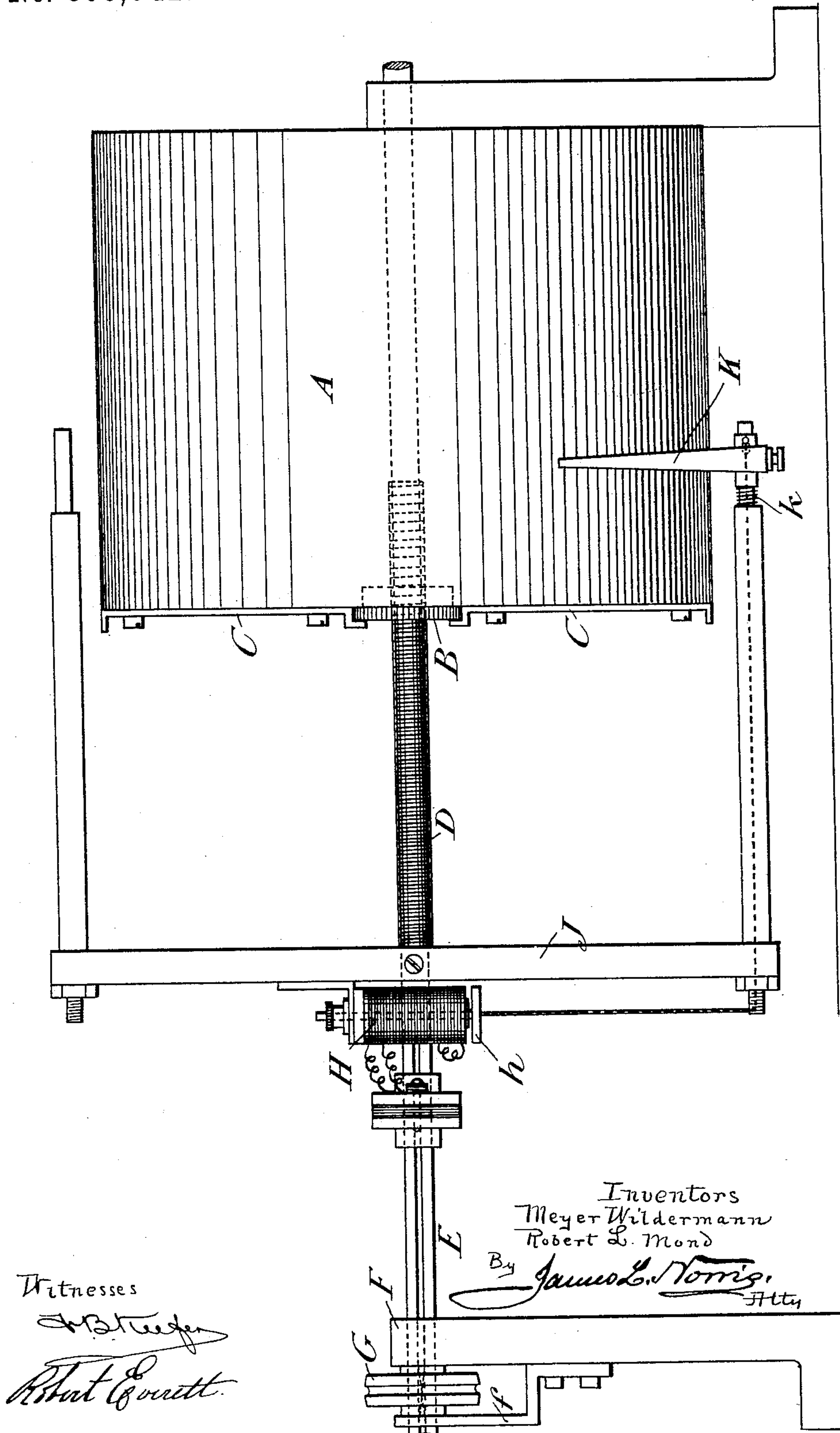


(No Model.)

M. WILDERMANN & R. L. MOND.
CHRONOGRAPH.

No. 598,042.

Patented Jan. 25, 1898.



UNITED STATES PATENT OFFICE.

MEYER WILDERMANN AND ROBERT LUDWIG MOND, OF LONDON, ENGLAND.

CHRONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 598,042, dated January 25, 1898.

Application filed August 23, 1897. Serial No. 649,256. (No model.)

To all whom it may concern:

Be it known that we, MEYER WILDERMANN, residing at 15 Westbourne Road, Forest Hill, London, in the county of Surrey, and ROBERT LUDWIG MOND, residing at 20 Avenue Road, Regents Park, London, England, citizens of England, have invented a certain new and useful Improvement in Chronographs, of which the following is a specification.

Our invention relates to the construction of a chronograph in such a manner that very little power is required to effect the record, as we shall describe, referring to the accompanying drawing, which is a side view of a chronograph according to our invention arranged for recording successive actions.

A is a stationary cylinder on which can be fixed paper or other receptive surface. In the center of the face of the cylinder a nut B is held by slide-bolts C or otherwise, on withdrawing which the nut can be turned or removed. Through the nut passes the screwed part D of a spindle, which has a part E not threaded and journaled in a bearing F. On the part E, which has a keyway-groove, is fitted a pulley or pinion G, with a key engaged in the groove. This pulley or pinion is arranged to revolve between the bearing F and a bracket f, so that it cannot move lengthwise up the spindle. On the screwed part D of the spindle, which is insulated from E, is fixed an electromagnet H and a pair of arms J, from the ends of which project rods equal in length to the cylinder A, one of these carrying the spring pin or tracer K, which can slide a short distance along the rod, being urged to the right by a spring k and being connected by a cord to the armature h of the electromagnet H.

The coil of the electromagnet H forms an electrical connection between D and E and the cylinder A, and bracket F being connected with an electrical-circuit battery and key in the usual way the chronograph operates as follows: The pulley or pinion G being driven by clockwork at any convenient speed, the screwed spindle D is caused to revolve and advance through the nut B, the tracer K revolving round and advancing along the cylinder A, so as to trace on it a helical line. When ever the circuit of the electromagnet H is

closed, it attracts its armature, so that the cord pulls the tracer K a little back in opposition to the spring k, thus causing the tracer to make a zigzag mark indicating the moment when the electric circuit is closed.

Although we have described that the tracer receives its momentary movement by the agency of an electromagnet, obviously the cord could be acted on by mechanical connections from the instrument or other object the action of which has to be recorded.

Having thus described the nature of this invention and the best means we know of carrying the same into practical effect, we claim—

1. In a chronograph, the combination with a stationary cylinder carrying a threaded nut, of a rotary spindle tapped through said nut, a power-wheel fixed to said spindle, an arm carried by the rotary spindle, a rod carried by the arm and moving in a line parallel with the said cylinder, a pointer mounted to have a slight reciprocating movement upon said rod, a movable part, and a connection between said movable part and pointer whereby the latter is given a slight backward movement when the said movable part is actuated, as and for the purpose specified.

2. In a chronograph the combination with a stationary cylinder carrying a threaded nut, of a rotary spindle tapped through said nut, a power-wheel fixed to said spindle, an arm carried by said rotary spindle, a rod carried by the arm, a pointer mounted to have a slight reciprocating movement upon said rod, an electromagnet and an armature therefor, and a connection between said armature and pointer whereby the latter is given a slight backward movement when the armature is attracted by the magnet, substantially as described.

3. In a chronograph, the combination with a stationary cylinder A, carrying a threaded nut B, clamps for holding said nut against rotation, a rotary spindle D, tapped through said nut, a power-wheel G, fixed to said spindle, an arm J, carried by the spindle, a rod projecting out from the said arm and lying parallel with the cylinder, a pointer K, mounted to have a slight reciprocating movement upon the end of said rod, a spring k, act-

ing upon the pointer, an electromagnet II,
having an armature *h*, and a flexible connec-
tion between the said armature and pointer
whereby the latter is given a slight backward
5 movement when the armature is attracted by
the magnet, substantially as described.

In testimony whereof we have signed our
names to this specification, in the presence of

two subscribing witnesses, this 9th day of Au-
gust, A. D. 1897.

MEYER WILDERMANN.
ROBERT LUDWIG MOND.

Witnesses:

JNO. P. M. MILLARD,
FRED. C. HARRIS.