Oct. 4, 1949. J. G. COOPER 2,483,882

GRINDER ATTACHMENT FOR SPARK TESTING

Filed Feb. 14, 1947

FIG. 1.

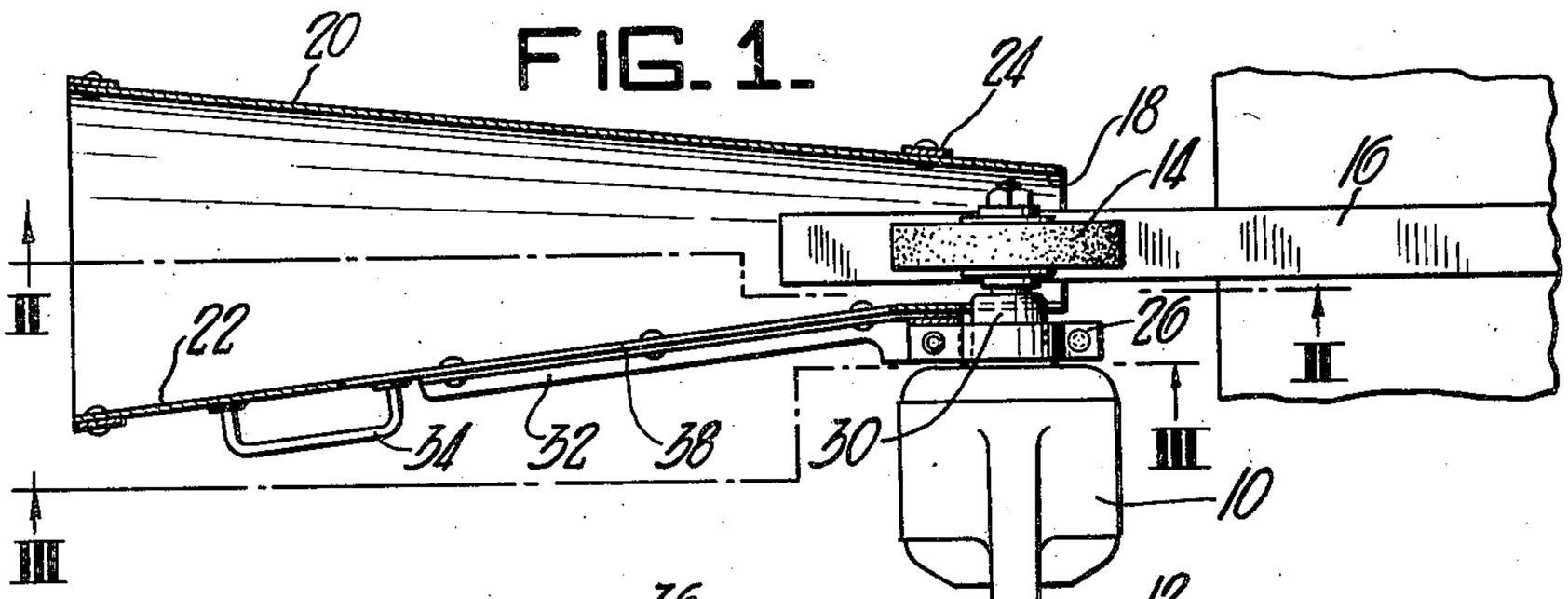


FIG. 2.

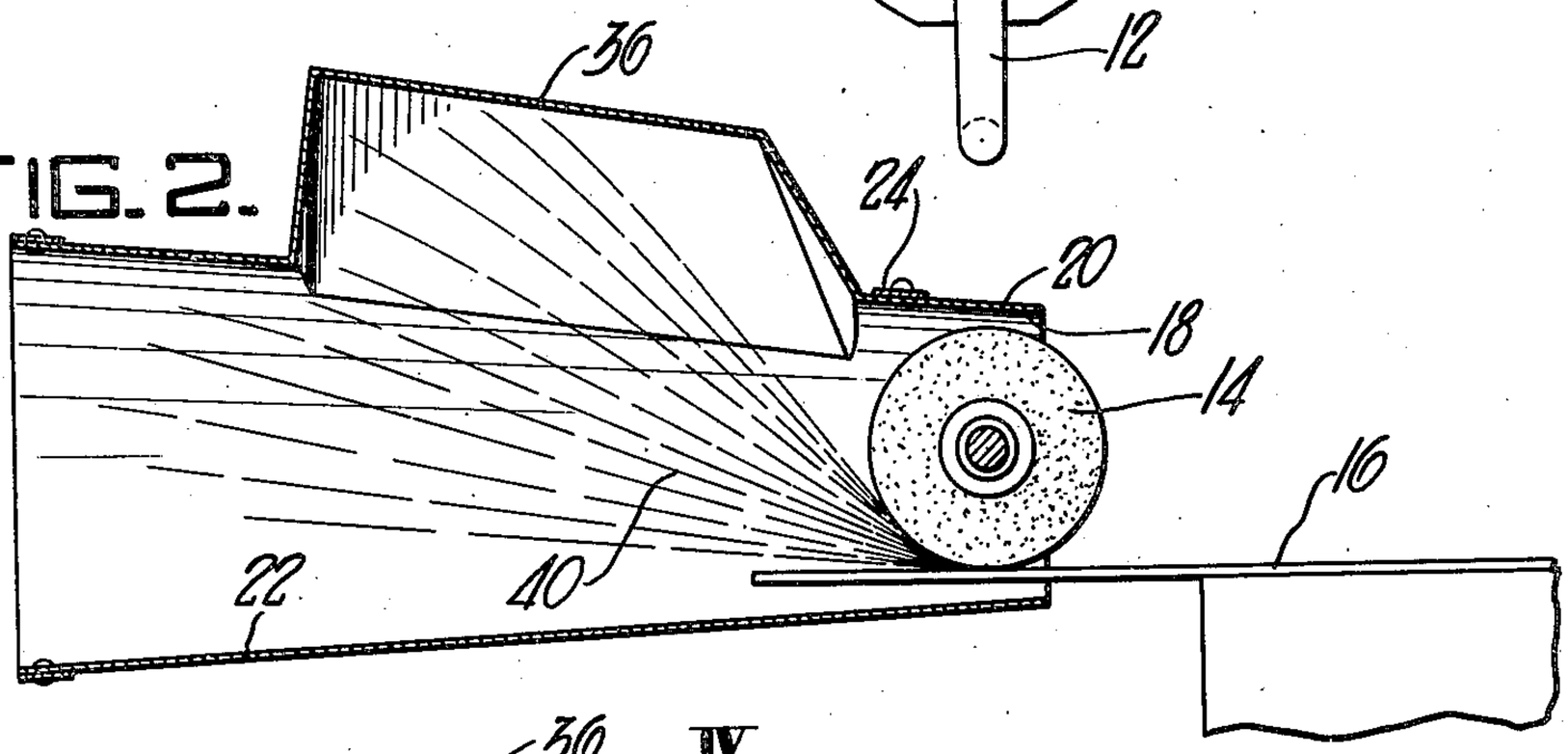


FIG. 3.

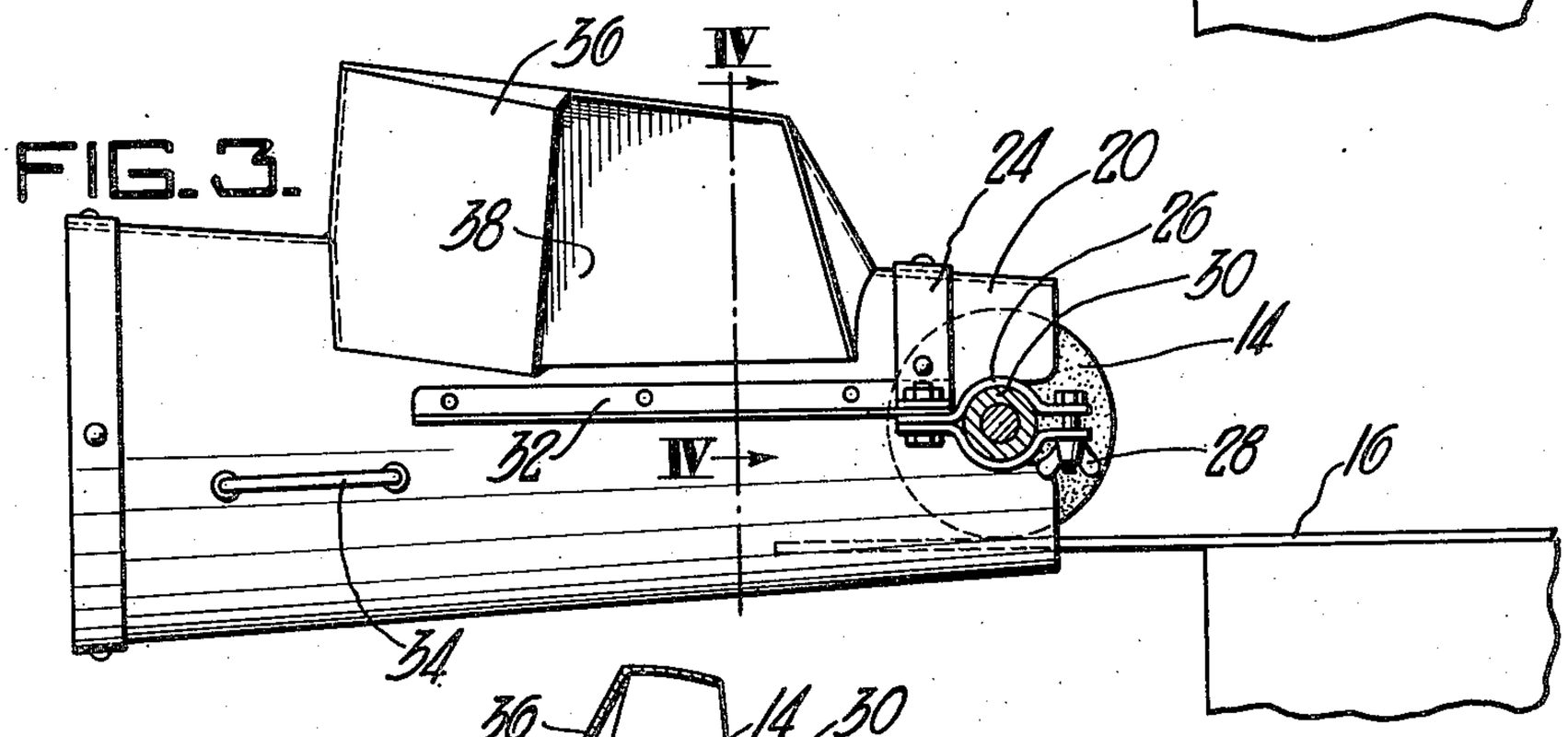
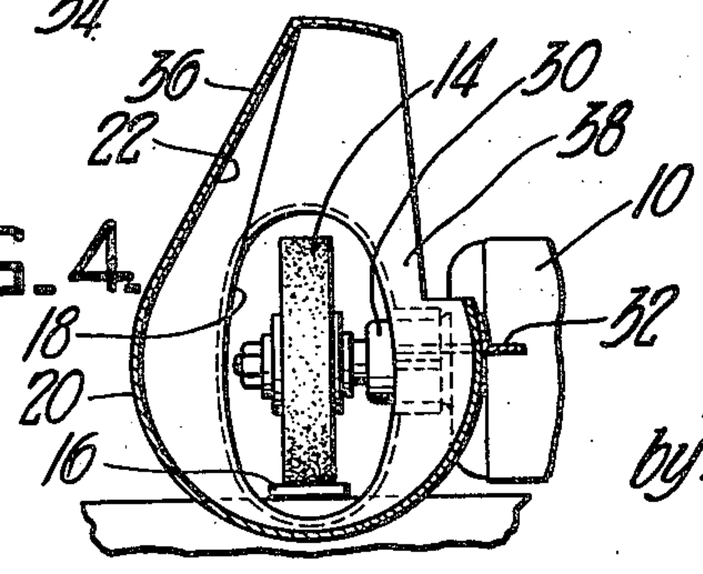


FIG. 4.



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2,483,882

GRINDER ATTACHMENT FOR SPARK TESTING

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2 Claims. (Cl. 51—272)

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The present invention relates to improved means to facilitate spark testing and aims to provide a unitary attachment adapted to be secured to a grinder in such relationship to the grinding wheel that the sparks thrown off from the workpiece being tested will be confined within a casing having a dark background so as to make the character of the sparks, as well as the trajectories thereof, more readily visible to the workman making the test. The above and other related features of the invention will be more fully apparent from the consideration of the following detailed disclosure, the accompanying drawings and the appended claims:

In the drawings:

Figure 1 is a horizontal section through the attachment showing the same detachably secured to a known type of grinding motor having a conventional grinding wheel driven thereby.

Figure 2 is a section on line II—II of Figure 1.

Figure 3 is a section on line III—III of Figure 1.

Figure 4 is a section on line IV—IV of Figure 3.

Referring more particularly to the drawings, 10 represents a conventional type grinding motor having handle 12 which the operator grasps when making a spark test. The motor drives a grinding wheel 14 which is adapted to make contact with a metallic workpiece 16 which may be held in a vise or any suitable clamp, one end of the workpiece being adapted to extend through the open end 18 of the casing 20. The interior surface 22 of the casing 20 is preferably painted or otherwise provided with a dark opaque background so that the somewhat conical body of sparks driven off from the work will vividly stand out in contrast to the dark background.

Secured to the exterior of the casing there is a band 24 riveted or otherwise secured to the casing and carrying a suitable lateral lug to which is secured a split clamp member 26 which is provided with a winged clamp nut 28 adapted to removably and adjustably secure the attachment as a whole to the hub 30 of the grinding motor casing. To the exterior of the attachment 20 there is secured a flanged member 32 which may bear on a suitable supporting stand and the casing is also equipped with a handle 34 to facilitate manual adjustment of the position of the attachment as a whole. Secured to the casing there is a hood portion 36, the interior of which communicates by way of opening 38 with the interior of the cone-like portion of the casing 20. The front of the hood nearest the operator is usually open, the part as indicated at 38, so as to permit the operator to have a clear view of the luminosity, shape of

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the trajectory of the sparks and other characteristics. A conelike body of sparks being indicated at 40 in the drawings as traversing a trajectory, usually assumed, for example, for low carbon steel. The open end of the hood 36 facing the workman or observer, in some cases will be closed by a transparent window of glass or plastic so as to protect the workman against the hazard of flying sparks.

In the normal operation of the device, the operator will insert the workpiece 16 into the open end of the casing 20 and will cause the grinding wheel 14 to impinge upon the upper surface of the workpiece. This will throw off a shower of sparks. Experienced operators can determine the characteristics of the steel by the luminosity of the sparks, the shape of the individual particles thereof and by observation of the path or trajectory of the individual sparks. The described device has been determined in practice to be advantageous since it confines the sparks and provides a contrasting background to better enable the testing workman to observe the characteristics of the sparks and the trajectory thereof, and it also protects the operator from the hazard of flying sparks.

The volume or plume of sparks thrown off from the periphery of the grinding wheel is substantially or approximately conical in shape and the casing or shield illustrated is so shaped, constructed and arranged as to accommodate the plume-like mass of sparks without substantial interference. The darkened or opaque background against which the sparks are to be observed may be said to extend substantially parallel to the plane of the trajectory of the sparks. The casing, it will be understood, acts as a frontal shield to exclude light and also serves to prevent distortion of the plume of sparks by the action of wind. While the substantially conical portion of the casing shown and described is open at both ends, at its smallest end it is partially filled by the grinding wheel and its mounting. However, if desired, one or both ends could be closed. The angle or direction of the longitudinal axis of the cone-like casing with relation to the plane of rotation of the grinding wheel may be said to be straight away or substantially tangent to the periphery of the wheel so as to preclude the likelihood of the plume of sparks impinging on the casing at any point thereof.

While I have described quite specifically the details of the construction and arrangement of the particular device herein illustrated, it is to

be understood that various modifications and substitutions of equivalents may be resorted to by those skilled in the art without departure from the invention as defined in the appended claims.

I claim:

1. An apparatus for spark testing comprising a motor, a grinding wheel carried by said motor, an elongated casing detachably carried by said motor and being open at both ends, said grinding wheel being disposed in the casing adjacent one of said open ends and adapted to contact a workpiece inserted through said last named open end and to produce sparks from such contact, said casing extending in a direction generally tangential from the point of contact of the workpiece with the grinding wheel, and a hood projecting from said casing on the side opposite the region of contact between the grinding wheel and the workpiece in the trajectory of sparks thrown from the workpiece, said hood having a window through which such sparks are visible.

2. An apparatus for spark testing comprising in combination a motor carrying a grinding wheel, and an elongated hollow casing carrying clamping means for detachably securing it to the motor, the casing being open at both ends, the end adjacent the motor being open to facilitate the entrance of a workpiece therein for coaction with the grinding wheel, the open end of said casing adjacent the motor being adapted to enclose the section of the workpiece in contact with said grinding wheel, said casing extending in a direction generally tangential from the point of contact of the workpiece with the grinding wheel and having a hooded portion with an opening therein to permit observation of the sparks given off as a result of the contact of the grinding wheel with the workpiece, said casing and hooded portion being characterized by the provision of a dark background to contrast with luminous sparks emanating from the workpiece, the opening in said hooded portion being closed by a transparent window to shield the operator from the hazard of flying sparks.

JOSEPH G. COOPER.

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