

UNITED STATES PATENT OFFICE.

GEORGE OERTEL, OF NEW YORK, N. Y.

TAPE-STRETCHER.

No. 816,032.

Specification of Letters Patent.

Patented March 27, 1906.

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To all whom it may concern:

Be it known that I, GEORGE OERTEL, a citizen of the United States, residing at New York city, Manhattan, county and State of New York, have invented new and useful Improvements in Tape-Stretchers, of which the following is a specification.

This invention relates to an apparatus for enabling surveyors to impart a uniform and predetermined tension to the measuring-tape, so that the distances measured off will be correct.

In the accompanying drawings, Figure 1 is a side view of my improved tape-stretcher; Fig. 2, a section on line 2 2, Fig. 1; Fig. 3, a section on line 3 3, Fig. 2; Fig. 4, an enlarged section on line 4 4, Fig. 1; Fig. 5, a section on line 5 5, Fig. 4, partly in side view; and Fig. 6, a detail of the indicator.

The letter *a* indicates the open trapezoidal base of the stretcher, across which extends a bar *a'*, parallel to the rear bar *a''* of the base. An oscillating shaft *b* is journaled to the parts *a'* *a''* by coned screws *b'* *b''*. The shaft *b* is engaged by a brake-strap *c*, which serves to hold it in position. From shaft *b* rises a slotted standard *e*, provided with a handle *e'*. The standard *e* is embraced by a slide *f*, held at any suitable elevation by a clamp-screw *f'*. To slide *f* is pivoted at *g'* a disk or sector *g*, provided with a hand-lever *g''* and received within the slot of standard *e*. A flexible strap *h* is secured at its rear end to sector *g*, as at *h'*. Above strap *h* is arranged a rail *i*, secured to such strap at its front end only, as at *i'*, the rail being disconnected from the strap at its rear end. The parts *h i* pass over a front guide-roller *f''* of slide *f*, thence through slot of standard *e*, and, finally, below a rear guide-roller *f'''* of the slide.

To the front of rail *i* is secured a yoke *j*, that embraces the casing *k* of an indicator, such casing being affixed to the yoke *j* by screws *k'*. Into casing *k* projects the shank of a sliding hook *l*, the beak *l'* of which is adapted to engage one end of a surveyor's tape *m*. The hook *l* is normally retracted by a spring *l''* and is operatively connected to a pointer *n* by a rack *l'''* and pinion *n'*. The pointer *n* moves over a dial *k''* of casing *k*, the position of the pointer thus indicating the tension of hook *l*.

To obtain accurate results in a survey, it is

of course necessary that the tape be subjected to the same tension for each measurement, the particular tension desired being determined by the surveyor.

In use the end of the tape *m* is engaged by hook *l*, and then the lever *g''* is swung backward until the pointer *n* indicates the tension desired. The backward movement of hand-lever *g''* will cause a corresponding movement of sector *g*, so that the strap *h* is partly wound upon the latter, while the rail *i* moves backward in a rectilinear direction between guides *f''* *f'''*. As soon as the pointer has indicated the tension desired the measurement is taken off the end of the tape *m* by a plumb-bob in the usual manner. The apparatus is held in position by the foot of the operator resting upon base *a*, while the lateral movement of standard *e* permits obstacles to be readily cleared.

What I claim is—

1. A tape-stretcher provided with a pivoted sector, a flexible strap connected thereto at its rear end, a rail secured to the strap at its front end and disconnected therefrom at its rear end, and an indicator secured to the rail, substantially as specified.

2. A tape-stretcher provided with a standard, a slide engaging the same, a sector pivoted to the slide, a flexible strap connected to the sector, and an indicator operatively connected to the strap, substantially as specified.

3. A tape-stretcher provided with a standard, a slide engaging the same, a sector pivoted to the slide, a flexible strap connected to the sector, a rail secured to the strap, means on the slide for guiding the rail, and an indicator secured to the rail, substantially as specified.

4. A tape-stretcher provided with a base, a standard pivoted thereto, a slide engaging the standard, a sector pivoted to the slide, a flexible strap connected to the sector, and an indicator operatively connected to the strap, substantially as specified.

Signed by me at New York city, Manhattan, New York, this 12th day of December, 1905.

GEORGE OERTEL.

Witnesses:

FRANK V. BRIESEN,
ARTHUR ZUMPE.