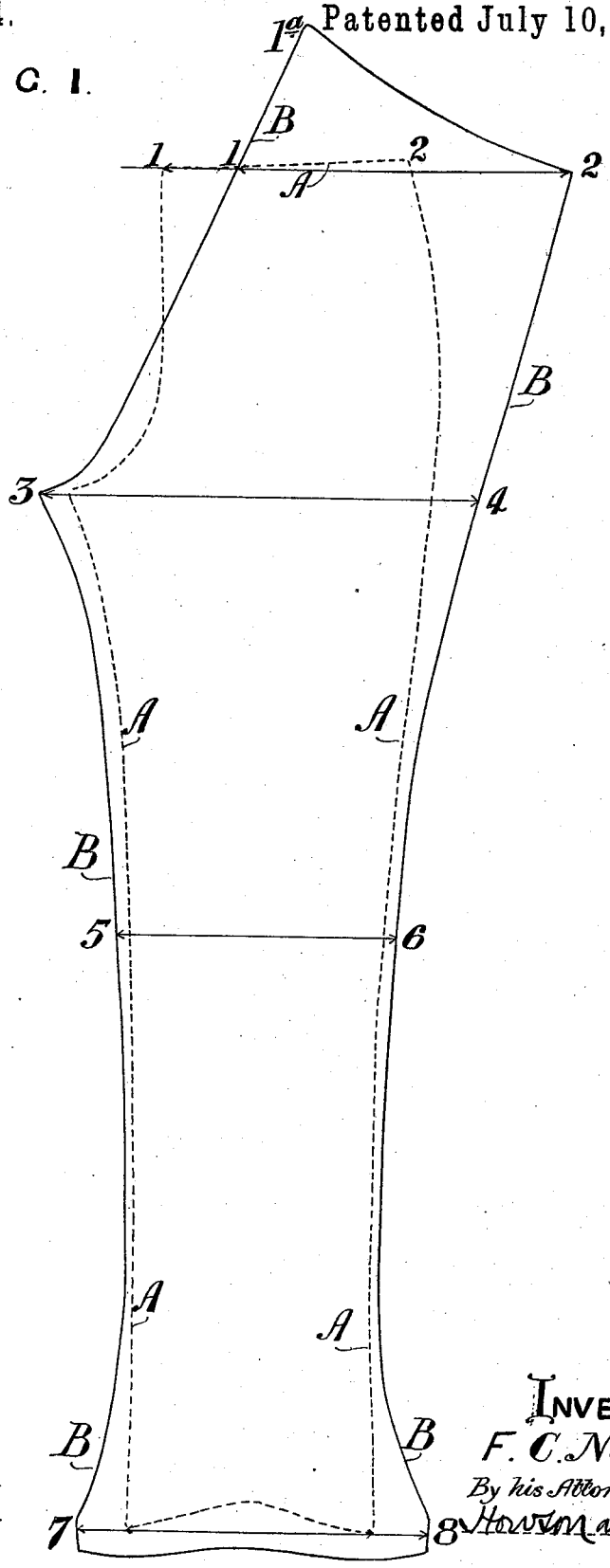
(No Model.) 3 Sheets—Sheet 1.

F. C. NOAR.

APPARATUS FOR MARKING OUT PATTERNS FOR GARMENTS.

No. 385,944. Patented July 10, 1888.

FIG. 1.



Witnesses.
Rufus H. Skeel
Wm. Chester Wells

INVENTOR.
F. C. Noar,
By his Attorneys,
Howson and Howson

(No Model.) 3 Sheets—Sheet 2.

F. C. NOAR.

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FIG. 2.

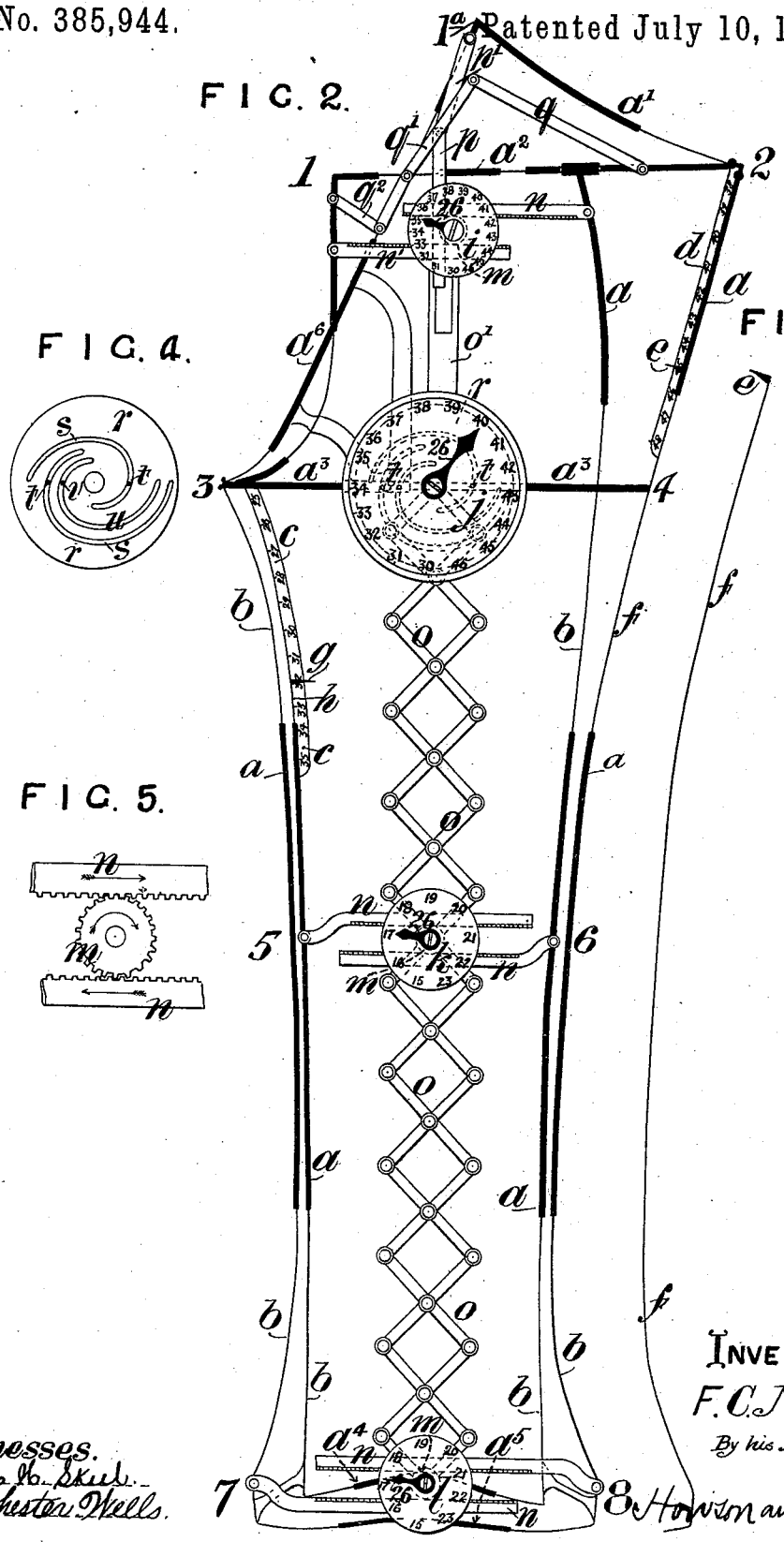

FIG. 4.

FIG. 3.

FIG. 5.

Witnesses.
Rufus H. Skiff.
Wm. Chester Wells.

INVENTOR.
F. C. Noar,
By his Attys.
Howson and Howson

(No Model.) 3 Sheets—Sheet 3.

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FIG. 6.

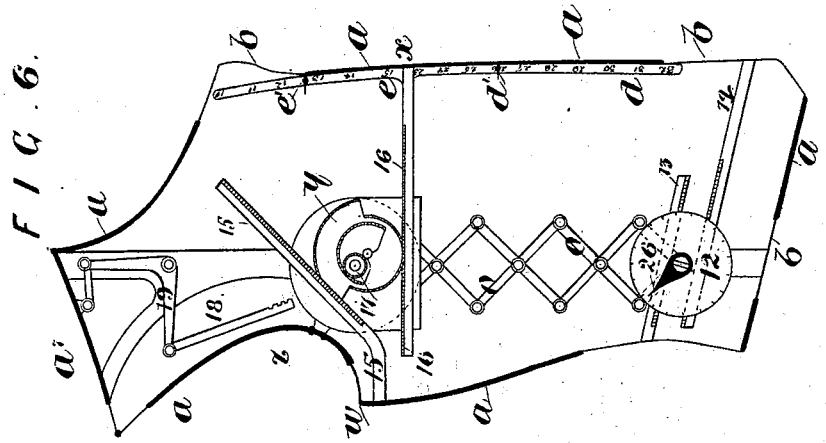


FIG. 8.

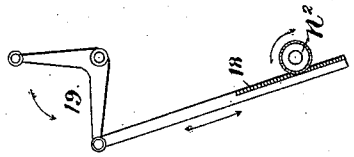


FIG. 9.

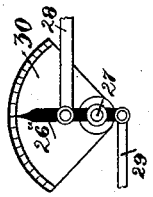
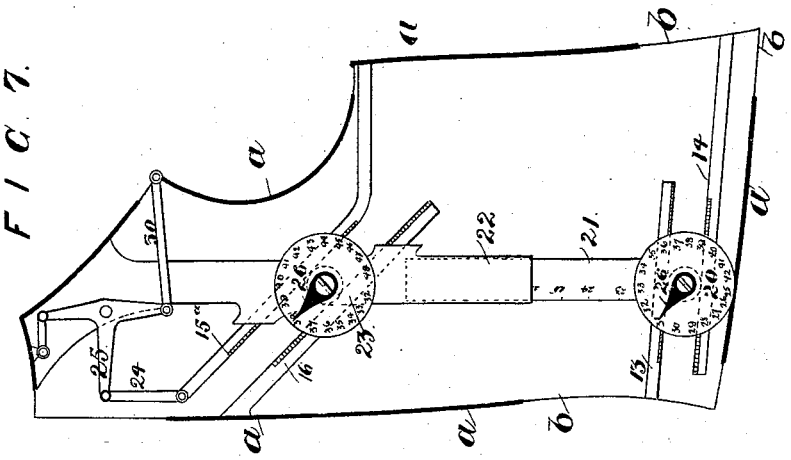


FIG. 7.



Witnesses.
Rufus H. Skeel.
Wm. Chester Wells.

INVENTOR.
F. C. Noar,
By his Attorneys Howson and Howson.

UNITED STATES PATENT OFFICE.

FREDERICK C. NOAR, OF MANCHESTER, COUNTY OF LANCASTER, ENGLAND.

APPARATUS FOR MARKING OUT PATTERNS FOR GARMENTS.

SPECIFICATION forming part of Letters Patent No. 385,944, dated July 10, 1888.

Application filed December 13, 1887. Serial No. 257,786. (No model.) Patented in England February 23, 1887, No. 2,802.

To all whom it may concern:

Be it known that I, FREDERICK CHARLES NOAR, a subject of the Queen of Great Britain and Ireland, and residing at Manchester, county of Lancaster, England, wholesale clothier, have invented certain Improved Apparatus for Facilitating the Marking Out of Patterns for the Manufacture of Wearing Apparel, (for which I obtained a patent in Great Britain, No. 2,802, dated February 23, 1887,) of which the following is a specification.

My invention consists of an improved apparatus for facilitating the marking out of patterns for the manufacture of wearing-apparel, as hereinafter fully set forth.

In Figure 1, Sheet 1, of the drawings I have shown the outlines of the front and back portions, A and B, which comprise the leg of a pair of trousers. Fig. 2, Sheet 2, is a view of the apparatus I use to produce these outlines to various measurements. Figs. 3, 4, and 5, on the same sheet, are views of details of the apparatus. Figs. 6, 7, and 8, Sheet 3, are views of an apparatus to produce adjustable outlines of the parts of a waistcoat. Fig. 9 is a view of a modification of the means for operating the adjustable parts.

Referring to Sheet 1, the front portion, A, of the trousers is shown in dotted lines, the back portion, B, in full lines. Granted that the four dimensions of part B—viz., 1 to 2, 3 to 4, 5 to 6, and 7 to 8—and their relative heights have been fixed by applying the tape to the person for whom the garment is intended, the laying down of these measurements and the connecting of the various points 1 and 3, 3 and 5, and 5 and 7, and so on by curves and lines which shall be elegant and in accordance with fashion is a matter of calculation, time, and difficulty when done by hand. By means of the apparatus shown on Sheet 2 the requisite outlines embodying all of the fixed measurements can be delineated quickly and without the necessity for calculation or skill on the part of the operator, the lengths being adjusted by sliding the frame *a b* together by hand, and the breadths by turning the pointer 26 on the dials shown in the drawings.

The marking-frame shown at Fig. 2, Sheet 2, and which is intended for use in the production of trousers, incorporates in one apparatus the outlines of both the back and front portions, A and B, of the trousers, and these outlines are in the same relative positions as shown on Sheet 1. The frame is composed of tubes sliding one within the other, or of wires sliding in tubes. The outer tubes, *a a' a² a³ a⁴ a⁵ a⁶*, are all shown in thick lines in the drawings. The inner sliding tubes or wires, *b*, are shown in thin lines. The frame is adjustable to two lengths: first, the length of the leg from 7 to 3, and, second, the total length—viz., from 8 to 2. It will be seen that a scale, *c*, marked with numerals is fixed on the left side of the frame, this scale being for the length 7 to 3. Another scale, *d*, is fixed on the right side of the frame to adjust the length 8 to 2. The index *e*, which moves backward and forward over the scale *d*, is carried by a wire, *f*, which extends from the foot of the frame and slides inside of the inner tube, *b*. This wire *f* and index are shown at Fig. 3, Sheet 2. The tube *b* in its turn slides inside of the outer tube, *a*, for a certain distance on both sides of the frame. The index *g*, which moves over the scale *c*, is similarly carried by a wire, *h*, extending from the lower sliding part of the frame. When the length of the leg from 7 to 3 is ascertained by measurement with the tape, the lower part of the frame is slid up till the index *g* points to the numeral on the scale corresponding to the measurement of length. For example, in the drawings the index *g* on the scale *c* points to 32 inches, this being the length of leg which has been ascertained by measurement, while the index *e* on the scale *d* points to 45 inches, this being the total length to the waist. The height of the highest point 1^a is fixed automatically in its proper relative position in the act of adjusting the apparatus to the waist-measurement.

The measurements across—that is to say, the measurements 1 to 2, 3 to 4, 5 to 6, and 7 to 8, the positions of which are most clearly seen in Sheet 1—are adjusted by expanding or contracting the frame by the mechanism behind the dials *i*, *j*, *k*, and *l*. These dials are marked with numerals corresponding to the range of measurements across. For example, at the

foot the range of measurements are, say, from fifteen to twenty-three inches, as marked on the dial *l*. The dial *k* at the knee position is similarly marked. The dial *j* at the hips and the dial *i* at the waist are marked with a wider range of measurements—say thirty to forty-six inches—as shown.

In the case of the dials *i*, *k*, and *l* a toothed pinion, *m*, is carried behind the dial, and is fixed to the spindle which carries the finger or pointer 26. In each dial two racks, *n*, slide in recesses behind the dial and engage with the pinion *m*, as clearly shown in the enlarged view, Fig. 5. The outer ends of the racks are attached to the collapsible sides of the frame, so that as the pointer 26 and pinion *m* are turned the racks, and consequently the sides of the frame, are pulled inward or pushed outward, the pointers resting opposite the numerals on the dials which represent the measurements. The horizontal or approximately horizontal members or sections of the frame slide within or past one another—for example, at a', a^2, a^3, a^4, and a^5—so as to allow the frame to expand and contract. In order to make the position of the dial *k*, which corresponds to the knee-measurement, correspond properly to the various lengths of leg to which the apparatus may be set, I mount it upon the collapsing lazy-tongs *o*, the said lazy-tongs extending from the dial *j* to the dial *l* and carrying the dial *k*, so that whether the lower frame is pushed up or pulled down the dial *k* will always be in the proper relative position between the dials *j* and *l*. The dials *i* and *j* have a sliding connection, *o'*. The pointer-spindle of the dial *i* carries two toothed pinions—one to work the two racks *n n* and another to work a third rack, *p*, and link *p'* to push up and pull down the extreme upper angle, 1^a, of the frame, which has a sliding connection with the frame, as clearly shown. The portion of the frame which carries the scale *d* is pushed out or pulled in by a link and double lever, *q q'*, the double lever *q'* being operated by a link, q^2, from that portion of the frame which is pushed out or pulled in by the rack *n'* of the dial *i*. In conjunction with the dial *j*, I have shown other means than the pinion and racks to expand the frame at the hip-measurement. In this instance I employ a disk, *r*, in which I cut curved grooves or slots, as most clearly shown at Fig. 4. The curves *s s*, which are exactly similar, expand and contract the opposite sides of the frame by means of pegs *t t*, which project from the sliding tubes a^3 into the said curved grooves. The disk *r* is secured to the pointer-spindle, so that when the pointer is turned round the disk also rotates, and the pegs are moved inward or outward by the curved grooves. From the same disk and by means of the curved groove *u* operating a peg, *v*, I impart a slower motion to the part a^6, which must not be moved out so quickly as the other sides. As these points, representing the measurements, are moved in or out, the elasticity of the sliding parts and tubes makes them assume the relative curves which could otherwise only be drawn by a skilled person. I have now described the means whereby every side of the frame shown at Fig. 2, Sheet 2, containing the combined outlines represented by A and B in Fig. 1, Sheet 1, can be altered in position and curve by automatic means.

In using the apparatus the index *g* is first set to the length of leg. The index *e* is then set to the total length of leg to the waist. The pointer 26 on the dial *i* is now set to the measured circumference of waist, the pointer 26 on dial *j* to circumference round the hips, the pointer 26 on dial *k* to circumference at knee, and the pointer 26 on dial *l* to circumference at the foot of the trousers. The apparatus is then laid on the selected cloth and the correct shape of the front side, A, (see Sheet 1,) of the trousers is marked thereon by running a piece of chalk round the outline of the inner frame. The apparatus is then laid on another piece of the cloth and the back portion, B, (see Sheet 1,) of the trousers is marked by running the chalk round the outline of the outer frame. The cloth is then cut and the garment made up.

Although I have in the foregoing description referred to my apparatus as applied to the production of trousers, it will be evident that it can with modifications be applied to the marking out of other articles of wearing-apparel. In Sheet 3 I have shown such a modified arrangement of the apparatus for use in marking out waistcoats to measure. In this instance the outlines of the two different portions of the waistcoat are kept apart instead of being combined in one frame, as in the foregoing trouser arrangement.

Fig. 6 is a view of the frame for marking the outline of the front portion of the waistcoat. Fig. 7 is a view of the frame for marking out the back of the waistcoat. These frames are composed of telescopically-sliding outer tubes, *a*, and inner tubes or wires, *b*, as in the case of the trouser apparatus. In Fig. 6 the lower part slides toward and from the upper part, carrying with it the marked dial 12, which is or may be connected by lazy-tongs *o* to the dial above, the marked face of which does not appear in the drawings. A scale, *d*, and index *d'* govern the adjustment of the lower part of the frame, and another scale, *e*, and index *e'* the adjustment of the upper part of the frame. In the lower dial, 12, the racks 13 and 14 expand and contract the sides of the frame, and the same office is performed by the racks 15 and 16 in connection with the upper dial; but in order to thrust the point *w* out at a quicker rate than the side *x*, I use a spur-wheel, *y*, having its periphery divided into two segments of unequal diameter, the segment of the larger diameter working the rack 15 and the smaller diameter the rack 16. The racks therefore move at different speeds and effect my object, the proportionately-larger size of armhole partly formed by the side *z* requiring this arrangement. The spur-wheel

y is driven from a pinion, 17, onto the pointer-spindle, the pinion gearing with internal teeth formed in the spur-wheel, as shown at Fig. 6. This arrangement enables the pointer to make a complete revolution over the face of the dial, so that the whole circumference of the dial can be marked with numerals. A second pinion, n^2, on the pointer-spindle of the upper dial (shown separately at Fig. 8) works a rack, 18, and bell-crank lever 19, whereby the side a^7 of the frame is lengthened or shortened in correct proportions to the movements of the other parts of the frame which are operated from the upper dial.

The description already given of the mode of operating the trouser-frame in Sheet 2 will enable the working of the frame shown in Fig. 6 to be understood without further explanation. In Fig. 7 it will be observed that instead of the lazy-tongs used in Fig. 6 to connect the upper and lower dials, I mount the lower dial, 20, on a blade, 21, which slides in a sheath, 22. Upon this blade I mark numerals, so that the blade performs the duty of the scale d in Fig. 6. By sliding the blade into or drawing it out of the sheath the length of the waistcoat can be increased or diminished. In Fig. 7 the racks 13 and 14, behind the lower dial, 20, work as already described. One of the racks 15^a, working behind the upper dial, 23, is connected by a link, 24, to a double bell-crank lever, 25, which is connected by a link, 30, to the side of the apparatus, whereby the upper part of the waistcoat-frame is expanded and contracted in a manner which will be easily understood from an inspection of the drawings.

Instead of racks forced apart and drawn inward by revolving pinions, as described, I might use a lever in the position of the pointers on the dials and connect the lever by links with the sides of the frame. Such an arrangement is indicated at Fig. 9, Sheet 3. In this case a lever, 26^a, is pivoted at 27, and links 28 and 29 are connected to the lever and extend to opposite sides of the frame, as in the case of the racks. The lever 26^a acts as a pointer and is moved over numerals representing measurements marked on a segment, 30, which takes the place of the circular dial. Under this arrangement differential movements of the links 28 and 29 can easily be obtained by hinging them nearer to or farther from the pivot 27 of the lever 26.

It will be evident that the apparatus, hereinbefore described as applicable to the marking out of trousers and waistcoats, can be applied with modifications in the shape to the production of other garments.

What I claim as my invention is—

1. The improved apparatus for facilitating the marking out of patterns for the manufacture of wearing-apparel, the said apparatus comprising an adjustable frame composed of tubes, and other tubes or wires sliding therein, the outlines of the tubes or wires forming the outlines for the garment, in combination with indicating-dials on the frame, and pointers connected to and operated by adjustable parts of the frame, substantially as described.

2. The improved apparatus for facilitating the marking out of patterns for the manufacture of wearing-apparel, said apparatus comprising an adjustable frame composed of tubes, and other tubes or wires sliding therein, the outlines of the tubes or wires forming the outlines for the garment, in combination with dials on the frame, and pointers for the dials having pinions and racks gearing into the pinions and connected to the adjustable parts of the frame, substantially as described.

3. The improved apparatus for facilitating the marking out of patterns for the manufacture of wearing-apparel, said apparatus comprising an adjustable frame composed of tubes and other tubes or wires sliding therein, the outlines of the tubes or wires forming the outlines for the garment, in combination with an index carried by one wire and a scale by another, dials on the frame, and pointers connected to and controlled by adjustable parts of the frame, substantially as described.

4. The improved apparatus for facilitating the marking out of patterns for the manufacture of wearing-apparal, said apparatus comprising an adjustable frame composed of tubes and other tubes or wires sliding therein, in combination with two or more dials, lazy-tongs connecting the dials, and pointers therefor connected to adjustable parts of the frame, all substantially as set forth.

5. The improved apparatus for facilitating the marking out of patterns for making trousers, said apparatus comprising an inner and an outer adjustable frame for the front and back portions of the garment, the frames being connected to each other and composed of tubes and other tubes or wires sliding therein, in combination with scales and indexes carried by the tubes, dials and pointers connected to the movable parts of the frames, and lazy tongs connecting the dials together, all substantially as described.

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

F. C. NOAR.

Witnesses:
DAVID FULTON,
DAVID TIMPERLEY.