

McClintock Young, Jr.

Machine Gearing.

N^o 32,733.

Patented July 2, 1861.

Fig: 1.

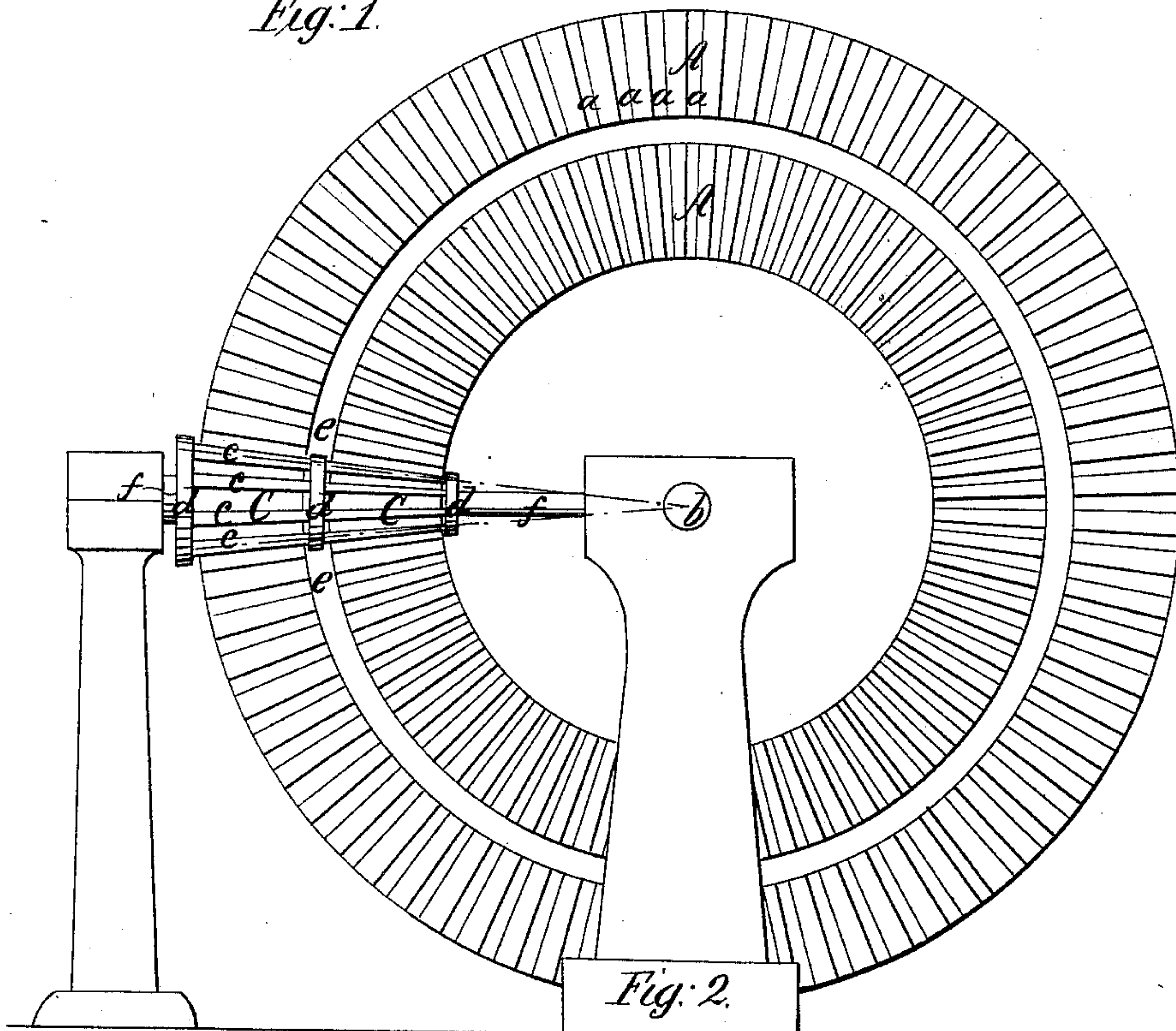
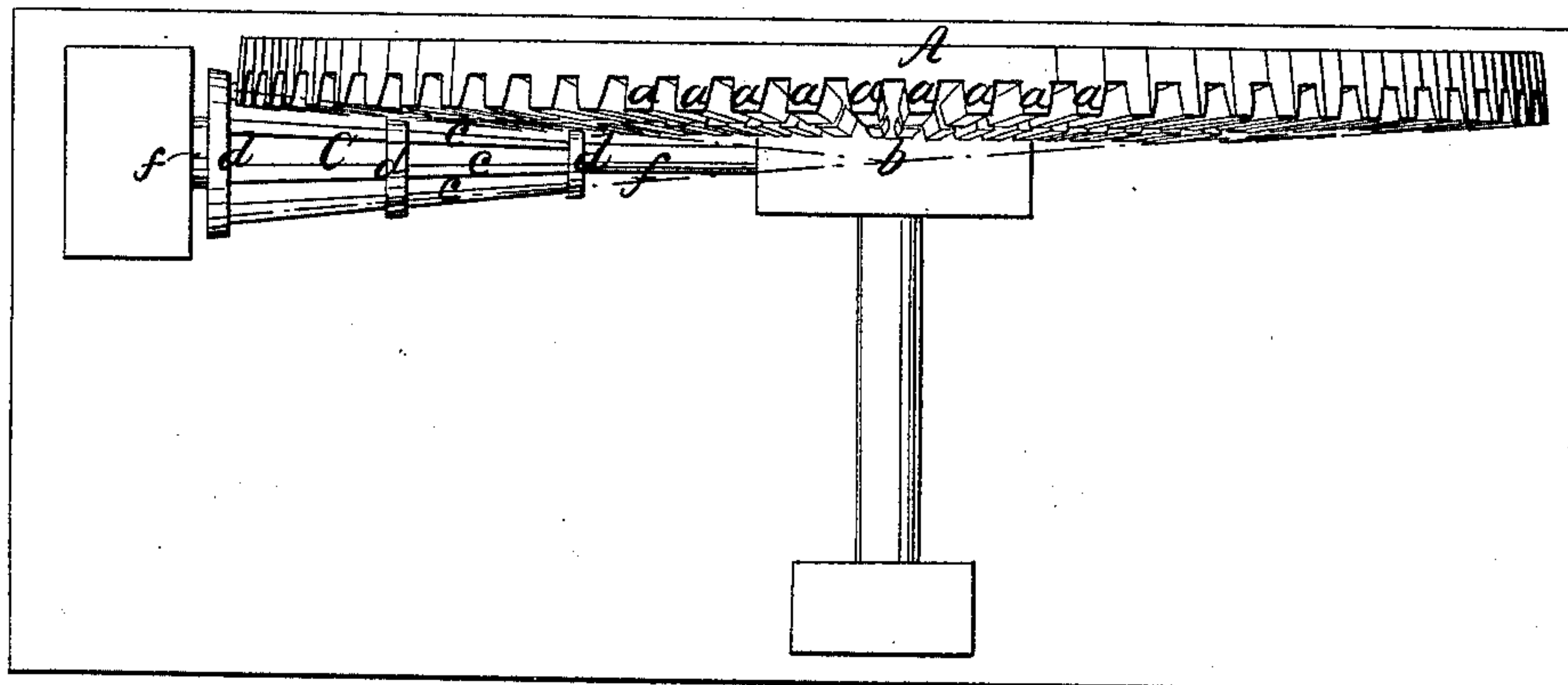


Fig: 2.



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UNITED STATES PATENT OFFICE.

McCLINTOCK YOUNG, JR., OF FREDERICK, MARYLAND.

GEARING FOR DRIVING MACHINERY.

Specification of Letters Patent No. 32,733, dated July 2, 1861.

To all whom it may concern:

Be it known that I, McCLINTOCK YOUNG, Jr., of the city and county of Frederick and State of Maryland, have invented a new and useful Improvement in Gearing for Driving Machinery of Any Kind; and I do hereby declare the following to be a full, clear, and exact description of the construction of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents an elevation of a bevel gear wheel with a pinion, constructed after my plan, and Fig. 2 represents, a top plan of the same.

Similar letters where they occur in the separate figures denote like parts of the gearing in both of the figures.

The "lantern pinion," so called, to which my construction of pinion, most assimilates, is used for driving another gear, instead of being driven by it, while in my construction of pinion, it is made to be driven by the master bevel wheel. In ordinary bevel pinions, particularly in small ones, "the pitch and round", of the teeth must vary as well as the length of tooth, and to do this cuts away so much of it as to leave little at the center to give it strength.

Cylindrical wire pinions have heretofore been used for many purposes, but in this form there is little or no trouble, as there is no variation of the diameter of the pinion. With a bevel pinion it is different, for the diameter varies in every line of its length, and the "round and depth" of the teeth must vary with the diameter, else a small portion of the pinion must do all the work, and soon wear out.

The nature of my invention consists in the construction, and use in connection with a bevel driving wheel, of a bevel pinion, the teeth or cogs of which are formed of round tapering wire, secured in proper heads as will be hereafter described.

A, represents a bevel drive wheel, the cogs *a* of which run toward a common center (as shown by red lines at *b*, Fig. 2).

C, is a bevel pinion driven by the main drive wheel A. The wires *c*, of this pinion and which form its cogs or teeth, I prefer to make of steel, and they are made tapering,

and set into the heads *d*, so that they shall point to a common center—that center when the pinion is set to run with a main drive wheel as shown in the figures, being at *b*, which is the center of the cogs of the wheel A. This construction and arrangement of drive wheel and pinion, if mechanically set up cannot fail to run smoothly and true, for the "round" of the teeth of the pinion varies mathematically with the bevel or inclination of the cogs *a*, and said cogs and tapering wires will roll freely and easily together. When the pinion is made long, as shown in the drawings, a center disk or plate should be used to stiffen the wires, and a groove *e* cut in the main wheel for this head to turn in. With short pinions the center head may be omitted.

f, is the pinion shaft and it may only extend from the outside heads to the boxes or bearings, leaving the center of the pinion open and the cogs of the main wheel free to enter between the wires at the smaller end of the pinion, to such depth as may be necessary to give them the proper hold.

A pinion of the length and diameter of that shown in the drawing, could not be perfectly cut in an engine because the shape of the cogs or teeth, vary throughout the whole length of the pinion, and ordinary bevel teeth or cogs would not mesh truly with them. After such a pinion had been cut by an engine as nearly true as possible, it would require hand dressing to put the proper "round" upon the cogs or teeth at the smaller end of the pinion. By my construction—it may be said that, the cogs or teeth are made before the pinion itself is made, and may be thus made with great accuracy, and being of steel, one of great endurance.

Having thus fully described the nature and object of my invention, what I claim therein as new and desire by Letters Patent is,

A bevel pinion constructed of tapering wires set in suitable heads, to form the teeth or cogs substantially as and for the purpose set forth.

McCLINTOCK YOUNG, JR.

Witnesses:

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