

UNITED STATES PATENT OFFICE.

THOMAS TEDESCO, OF PECKVILLE, PENNSYLVANIA.

STEAM-FITTER DRAFTING-MACHINE.

1,011,271.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed August 27, 1910. Serial No. 579,300.

To all whom it may concern:

Be it known that I, THOMAS TEDESCO, citizen of the United States, residing at Peckville, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Steam-Fitter Drafting-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to measuring instruments and has special reference to measuring instruments adapted for use by steam fitters for estimating the exact length of the pieces of pipe necessary for connecting two lines or sections of a complete pipe system together where such two pieces of pipe are positioned at an angle to each other.

The invention has for its object to provide an improved instrument of this kind which is specially adapted to be used with the device set forth in U. S. Letters Patent, June 14, 1910, No. 961,555.

With these and other objects in view, the invention consists of certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the drawings:—Figure 1 is a plan view of a square constructed in accordance with this invention with the blades folded up and the top blade shown as partly broken away and the section liner removed. Fig. 2 is a plan view of the invention with the upper and intermediate blade removed and the section liner in position on the fixed blade. Fig. 3 is an enlarged detail plan view of a portion of the section liner shown in Fig. 2 with top plate removed. Fig. 4 is a detail edge view partly broken away and partly in section of a portion of the device shown in Fig. 2. Fig. 5 is an enlarged detail side view of a portion of the T head shown in Fig. 1 partly in section. Fig. 6 is a plan view of a portion of the measuring instrument with the intermediate blade at a right angle to the upper and lower blades. Fig. 7 is a perspective view of a plate adapted to be secured to the end of the protractor blade. Fig. 8 is an enlarged detail

view in vertical section on the line X—X of Fig. 6 of the fixed needle point holder. Fig. 8' is an enlarged detail view in longitudinal section of the hollow body and the intermediate blade. Fig. 9 is a detail view in vertical section on the line Y—Y of Fig. 6 of the marking point. Fig. 10 is a view in side elevation, partly shown in section, of the square depicted in Fig. 1 with the section liner removed.

The square is constructed with an annular graduated plate 1, an outside blade 2, an intermediate blade 6 and a protractor blade 1^a integral with the plate. The annular plate 1, the protractor blade 1^a and the blade 6 have a common pivot hole 3 in which is located a screw 4 on which is mounted a nut 5 to clamp the blades 2 and 6 to the annular plate 1. It will thus be seen that there are three blades, two of which are hinged to the plate 1 and fold up upon the blade 1^a. The intermediate blade 6 is provided with a slotted opening 7 which serves as a sight opening for the gage 1.

The square is provided with a suitable T-head, as for example, the T-head 8, which, as here shown, is formed with openings 8' and is provided with cross pieces 9 each having a pin 10, by means of which the annular plate 1 is secured to the T-head 8.

The outer end of the protractor blade 1^a is formed with holes 11 in which are adapted to be seated pins 12 mounted on and extending through a plate 13 and adapted to engage open-ended slots 14 in a plate 6' secured to the plate 13 by means of a pin or screw 15 which engages a hole 16 in the plate 13 and a hole 17 in the end of the protractor blade 1^a.

The intermediate blade 6 is provided with a longitudinal slot 18 through which is adapted to project the shank of a button 19 and extending through said button 19, is a threaded stem 20 having a head 21 at its upper end extending through a jam nut 22 on the top of the button 19, the lower end of said stem being split and adapted to receive a needle 23 which is held in place by means of a nut 24. When the T-square is to be used alone the section liner is removed therefrom together with the rod 33, the rack

bar 34 and the plates 6' and 6''. This forms the marking point which is slidably adjustable on the blade 6 when it is swung at an angle to blades 1^a and 2.

5 A fixed needle point is shown in Fig. 8 which consists of a tubular threaded sleeve 25 extending through a thumb nut 26 and through the hole 3 in the blades 2 and 6 and the protractor bar 1^a. Extending
10 through the threaded sleeve 25 is a threaded stem 27 on which is a jam nut 28 above the thumb nut 26 the said stem being split at its lower end and having inserted therein a needle point 29 held in place by a nut 30.

15 There is employed in conjunction with the T square a section liner consisting of a hollow body 31 provided with a scale plate 31' spaced from the body 31 by projections 31'' to which plate 31' is secured. The blade 1^a
20 extends through this space between body 31 and plate 31'. The hollow body 31 is movable over the blade 1^a and over a rod 33 and a rack bar 34, secured at one end to plate 6' and at the other to a plate 6'' mounted on
25 the screw 4. The section liner is locked in place by means of a pinion 35 meshing with the rack bar 34 and mounted on the shaft 36 which extends through the hollow body 31 and is operated by means of a head 37.
30 Mounted on the shaft 36 is a ratchet wheel 38 engaged by means of a pawl 39 on the hollow body 31 the said pawl being held in place by means of a spring 40. The pawl and ratchet serve to lock the liner in position.
35 The intermediate blade 6 is detached from the screw 4 and pivotally mounted on the plate 31' by means of a screw 41'.

The ticking of the pawl which passes over the teeth of the ratchet wheel indicates to
40 the operator the distance in which the section liner is moved. One tick indicates $\frac{1}{16}$ of an inch; two ticks $\frac{1}{8}$ of an inch, etc. By means of this square all measures from center to face of all elbows, flanged and
45 threaded, and 45° elbows of all sizes flanged and threaded can be made.

This device is used in connection with the device set forth in U. S. Letters Patent heretofore referred to, and enables a steam fitter
50 to ascertain the exact length of pipes in connecting two lines positioned at an angle to each other.

Having described the invention I claim:—

55 1. In a device of the character described, the combination with a plate and a protractor-blade integral therewith, said protractor blade provided with apertures, of a detachable plate provided with lugs, said lugs extending into said apertures, and said plate
60 provided with additional lugs extending outwardly or upwardly, guiding means provided with a plate, the last mentioned plate engaging the outwardly-extending lugs of

the detachable plate, and a section-liner device attached to said guiding means. 65

2. In a device of the character described, the combination with a protractor blade, of a detachable plate provided on opposite sides with lugs, the lugs on one side extending into portions of said protractor blade, a
70 plate provided with notches, the notches engaging the lugs upon the other side of said detachable plate, a rod and a rack secured near one end to said notched plate, means securing the opposite end of said rod and
75 rack to the protractor blade, a section liner device slidably mounted upon said rod, and means carried by said section liner device and engaging said rack for locking the device in an adjusted position upon the rod. 80

3. In a device of the character described, the combination with a support, of a rod and a rack positioned above said support, means fastening said rod and rack to said support, a section liner device slidably
85 mounted upon said rack and rod, said device comprising a body, said body provided with an aperture, the rod positioned within said aperture, a gear rotatably mounted in said body, said gear meshing with said rack, 90 and means for locking said gear against rotary movement.

4. In a device of the character described, the combination with a protractor blade, of a rod and a rack positioned contiguous to
95 said protractor blade, means for detachably securing said rod and rack to said protractor blade, a section liner device comprising a body, said body provided with a pocket, said protractor blade positioned in said pocket, 100 said body provided with an outwardly-extending plate, a blade pivotally secured to said plate, said rod extending through a portion of the body, a gear carried by said body and meshing with said rack, spring-pressed
105 locking means for holding said gear normally against rotation, and means for rotating said gear for causing the same to travel over said rack, and thereby adjust the section liner device. 110

5. In a device of the character described, the combination with a protractor blade, of a rack detachably secured to said blade, a section liner device carried by said blade and said rack extending through said device, 115 said device provided with a body, a plate placed under said body, said body provided with a pocket, said protractor blade positioned in said pocket, said plate extending beyond one side of said body, said plate being graduated or scaled, a blade pivotally
120 mounted upon the scaled portion of said plate, and means carried by said body and engaging said rack, and adapted to be manually operated for moving said section liner device longitudinally of the protractor blade. 125

6. In a device of the character described,
an annular graduated plate and a protractor
blade, a T-head secured to said plate hav-
ing a common pivotal socket and a threaded
5 sleeve mounted in said socket, a thumb nut
mounted on said sleeve, a threaded screw
projecting through said sleeve and thumb
nut, a jam nut on said threaded stem, said
threaded stem having a split end, a needle

detachably mounted in said split end, and a 10
clamp nut mounted on said split end of the
stem.

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

THOMAS TEDESCO.

Witnesses:

JOSEPH F. GILROY,

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