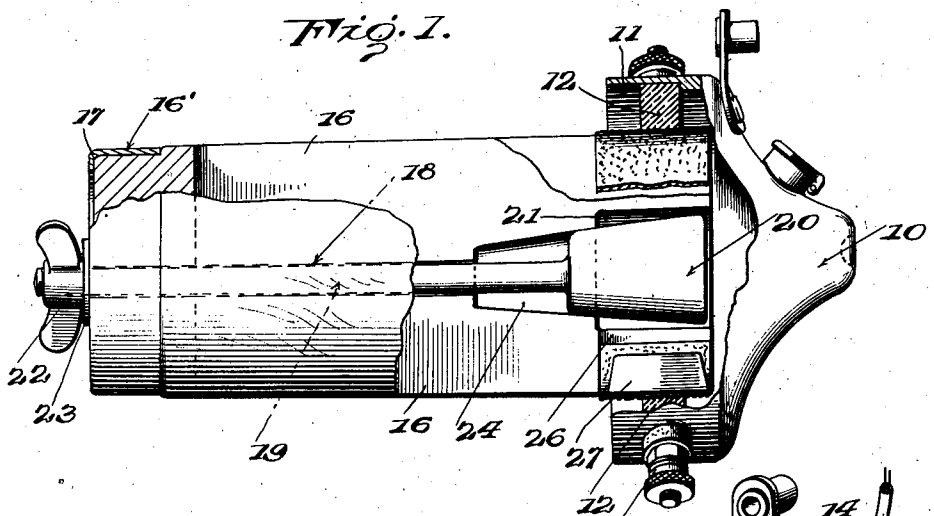
Jan. 19, 1926. 1,570,166

A. MORRIS

GRINDING TOOL

Filed June 1, 1923

Fig. 1.



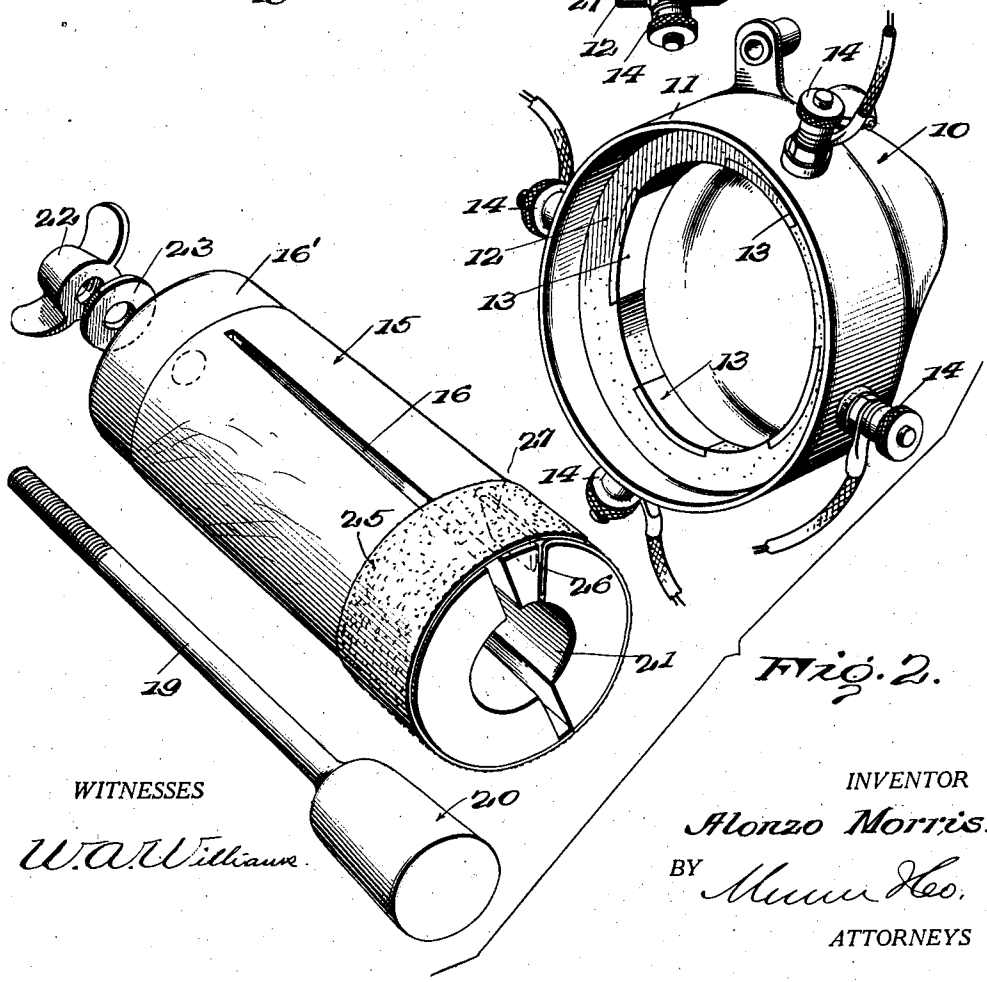


Fig. 2.

WITNESSES

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Patented Jan. 19, 1926.

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UNITED STATES PATENT OFFICE.

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GRINDING TOOL.

Application filed June 1, 1923. Serial No. 642,835.

To all whom it may concern:

Be it known that I, ALONZO MORRIS, a citizen of the United States, residing at Sabina, in the county of Clinton, State of Ohio, have invented certain new and useful Improvements in Grinding Tools, of which the following is a specification.

This invention relates to a grinding or buffing tool.

The present invention is particularly adapted for cleaning and grinding electrical contacts or electrodes carried by the shell of a timer of the character employed in connection with ignition systems for internal combustion engines.

As is well known a timer of the above character usually comprises a shell carrying a plurality of insulated contact plates or electrodes arranged in circular formation, and within this shell there is disposed a rotatable element which is adapted to intermittently engage the different contacts of the shell and establish an electrical connection therewith. In practice these contacts become at times covered with foreign particles, such as will insulate the rotatable element from the contact plates when engaging therewith. Also these contact plates at times become pitted and thus further decrease the ease with which the contact plates may collect current from the rotatable element. As is further known these contacts or electrodes are of relative large cross section and also of an appreciable length in order to insure that an electric circuit will be established at each interval the rotatable element engages therewith. Furthermore, the internal combustion engine is usually timed so that an explosion in a cylinder of the engine should occur at the moment the rotatable element of the associated timer engages each of the contacts or electrodes before referred to. In case that the contacts or electrodes of the timer become covered with dirt the timing of the ignition circuits will become disarranged and thus result in untimely explosions in the engine cylinders. With this condition the internal combustion engine will not operate at its highest efficiency and also the cylinders will become heated as well as other working parts of the engine.

With that heretofore recited in view, it is an object of the invention to provide a tool or device which may be easily inserted in a timer shell and employed for cleaning and grinding the contacts carried by said shell in a highly efficient manner.

It is also an object of the invention that the tool can be easily applied to a timer shell and also easily removed from said shell.

A further object of the invention is that the device be durable and inexpensive to manufacture.

Other objects relating to details of construction will hereinafter appear in the detailed description to follow.

The invention is illustrated by way of example in the accompanying drawings, in which:—

Figure 1 is a view in side elevation showing the application of the invention and also showing parts of the device and parts of the timer shell broken away and in section in order to more clearly illustrate the invention,

Figure 2 is a group view showing in perspective a timer shell to which the present invention may be applied and also showing the different parts of the tool.

Referring to the drawings more particularly, 10 indicates generally an ignition timer shell which may be of the conventional construction as shown and which includes the usual ring portion 11 which carries therewithin the insulating ring 12 and the plurality of contacts or electrodes 13, each of which is connected to a binding post 14 in the usual manner.

In carrying out the present invention there is provided a cylindrical block member 15 which in this instance is made of wood and which is provided with a longitudinally extending slit 16, said slit extending from one end of the block to a point adjacent its other end as best shown in Figure 2. The one end of the block is slightly reduced and has fitted thereon a ring 16', said

ring being preferably formed with a retaining flange 17. The purpose of this construction is to enable the one end of the block 15 to be expanded.

The block or member 15 is further provided with a longitudinal and central bore 18 which is adapted to receive the bolt 19. The bolt 19 has formed upon its one end a head 20 which tapers inwardly as shown. This head may be brought to be disposed in the cylindrical enlargement 21 of the bolt 19. The bolt 19 is threaded upon its one end, whereby to receive the wing nut 22 and preferably between this wing nut and the associated end of the block there is interposed a washer 23. With inward movement of the head 20 of the bolt 19 the inner end of said head will be brought into the bore enlargement 24 and serve to spread or expand the block. The enlarged bore portion 24 tapers toward its inner end and this taper corresponds to the taper of the bolt head 20.

The end of block 15 in which the bolt head 20 is disposed is encircled by a strip of emery cloth 25. This strip of emery cloth has an end portion disposed in a longitudinally extending slot or groove 26 which is formed in the associated end of the block 15. A wedge 27 is employed whereby to hold this last-named end of the emery cloth 25. It is, of course, to be understood that this strip 25 need not particularly be made of emery cloth in that any suitable abrasive material may be utilized.

In the use of the present device the emery cloth 25 is, of course, positioned upon the block as illustrated in Figure 2 and then this end of the block may be positioned within the ring 11 of shell 10. At this time the bolt head 20 should be disposed within the enlarged cylindrical bore 21 in order to permit easy positioning of the one end of the block or tool. The wing nut 22 may now be utilized for drawing the bolt 19 in a direction whereby the same will enter the tapered bore portion 24 and thus expand this end of the tool or block and bring the emery strip into close engagement with the contacts or electrodes 13. The bolt 19 may be utilized for creating any desired pressure between the emery cloth and the contacts 13 and now the block 15 may be grasped and rotated in order to clean and grind the contacts 13. After the contacts have been sufficiently ground then the wing nut 22 may be loosened and with a slight tap upon the outer end of the bolt 19 the same will be caused to move toward the timer shell and thus to bring its head 20 into the cylindrical and enlarged bore portion 21. With the bolt head 20 in this position the block or tool will, of course, immediately return to its normal diameter and thus enable the same to be easily withdrawn from the timer shell. This last-named operation is to an advantage in permitting the tool to be easily extracted or taken from a timer shell after the contacts of the timer shell have been properly ground and cleaned.

While I have shown and described the preferred form of my invention, I wish it to be understood that I am aware of the fact that the construction, combination and arrangement of parts may be changed by those skilled in the art without departing from the spirit of the invention, as indicated by the appended claims.

I claim:

1. In a device of the character described, a body, said body being split longitudinally throughout a portion of its length from a point adjacent to but spaced from one end to and through its other end, whereby one end of the body is expansible and the other end is inexpansible, an abrasive material encircling said expansible end, and means for expanding said expansible end, said means being operable from the inexpansible end of the body.

2. In a device of the character described, a body, said body being split longitudinally throughout a portion of its length from one end, whereby one end of the body is expansible, a sheet of abrasive material encircling the expansible end of the body and having one end fixed to said body and its other end free and overlapping said fixed end so that said sheet of abrasive material encircles the body in its various expanded positions, and means for expanding said expansible end, said means being operable from the opposite end of the body.

3. In a device of the character described, a body, said body being split longitudinally throughout a portion of its length from one end, whereby one end of the body is expansible, an abrasive material encircling said expansible end, said body having a longitudinal bore extending entirely therethrough, said body having its bore enlarged at the expansible end of said body and said body having its bore of tapered formation, adjacent said enlargement, a bolt extending through said bore and having a head accommodated in said enlargement and cooperable with the wall of the tapered portion of the bore, said bolt projecting beyond the body at the end of the body opposite said expansible end, and a wing nut cooperable with said projecting portion of the bolt and with the adjacent end of the body for moving the bolt and its head to control the expansion of the expansible end of said body.

4. In a device of the character described, a body, split longitudinally throughout a portion of its length from a point adjacent to but spaced from one end to and through its other end, whereby one end of the body is expansible and the other end is inexpan-

sible, an abrasive material encircling said expansible end, said cylindrical body having a longitudinal bore extending entirely therethrough, said bore being of tapered formation adjacent said expansible end, a bolt extending through the bore and having a tapered head co-operable with the tapered portion of the bore, said bolt projecting beyond the inexpansible end of the body, and a nut co-operable with the projecting end of said bolt to control the expansion of the expansible end of the body.

ALONZO MORRIS.