

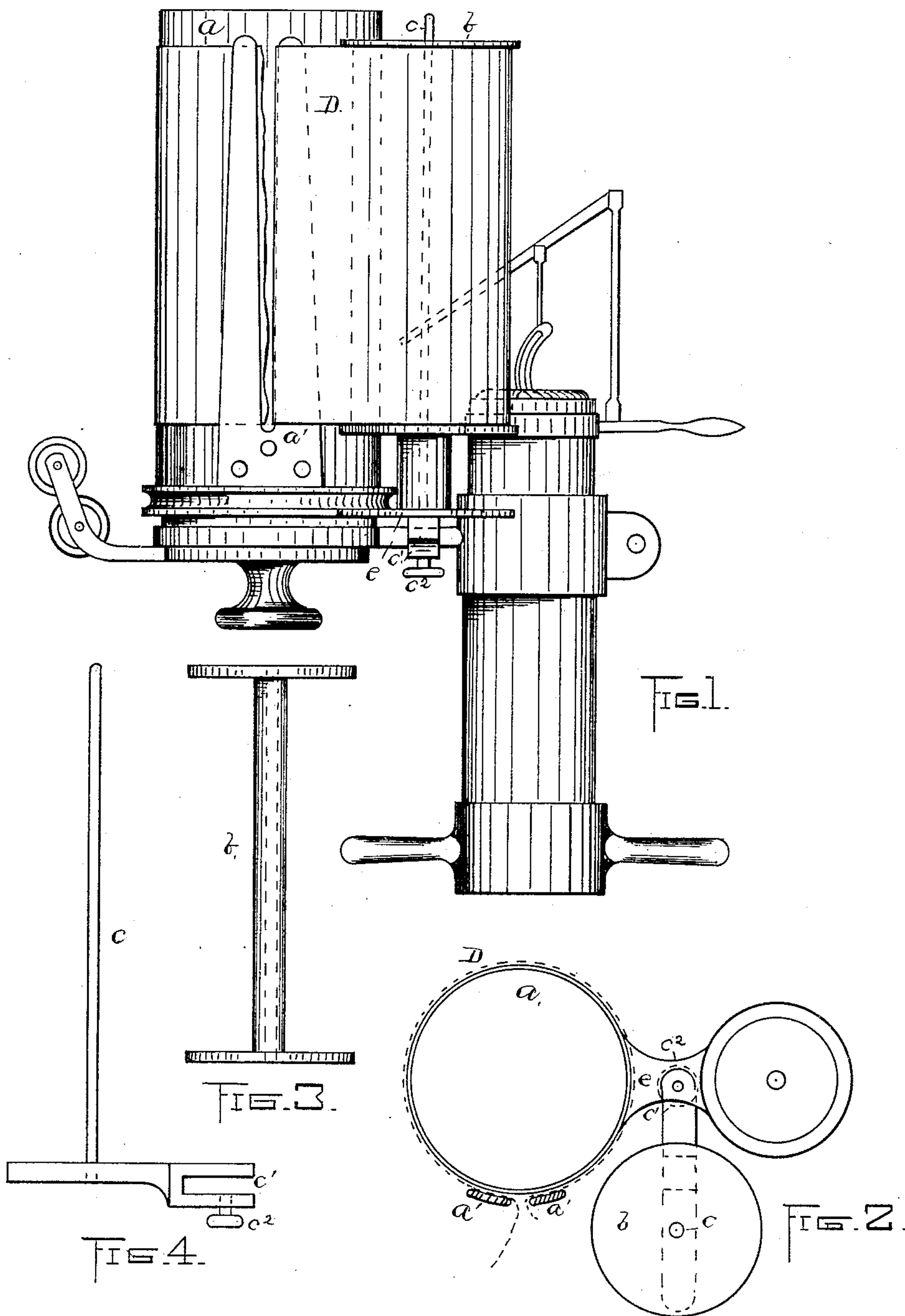
(No Model.)

J. J. & H. R. ILLINGWORTH.

STEAM ENGINE RECORDER.

No. 334,779.

Patented Jan. 26, 1886.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH J. ILLINGWORTH AND HARRY R. ILLINGWORTH, OF UTICA, N. Y.

STEAM-ENGINE RECORDER.

SPECIFICATION forming part of Letters Patent No. 334,779, dated January 26, 1886.

Application filed October 19, 1885. Serial No. 180,239. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH J. ILLINGWORTH and HARRY R. ILLINGWORTH, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Steam-Engine Indicators; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

Our invention relates to an improvement in steam-engine indicators, whereby diagrams of pressure may be taken upon a continuous strip of paper taken from a spool mounted outside of the drum to allow the paper to be unwound, wrapped, held, or moved on the external surface of the drum, as hereinafter more fully pointed out and claimed.

In the accompanying drawings, Figure 1 represents a side view of an ordinary steam-indicator with our improvement attached. Fig. 2 is a top view of the same. Fig. 3 is a side view of the spool for receiving a continuous paper ribbon. Fig. 4 represents a spindle for mounting the spool to be rotated for unwinding the paper ribbon and wrapping the same on the drum of the indicator.

In the accompanying drawings the same letters of reference refer to the same or corresponding parts throughout the several views.

a represents a cylindrical drum, a device used in ordinary steam-engine indicators, on the periphery of which the paper ribbon is wrapped and passed between or under spring *a'*, which has a vertical slot in its center, through which the paper ribbon passes.

This spring is riveted or otherwise suitably attached to or near the bottom of the drum.

b represents a spool on which paper ribbon is wrapped. This spool is mounted on spindle *c*, which is attached to bridge *e*, which supports the drum by means of slot *c'* in the spindle-seat, which fits over the bridge, and is held in place by thumb-screw *c''*. The spool, provided with paper ribbon wrapped thereon, is mounted on the spindle, on which it is free to rotate when the paper is unwound and wrapped and held on the drum, as indicated in Fig. 1.

D represents the paper ribbon unwound from the spool, passed round the drum, and held on the periphery thereof by spring *a'*, ready to receive a diagram of pressure.

The ordinary devices used for producing the diagram of pressure are used. By the use of the continuous strip of paper ribbon a succession of diagrams of pressure may be taken without replacing the paper for each diagram of pressure.

What we claim as new, and desire to secure by Letters Patent, is—

The combination, with the cylinder of a steam-engine indicator and the devices usually employed for producing diagrams of pressure, of a spool constructed and mounted outside of the drum, holding a continuous strip of paper, which is wrapped and held on the drum for receiving the diagram, substantially as described.

In witness whereof we have affixed our signatures in presence of two witnesses.

JOSEPH J. ILLINGWORTH.
HARRY R. ILLINGWORTH.

Witnesses:

EDWIN H. RISLEY,
C. D. F. HOXIE.