

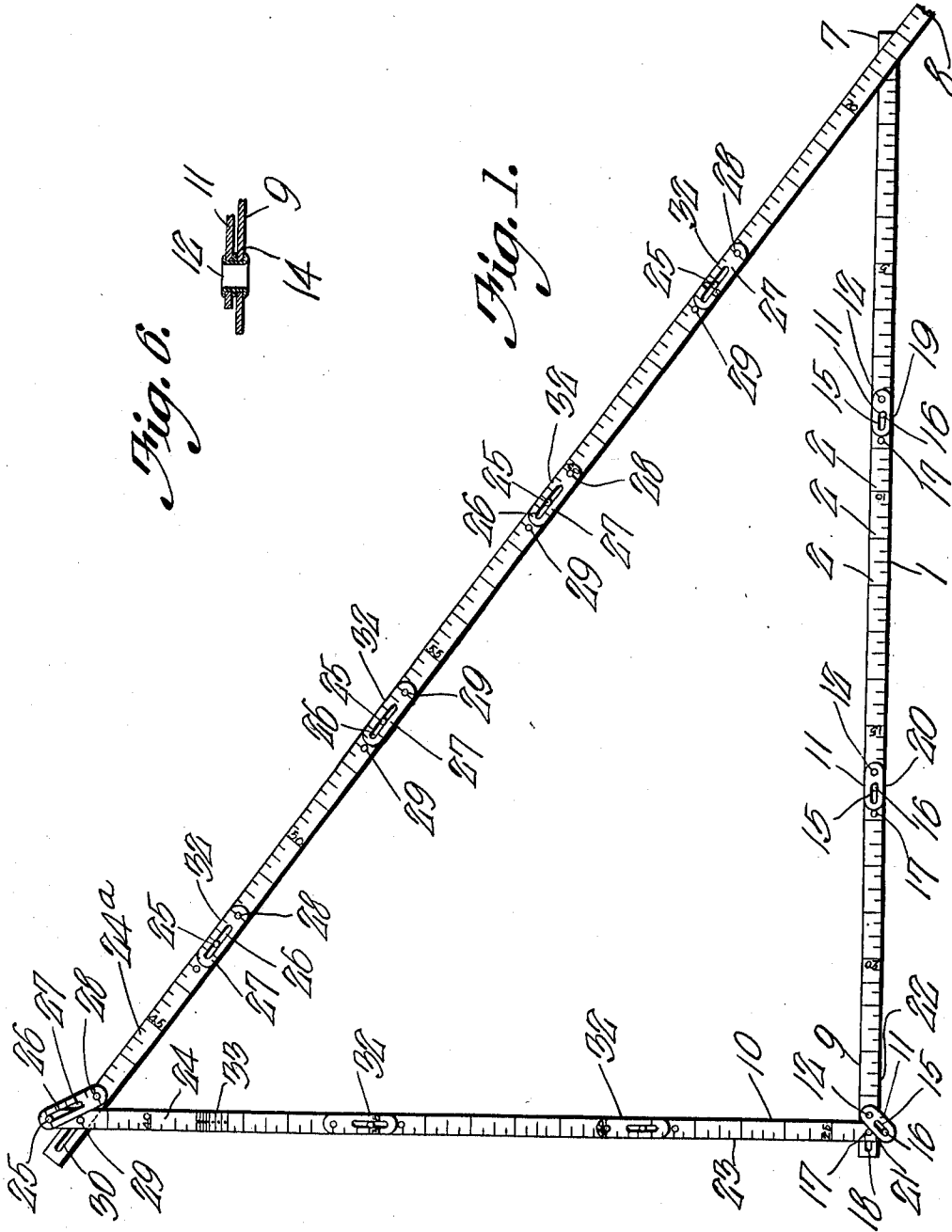
J. McD. EZZELL.
STEEL TAPE.

APPLICATION FILED OCT. 2, 1911.

1,019,618.

Patented Mar. 5, 1912.

2 SHEETS—SHEET 1.



Witnesses

J. P. Loring
L. H. Wilson

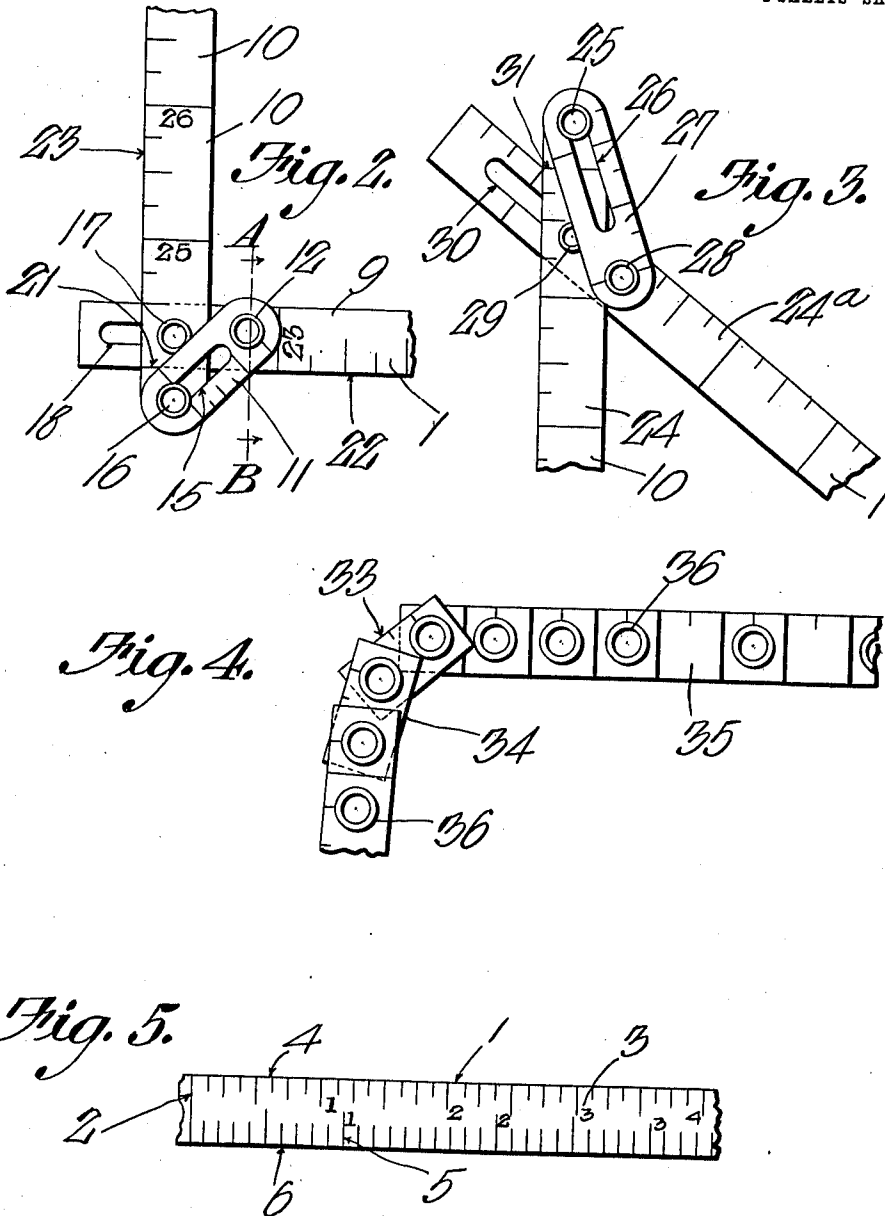
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by *C. A. Snow & Co.*
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UNITED STATES PATENT OFFICE.

JOHN McDONALD EZZELL, OF ARDMORE, OKLAHOMA.

STEEL TAPE.

1,019,618.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed October 2, 1911. Serial No. 652,377.

To all whom it may concern:

Be it known that I, JOHN McDONALD EZZELL, a citizen of the United States, residing at Ardmore, in the county of Carter and State of Oklahoma, have invented a new and useful Steel Tape, of which the following is a specification.

It is the object of the present invention to provide a tape consisting of a series of pivotally connected sections, the tape being adapted to be manipulated at the joints between said sections, to form the base, the altitude and the hypotenuse of a right triangle, the tape being adapted to be employed for laying out foundations, and for framing rafters and trusses.

A further object of the invention is to connect the segments of a jointed tape, by a novel construction whereby, when the segments of the tape are disposed in angular relations, the graduations upon the outer edge of the tape will coincide at the angle, whereby distance may be read along the outer edge of the tape around the angle.

A further object of the invention is to provide a tape of this character having links connecting its constituent, pivoted parts, whereby different angles may be laid off.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings,—Figure 1 shows the tape disposed in the form of a triangle, the view being in plan; Fig. 2 is a plan of one of the joints in the tape; Fig. 3 is a plan of another of the joints in the tape; Fig. 4 is a plan of a series of short links which are interposed in the tape, for the purpose of permitting the tape to be used to set off a rise in roof timber framing; Fig. 5 is a fragmental diagrammatic view illustrating minor graduations of the tape, which graduations cannot be accurately shown upon Fig. 1, owing to the small scale upon which Fig. 1 is drawn; and Fig. 6 is a section upon the line A—B of Fig. 2.

The tape 1 is preferably fashioned from steel and may be of any length, a length of 55 from seventy-two to seventy-five feet being a convenient one. The tape is provided with a series of foot marks 2. As shown in Fig. 5, the foot spaces may be divided into inches, as shown at 3, along one edge, the inches 60 being subdivided into halves, quarters, and eighths, as is common. That edge of the tape which is thus subdivided is indicated by the numeral 4. The other edge of the tape, denoted by the numeral 6, is divided into 65 tenths of a foot, as shown at 5, the tenths being subdivided into hundredths. One edge of the tape, therefore, is adapted for the use of architects and mechanics, while the other edge of the tape is adapted for use by engineers. The tape may be graduated in any 70 desired manner, the particular graduations employed being a matter of secondary consequence.

The zero end of the tape is denoted by 75 the numeral 7, the graduations reading continuously from the zero end 7 to the other end 8 of the tape.

The tape is broken up into a series of parts 9 and 10. A link 11 is provided, and 80 this link 11 is pivotally connected with the part 9 by means of a tubular rivet, indicated at 12. Interposed between the link 11 and the part 9 is a washer 14. In the link 11 there is a longitudinally extended slot 15, 85 in which moves a rivet 16, similar to the rivet 12, the rivet 16 being secured in one end of the part 10. At this point it may be stated that all of the rivets used in the tape are preferably of the same construction, 90 as described hereinbefore, in connection with the rivet 12. The rivet 16 is located adjacent the end of the part 10, and inwardly from the rivet 16 the part 10 carries another rivet 17, engaged slidably in a slot 18, fashioned 95 longitudinally in the part 9, adjacent the end of the part 9.

The construction above described is located, as indicated at 19, at the eighth foot mark upon the tape, as indicated at 20 at 100 the sixteenth foot mark upon the tape, and at the twenty-four foot mark upon the tape, as shown at the right angle in the tape in Fig. 1. Each of the segments 9 of the tape, is, therefore, eight feet long. 105

The length of the slot 15 and the length

of the slot 18 are such that when the rivet 16 is at the outer end of the slot 15, the rivet 17 being at the inner end of the slot 18, a right angle will be formed between the parts 9 and 10. Moreover, as Fig. 2 will clearly show, when the parts 9 and 10 are rectangularly disposed, the twenty-four foot mark as indicated by the numeral 21, will be alined with the outer edge 22 of the part 9. Moreover, the edge 23 of the part 10 will be located one foot from the twenty-three foot mark upon the part 9. The construction, therefore, is such that the dimensions may be read around the outer edge of the tape, when the parts of the tape are angularly disposed. No allowance need be made, therefore, as would be necessary were the parts 10 and 9 merely pivotally connected intermediate their edges.

From the twenty-four foot mark upon the tape to the end 8 of the tape, the tape is broken up into six foot lengths. Referring to Fig. 3, two of these six foot lengths are shown in part, and denoted by the reference characters 24 and 24^a. At the end of the part 24 there is a rivet 25, adapted to move in a slot 26 in a link 27, the link 27 being connected with the part 24^a by a rivet 28. Located in the part 24, is a rivet 29, adapted to move in a slot 30 in the part 24^a. The slots 26 and 30 are made somewhat longer than the slots 15 and 18, so that a different angle may be formed between the parts 24 and 24^a, from the angle formed between the parts 9 and 10. The showing of Fig. 3 is intended to illustrate broadly, that certain segments of the tape may be disposed accurately, at angles other than a right angle. Noting the point at which the numeral 31 is applied in Fig. 3, it will be observed that when the rivet 25 is at the end of the slot 26 in the link 27, and when the rivet 29 is at one end of the slot 30, not only will a certain, fixed angle be defined, but, moreover, the graduations upon the tape will coincide, so that, as before, the dimensions may be read around the outer edge of the tape.

As will be readily understood from an inspection of Fig. 1, the joint shown in Fig. 3 is duplicated at the points indicated by the numerals 32 in Fig. 1.

At some convenient point in the tape, preferably adjacent the forty foot mark, a series of short links is interposed into the tape, as indicated at 33 in Fig. 1. In Fig. 4, these links are shown, and denoted by the numerals 34 and 35, the links 34 and 35 being connected by rivets 36. The links 34 and 35 are of different lengths, and may represent decimal and fractional parts of a foot, depending upon how the tape is graduated.

The tape herein disclosed is of wide application. It may be employed, for instance, in laying out rectangular foundations. In Fig. 1 the tape is shown as folded into

lengths having the respective values of twenty-four, eighteen and thirty, these values representing the sides of a right triangle. Obviously other values which form the sides of a right triangle, may be set off by the tape, so as to enable the tape to be employed to define a right triangle at the corner of a foundation or the like. When the tape is placed upon a wooden sub-structure, a nail or the like may be inserted through any of the rivets 12, to hold the same in place. When the tape is used upon a stone or concrete foundation, the angles may be supported by weights.

When the device is employed for framing roof timbers and trusses, the base of the triangle will represent the run, the altitude of the triangle will represent the rise, and the hypotenuse of the triangle will represent the rafter lengths. A given rise, the length of which is not an even number of feet, may be set off by folding the lengths 34 and 35 together, and when the run is known, the rafter lengths may be read off readily.

Recalling the fact that Fig. 3 serves to illustrate that many other angles, other than a right angle may be set off, by altering the lengths of the slots, it will be observed that gambrels, mansards, hips, and many other constructions to be met with in joiner work, may readily be laid off and the lengths of the constituent parts of these constructions be determined by inspection.

Having thus described the invention what is claimed is:—

1. A tape consisting of primary and secondary parts, the primary part having a slot adjacent its ends; a link pivoted adjacent one end to the primary part and provided with a slot; and spaced elements in the secondary part, one of which elements rides in the slot of the link, and the other of which elements rides in the slot of the primary part.

2. A tape consisting of primary parts and secondary parts, the primary parts having slots therein; links pivotally connected with the primary parts and provided with slots; and spaced elements in the primary parts, certain of said elements being adapted to ride in the slots of the primary parts, and other of said elements being adapted to ride in the slots of the links; the slots being of different lengths, at successive points along the tape, whereby the primary and secondary parts will be disposed at different angles, at such points, when the elements of the secondary parts engage the ends of the slots.

3. A tape consisting of primary and secondary parts, the primary part being provided with a slot; a link pivoted to the primary part and having a slot; and spaced elements in the secondary part, one of which elements is adapted to ride in the slot of the link, the other of which elements is

adapted to ride in the slot of the primary
part; the tape being provided with unit
graduations, and one portion of the tape
consisting of a series of pivotally connected
5 links, the links being of less length than the
graduation unit.

In testimony that I claim the foregoing as

my own, I have hereto affixed my signature
in the presence of two witnesses.

JOHN McDONALD EZZELL.

Witnesses:

M. F. WINFREY,
CHAS. VON WEISEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."