

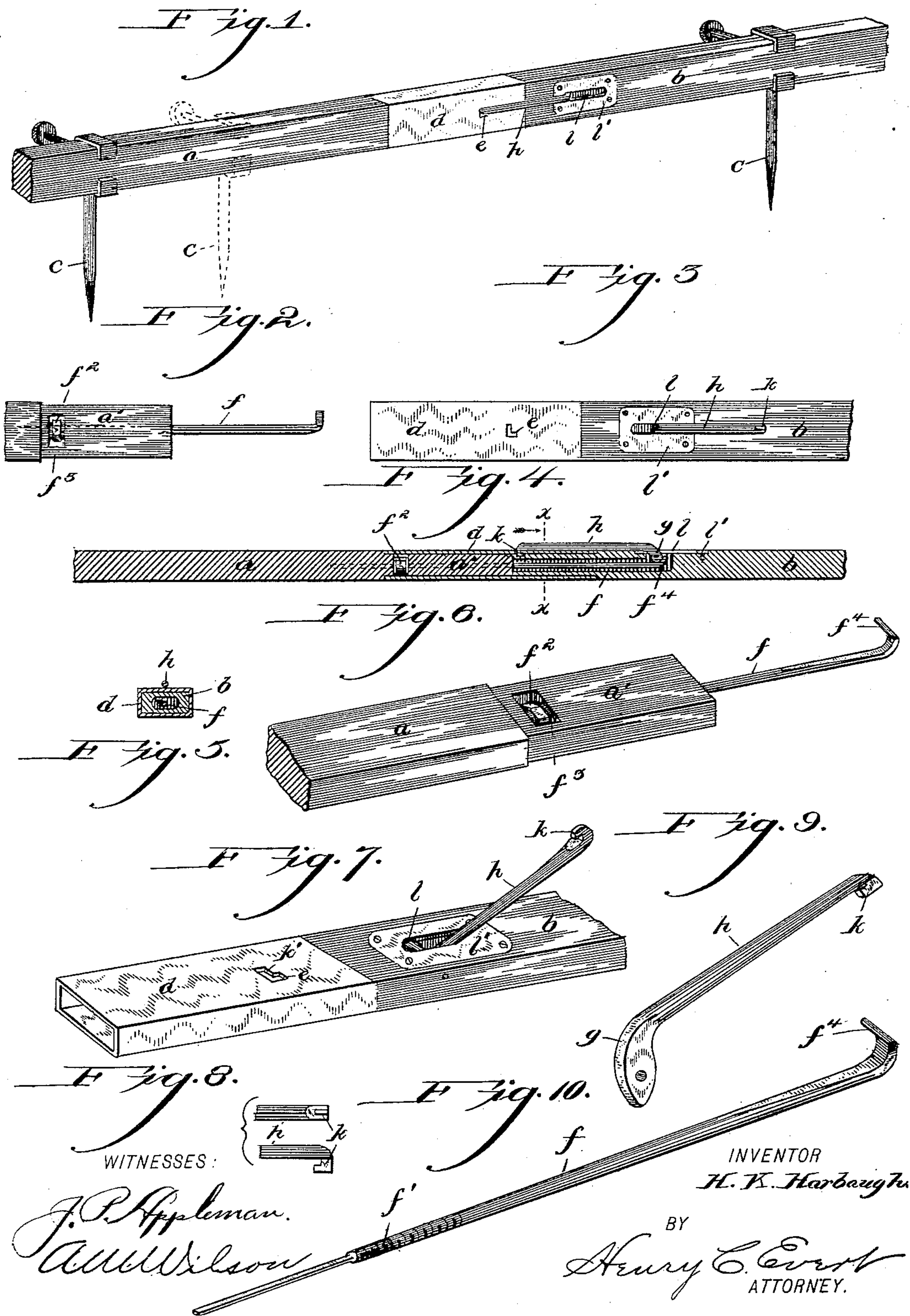
No. 618,345.

Patented Jan. 24, 1899.

H. K. HARBAUGH.  
TRAMMEL STICK CONNECTION.

(Application filed Oct. 18, 1897.)

(No Model.)





# UNITED STATES PATENT OFFICE.

HARRISON K. HARBAUGH, OF PITTSBURG, PENNSYLVANIA.

## TRAMMEL-STICK CONNECTION.

SPECIFICATION forming part of Letters Patent No. 618,345, dated January 24, 1899.

Application filed October 18, 1897. Serial No. 655,562. (No model.)

*To all whom it may concern:*

Be it known that I, HARRISON K. HARBAUGH, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Trammel-Stick Connections, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in trammel-sticks, and has for its object to provide novel means for lengthening the trammel-stick, so as to permit of the same being employed for describing extra large circles and the like.

The principal feature of my invention resides in the construction of a trammel-stick in two or more sections, which are joined together and locked in a manner to make the same as rigid and capable of describing as true a circle as were the stick constructed in one piece; and to this end the invention consists in the novel construction, combination, and arrangement of parts to be hereinafter more specifically described, and particularly pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like letters of reference indicate similar parts throughout the several views, in which—

Figure 1 is a perspective view of a trammel-stick constructed in accordance with my invention. Fig. 2 is a top plan view of a portion of one of the sections. Fig. 3 is a top plan view of the section carrying the locking-lever. Fig. 4 is a longitudinal sectional view showing the two sections joined together. Fig. 5 is a cross-sectional view taken on the line X X of Fig. 4. Fig. 6 is a perspective view of a portion of the section carrying the spring-rod. Fig. 7 is a perspective view of a portion of the section carrying the locking-lever. Fig. 8 is a detail view of portions of this lever. Fig. 9 is a perspective view of the same, and Fig 10 is a similar view of the spring-rod.

Referring now to the drawings by reference letters, *a b* represent the two sections of the trammel-stick, which may be of any desired length and shape or form and upon which are

secured the ordinary dividers or calipers *c*. The inner or engaging end *a'* of the section *a* is reduced slightly in size, so as to enter the ferrule or casing *d*, that is secured on the inner or engaging section *b*, said casing or ferrule being adapted to be perfectly flush with the outer face of each section of the stick and is provided in its one face with an L-shaped slot *e*, which is adapted to receive the hook end of the locking-lever when the two sections are in engagement and prevent the same from becoming disengaged, as will be hereinafter more fully explained.

An adjustable spring-rod *f* is inserted in the engaging end of the section *a* and extends some distance into the same, said rod being provided with a screw-threaded portion *f'*, on which is mounted an adjusting-nut *f''*, which may be operated through the slot *f'''*, provided for the nut in the reduced end *a'* of the said section *a*, and at its opposite end this adjustable spring-rod *f* is curved upwardly and flattened to form a dog *f''''*, which engages the fulcrum end *g* of the locking-lever *h*, said lever being provided at its outer or free end with a hook *k*, which enters into the L-shaped slot in that portion thereof that extends in alinement with the trammel-stick, and when the lever is forced over slightly this hook *k* will engage on the shoulder formed by extending this slot transversely of the ferrule or casing, thus locking the lever securely in its position. This locking-lever *h* is secured upon a pin or shaft secured in the section *b* and operates through an oblong slot *l* in the plate *l'*, secured on the face of the section *b*, this plate preventing the opening provided for the locking-lever *g* becoming enlarged through the operation of said lever.

Operation: As the end *a'* of the section *a* is inserted into the casing or ferrule *d* the dog *f''''* of the adjustable spring-rod *f* engages the fulcrum end *g* of the locking-lever *h* and is depressed by the said end *g*, so as to permit the dog to pass beyond the fulcrum-pin of the locking-lever, at which time the locking-lever may be closed in alinement with the ruler, the hook end *k* of the same engaging in the slot and firmly locking the two sections together, the rod *f* serving as a spring, the action of which causes the hook *k* to firmly engage the portion *k'* of the ferrule or casing



and prevent the locking-lever  $h$  from becoming disengaged. To disengage the sections, this locking-lever is moved so as to bring the hook end into that portion of the slot extending in alinement with the ferrule, when the same may be readily lifted to a vertical position, and by pulling the two sections apart the rod  $f$  is depressed until the dog  $f^1$  passes out of engagement with the fulcrum of the locking-lever, at which time the section  $a$  may be readily withdrawn from its ferrule or casing. The rod  $f$  may be readily adjusted so as to keep the sections rigid by means of a nut  $f^2$ , secured thereon.

It will be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

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

1. A trammel-stick formed in sections, one of which carries a ferrule to receive the engaging section, a spring-rod secured in said engaging section and extending into the opposite section, a dog formed on one end of said spring-rod, a locking-lever having a hook end pivotally secured in the section carrying the ferrule and adapted to engage the dog of said spring-rod, and means carried by the ferrule to receive the hook end of the locking-lever, substantially as shown and described.

2. A trammel-stick formed of two sections,

a spring-rod secured in one section and extending into the opposite section and having a dog formed on the end thereof, a pivoted locking-lever in said opposite section fulcrumed at one end and adapted to engage the dog of said spring-rod, means for adjusting the said spring-rod, and means for engaging the locking-lever, substantially as shown and described.

3. In a trammel-stick, the combination of two sections, one of said sections carrying a ferrule and adapted to engage the opposite section, a slot in the ferrule, a spring-rod secured in said opposite section and extending into said section carrying the ferrule, a dog formed on one end of said spring-rod, means for adjusting the said spring-rod, a locking-lever, said locking-lever being pivotally secured in said section carrying the ferrule and the fulcrum end thereof adapted to engage the dog of said spring-rod, said locking-lever operating through an oblong slot formed in said section carrying the ferrule and the free end of said locking-lever adapted to engage the slot formed in said ferrule whereby the sections are secured together, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

HARRISON K. HARBAUGH.

Witnesses:

JOHN NOLAND,

THOS. M. BOYD, Jr.