

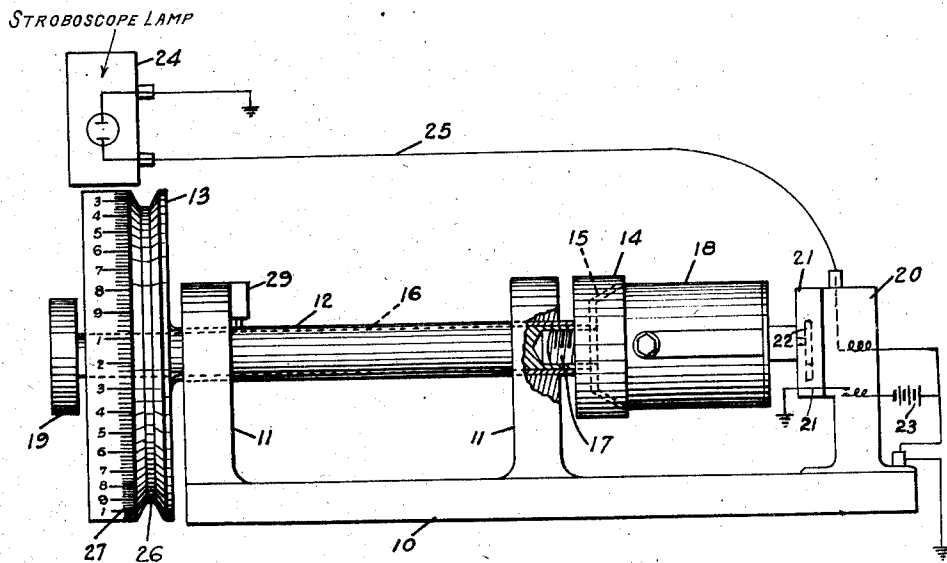
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MACHINE FOR SETTING MAGNETOS

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MACHINE FOR SETTING MAGNETOS

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1 Claim. (Cl. 177-311)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to a machine for use in determining when the automatic advance mechanism of a magneto begins to function during operation of the magneto.

It is an object of the invention to provide a simple machine, economical of manufacture, and precise in function to determine and regulate the responsiveness of the automatic advance mechanism of a magneto so provided to the speed at which such a magneto is driven.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawing in which:

The single view constituting the drawing is a diagrammatic view of the machine comprising this invention.

Referring now to the drawing by characters of reference there is shown the bed plate or similar suitable support 10 of the machine formed to support spaced, upright parallel bearing brackets 11 secured thereto in any desirable manner.

A tubular or hollow spindle 12 is journaled in the brackets 11 and has a pulley 13, hereinafter more fully described, secured on one end portion thereof and a disc 14 secured to the opposite end portion. Preferably the pulley 13 is secured to the left hand end portion of spindle 12 as viewed in the drawing and the disc 14 is formed with a cup shaped cavity 15 directed outwardly of the adjacent bracket 11 axially of the spindle 12.

Disposed within the spindle 12 is a draw shaft or tube 16 which is internally threaded adjacent the disc 14, or provided with a collet, to receive the stub shaft 17 of a magneto. The draw tube 16 is provided with a suitable knob or crank 19 on its end portion adjacent the pulley 13 to expedite rotation of the tube in drawing the mechanism 18 into snugly seated relation within the cavity 15 in the disc 14. As will be understood longitudinal displacement of the tube 16 relative to the spindle 12 is prevented when the mechanism 18 is in position in the seat 15 by the mechanism itself in one direction and by a suitable shoulder or separate collar on knob 19 in the other direction.

As shown in the drawing the support 10 is preferably extended to the right of rightmost bracket 11 and upon such extension supports an induction

coil 20 comparable to the self-contained induction coil of the ordinary high tension magneto. Conveniently an interrupter assembly 21 is secured to the coil 20 and is so arranged as to be actuable by the interrupter cam 22 carried by the spark advance mechanism 18 being tested as to make and break the circuit through the secondary of the induction coil 20 in the same manner as it would function in an assembled magneto.

The primary of coil 20 is in circuit with a source of power supply 23 and the secondary thereof is connected to the terminals of a suitable air gap in the stroboscope 24 as by the high tension lead 25 and ground as will be understood in the art.

The pulley 13 is formed to receive a suitable driving belt as indicated at 26 and may be driven by either a variable speed motor or by a constant speed motor with variable pulley speeds not shown. As indicated in the drawing at 27 the pulley is graduated in such manner that the advance of interrupter cam 22 may be read directly from the graduations in terms of degrees of advance of the cam.

In operation of the device the spark advancing mechanism 18 of a magneto to be tested and regulated is removed from the magneto and placed in the cup shaped cavity 15 of the disc 14 after the manner shown in the drawing. The internal threads or collet of the draw tube or shaft 16 are engaged with the stub shaft or sleeve 17 of the mechanism 18 and the tube rotated through means of its knob 19 to secure the mechanism 18 to the disc 14 in snugly seated relation relative to the cup shaped seat 15. An interrupter cam 22 adapted to cooperate with the interrupter assembly 21 is attached to the interrupter cam comprising a part of the original assembly of mechanism 18 and the high tension lead 25 is attached to its terminal on stroboscope 24. The source of power supply 23 is secured to the primary of induction coil 20 and the pulley 13 connected in driven relation to a variable speed motor or motor of constant speed having variable pulley speeds not shown for the sake of clarity. The device is now conditioned for operation and the mechanism 18 is rotated through the pulley 13, spindle 12 and disc 14. Each revolution of the mechanism 18 will cause the interrupter cam 22 through the interrupter assembly 21 to make or break the circuit through the primary of coil 20 just as it would as if in service on a magneto. As is well known, interruption of the primary circuit of coil 20 will in-

duce a voltage in the secondary sufficient to bridge the air gap in stroboscope 24 thereby causing a spark which will illuminate one of the graduations 27 on the rim of pulley 13. By increasing the speed of pulley 13 until the advancing mechanism 18 begins to function to advance the interrupter cam 22 it can be determined by the apparent change of the illuminated graduation on pulley 13 or the appearance of different illuminated graduations how the advancing mechanism 18 functions when in service. By measuring the R. P. M. of spindle 12 when the cam 22 begins to advance and the R. P. M. at maximum advance which is read in degrees from the graduations 27 it can be determined whether the advancing mechanism 18 is regulated to function properly. If the mechanism 18 is in a state of maladjustment it is a simple matter to regulate the tension springs or other means governing the operation of the advancing mechanism since the mechanism is freely accessible when demounted from the magneto and mounted in the device of this invention as aforesaid.

The R. P. M. of spindle 12 may be measured by a tachometer or other similar device which may be permanently installed as indicated at 29 if desired.

Having now described what is at present a preferred embodiment of the invention I claim:

In a machine for testing the automatic spark advance mechanism of a magneto so equipped, a support, a tubular spindle journaled on the support for rotation, a pulley secured upon one end portion of the spindle, a disc provided with a cup shaped cavity secured upon the other end portion of said spindle, a draw tube rotatably mounted within the spindle, means on the draw tube adjacent the pulley for rotating the tube, means on the draw tube adjacent said disc for engaging a projecting portion of an automatic spark advance mechanism seated in the cavity of said disc for securing the same to said disc and spindle for rotation therewith, graduations upon said pulley, an induction coil mounted on said support, an interrupter assembly mounted upon the induction coil and adapted to be actuated by an interrupter cam carried on said automatic spark advancing mechanism to interrupt said coil, a stroboscope actuable by said coil to illuminate the graduation on said pulley corresponding to the instant of interruption of said primary.

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