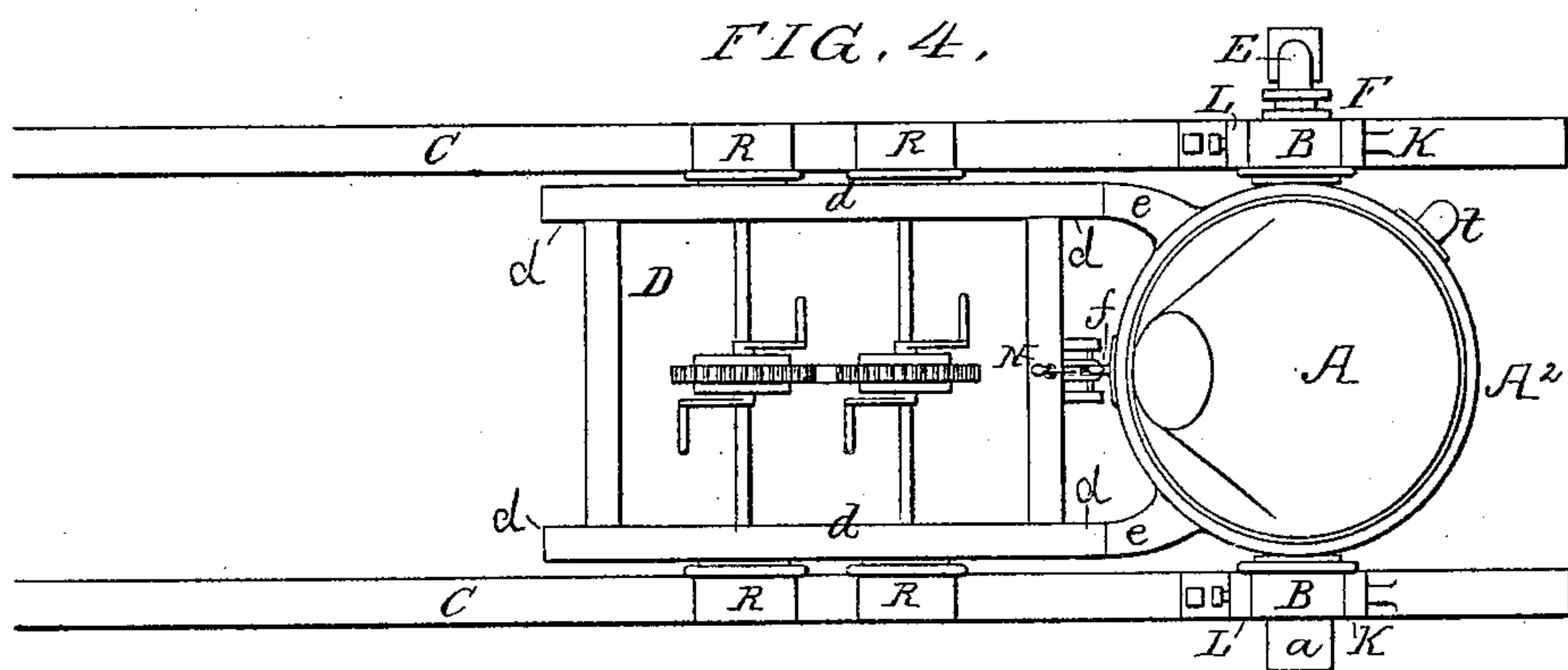
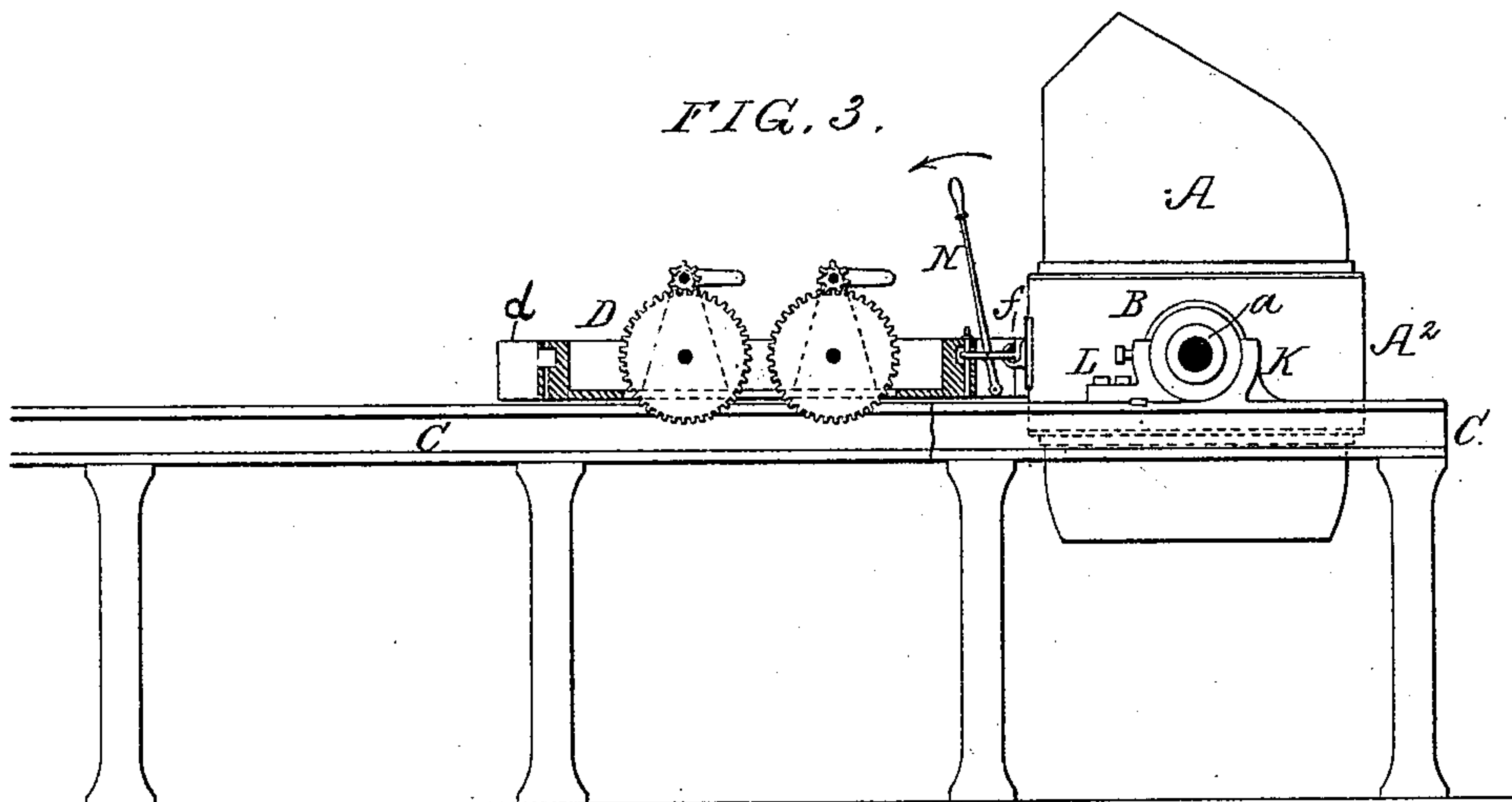
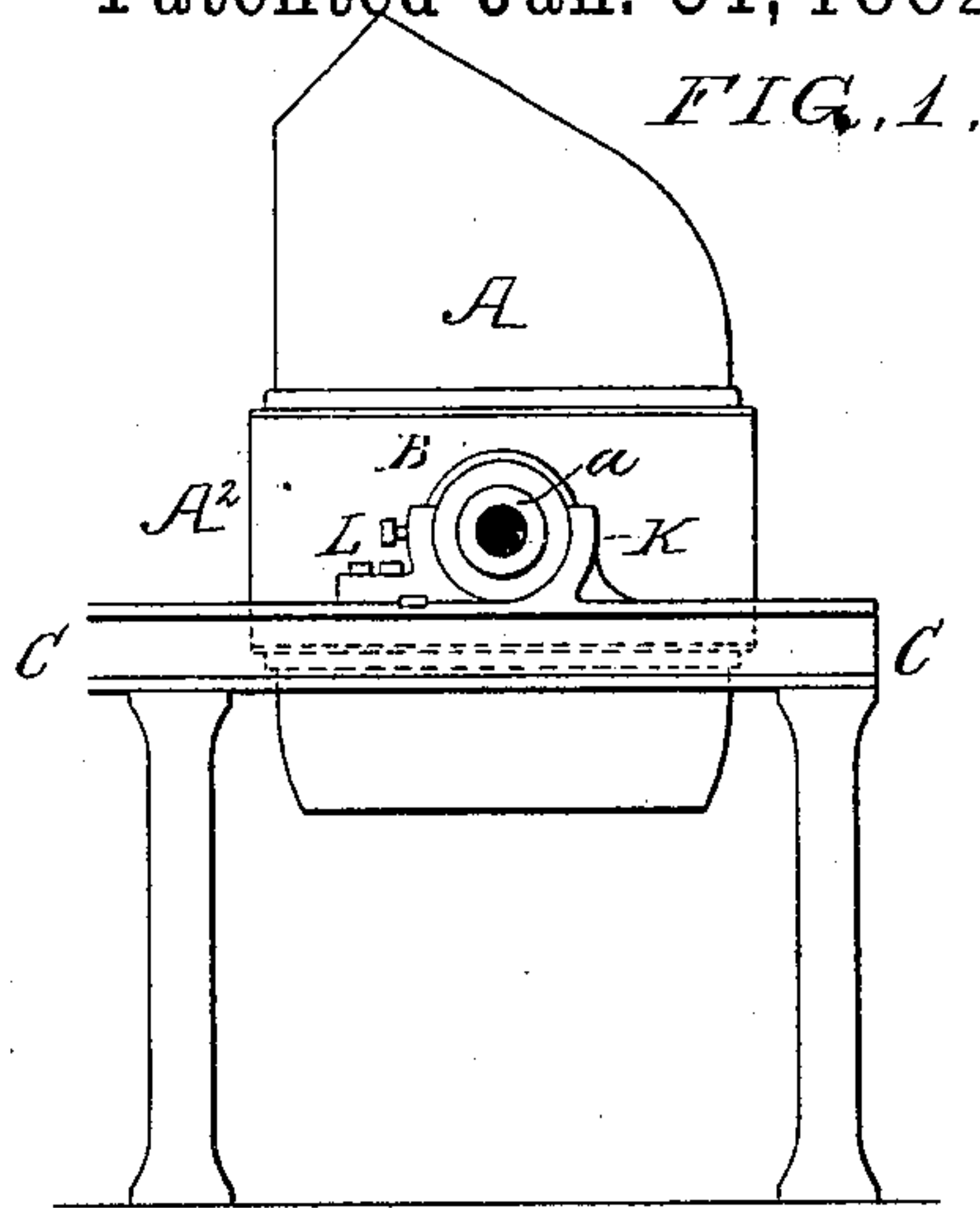
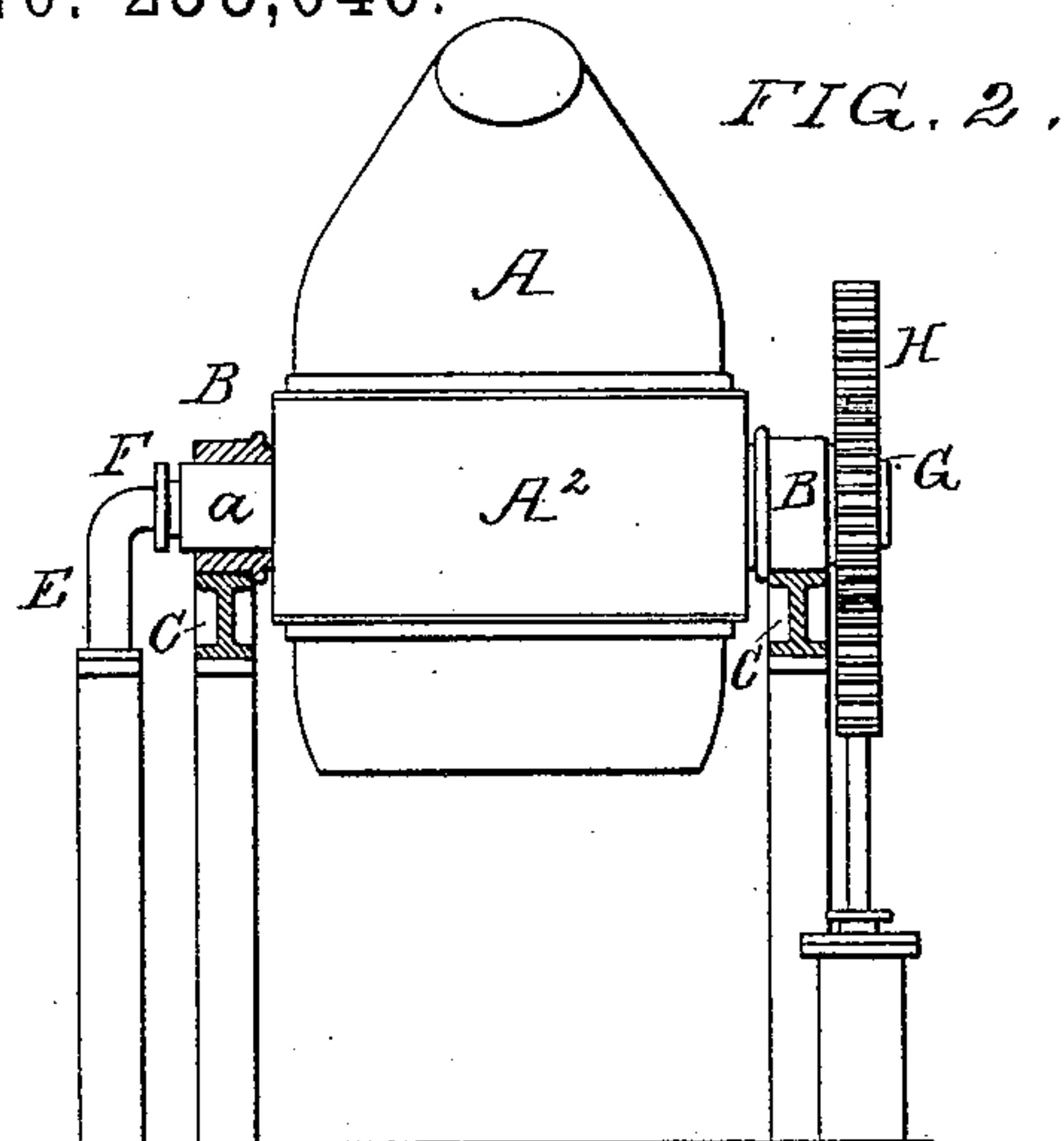


W. M. HENDERSON.

BESSEMER STEEL PLANT.

No. 253,046.

Patented Jan. 31, 1882.



Witnesses:
Harry Drury
James F. Tobin

Inventor:
William M. Henderson
by his attorneys
Hewson and Long

(No Model.)

2 Sheets—Sheet 2.

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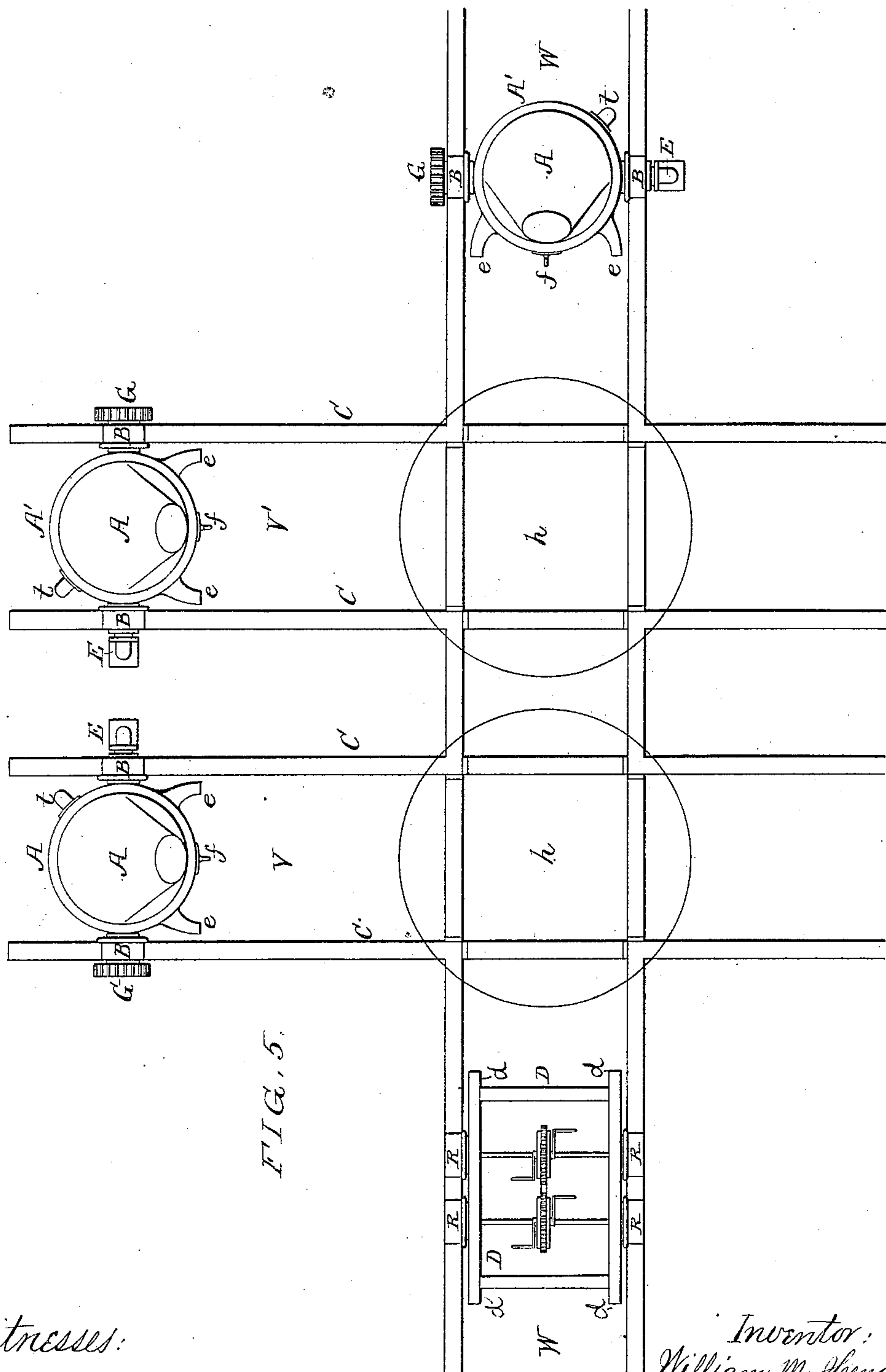


FIG. 5.

Witnesses:

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Inventor:
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UNITED STATES PATENT OFFICE.

WILLIAM M. HENDERSON, OF STEELTON, PENNSYLVANIA.

BESSEMER-STEEL PLANT.

SPECIFICATION forming part of Letters Patent No. 253,046, dated January 31, 1882.

Application filed September 27, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. HENDERSON, a citizen of the United States, residing at Steelton, Dauphin county, Pennsylvania, have
5 invented certain Improvements in Bessemer-Steel Plant, of which the following is a specification.

My invention relates to improvements in Bessemer-steel plant, the main objects of my improvements, which are fully described hereinafter, being to economize time and labor by affording facilities for promptly removing from its working position a converter for relining and repairs, and for as promptly replacing it with
15 a converter in good working condition.

In the accompanying drawings, Figures 1 and 2, Sheet 1, are a side view and front view of a converter, showing the main feature of my invention; Figs. 3 and 4, a side and plan view
20 of the hand-power truck by which a converter may be traversed along a track; Fig. 5, Sheet 2, a plan view, drawn to a reduced scale, of a system of tracks and turn-tables which I prefer to use in connection with the converters and
25 traction-truck.

Referring to Figs. 1 and 2, which illustrate the main feature of my invention, A is the converter, which may be constructed in substantially the same manner as ordinary converters;
30 but its trunnions *a*, instead of turning in fixed bearings, are provided with flanged wheels B B, adapted to a track consisting of the girders C C, which are supported on columns in the usual manner. The object of this arrangement
35 is to permit the converter, when it has to be relined or otherwise repaired, to be wheeled away on the track and onto any siding or turnout communicating therewith, so as make way for a converter which has been prepared for immediate use, and which can be at once wheeled
40 to the working position previously occupied by the temporarily-discarded converter. The importance of this arrangement will be best understood by referring to the fact that, while a
45 converter for conducting the ordinary Bessemer process requires renewal about every three months, a converter for the basic process, which is now coming into use, must be renewed much oftener; and as the relining of a converter,
50 which has hitherto been done while in its working position, cannot be accomplished in less than three or four days, the importance of

providing the trunnions of the converter with wheels, so that it can be moved out of the way and be replaced by one in good working condition, will be understood. 55

When my improved converter is in its working position each flanged wheel B is confined between a fixed stop, K, on the girder and a stop, L, so secured to the said girder by keys, bolts, or otherwise as to be easily detached therefrom. When the two stops L are in place the wheels become the bearings in which the trunnions can turn when the converter has to be tilted. This tilting of the converter is accomplished by a vertical rack, H, of the hydraulic cylinder usually provided for the purpose, the rack gearing into a pinion, G, on one of the trunnions. A blast-pipe, E, passes through a stuffing-box, F, into one of the trunnions of the converter, and provision must of course be made for detaching this pipe when the converter has to be wheeled away from its working position. 65 70

The converter can be traversed along the girders by suitable tackle operated by steam or other power; but I much prefer the plan which I will now proceed to describe, reference being had to Figs. 3 and 4. 75

A truck, D, is provided with two axles, each having a pair of flanged wheels, R, adapted to the track formed by the girders C, and into a cog-wheel on each axle gears a pinion on a shaft carried by suitable frames on the truck, and provided at each end with a crank-handle. The side beams, *d d*, of the truck project from each end of the same, the projecting beam at either end of the truck being arranged to abut against projections *e e* on the converter, and a hook, *f*, on the latter being adapted for coupling by means of a link to a pin in the truck. 80 85 90

In order that the projecting beams of the truck may be caused to bear hard against the converter, I prefer to connect the coupling-link to a lever, N, pivoted to the truck, so that by forcing the lever in the direction of the arrow while the link is attached to the hook on the converter, the truck must be caused to bear hard against the projections *e e* on the same, and this should be the case before the coupling-pin can drop into its place. When the truck has been thus coupled to the converter the former becomes essentially a part of the latter, which may be hauled away from its 95 100

working position, the stops L, previously referred to, having been first removed and four men being stationed on the truck, one at each handle.

5 A small locomotive may be used in place of the truck; but the truck operated by hand-power will serve the desired purpose.

Fig. 5 shows a system of tracks and turn-
tables which I prefer to use in connection with
10 the wheeled converters and truck. In this view, A A' are two converters, and V V' two tracks composed of the above-mentioned girders C C and continued to any desired points. Another track, W, intersects the two tracks,
15 and at the intersections are turn-tables h h.

The facility with which a converter can be transferred from either of the tracks V V' to the intersecting track W, and with which it can be replaced by another converter in work-
20 ing condition will be understood without explanation. While a system of tracks with switches and turn-outs might be used in place of the intersecting tracks and turn-tables, I prefer the latter.

25 I claim as my invention—

1. The combination, substantially as de-

scribed, of flanged wheels B with the trunnions *a* of a converter.

2. The combination of a converter and flanged wheels adapted to the trunnions thereof, with
30 girders constituting a track for the said wheels, and with fixed and removable stops K and L on the said track, adapted to the wheels, all substantially as specified.

3. The combination of the converter having
35 projections *e e*, the truck having beams adapted to bear upon said projections *e e*, and a coupling device for attaching the truck to the converter, as set forth.

4. The combination of the converter having
40 projections *e e*, the truck having beams adapted thereto, the coupling-link, means for attaching said link to the converter and truck, and the lever N, as specified.

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

WILLIAM M. HENDERSON.

Witnesses:

S. W. FLEMING,
GILLIARD DOCK.