H. K. AVERILL, Jr.

ATTACHMENT TO PARALLEL RULERS.

No. 195,693. Patented Oct. 2, 1877.

FIG. 1

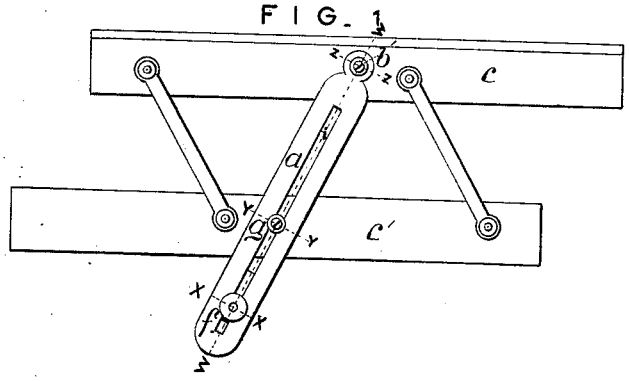

FIG. 2

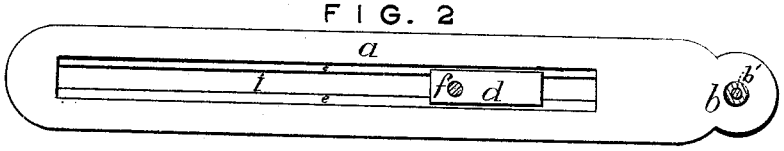

FIG. 3

FIG. 4

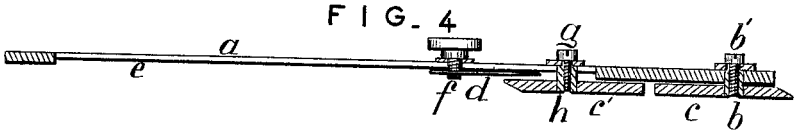

FIG. 5

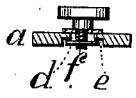

FIG. 6

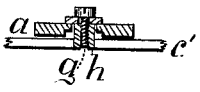

FIG. 7

WITNESSES.

P. Girard,

Richd. Cottrill

INVENTOR.

H. K. Averill Jr.

UNITED STATES PATENT OFFICE.

HENRY K. AVERILL, JR., OF PLATTSBURG, NEW YORK.

IMPROVEMENT IN ATTACHMENTS TO PARALLEL RULERS.

Specification forming part of Letters Patent No. **195,693**, dated October 2, 1877; application filed August 14, 1877.

To all whom it may concern:

Be it known that I, HENRY K. AVERILL, Jr., of Plattsburg, Clinton county, New York, have invented an Attachment to Parallel Rulers, of which the following is a specification:

The object of my invention is to enable draftsmen to draw a series of equidistant parallel lines by means of the parallel ruler without being under the necessity of spacing with dividers, scale, or otherwise.

I accomplish this object by means of an attachment to the ordinary form of parallel ruler, such as is formed of two bars of wood, ivory, or metal connected by two shorter bars of metal.

The attachment is shown in Figure 1 of the accompanying drawings connected with the parallel ruler; and consists of a bar, *a*, one end of which is attached, by means of the screw *b'*, to, and capable of turning about, the pivot *b*, firmly attached to, and forming a part of, the bar *c* of the parallel ruler. A slide, *d*, fitting loosely in the groove *e* (shown in Fig. 2) under the bar *a*, is firmly set at any required point by means of the clamp-screw *f*. A screw and washer, *g*, attached to the pivot *h*, forming part of the bar *c'*, hold the bar *a* to its place on the parallel ruler. A longitudinal slot, *i*, in the bar *a* permits the free motion of the pivot *h* as far as the slide *d*, thus regulating and controlling the distance to which the parallel ruler may be opened.

Fig. 2 is a plan view of the under side of the bar *a*, showing the slide *d*, the groove *e*, the slot *i*, the pivot *b*, and the screw *b'*.

Fig. 3 is a side view of the attachment, showing the bar *a*, the clamp-screw *f*, the screw and washer *b'*, the screw and washer *g*, and the bars *c* and *c'*.

Fig. 4 is a longitudinal section of the bar *a* on the line *w w*, showing the groove *e*, the slide *d*, the clamp-screw *f*, the pivots *b* and *h*, the screws and washers *g* and *b'*, and a section of the bars *c* and *c'*.

Fig. 5 is a section of the attachment on the line *x x*, Fig. 1; Fig. 6, a section of the attachment on the line *y y*, and Fig. 7 a section of the attachment on the line *z z*.

To operate the parallel ruler with the attachment, first mark upon waste paper the required space; then place the edge of the bar *c*, the two bars *c* and *c'* being closed, upon the left-hand point used to designate the space; hold the bar *c'* firmly with the left hand, and move the bar *c* out to the other point or extremity of the space; holding both bars *c* and *c'* firmly, bring the slide *d* up to the pivot *h*, and clamp firmly with the screw *f*. The instrument is now set. Now place the edge of the bar *c* upon the desired point or line; then, holding the bar *c'* firmly, move the bar *c* out as far as it will go; while in this position draw the required line; then, holding the bar *c* firmly, move the bar *c'* up to it, closing the instrument, as before. Then repeat the operation the required number of times, alternately moving the bars *c* and *c'*.

It is evident that the operation may be reversed by drawing the bars alternately back instead of forward with the same result.

It is also evident that, by removing the screws *b'* and *g*, the two bars *c* and *c'* may be reversed, so as to draw ink lines with greater safety.

It is also evident that a screw may be added for moving the slide *d* slowly backward or forward, and a scale may be marked upon the slide *d* or bar *a*, or both; but, having used all these different forms, I prefer for ordinary practice the simpler form detailed in the above specifications.

I do not claim as my invention any part of the ordinary form of the parallel ruler; but

I claim as my invention—

The attachment to a parallel ruler of a bar, *a*, slide *d*, and clamp *f*, substantially as and for the purpose set forth.

H. K. AVERILL, JR.

Witnesses:

P. GIRARD,

RICHD. COTTRILL.