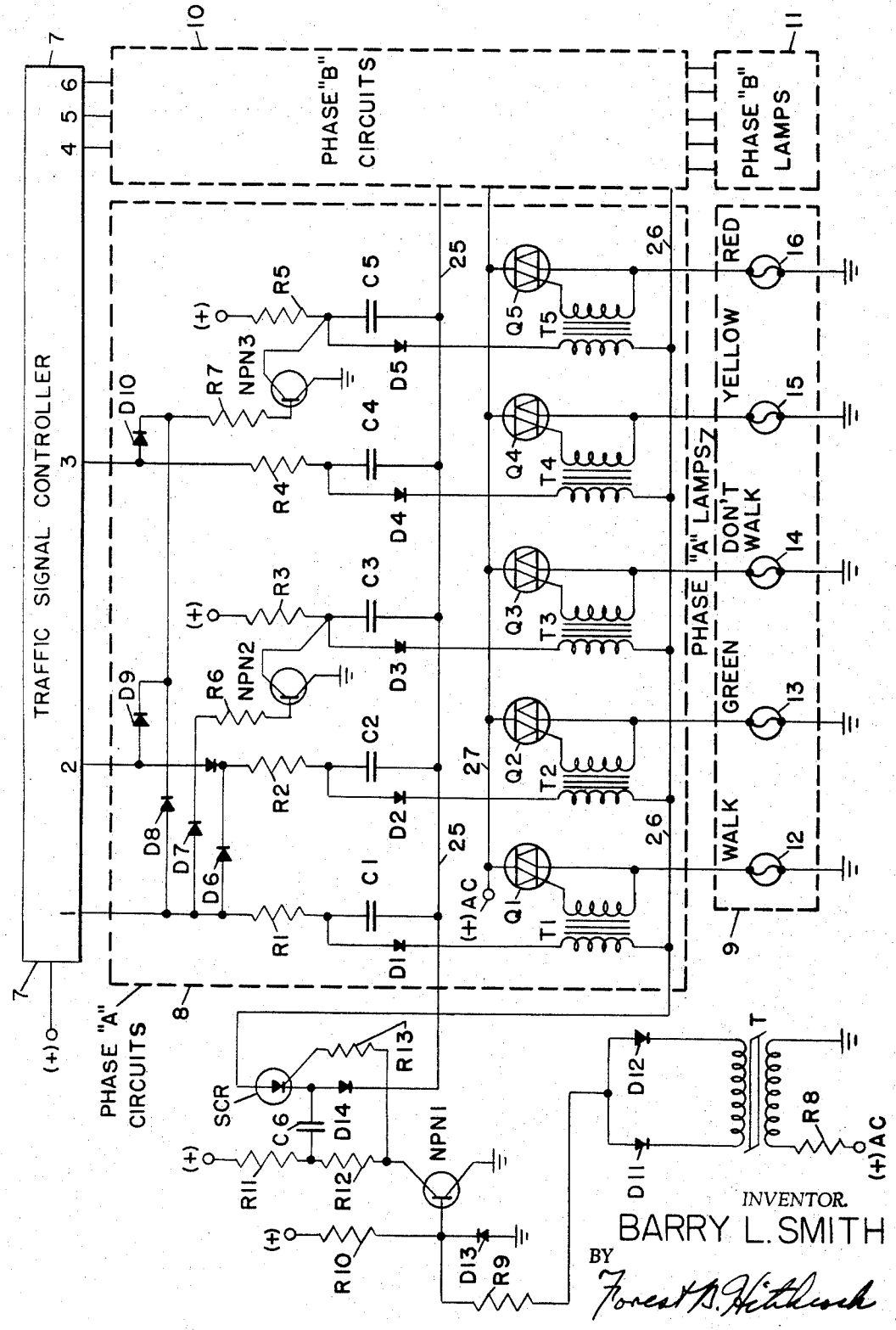
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TRAFFIC SIGNAL LAMP CONTROL CIRCUIT

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DOUBLE OPEN END WRENCH WITH FLEXIBLE NUT ENGAGING MEANS

William H. Mariner, 909 Spring Ave.,
Salisbury, Md. 21801

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ABSTRACT OF THE DISCLOSURE

An improved box end wrench of double end type, each end having double socket sizes, and a groove in the shank of the wrench connecting each socket with a flexible band extending through said groove into each socket to be coiled in either socket to act upon a nut or bolt.

This invention relates generally to box end wrenches. More specifically it relates to box end wrenches that are ratchet operated.

A principal object of the present invention is to provide a ratchet driven box end wrench of double end type.

Another object is to provide a ratchet driven box end wrench of double end type wherein each end is of double socket size so that the wrench may accommodate four different sizes of nuts or bolt heads, of which two are accommodated at each end.

Yet another object is to provide an improved box end wrench having a double size socket assembly at one end, and wherein each socket opening is fully adjustable to accommodate intermediate sizes of nuts and bolt heads, thus being capable to handle oversized and undersized nuts or bolt heads, regardless of the amount of oversize or undersize.

Yet a further object is to provide an improved box end wrench which is quickly adjustable to accommodate a particular size nut or bolt head.

Other objects are to provide an improved box end wrench which is simple in design, inexpensive to manufacture, rugged in construction, easy to use and efficient in operation.

These and other objects will be readily evident upon a study of the following specification and the accompanying drawing wherein:

FIGURE 1 is a side elevation view of the present invention,

FIGURE 2 is an edge view thereof,

FIGURE 3 is a side elevation view of a modified form of the invention,

FIGURE 4 is an edge view thereof,

FIGURE 5 is an enlarged detail of the invention shown in operative use, and

FIGURE 6 is a cross sectional view taken on line 6—6 of FIGURE 5.

Referring now to the drawing in detail, and more particularly to FIGURES 1 and 2, the reference numeral **10** represents an improved box end wrench according to the present invention wherein there is a main body **11** of elongated character having socket assemblies **12** and **13** at opposite ends.

Each socket assembly includes a rotatable head **14** seated within a circular opening **15** of enlarged end **16** of the body. An inwardly extending flange **17** on opposite sides of the body secures the rotatable head from being removed from the body.

Each head includes a central opening **18** therethrough comprising a relatively larger square opening **19** on one side of the body, and a relatively smaller square opening **20** on the opposite side for the purpose of engaging square nuts or square headed bolts of different sizes upon opposite sides of the body. Obviously the square openings may be made hexagonal or other configuration so to accommodate hexagon nuts or bolts or parts of other shape. The peripheral side of the head includes a plurality of teeth **21** therearound.

A lever **22** is centrally pivotable about an extending pin **23**, the lever being contained within a central cavity **24** within the body, and the pin extending outwardly on one side thereof to form a knurled knob that can be manually pivoted. At each end of the lever, there is a flexible tongue **25** forming a pawl that is engageable with the toothed sides of the head.

In operative use, the head may be made rotatable either forwardly or reverse by simply flipping the knob to align an arrow **26** on the knob end with forward or reverse indicia **27** marked on the body, thus causing the pawl to selectively lock rotation of the heads in either direction so to permit screwing or unscrewing action at each head.

In a modified construction shown in FIGURES 3 to 6, the box end wrench **30** includes an elongated body **31** having a nut or bolt head engaging opening **32** at one end which is of a relatively larger size on one side and relatively smaller size on the other side, as shown at **33** and **34** respectively, and wherein the opening may be of any shape such as square (as shown) or hexagonal so to accommodate a particular shaped nut or bolt head.

In the present construction, a flexible band **35** of spring steel is slidable within a groove **36** within the body **31**, the groove communicating at one end with large opening portion **33** and at its other end with small opening portion **34**.

Intermediate the ends of the groove, the groove partly encircles the side of an opening **37** at the opposite end of wrench body. The band **35** is longer than the groove in which it is slidable and accordingly may be coiled in either one of the opening portions **33** or **34**.

In operative use, a nut or bolt head **38** of indiscriminate size is entered into either the larger or smaller opening portion which is closest thereto in size. The band **35** is then made to slide into the opening portion containing the nut or bolt head, coiling around the same to fill in the space therebetween and the opening, thus acting as a skin. A finger or other object introduced into the opening **37** can provide pushing movement for coiling the band. When sufficient amount thereof is coiled to completely fill the space between a nut and opening, the nut is tightly grasped to permit turning thereof with the wrench.

While various changes may be made in the detail construction, it is understood that such changes will be within the spirit and scope of the present invention.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a box end wrench, the combination of an elongated body forming a handle, an opening in one end of said body to form a large socket on one side and a small socket on the other side for engaging different size of nut or bolt heads, a groove within said body, a flexible spring steel band slidable in said groove, said groove at each end communicating with one of said sockets to provide a means for shimming between said socket and a nut or bolt head placed therewithin.

2. The combination as set forth in claim **1**, wherein said band slidable in said groove is coilable at either end within said sockets around said nut or bolt head.

3. The combination as set forth in claim **2**, wherein said groove at an intermediate point communicates with the side of an opening through the opposite end of said

body to allow introduction of a finger or tool for pushing said band in said groove.

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MYRON C. KRUSE, *Primary Examiner.*