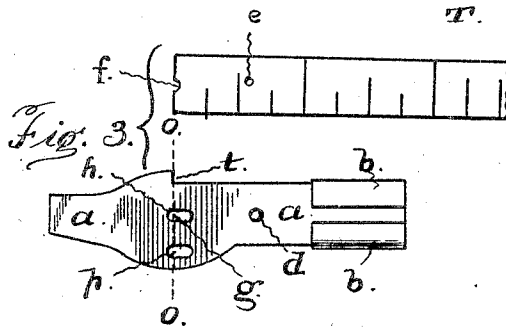
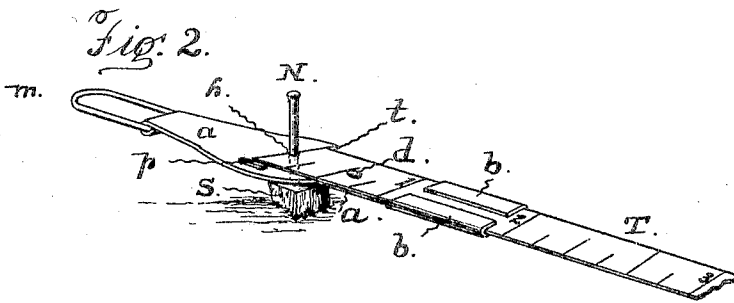
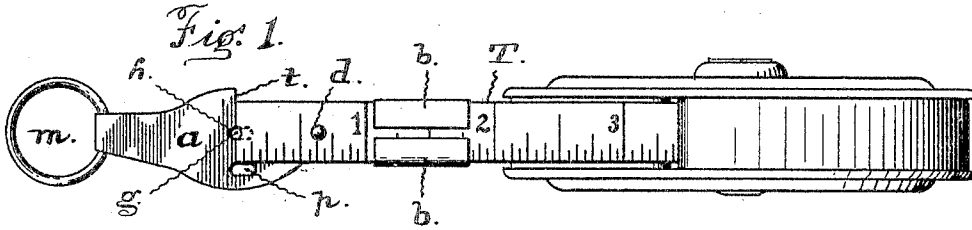


T. N. BADGER.  
HOLDFAST FOR MEASURING LINES.  
APPLICATION FILED JULY 18, 1903.



Witnesses.  
Arthur S. Slee  
A. Requier.

Inventor:  
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by *[Signature]* Atty.

# UNITED STATES PATENT OFFICE.

THOMAS N. BADGER, OF OAKLAND, CALIFORNIA.

## HOLDFAST FOR MEASURING-LINES.

SPECIFICATION forming part of Letters Patent No. 789,352, dated May 9, 1905.

Application filed July 18, 1903. Serial No. 166,155.

*To all whom it may concern:*

Be it known that I, THOMAS N. BADGER, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Holdfasts for Measuring-Lines, of which the following is a specification.

My invention relates to a device for temporarily holding the end of a surveyor's tape-line to a nail in the driven stake or other point from which a line is to be run, the device being adapted for use as an attachment to the end of a tape-line and having the property of holding the end of the tape in such manner as to secure accurate measurement and at the same time of allowing it to be easily loosened and disengaged from the nail without the aid of an assistant.

The object of the invention is chiefly to provide a device for holding the zero-mark of the tape-line to the nail in proper manner for accurate work and having in its structure provision for readily detaching itself at the pleasure of the workman stationed at the opposite end of the tape, thereby enabling one person to take measurements from stake to stake with all the accuracy required in surveying without requiring an assistant.

A further object of the invention is to provide a device or attachment for such purposes that can readily be applied to the end of any of the different kinds or descriptions of tape-lines, whether of steel or other material.

The nature of the invention and the manner in which I produce, apply, and carry out the same are explained at length in the following specification, in which the accompanying drawings, representing what I consider to be the best form of the invention, are referred to by letters.

In the accompanying drawings, Figure 1 represents my invention attached to the end of a surveyor's tape-line ready for use. Fig. 2 is a perspective view showing the tape-line attached to a driven stake by means of my device. Fig. 3 is a top view of the attachment separated from the end of the tape-line.

A flat strip or narrow plate *a*, about the same width as the tape *T*, is provided with

clips *b* on both edges at or near one end standing outward in the same plane, but having the quality of bending or folding from opposite sides over the strip in such manner as to grip the tape and hold the same tightly when hammered or pressed down flat. In connection with these clips a pin *d*, fixed in the strip in front of the clips and fitted to take through a perforation in the tape, secures the parts against any possible longitudinal movement tending to separate them in the direction of the pulling strain thrown upon the part *a*. The end of the tape *T* is cut squarely across on the line of the zero-marks of the graduations, and a nick or semicircular recess in the edge is formed, as seen at *f*, Fig. 3. This notch lies directly over and in line with an aperture *g*, made in the plate *a*, and the latter aperture, which is provided for inserting through it the nail or brad *N* in the stake *S*, is of such size that the distance from the notched end of the tape to the edge *h* of the aperture lying in front of the zero-mark coincides with the diameter of the nail in the stake. A ring or loop *m* is formed on or secured to the strip *a* for conveniently seizing and drawing off the tape from the reel, the strip *a* being prolonged beyond the aperture for the nail for that purpose. Constructed in this form the device forms an attachment applicable to any of the different styles of tape-lines on reels generally used by surveyors and is readily applied to a tape-line already in use simply by removing the ring or loop with which the tape is furnished and securing the attachment on the end of the tape in such manner that the zero-mark of the graduations will coincide with an imaginary line running across the strip behind the front edge of the recess or rest for the nail and extending diametrically through the nail.

As an addition to the before-mentioned parts I provide a second aperture *p* in the strip *a*, also in line with the zero-mark, but situated to one side of and clear of the edge of the tape, and on the opposite side I form a shoulder *t* at right angles to the body of the strip and also coinciding with a line *o o* drawn through the zero-mark on the tape. This aperture is somewhat oblong, being elongated

gated behind the imaginary line before-mentioned, as seen in Fig. 3. If the end of the tape-line be attached to the stake by placing the aperture  $p$  over the nail, instead of using  
 5 the other aperture it will be found that the tape-line can be disengaged from the nail when the workman is standing a considerable distance from the slide by giving a simple twitching or waving motion to the tape.  
 10 For ordinary work with a tape-line this second aperture can be used to advantage, especially when using a long tape. The shoulder  $t$  provides a ready means of measuring from a plumb-line.

15 What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a measuring-tape, of a holding device adapted to detachably connect the tape to a fixed nail, and  
 20 comprising a rigid plate having a fastening means on one end for permanently securing thereto the end of the tape, said plate having an opening in the front of the end of the tape in line with the zero-mark of the graduations  
 25 and a second opening located to one side of the edge of the tape.

2. A holdfast attachment for a tape-measure comprising a flat plate provided at one end with clips for engagement with a tape-measure and being expanded along one  
 30 edge so as to extend beyond the tape-measure, and having a hole formed in said edge portion for engagement with a nail, substantially as and for the purposes set forth.

3. The combination with a tape-measure,  
 35 of a holdfast attachment secured to one end thereof, the attachment being provided with an aperture through which may be passed a holding peg or pin, and also with a shoulder  $t$  extending laterally at right angles and be-  
 40 yond the edge of the measure, the shoulder  $t$  and the said aperture being both in a line with the zero graduation or mark of the measure, substantially as set forth.

In testimony whereof I have hereunto set  
 45 my name to this specification in the presence of two subscribing witnesses.

THOMAS N. BADGER.

Witnesses:

EDWARD E. OSBORN,  
 M. REGNER.