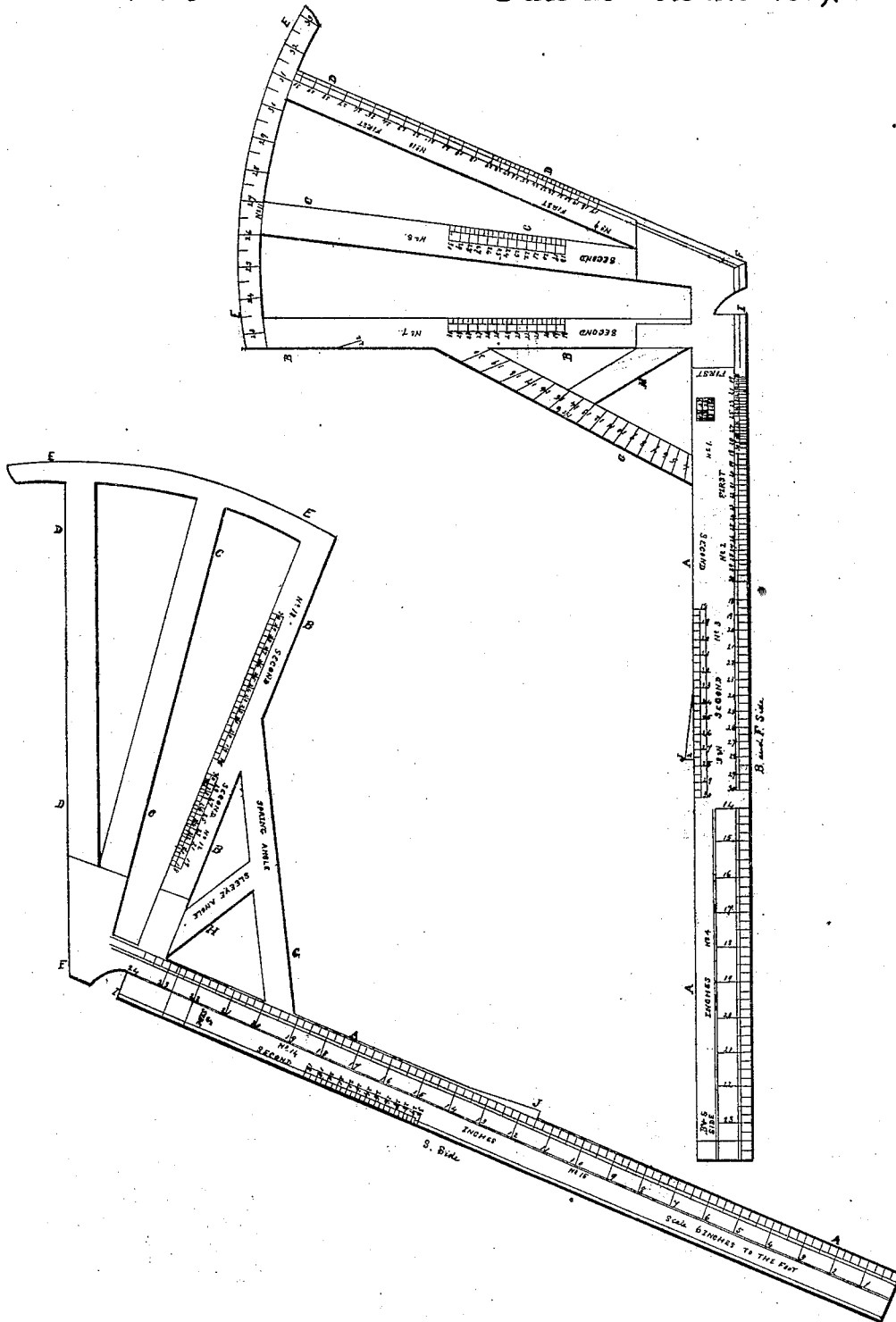


E. I. Axford.

Tailoring.

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UNITED STATES PATENT OFFICE.

EDWD. I. AXFORD, OF PHILADELPHIA, PENNSYLVANIA.

TAILOR'S DRAFTING INSTRUMENT FOR DRAFTING GARMENTS.

Specification of Letters Patent No. 1,113, dated March 30, 1839.

To all whom it may concern:

Be it known that I, EDWARD I. AXFORD, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and useful Instrument for the Use of Tailors in the Drafting of Garments, which I denominate the "Tailor's Drafting Instrument," which by the construction of its respective parts and the application of the respective scales and divisions thereon will enable the workman to accomplish the business of drafting with a facility, accuracy, and precision not usually attained; and I do hereby declare that the following is a full and exact description thereof.

The form of the instrument is such as to combine with the ordinary square, consisting of two flat pieces of wood, or other material, attached together so as to stand at right angles to each other, certain other straight pieces, and a curved piece, as herein described.

The accompanying drawing represents the two sides of the instrument, represented on a scale of half an inch to the inch; or of one half the size usually given to it when constructed for actual service.

The instrument consists of the following parts, viz:

1st. A strip, A, A, of wood or other material, about 2 feet 2 inches in length, and which may be made longer or shorter. This I determinate the "long arm." It is usually made about $1\frac{1}{2}$ inches wide and about $\frac{1}{4}$ of an inch thick, perfectly straight and flat, excepting the bevel-edge. The breadth and thickness may be varied as the person using the instrument pleases.

2d. From the long arm and near the end thereof branches out a piece B, B of similar thickness, and at a right angle from the long arm. This piece I call the "short arm of the square," or "square arm." It is about $\frac{1}{2}$ the width of the long arm, and $14\frac{1}{4}$ inches in length, but may be varied in breadth or thickness.

3d. Still nearer the end branches out another arm C, C at a peculiar angle, marked on the curved piece on the top of this instrument, angle 27. This arm is of similar thickness with the square arm, is of the same width, and is $\frac{1}{4}$ of an inch longer than the short arm of the square, but may be likewise varied in size.

4th. At the extreme end of the long arm is

still another arm D, D of similar length, breadth, and thickness with the arm last described, but which may be also varied in dimensions. This arm runs out at a peculiar angle from the long arm, and its angle of projection is marked on the instrument, $31\frac{1}{2}$. Here I will observe that the method of forming these angles is by dividing a semicircle into 50 equal parts.

5th. At the ends of these 3 projecting arms, is a section of a circle E, E, the center pivot of which is at the corner F, formed by the ends of the "long arm" and the arm at its end, the arm which projects at the angle of $31\frac{1}{2}$. This portion of a circle swept from said corner is to be made of wood, metal, or other material, and divided into portions, or degrees, each of which is to be the 50th part of a semicircle.

6th. There is also a piece or portion of the instrument G, which serves as a brace, and is attached at one end to the "long arm" and at the other to the short arm of the square. This piece or brace extends or projects from the long arm at an angle, struck by this instrument, with the "S side" up, of 17 degrees. This angle or piece is used in obtaining the spring of a coat skirt, and is called the spring angle, and is used with the S side of the instrument upward.

7th. Attached to the brace is another appendage, being a narrow strip H, of wood or metal about $\frac{3}{8}$ of an inch wide. This piece projects from the short arm of the square, and extends out to the brace, at an angle of 8 degrees of this instrument from the short arm of square. Its use is to obtain a line from which to sweep the sleeve head of a coat. Either the brace or piece attached thereto and last described may be arranged and placed at different angles, at the pleasure of the person using the instrument, as some might prefer one degree of spring and some another, some a very round sleeve head and some of flatter curve.

8th. In the long arm of the instrument, 1 inch from the end containing the angular arms is a notch or opening, I, which forms the angle of the square. This notch enables us to combine the square and angular arms to advantage.

9th. On the upper edge of the long arm and directly over scale No. 5 is a small angular projecting piece J, running at an angle of 2° from the corner formed by the

ends of the long arm and the arm containing scales Nos. 9 and 10. This piece or angle is used in forming the angle of back seam, and is stamped "2."

5 *Of the scales and divisions.*

Scale No. 1, used to obtain the bottom of back scye, is on the B and F side of the instrument, and $3\frac{7}{16}$ inches to the left of the corner or angle formed by the ends of the long arm and the arm containing scales Nos. 9 and 10, otherwise the arm projecting at the angle of $31\frac{1}{2}$ degrees, and is in length $1\frac{3}{8}$ inches.

15 Scale No. "2" is also on the B and F side, is $\frac{1}{4}$ of an inch to the left of, or below scale No. 1. It is $3\frac{1}{16}$ inches long, and is used to obtain the bottom of scye or arm hole.

20 Scale No. "3," also on the B and F side, is $\frac{1}{2}$ an inch to the left or below scale No. "2" and is $5\frac{7}{16}$ in length, used to obtain the front of scye.

25 Scale No. "4" is a scale of inches, halves and quarters, commencing 14 inches to the left of the angle of square, on the "B and F" side and is used in marking the breadth of the chest, and where inches may be necessary.

30 Scale No. "5" is directly above scale No. 3, on the B and F side, commencing $8\frac{1}{2}$ inches to the left of the angle of the square, and is $5\frac{5}{8}$ inches in length. It is used in obtaining the front of scye.

35 Scale No. "6," is on the brace, and is used for striking the various degrees required in drafting, each degree being the 50th part of a semicircle, the center or pivot of which is at the angle formed by the corner of the right hand end of the long arm, in other words the corner formed by the arm running at the angle of $31\frac{1}{2}$ degrees.

40 Scale No. 7 is on the short arm of square, on the B and F side of the instrument, commencing $5\frac{1}{8}$ inches above the corner or angle of square, and is in length $3\frac{7}{16}$ inches. It is used to obtain the width of a coat back, or back of other garment.

50 Scale No. "8," is on the arm which runs at angle 27, also on the B and F side, commencing $5\frac{3}{16}$ inches from the beveled edge of the long arm, and extending in length, $3\frac{3}{8}$ inches. It is used to obtain the length of the neck.

55 Scale No. 9 is on the arm running at the angle of $31\frac{1}{2}$ degrees. It is on the B and F side, beginning $4\frac{1}{4}$ inches from the corner or angle formed by the line on which it stands and the right hand corner of the long arm, and extending in length $3\frac{1}{4}$ inches. It is used to obtain the height of the neck of a coat.

Scale No. "10" is on the same side of

the same arm with scale No. 9. It commences $8\frac{1}{4}$ inches from the corner formed by the long arm and the arm at angle $31\frac{1}{2}$ on which it stands. It is $5\frac{1}{2}$ inches long and is used to obtain the length of shoulder or shoulder strap. There is also a small table on the B and F side over scale No. 1. Said table is used for varying the form of the shoulder of a coat. 65 70

Scale No. "11" is the curved part of the instrument, at the ends of the short arms. It is divided into degrees, being intended to aid the cutter in varying his drafts. This curve is to be swept from the corner or point formed by the meeting of the beveled edges of the long arm and the arm running at the angle of $31\frac{1}{2}$ degrees. 75 80

Scale No. "12" is on the side of the instrument marked "S side." This scale is on the short arm of the square, $4\frac{1}{8}$ inches from the corner or angle thereof, and is in length $2\frac{1}{4}$ inches. This scale is used to obtain the spot from which to sweep sleeve head. 85

Scale No. 13, is $\frac{9}{16}$ of an inch to the left of scale No. 12, on the same side of the same arm with No. 12, and is in length $4\frac{1}{8}$ inches in length. This scale is used for obtaining the proper position of a line across the sleeve head. 90

Scale No. "14" is on the long arm, "S side" commencing $5\frac{5}{8}$ inches from the angle of the square and extending in length $3\frac{1}{8}$ inches along the thin or outer edge of the long arm. This scale is used to obtain the width of sleeve head. 95

Scale No. 15 is a scale of inches, halves and quarters, extending along the thick or inner edge of the long arm, commencing to the right and running to the left. This scale, which is also on the S side is used merely as an inch measure. 100 105

The words "first" and "second" on the instrument are intended to denote and designate the scales taken from the first and second shoulder measures. 110

Of the method of taking the measures which are divided on this instrument.

The "first shoulder measure:" This is taken on the person by placing the end of the tape on other measure, at the socket bone of the neck, over the coat, bringing it down in front of the shoulder and arm, under the arm and then up the back to the place of beginning. This measure is mathematically divided and arranged in a peculiar manner on the instrument. It obtains the bottom of back scye, the line passing across the forepart at bottom of scye, the upper length of shoulder strap or shoulder, and in part governs the size of scye or arm hole. The scales relating to this measure 115 120 125

are marked on the instrument with the word "First."

The second shoulder measure is taken by placing the end of the measure on the back seam, opposite the back scye, bringing it across the back, over the shoulder, down in front of the shoulder, then backward, under the arm, and across the back to the place of beginning. This measure is also mathematically divided into scales on the instrument, one of which is used to obtain the front of scye, another to get the width of the back, another to obtain the length of neck and 3 more, to obtain the sleeve head. The scales relating to this measure are marked on the instrument with the word "Second."

All the scales relating to the back and forepart are on the side of the instrument marked "B and F side," and the scales relating to the sleeve are on the side marked "S side" except the one for the angle of elbow which is on the other side.

The instrument may be so altered, by a different arrangement of the figures, as to answer for breast measure, shoulder measure or any other measure giving the dimensions of the part or parts of the person to be fitted.

Of the application of the instrument.

The back.—Note: The back is drafted with the side of the instrument marked "B and F side" upward.

In the following directions for drafting we suppose the person to measure 20 inches in each shoulder measure.

Line A in the draft is obtained by drawing a straight line along the beveled edge of the long arm of the instrument, the end from which the small arms project being to the right hand of the draftsman.

Line B, is obtained by first making a dot against the small angular piece on the upper edge of long arm, stamped "2" and directly over scale No. 5, this dot, and another mark for the top of back, are both made before moving the instrument, then hold the right hand end of the instrument on line A the end touching the dot at top of back, and move the edge of the instrument in, so as to draw line B, which must pass through the mark made against the piece stamped "2" this is the back seam of the coat.

Line C, is drawn parallel with, and against the bevel edge of the arm projecting at angle 27, in which is scale No. 8. Now without moving the instrument, mark the size of the person's first shoulder measure on scale No. 1 and also on scale No. 2, which on this draft will be at 20.

Line D is got by laying the angle of square on the upper No. 20 of scale 1, which

gives the bottom of back scye, and as the instrument lays mark at No. 20 (in this draft) on scale 7, for the breadth of the back. This gives line E.

Line F is got by squaring out from the lower No. 20 got by scale No. "2." The remainder of the back being varied according to taste or fashion is not described herein, as the instrument has nothing to do with obtaining any of the lines on this back except those here laid down.

Application of the forepart.—Note: The forepart is drafted with the B and F side of the instrument upward, excepting only the spring line.

First lay the back down on the cloth in a convenient place, with the back seam from you, the top at your right and the bottom at your left hand, then mark the upper half of the side seam. Then lay the short arm of the square on the back seam, the long arm pointing toward you. The angle of the square touching a notch in the back seam, made at line D, with the instrument in this position. Draw line D across the forepart, and make the dot marked thus, \$ on the draft, opposite the person's size on scale No. 5.

Line F is got by slipping the instrument farther down, (the short arm still on back seam,) until the angle of the square, touches at a notch made in back seam at line F on the back. Then draw line F across the forepart, and without moving the instrument, mark at the size of the person's second shoulder measure on scale "No. 3" and also mark the $\frac{1}{2}$ circumference of his chest by the inch scale numbered "scale 4."

To get line G, lay the beveled edge of the long arm on line F, with the small end pointing from you in such a manner that the corner formed by the long arm and the arm containing scales Nos. 9 and 10 touch at the mark made by scale No. 3, then draw line G, which will be at an angle of $31\frac{1}{2}$ degrees from line F, and extending from line F to the right as far as necessary, then without moving the instrument mark the proper sizes on scales Nos. 9 and 10.

Line H, which gives the height of breast and neck is drawn by laying the long arm on line G with the bevel edge from you, so that the point or corner formed by the long arm and the arm holding scales Nos. 9 and 10 may touch at the mark on line G, got from scale No. 9, then draw a line along the bevel edge of the arm containing scale No. 8, angle 27, and mark at the person's size on scale No. 8 which gives the length of the neck.

Line I, is got by placing the bevel edge of long arm on line G, the arm containing scales Nos. 9 and 10 to the right, the angle or corner formed by long arm and arm of angle $31\frac{1}{2}$ touching at the mark made on line

G from scale No. 10. Now draw line I along the right hand edge of arm containing scale No. 8, angle 27, this line gives the length of forepart or shoulder strap and part of the form of shoulder. Now lay the back seam on line I, with the top of the back toward you; then form the scye as on the draft.

Line J is the spring line, and is obtained with the side of the instrument marked S side upward, the brace or piece marked "Spring angle" is laid on line F in such a manner that the beveled edge of the long arm will pass through bottom corner of side seam, as on the draft, this line is not drawn until the forepart is formed.

Of the sleeve.—Note: All the sleeve excepting the angle of the elbow is drafted with the side of the instrument marked S side upward.

K is the base line.

L is the line on wheel to lay the back seam.

Make a dot on line K at the width of the back, marked on the draft thus \times , then remove the back and place the thin edge of the long arm of the instrument on line L, and the thin edge of the short arm of square on line K, while in this position mark at the person's size on line K from scales Nos. 12 and 13, then slide the instrument down to the left on line K until the angle of the square touches the mark got from scale No. 13. With the instrument in this position draw line M, and mark the size from scale No. 14, drawing also a line (line N) against the longer edge of the piece marked sleeve angle. The curve of the sleeve head is now to be swept by placing a string in such a position on line N, as will sweep a curve which will pass through the dot on line K got by scale No. 12, and the one on line M got by scale No. 14. The elbow of sleeve may be angled by angle 6 on scale 6, on the brace. The instrument does not apply any further on a sleeve.

Use of the table on the side of instrument marked "B and S side."

This table is as follows:

31½	27
32½	28
33	28½

The use of this table is to vary the lines G and I. If you draw line G at an angle of 31½ line I should be drawn at angle 27 from G. If line G be drawn at an angle of 32½, draw line I at an angle of 28, from G. If line G be drawn at an angle of 33, draw line I at an angle of 28½, from G. This explains the use of the table which varies the form of the shoulder of a garment.

Having thus fully described the construction and arrangement of my tailor's drafting instrument, and explained the manner in which the same is to be applied and used, I hereby claim as my invention and desire to secure by Letters Patent—

1. The particular form which I have given to this instrument, by combining with the ordinary square used in other drafting operations, the arms C, C and D, D, the circular sections E, E; and also the brace G, and the strip H, at the respective angles, and with the scales and divisions, substantially in the manner, and applicable to the purposes set forth.

2. I also claim the manner in which I have arranged the respective graduations and scales, on the two sides of this instrument, by which the means of drafting the garments to which it is applicable are combined with each other and are immediately available upon inspection.

EDWARD I. AXFORD.

Witnesses:

SAML. H. MATTSON,
JOHN BURNS.