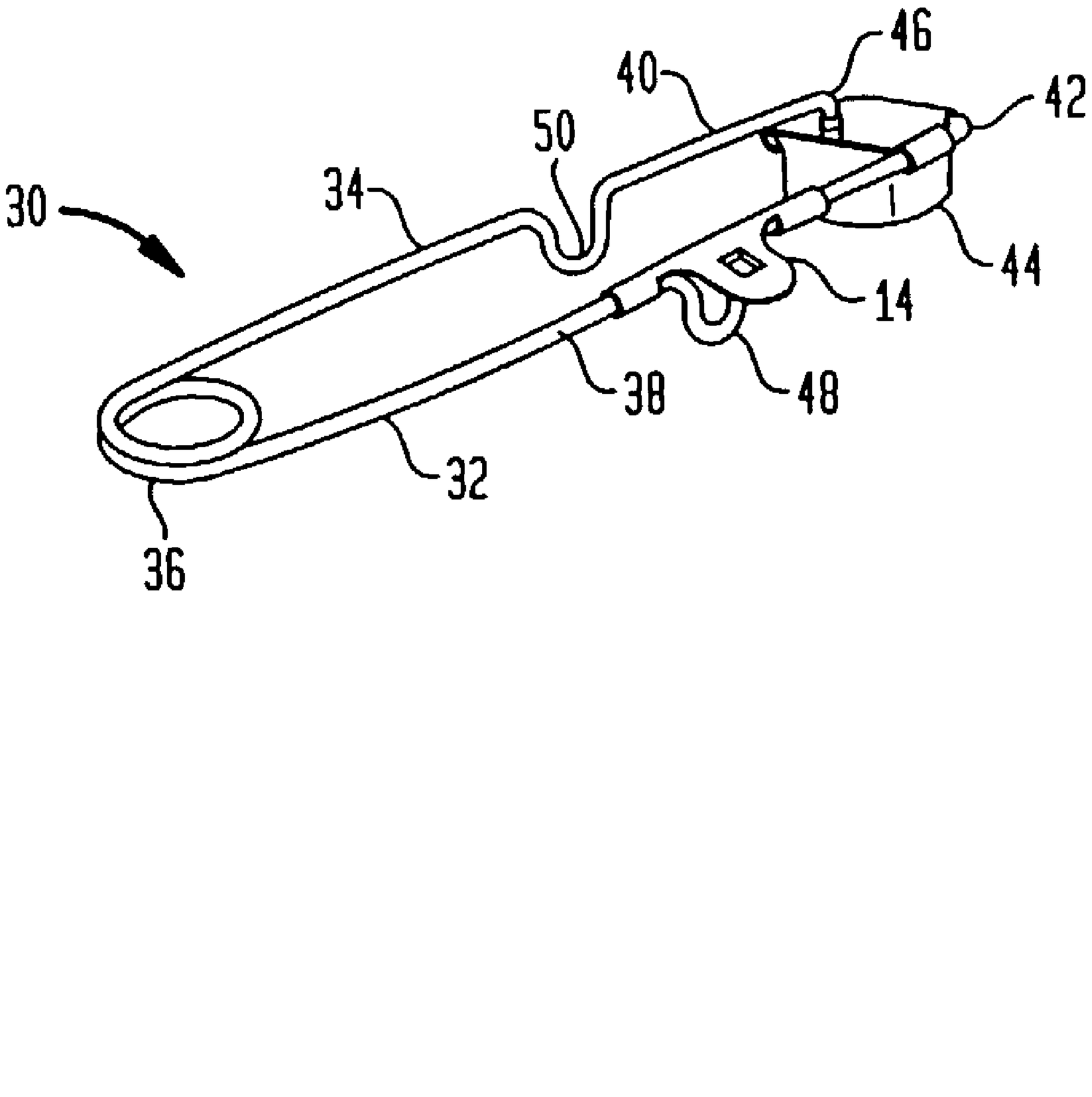


FIG. 1
(PRIOR ART)

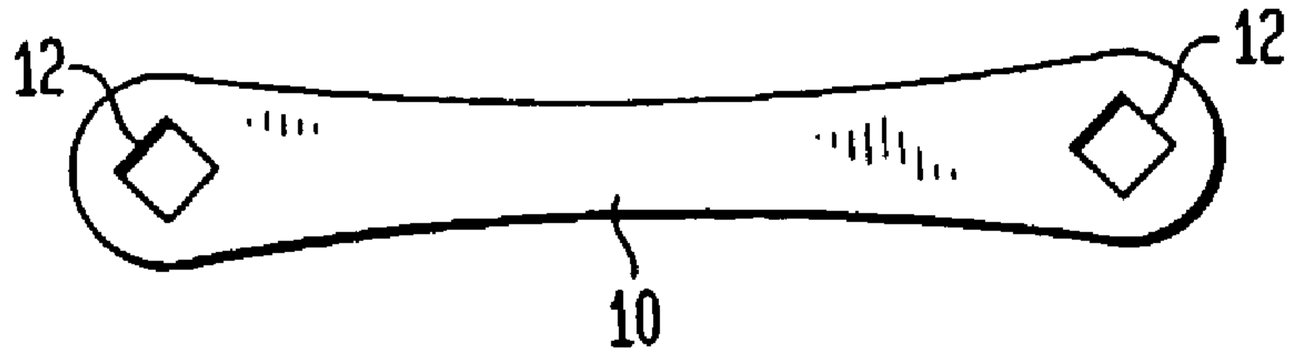


FIG. 2

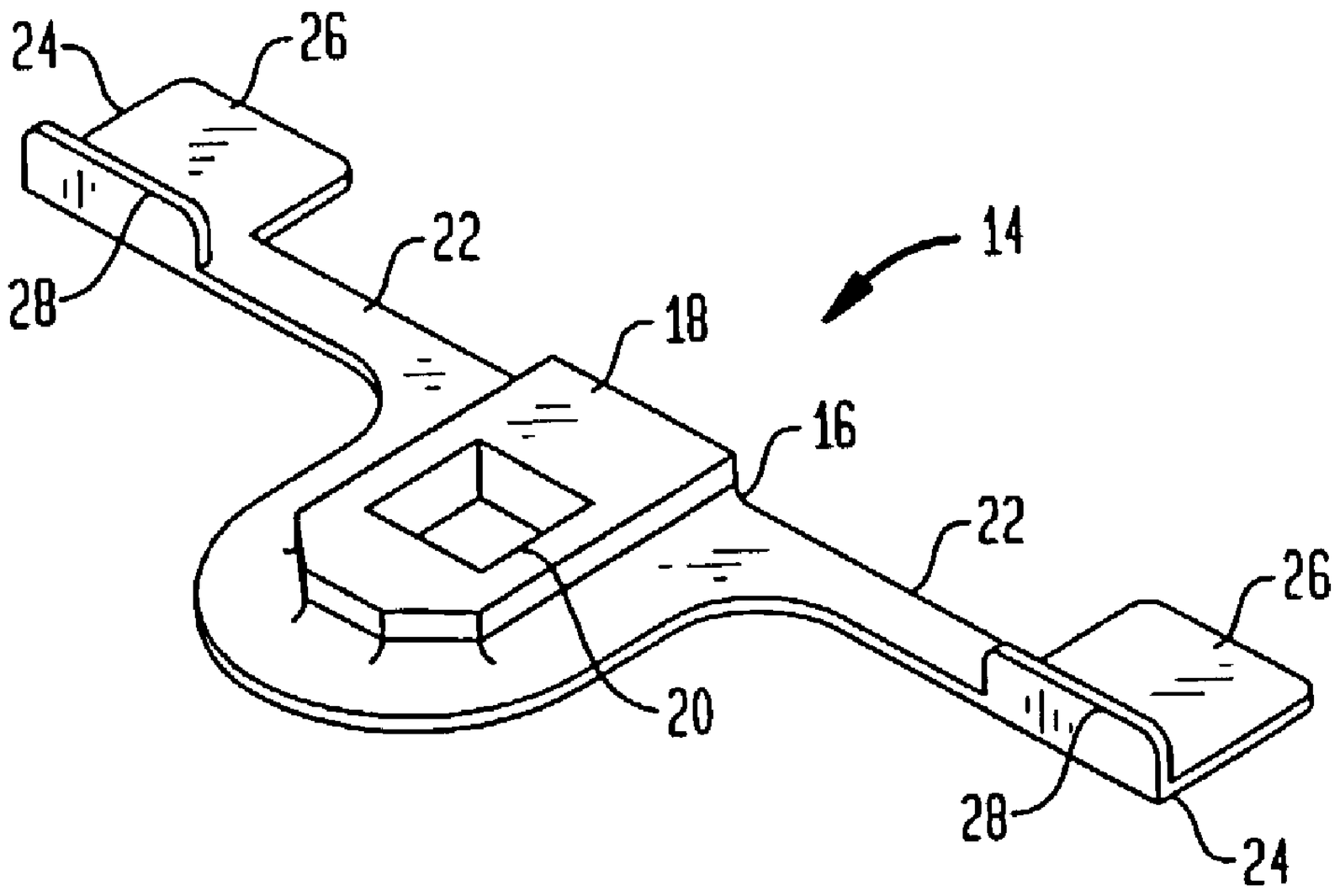


FIG. 3

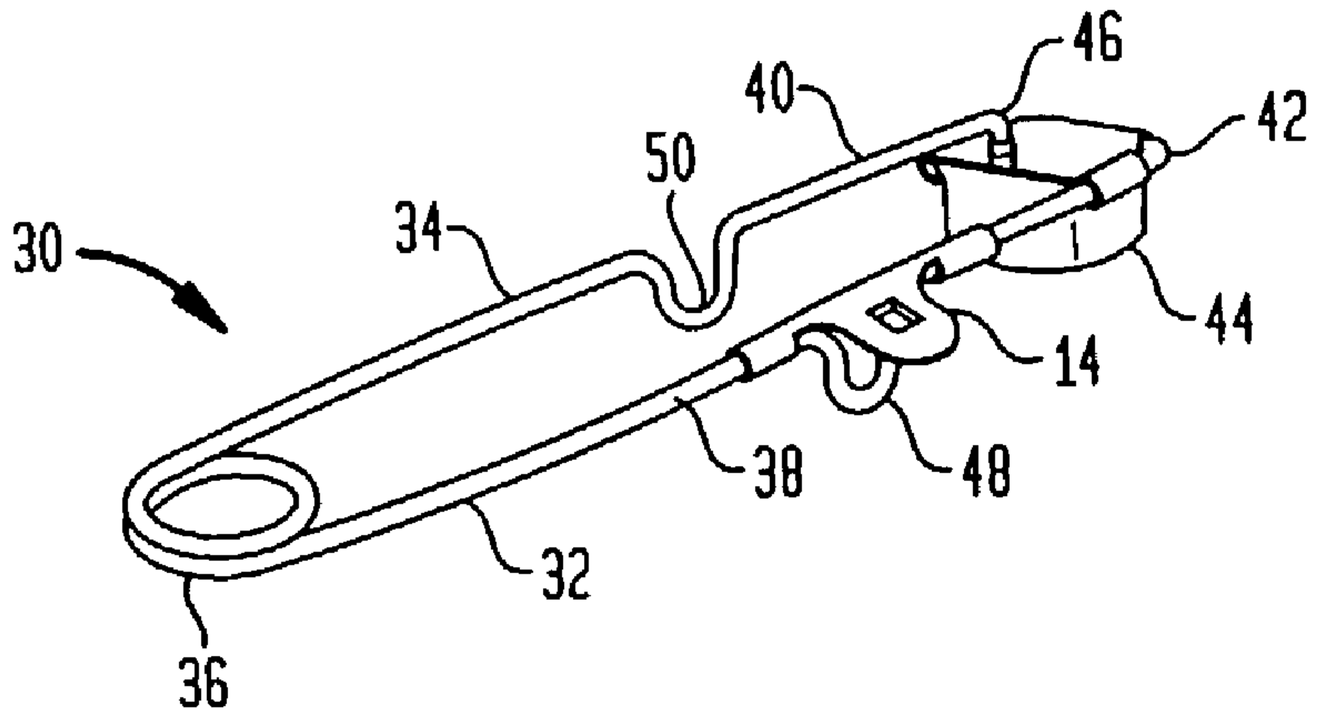


FIG. 4A

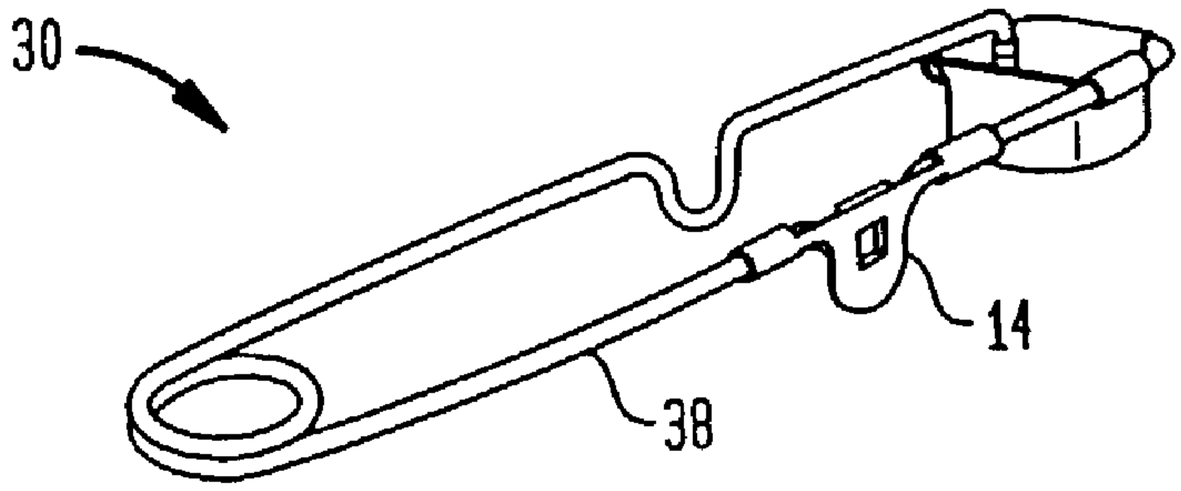


FIG. 4B

COMBINATION GAS CYLINDER STRIKER AND WRENCH DEVICE

BACKGROUND OF THE INVENTION

[0001] The present invention relates to gas cylinders and, more particularly, to an improved combination device that combines a striker for igniting the gas from the cylinder with a cylinder wrench for operating the cylinder valve.

[0002] There are, of course, a considerable number of uses for gas cylinders containing a combustible gas, and, in general, the gas is acetylene and the gas is connected to a torch unit that is used for a wide variety of purposes, such as welding, soldering and the like and in a wide range of fields. As is conventional, the gas cylinder is fitted with a valve having a rotatable valve stem that is used to turn the gas on and off and the stem has a external end that is formed in a particular configuration so as to be operable by a corresponding specially shaped wrench. A common configuration is that the valve stem has a generally square shaped outer end and, therefore, the cylinder wrench has a square shaped opening that operates that valve by the interfitting of the opening in the external end of the valve stem. Without the valve wrench, obviously, the user is unable to rotate the valve stem to operate the valve of the gas cylinder and, therefore, is basically unable to carry out whatever operation or use is desired for the torch.

[0003] As such, one of the drawbacks of the present gas cylinder and torch systems is in that the cylinder wrench must remain accessible at all times for the user to be able to use that cylinder wrench as needed. With the conventional cylinder wrench, the geometry of the cylinder wrench is a flat, relatively planar metallic unit and, if the cylinder wrench were dropped it can be difficult to locate or to even realize that the cylinder wrench is missing. With the geometry and shape of the conventional cylinder wrench, that issue of misplacing the wrench is exacerbated if the cylinder wrench is dropped in a cluttered area such as a dirty area or where the illumination is relatively dim.

[0004] Another conventional component used with flammable gas systems is a striker and which basically is a device that strikes a spark that enables the user to ignite the flammable gas at the torch. While there are a number of differing designs of strikers, one common striker design is comprised of a single wire formed into a coil with two wire frame members extending outwardly from the coil such that the wire frame members have free ends that can be moved relative to each other with a springing action provided by the coil arrangement.

[0005] At the free end of one of the wire frame members, there is an enclosed striker cup lined with a specific material and at the free end of the other wire frame member, there is provided with another specific material. When the user flexes the striker frame members so as to move the two free ends relative to each other, the two materials at those free ends are caused to rub against each other to produce a spark that is, in turn, used to ignite the flammable gas that is emanating from the torch so as to light that torch. As a feature of the aforedescribed striker, however, the shape and configuration of the striker is unusual, more of a three dimensional shape than the normal flat cylinder wrench and therefore is easier to locate if inadvertently dropped or misplaced than the conventional cylinder wrench. Thus, as described, the striker is also an important and necessary component of the torch system and its accessibility is also necessary for the use of that torch.

[0006] Accordingly, it would be advantageous to have a cylinder wrench that would be part of some component that is more easily identifiable, three dimensional and therefore, easier to locate if inadvertently dropped or mislaid.

SUMMARY OF THE INVENTION

[0007] Therefore, in accordance with the present invention, there is provided a specially constructed combination of a cylinder wrench and a striker so as to take advantage of certain of the features of both devices.

[0008] With the present invention, therefore, the cylinder wrench, normal a flat, planar device is combined with a striker that has an unusual profile and configuration and therefore the combination device is less likely to become lost or, if dropped, it is more likely to be readily located in most environments than if only a conventional cylinder wrench is present.

[0009] In the present invention, a specially designed cylinder wrench is constructed and used and which is affixed to a striker that is basically a conventional striker having a pair of wire frame members. The overall device is a unique combination of a striker, with the normal functions of a striker, as well as a cylinder wrench along with the normal functions of a cylinder wrench. In the invention, the cylinder wrench is basically a body comprising a raised boss having an opening that is configured so as to interfit with the external end of the valve stem of a gas cylinder. A flange extends from the raised boss and has a pair of outwardly extending arms that extend from the raised boss in opposite directions from the raised boss. At or near the extended free ends of the arms are affixing surfaces, that is, there are bendable wings and raised edges that are comprised of a relatively bendable material that allows the wings and the raised edges to be bent around one of the wire frame members of the conventional striker.

[0010] To make the affixation of the cylinder wrench of the present invention to a striker, it is preferred that the wings and the raised edges meet at an angle with respect to each other so that the wire frame member can be initially nested in the angled surface and the wings and raised edges bent around that wire frame member. As a further preferred feature, the conventional striker also has a U-shaped indentation in the wire frame members and the present cylinder wrench has the raised boss specially dimensioned and configured so as to fit with the U-shaped indentation of the wire frame member in a force fit to hold the cylinder wrench securely in position affixed to the wire frame member of the striker.

[0011] Other features of the combination device will become apparent in light of the following detailed description of a preferred embodiment thereof and as illustrated in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] **FIG. 1** is a top plan view of a conventional, currently used, cylinder wrench;

[0013] **FIG. 2** is a perspective view of the cylinder wrench component of the present combination device;

[0014] **FIG. 3** is a perspective view of a combination device of the present invention; and

[0015] **FIGS. 4A and 4B** are perspective views of the completed combination device constructed in accordance with the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0016] Referring now to **FIG. 1**, there is shown a top plan view of a conventional cylinder wrench **10** of the type that is commonly used with gas cylinders containing a flammable gas for use with a torch. As can be seen, the cylinder wrench **10** has an opening **12** formed in each end thereof and which are specially sized so as to fit to a external end of a valve stem for a conventional flammable gas cylinder in order to open and close that valve in using the gas cylinders supplying that gas to a torch.

[0017] As its typical of such conventional cylinder wrenches **10**, the body of the wrench is basically a flat, planar construction and therefore can be easily be lost if dropped in many environments that are cluttered, dirty and/or in a dim illumination.

[0018] Turning now to **FIG. 2**, there is shown, a perspective view of a cylinder wrench **14** constructed in accordance with the present invention. In this Figure, there is a main body **16** that is preferable constructed of a stamped metal and which has a raised boss **18** that provides a strengthened area and which has an opening **20** formed therein. As explained, the opening **20** is configured so as to interfit with the external end of a valve stem of a cylinder valve for the flammable gas. Thus, the opening **20**, in the preferred embodiment, is shown and which interfits with a square valve stem for operating that cylinder valve.

[0019] As also can be seen in **FIG. 2**, the main body **16** is thinner surrounding the opening **20** and the raised boss **18** and includes arms **22** that extend outwardly in opposite directions from the raised boss **18** to form free ends **24**. At or near each of the free ends **24** there is formed a wing **26** and a raised edge **28**. In the preferred embodiment, each wing **26** and raised edge **28** meet at an angle, shown as about a right angle, in **FIG. 2**, however, the angle may be grater or smaller as long as there is formed some angled junction between a wing **26** and raised edge **28** so that a wire frame member (not shown in **FIG. 2**) can rest in that junction in the affixing the cylinder wrench **14** to a striker (also not shown in **FIG. 2**).

[0020] Turning now to **FIG. 3**, there is shown a perspective view of a combination device **30** that combines the cylinder wrench **14** constructed in accordance with the present invention and affixed to a striker **32**. The striker **32** itself is a conventional device used to generate a spark in order to ignite the flammable gas to light a torch supplied by a cylinder of such gas. The striker **32** is basically constructed of a frame **34** comprising a wire, generally of steel, that has a coil **36** that provides a springing action to the wire frame members **38**, **40**. Thus the frame **34** can be comprised of a single wire or there may be a plurality of individual wires, it only being of importance that there be some spring means that creates a springing action with respect to the relative motion between the wire frame members **38**, **40**.

[0021] At the free end **42** of one of the wire frame members **38**, there is affixed a striker cup **44** that has a material formed on the inner surface and a free end **46** of the other wire frame member **40** extends into the striker cup **44** and contacts that inner surface of striker cup **44**. By means of the particular materials formed on the inner surface of the striker cup **44** and the material formed on the free end **46**, as the free end **46** is moved against the springing action imposed by the coil **36**, the free end **46** of the wire frame member **40** moves frictionally along the inner surface of the striker cup **44**, and that frictional movement between the striker frame members **38**, **40** cause a rubbing of those materials and produces a spark.

[0022] As also can be seen in **FIG. 3**, there is formed in each of the wire frame members **38**, **40** U-shaped indentations **48**,**50** and which are normally formed in conventional strikers **32**. In general, the U-shaped indentations **48**, **50** are located about mid way between the coil **36** and the free ends **42**, **46** of the wire frame members **38** and **40**. There can also be seen a cylinder wrench **14** constructed as described with respect to **FIG. 2** and affixed to the wire frame member **38**.

[0023] That affixation can be seen with reference to **FIG. 2** and can be seen that each wing **26** and raised edge **28** meet at the aforedescribed angle so that the wire frame member **38** can be placed at the apex of that angle and the raised edge **28** initially deformed so as to curl around the wire frame member **38** and thereafter, the wing **26** can be deformed so as to encircle the deformed raised edge **28** so as to finish off the affixing of the cylinder wrench **14** to the wire frame member **38**. Thus, the deformation of the raised edge **28** and the wing **26** create an encircling of the frame **34** around the wire frame member **38** to secure the cylinder wrench **14** to that wire frame member **38**.

[0024] Finally turning now to **FIGS. 4Aand 4B**, there is shown perspective views of the present combination device **30** taken from opposed sides. In **FIGS. 4A and 4B**, the cylinder wrench **14** of the present invention is shown in its final position affixed to the wire frame member **38** and where the curved profile of the raised boss **18** fits in an interference or forced fit within the U-shaped indentation **48** so that the cylinder wrench **14** is firmly mounted in position affixed to the striker **32** and does not move from that fixed position.

[0025] Thus, as particularly seen in **FIG. 4**B, the raised boss **18** is nestled within and tightly secured to the U-shaped indentation **48** formed in the wire frame member **38**, that is, preferably the wire frame member **38** that does nor freely move as the wire frame members **38**, **40** are squeezed together since the wire frame member **38** has the striker cup **44** affixed thereto and the other wire frame member **40** is more readily movable since its free end **46** is movable within the striker cup **44** in creating the spark.

[0026] It will be understood that the scope of the invention is not limited to the particular embodiment disclosed herein, by way of example, but only by the scope of the appended claims.

We claim:

1. A combination device for operation of a gas cylinder having a valve stem, said combination device comprising a striker having wire frame members, said wire frame members being manipulatable so as to create a spark upon relative movement between said wire members, a cylinder wrench affixed to one of said wire frame members, said

cylinder wrench having a raised boss having an opening formed therein adapted to interfit with the valve stem to operate said gas cylinder.

2. A combination device as defined in claim 1 wherein said cylinder wrench comprises a main body having a pair of ends extending outwardly in opposite directions from said raised boss, each of said end constructed of a bendable material.

3. A combination device as defined in claim 2 wherein said bendable ends each comprise a raised edge and a wing extending therefrom.

4. A combination device as defined in claim 3 wherein said wing and said raised end are formed at an angle with respect to each other.

5. A combination device as defined in claim 4 wherein said angle between said wing and said raised end is about 90 degrees.

6. A combination device as defined in claim 1 wherein at least one of said wire frame members has U-shaped indentation.

7. A combination device as defined in claim 6 wherein said raised boss fits into said U-shaped indentation.

8. A combination device as defined in claim 7 wherein said raised boss fits in a force fit within said U-shaped indentation so as to be retained position within said U-shaped indentation.

9. A cylinder wrench adapted to be affixed to a wire frame member of a striker, said wrench comprising a raised boss area having an opening therethrough, said wrench having arms extending outwardly in opposite directions ending in free ends, and said arms having wings extending outwardly at or near the free ends thereof, said wings being comprised of a material that is readily bendable so as to encircle a wire frame member of a striker to affix the wrench to the wire frame member.

10. A cylinder wrench as defined in claim 9 wherein said raised boss section has an opening of predetermined configuration formed therein.

11. A cylinder wrench as defined in claim 9 wherein said wings extend outwardly at an acute angle from said arms.

12. A method of constructing a combination device for use in operating a valve stem of a gas cylinder, said method comprising the steps of:

providing a striker for producing a spark having a pair of wire frame members,

providing a cylinder wrench for interfitting to the valve stem for operating the gas cylinder,

affixing the cylinder wrench to one of the pair of wire frame members.

13. A method of constructing a combination device as defined in claim 12 wherein said step of providing a striker comprises providing a striker having an indentation formed in one of the wire frame members.

14. A method of constructing a combination device as defined in claim 13 wherein said step of providing a cylinder wrench having a body with a raised boss and having arms extending outwardly therefrom.

15. A method of constructing a combination device as defined in claim 14 wherein said step of affixing the cylinder wrench to one of said wire frame member comprises inserting the raised boss of the cylinder wrench forcibly into the indentation

16. A method of constructing a combination device as defined in claim 14 wherein said step of affixing the cylinder wrench to one of the wire frame members comprises bending the arms around the wire frame member.

* * * * *