No. 836,605. PATENTED NOV. 20, 1906.

H. F. PROVANDIE.

MICROMETER FOR MEASURING THICKNESS OF PAPER AND OTHER SHEETS.

APPLICATION FILED FEB. 14, 1906.

FIG. 1.

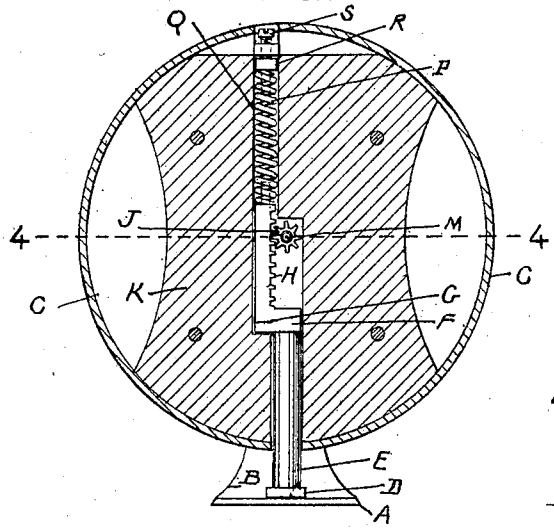


FIG. 2.

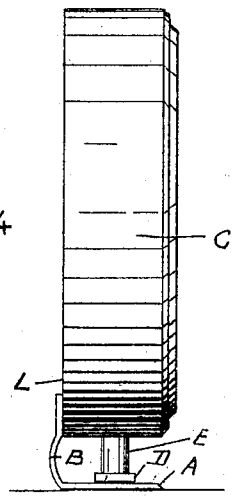


FIG. 3.

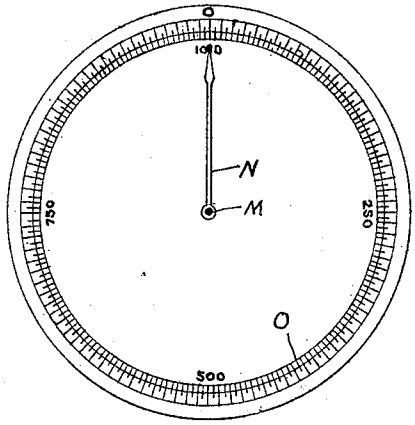


FIG. 5.

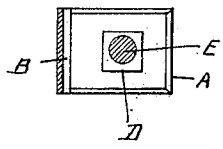
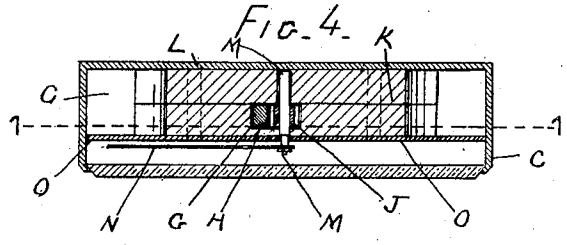


FIG. 4.



WITNESSES:

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MICROMETER FOR MEASURING THICKNESS OF PAPER AND OTHER SHEETS.

No. 836,605. Specification of Letters Patent. Patented Nov. 20, 1906.

Application filed February 14, 1906. Serial No. 301,068.

To all whom it may concern:

Be it known that I, HERBERT F. PROVANDIE, a citizen of the United States, residing at the town of Melrose, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improved Micrometer for Measuring the Thickness of Paper and other Sheets, of which the following is a specification.

This micrometer for measuring the thickness of paper and other sheets in substance is composed of a horizontal base-plate, a shoe or foot above it, a vertical rod which carries said foot and at one portion of its length has a toothed edge or rack, a horizontal pinion-gear engaging said rack and journaled in suitable supports, a spring confined end to end between the upper end of said rod and an adjustable block suitably supported, in combination with an index-hand or pointer carried by the journal of said pinion-gear, and a graduated dial about which said index-hand is arranged to travel, and all carried by a suitable shell or casing, substantially as hereinafter described.

In the accompanying drawings, forming part of this specification, Figure 1 is a horizontal section, dotted line 1 1 of Fig. 4. Fig. 2 is an edge view in elevation. Fig. 3 is a face view of the graduated dial and index-hand. Fig. 4 is a horizontal section, dotted line 4 4 of Fig. 1. Fig. 5 is a horizontal section, dotted line 5 5 of Fig. 2.

In the drawings, A is a horizontal base-plate having an upright arm B, attached at its upper portion to the back plate L of a round casing or shell C.

D is a shoe or foot at the lower end of a round vertical rod E, offset horizontally to one side at F and above this offset having a square-sided vertical extension G, that is at one side of the axial line of the casing C, and along its edge toward said axial line is provided with a toothed edge or rack H, engaging a pinion gear-wheel J, journaled in bearings of a divided supporting-block K, secured within the shell C and to its back plate L. The arbor M of the pinion-gear J carries at its outer and front end portion an index-finger or pointer N, located in front of a graduated dial-plate O, attached to the front side of the block K.

P is a spiral or coiled spring contained within a way Q of the block K and confined end to end between the upper end of the extension G of the vertical rod E and a block R, arranged to be adjusted vertically within said way Q by means of a screw S, and thereby to regulate the tension of the spring as to its pressure on the vertical-rod extension G or shoe D.

The paper or other sheet the thickness of which is to be determined is placed on the table or base-plate A, under the foot or shoe D, and according as it is more or less thick the dial-pointer will be moved about the dial-face, (its normal position being at the gradution marked "0,") and thereby the thickness of the paper will be indicated or measured by a proper arrangement of the graduations of the dial and of the mechanism described for operating the pointer—as, for instance, adapting both so that a swing of the pointer completely around the dial-face will indicate or measure the thickness of a paper or other sheet to the extent of a quarter of an inch and the several graduations will indicate thicknesses in thousandths of a quarter of an inch.

It is not intended that the spring F shall exert any compressive pressure on the sheet the thickness of which is to be measured.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

A micrometer for measuring the thickness of paper and other sheets, consisting of a casing or shell, a base-plate fixed to and extending across and below the lower edge of said casing, a slidable vertical rod having an offset intermediate of its length and also a toothed or rack edge above said offset, a guideway of the casing for said rod and extending between the bottom and the top of the casing, a foot or shoe at the lower end of said rod and opposite to said base-plate, a pinion-gear journaled on the casing and engaging the rack of said rod, a coiled spring in said guideway and at its lower end at a bearing on the upper end of said rod, a slidable

block in the upper portion of said guideway and arranged to have a bearing on the upper end of said spring, a screw carried by the casing and arranged for adjusting said block vertically, an index-hand or pointer carried by said pinion, and a stationary graduated dial of the casing, all substantially as described and severally to operate and to be operated as and for the purposes specified.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HERBERT F. PROVANDIE.

Witnesses:
ALBERT W. BROWN,
SAMUEL GRIFFIN.