

(No Model.)

2 Sheets--Sheet 1.

A. S. BAKER.
Mechanical Movement.

No. 232,104.

Patented Sept. 14, 1880.

Fig. 1.

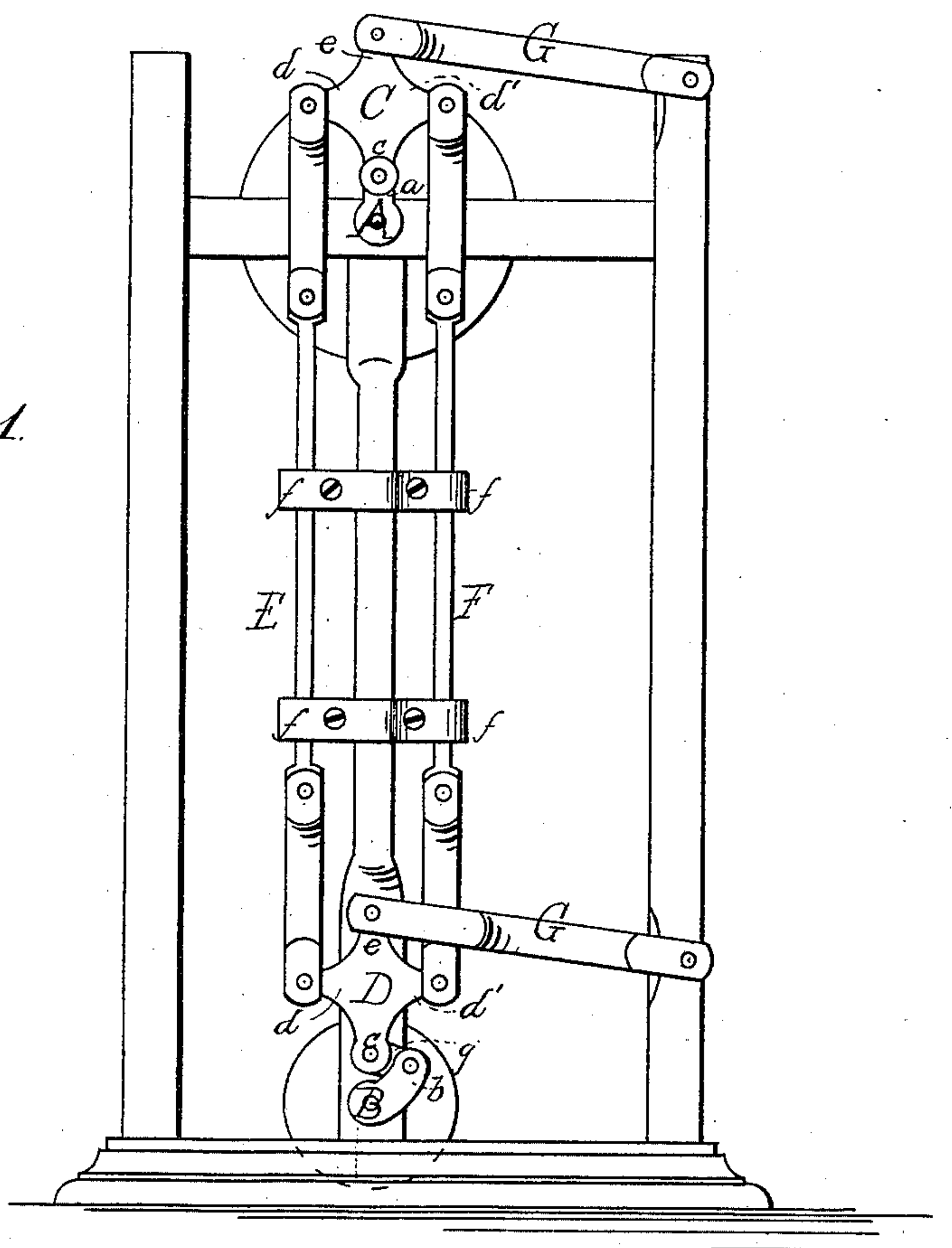
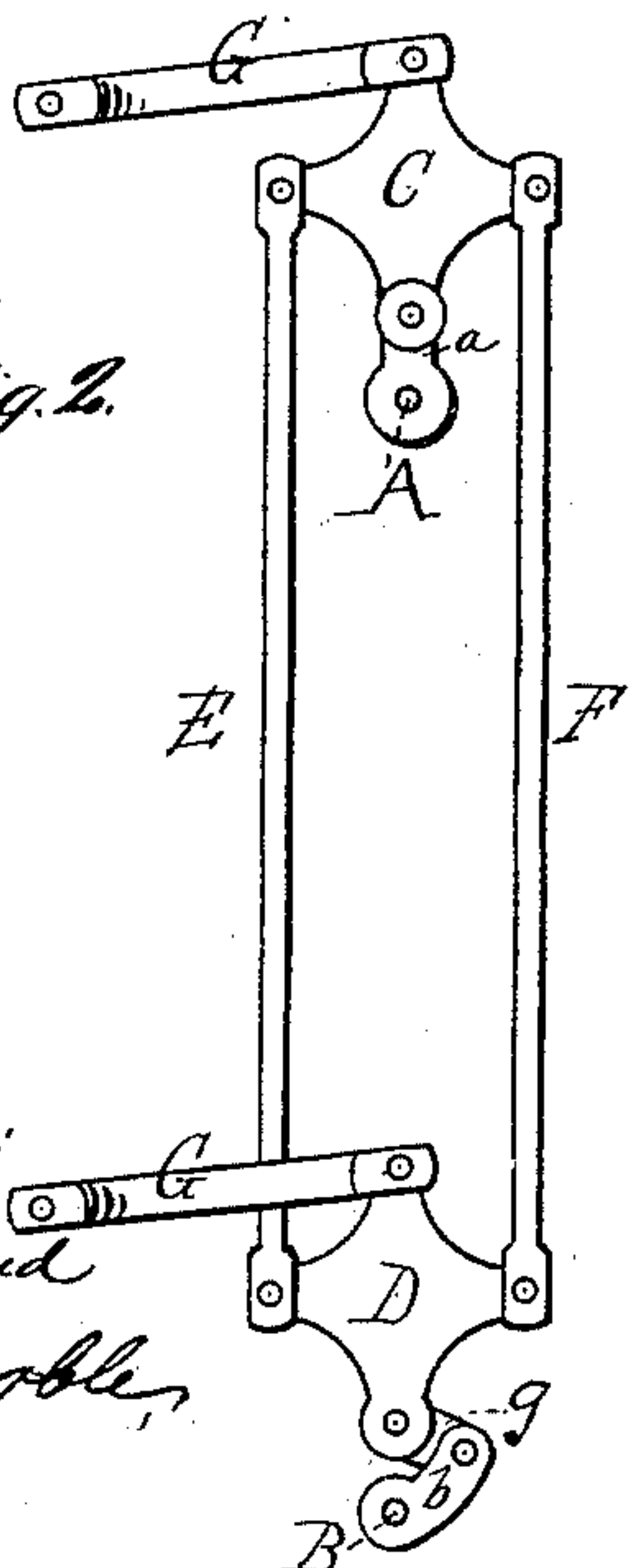
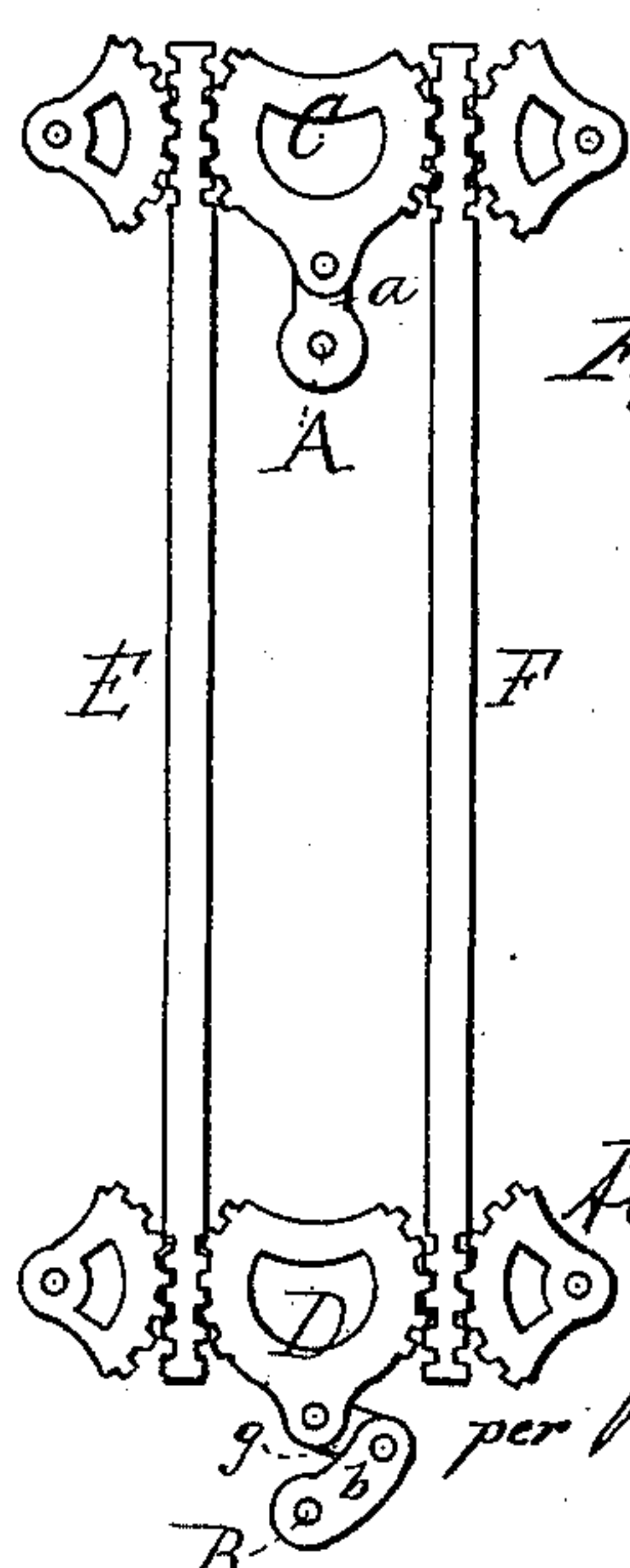


Fig. 2.



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Fig. 3.



Inventor:
Allen S. Baker.
per Rich. H. Dyer.

Attorney.

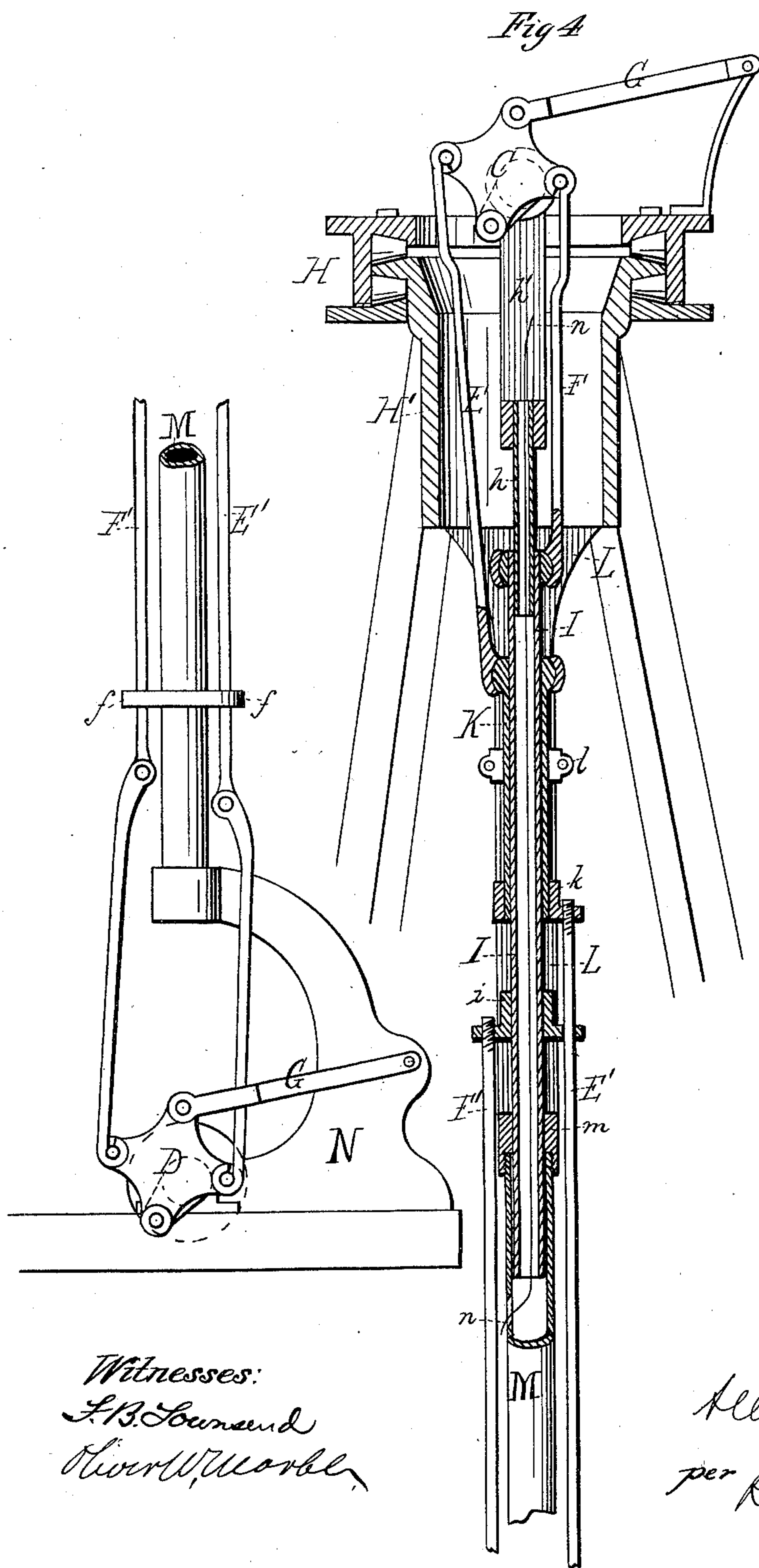
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2 Sheets--Sheet 2.

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UNITED STATES PATENT OFFICE.

ALLEN S. BAKER, OF EVANSVILLE, WISCONSIN.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 232,104, dated September 14, 1880.

Application filed March 25, 1880. (No model.)

To all whom it may concern:

Be it known that I, ALLEN S. BAKER, of Evansville, in the county of Rock and State of Wisconsin, have invented a certain new and useful Improvement in Mechanical Movements, of which the following is a specification.

The object I have in view is to produce simple and efficient means for transmitting the rotary movement of one shaft to another shaft situated in a plane parallel, or substantially so, to the plane in which the power-shaft is located, which will operate without the use of gear-wheels or belts or any intermediate shaft, will have no dead-centers, and can be used to connect shafts at any distance apart.

The device has especial advantages when applied as a rotary power for windmills, since it can be swiveled to allow for the movement of the turn-table, and has no tendency to shift the wind-wheel out of the wind, as does the ordinary gear-wheel connection, the power necessary to drive which reacts upon the turn-table and throws the wheel more or less edgewise to the wind.

My invention therein consists in the peculiar devices for accomplishing these objects, as fully hereinafter explained, and pointed out by the claims.

In the accompanying drawings, forming a part hereof, Figure 1 is an elevation of the movement, having guided connections; Fig. 2, an elevation showing the simplest form of the movement without guided connections; Fig. 3, a modification of the movement, and Fig. 4 a sectional elevation of the movement applied to a windmill.

A is the power-shaft, and B the shaft to be driven, having cranks shown respectively by *a b*. Pivoted to the cranks are similar working-plates C D, which are connected by rods E F. The two working-plates being guided in the same manner, the motions imparted to the working-plate C by the power-crank *a* will be exactly described by the other working-plate D, and the crank *b* will consequently be turned. These working-plates may have three or four arms. Each working-plate has a lower central arm, *c*, pivoted to the crank, and two side arms, *d d'*, connected with the rods E F. The central upper point of each working-plate

is guided to move in substantially a vertical line. This may be done by means of a cross-pin working in vertical grooves in the frame, but more conveniently by a rocking arm, G, pivoted to the frame and to the central upper point of the working-plate, which central upper point may be an arm, *e*.

If the distance between the shafts A B is short, the connecting-rods E F need not be guided, Fig. 2; but where the distance requires it, to prevent them from bending or springing, the rods are passed through guides *f*, and are jointed, as shown in Fig. 1.

To allow for the difference of movement the lower working-plate, D, is connected to the crank *b* by a short link, *g*, or the wrist-pin may work in a slot in the end of the crank.

It will be seen that the strain upon the connecting-rods is always exerted in the direction of their length, and that they are not required to be made heavy to resist any lateral strain.

When applied as a rotary power for windmills the connection between the upper and lower working-plates must be swiveled, so as to allow the turn-table of the windmill to revolve and present the wheel in any direction. This construction is shown in Fig. 4.

The turn-table of the mill is designated by letter H, the tower-casting by H'. The upper working-plate, C, is connected to the crank on the inner end of the windmill-shaft, and is guided by a rocking arm, G, pivoted to a standard rising from the turn-table. A pipe, *h*, is suspended centrally in the tower-casting, and is rigidly fixed to an arm, *h'*, extending downwardly from the turn-table. Over the pipe *h* slides a pipe, I, which is connected at its upper end by a ball-and-socket joint with the rod F, leading to the upper working-plate. The pipe I extends down through a pipe, K, and below such pipe K receives a two-armed casting, *i*, into one arm of which is screwed the rod F', leading to the lower working-plate, D. The pipe K is connected by a ball-and-socket joint at its upper end with the rod E from the upper working-plate, and at its lower end has secured to it a one-armed-casting, *k*, into which is screwed the rod E', leading to the lower working-plate. An arm, L, extends down from the tower-casting, and has a rigid bearing, *l*, which receives the pipe K and prevents

such pipe from turning by means of a lug and groove. (Not shown.) The rod E' passes through one arm of the casting *i*, and holds the pipe I from turning. The arm L extends 5 below the casting *i*, and has a collar, *m*, in which the pipe I slides. This collar *m* receives a pipe, M, leading to the lower frame, N, and having guides *f* for the rods E' F'. The shifting-wire *n*, by which the wind-wheel is thrown 10 out of the wind, enters the fixed pipe *h*, and then passes down through the pipe I into pipe M, and out through a slot in pipe M and down to the ground. The ball-and-socket joints allow the rods E F to turn freely on the pipes I 15 K. No matter what position the turn-table is in, the working-plates will have similar movements, and there is not the least tendency to shift the wheel out of the wind.

As a modification of my device, the working-plates may be segments of gearing and engage with teeth on the ends of the connecting-rods, and such connecting-rods may be 20 held in place and guided by pivoted toothed sectors, as shown in Fig. 3.

My mechanical movement can be applied in 25 machine-shops to drive the shafts on the floors above the engine-room, and can be used to advantage in various machines where it is desired to transmit the rotary movement of one shaft to one or more other shafts situated in 30 planes parallel to the power-shaft, or substantially so.

What I claim as my invention is—

1. The means for transmitting power from one crank to another, consisting of two similar 35 working-plates carried by the cranks, and reciprocating rods connecting such working-plates, so that they will have like movements, substantially as described.

2. In a mechanical movement, the combination 40 of the two working-plates carried by the cranks and the swivel-connections between such working-plates, substantially as described.

ALLEN S. BAKER.

Witnesses:

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