

A. Clow.

Laying Stair Fencing.

N^o 66,796.

Patented Jul. 16, 1867.

Fig. 2.

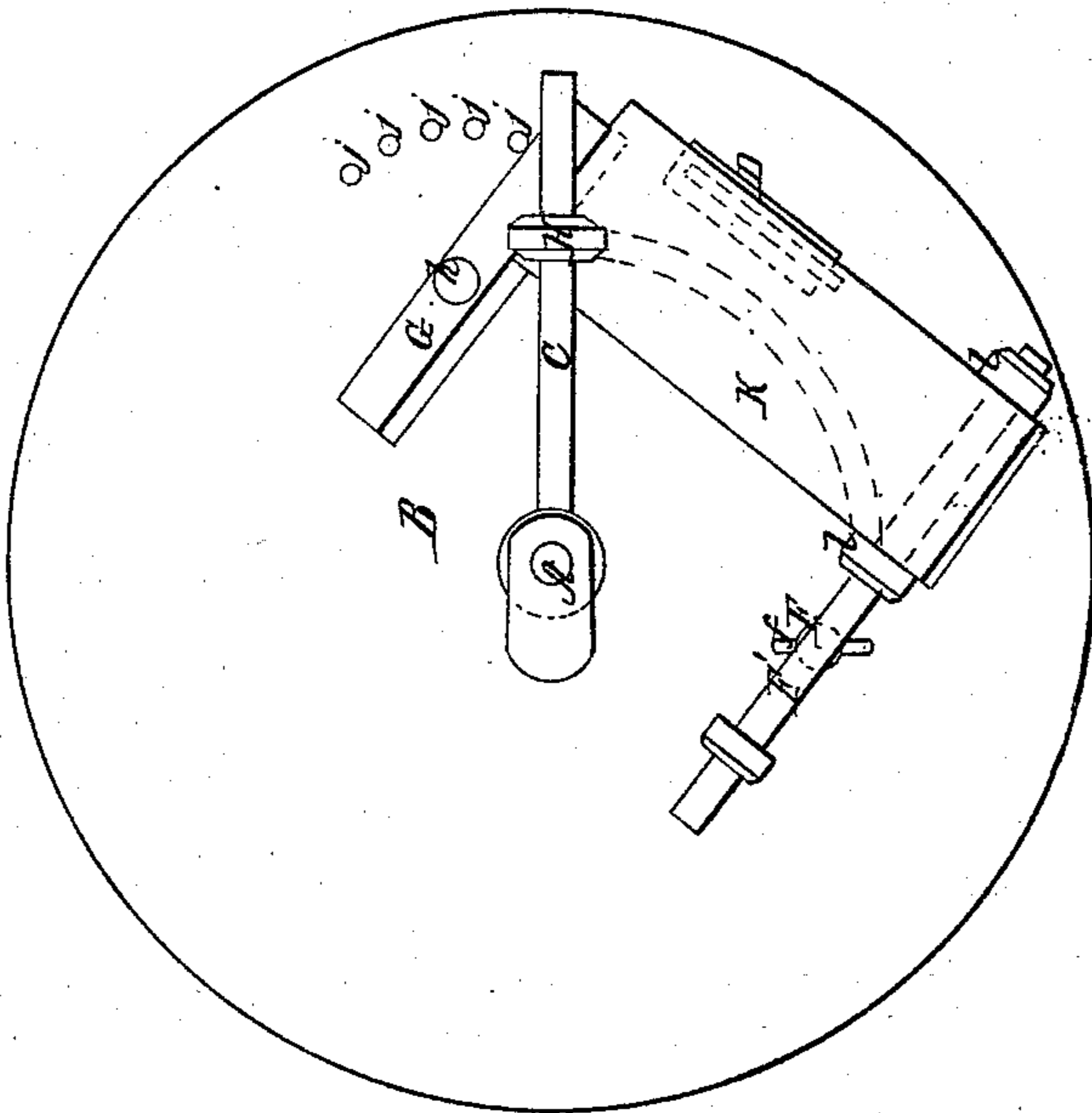
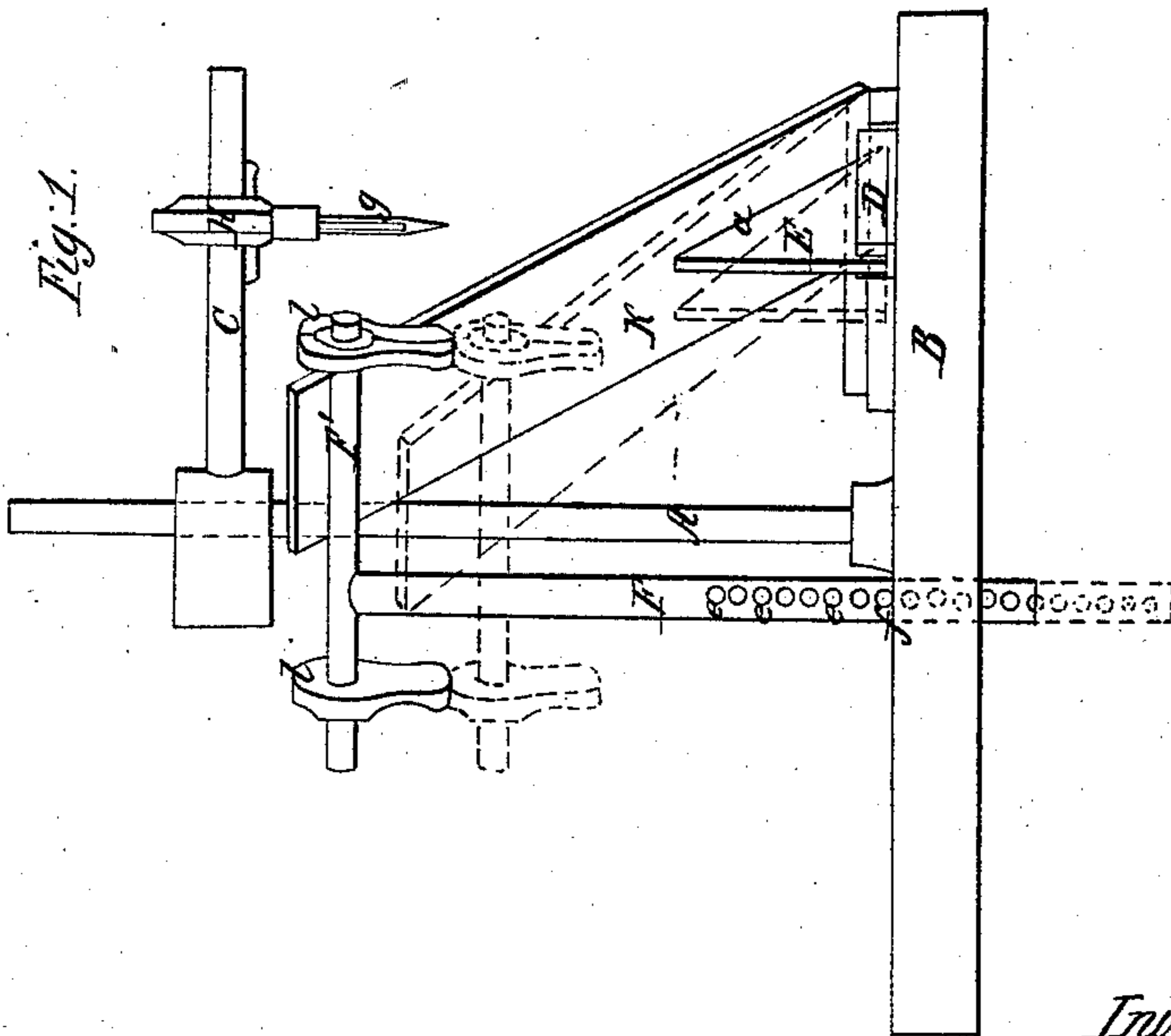


Fig. 1.



Witnesses,
Robt Heneage
Henry Spindelme

Inventor
Alexander Clow
by J. Fraser & Co.
Atty

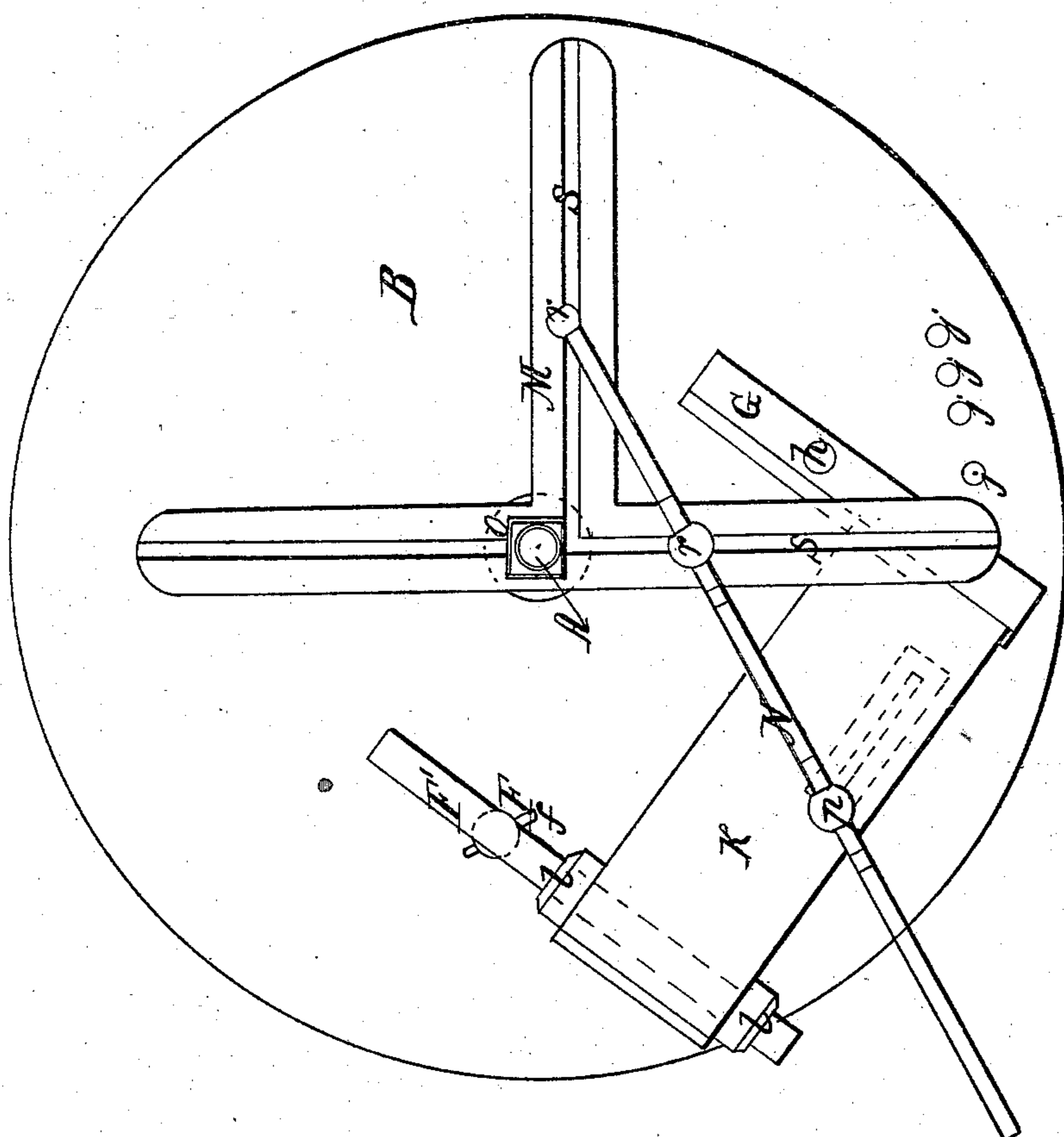
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Fig. 3. B.



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Henry Spindelow

United States Patent Office.

ALEXANDER CLOW, OF ERIE, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND
JOHN HENDRY, OF THE SAME PLACE.

Letters Patent No. 66,796, dated July 16, 1867.

IMPROVEMENT IN INSTRUMENTS FOR LAYING OUT STAIR-RAILINGS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ALEXANDER CLOW, of the city and county of Erie, in the State of Pennsylvania, have invented a new and improved Instrument for Laying out Stair-Railing; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation.

Figure 2, a vertical or plan view, and

Figure 3, a plan view of the same apparatus, having the tracing-arm removed and the trammel M applied, to adapt it to describing elliptical stair-railings.

Like letters indicate corresponding parts in all of the figures.

My invention is intended to furnish an accurate guide for laying out the hand-rail of circular and elliptical stair-cases; and consists, first, of a vertical standard or rod A, fixed in a suitable base-support, B, on which the horizontal tracing-arm C is hung, so as to be capable of moving up and down, and revolving around its centre at will; second, at a convenient distance from the foot of this standard a block or cleat, D, provided with a groove to receive the triangular pattern E, is affixed to the base. This pattern is formed of an angle which correctly represents the rise or inclination of the stair-case, its lower edge being of the same length as the tread of one of the steps, and placed horizontally, and its vertical side of a height equal to that of the rise of the step, which gives the inclined side the same angle or pitch as the stairs. The plank from which the hand-rail is to be worked is laid on the pattern, its lower side parallel with and resting on the inclined edge *a*, and its upper supported by a cross-bar, F', on the standard F. The latter is made adjustable vertically by a series of holes *e e* and key *f*, to sustain it at a height to support the upper end of the plank at the inclination required to correspond to the edge of the pattern, and is also adjustable by revolving horizontally. A pivoted cleat, G, is also provided to hold the foot of the plank in the proper position. This is also adjustable by swinging on its centre, being held by the pivot-pin *h* and movable pin *i*, fitting in the holes *j j*. The arm C is provided with a sliding-head or holder, H, carrying a pencil, *g*, or other marking instrument, which should always be adjusted to work perpendicularly. This pencil being adjusted, by moving it from the standard A to a distance equal to the radius of the well of the stair, is moved upon the surface of the inclined plank K from the bottom upward, the arm revolving on the post A and rising on it with the inclination of the plank as it moves, being jointed sufficiently loose for this purpose. The mark thus traced on the plank describes the exact line and curve of the finished rail, the standard A representing the centre of the well-hole of the stair. One line being traced, the head H is moved a distance equal to the width designed for the rail, and another line is traced, which, being parallel, corresponds exactly with the first. These lines furnish a reliable guide for the joiner to follow in sawing out the rail before finishing, and save a great amount of labor and calculation, besides having the advantage of being entirely correct. The arm C may be dropped below the plank, and the pencil-holder reversed to bring the point above it in an upright position, when lines may be traced on the under side corresponding with those on the upper side of the plank.

It will be apparent that the pattern E must for every stair-case be made with its edge *a* of the exact inclination of the rise of the step, when, if the plank be held in contact with it, no error can occur in the laying out of the rail. The cross-bar F' is provided with adjustable heads *l l*, by means of which the plank may be clamped and held firmly to its place.

For laying out elliptical stair-rails, I remove the arm C from the standard, and place upon the latter a tube or sleeve (*o*, fig. 3) fitting snugly, but turning upon it. This tube is squared on its outside, and receives the trammel M, which slides up and down upon it. The sleeve fits in a square socket of the base to hold it from turning on the standard except as required when it is raised out of the socket for the purpose. N is the beam of the trammel, with its two bearings *r r*, which slide in the groove *s*, and *p* is the pencil or marker, vertically suspended from the beam. The plank K being fixed to the inclination of the pattern E, and the bearings *r r* and pencil *p* set to the size and proportion of the ellipse, the beam is moved around in the same manner as the arm before described, correctly tracing the curve and twist of the rail.

This simple apparatus can be used by any joiner, and being a certain guide, effects a great saving of time and labor in the difficult work of describing rails for curved, elliptical, and spiral stairs.

What I claim as my invention, and desire to secure by Letters Patent, is—

The herein-described apparatus, consisting of the standard A, tracing-arm C, pattern E, adjustable support F, and foot-clamp G, arranged and operating substantially as and for the purposes herein set forth.

I also claim the combination of a trammel with the above-claimed apparatus, arranged and operating substantially as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ALEXANDER CLOW.

Witnesses:

JOHN GRAHAM,

JOHN HENDRY.