

No. 765,503.

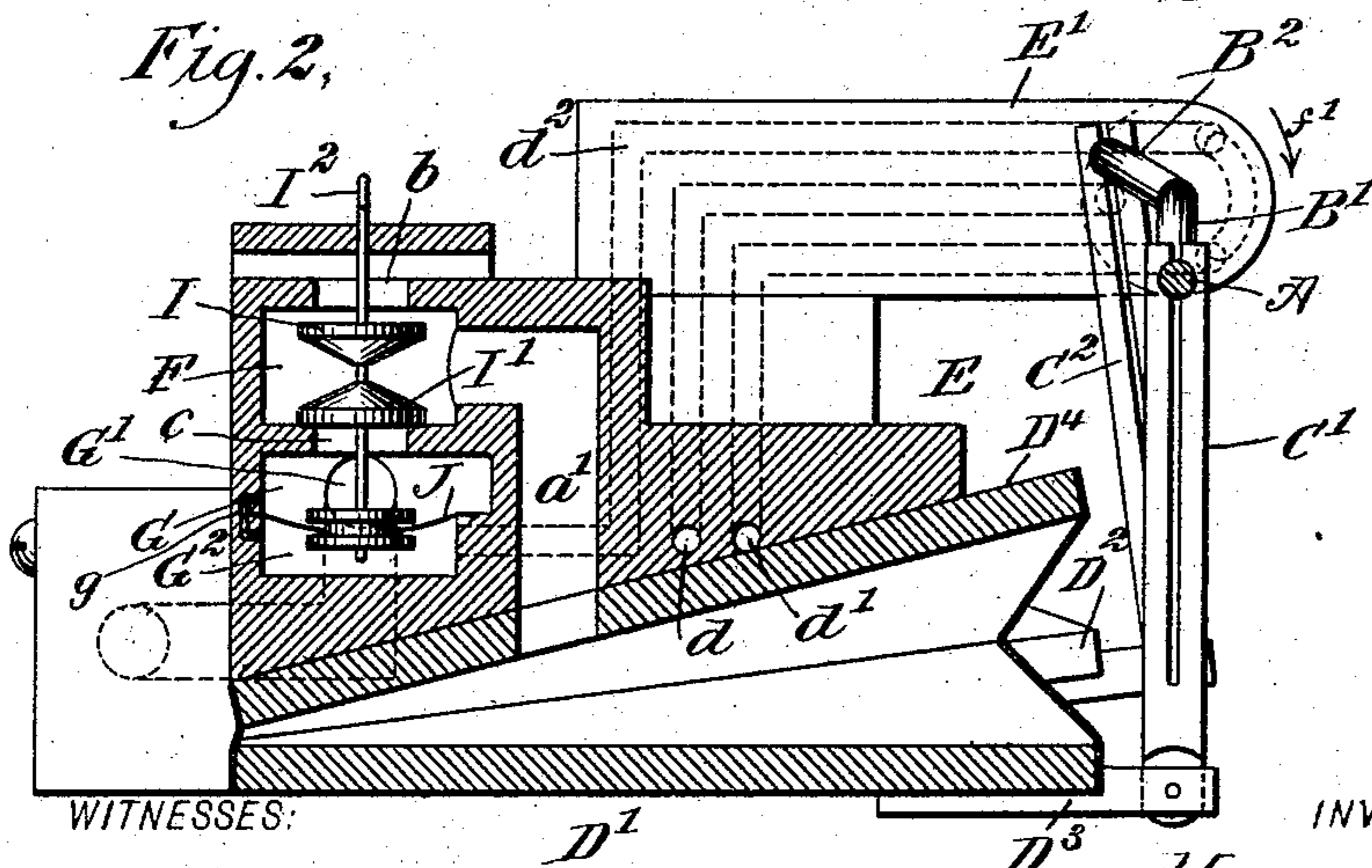
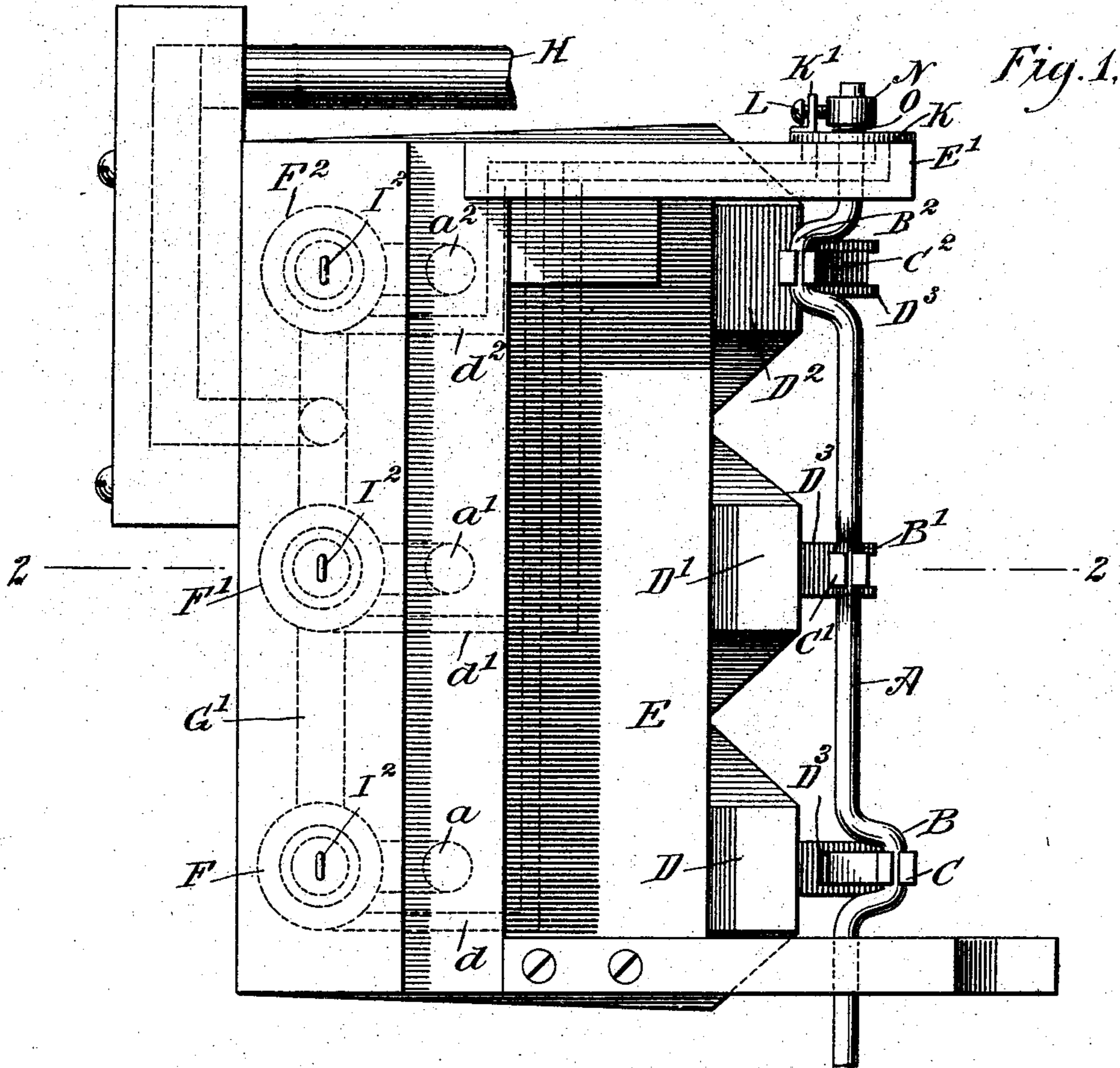
PATENTED JULY 19, 1904.

H. MEYER.  
DRIVING DEVICE FOR MUSIC SHEETS.

APPLICATION FILED MAR. 24, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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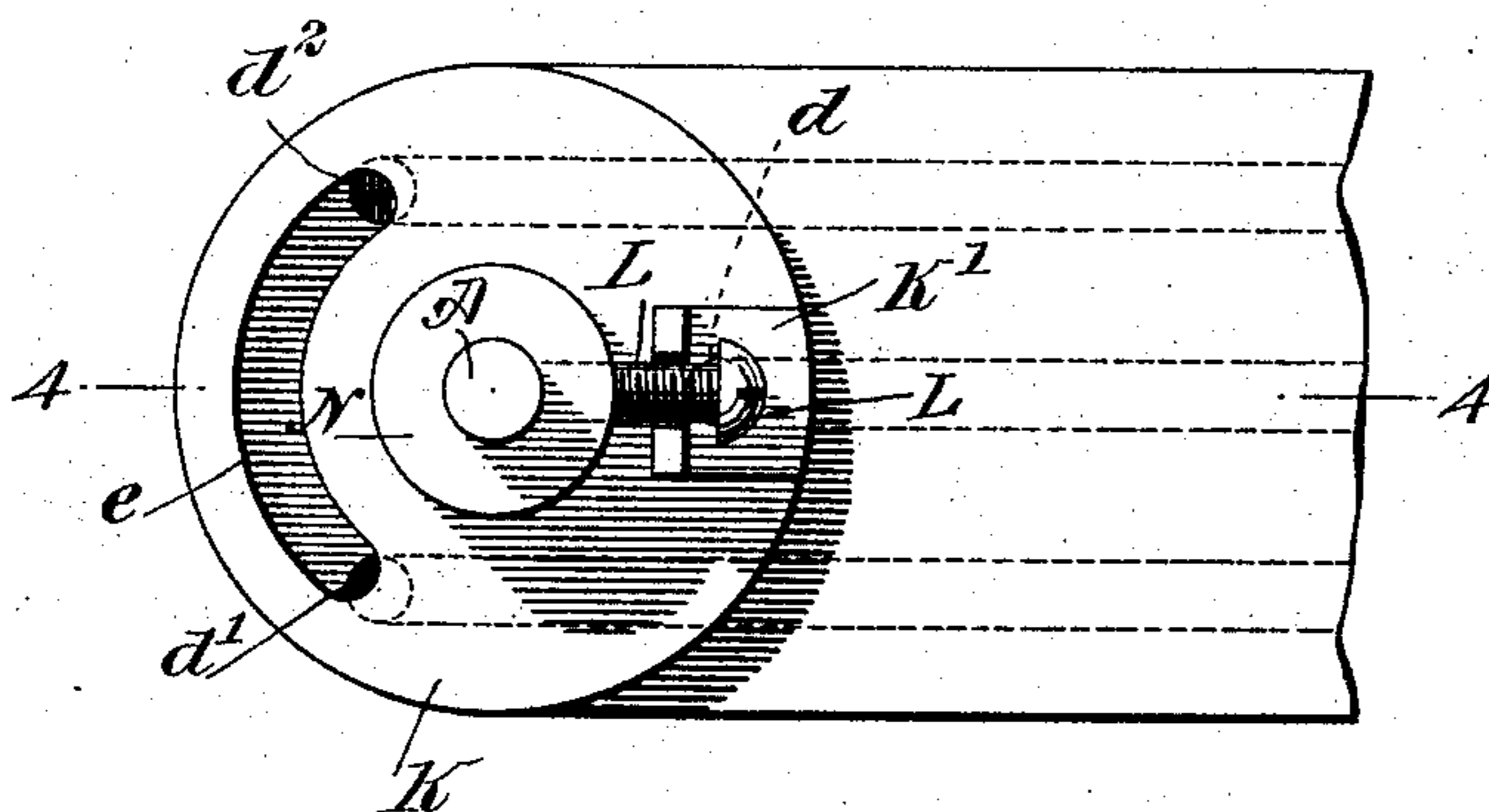
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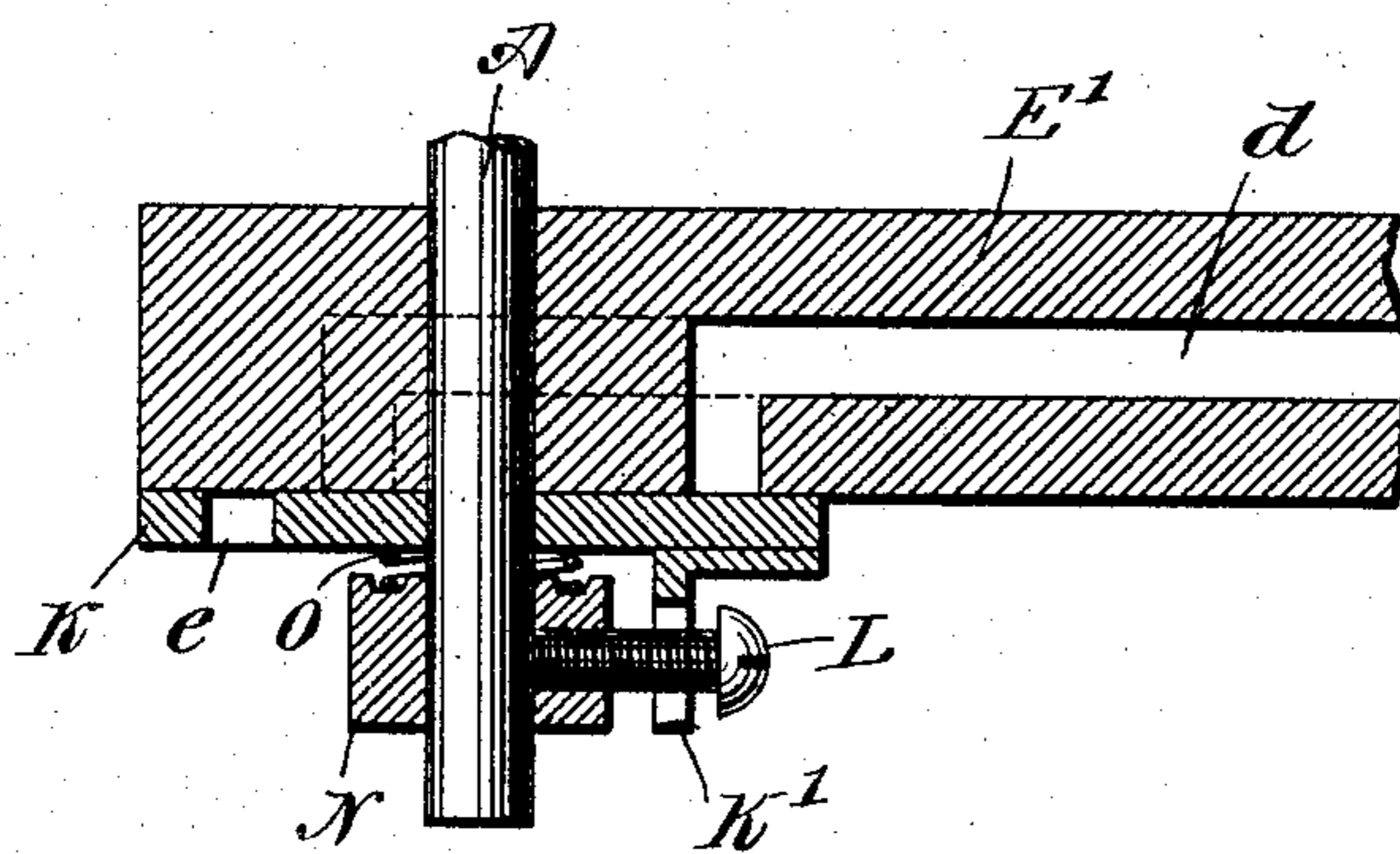
NO MODEL.

2 SHEETS—SHEET 2.

*Fig. 3.*



*Fig. 4.*



WITNESSES:

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*Nov. 4. 1903*

INVENTOR

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# UNITED STATES PATENT OFFICE.

HERMANN MEYER, OF NEW YORK, N. Y.

## DRIVING DEVICE FOR MUSIC-SHEETS.

SPECIFICATION forming part of Letters Patent No. 765,503, dated July 19, 1904.

Application filed March 24, 1903. Serial No. 149,295. (No model.)

*To all whom it may concern:*

Be it known that I, HERMANN MEYER, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Driving Device for Music-Sheets, of which the following is a full, clear, and exact description.

The invention relates to automatic piano-players and like musical instruments; and its object is to provide a new and improved driving device for the music-sheet of a musical instrument arranged to insure a uniform even travel of the sheet in a very simple manner.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the improvement. Fig. 2 is a sectional side elevation of the same on the line 2 2 of Fig. 1. Fig. 3 is an enlarged rear side elevation of the cut-off valve for the pneumatics, and Fig. 4 is a sectional plan view of the same on the line 4 4 of Fig. 3.

The shaft A to be driven carries the usual drum or other device (not shown) for causing the perforate music-sheet to travel over the tracker-board of a musical instrument, and on the said shaft A are arranged a plurality of crank-arms B, B', and B<sup>2</sup>, standing at angles one to the other and connected by pitmen C, C', and C<sup>2</sup> to the free ends of the movable members D<sup>3</sup> of pneumatics D, D', and D<sup>2</sup>, having their stationary members D<sup>4</sup> secured to a suitable fixed support E.

The several pneumatics D, D', and D<sup>2</sup> are connected by ports a, a', and a<sup>2</sup> with valve-chambers F, F', and F<sup>2</sup>, arranged in the support E and connected by ports b with the outer air and by ports c with suction-chambers G, likewise formed in the support E. The several suction-chambers G are connected with each other by a passage G', connected with a

pipe H with a suction device of any approved construction to conveniently draw air from the several suction-chambers G.

The ports b are normally open and adapted to be closed by valves I, and valves I' serve to open and close the ports c, the said valves I and I' for each valve-chamber F being secured on a valve-stem I<sup>2</sup>, connected with a diaphragm J, arranged in the corresponding suction-chamber G over a chamber G<sup>2</sup>. Now from the several chambers G<sup>2</sup> lead ports d, d', and d<sup>2</sup> to one face of a valve-seat E', formed on the support E, and on the said valve-seat is arranged a valve K, provided with an elongated slot e and also provided with a slotted bracket K', engaged by a screw L, screwing in a collar N, held on the shaft A, the said screw L serving to fasten the collar N in position on the shaft A, and between the said collar N and the valve K is interposed a spring O to press the valve K against the face E' to prevent leakage of air between the valve and the said face. Now when the shaft A is rotated the screw L by engaging the bracket K' turns the valve K, so that the latter rotates with the shaft to bring the slot e of the said valve successively in register with the outlet ends of the ports d, d', and d<sup>2</sup>, as will be readily understood by reference to Figs. 3 and 4. As long as a port d, d', or d<sup>2</sup> is closed by a valve K the corresponding diaphragm J remains in a lowermost position, so that the valve I' closes the port c while the other valve I is away from the port b, and hence the latter is open to the atmosphere. Now when the valves I and I' are in this position the valve-chamber F is connected to the atmosphere and by the corresponding port a, a', or a<sup>2</sup> is connected with the corresponding pneumatic D, D', or D<sup>2</sup> to allow air to pass into the pneumatic to inflate the same; but when the valve K uncovers one of the ports d, d', or d<sup>2</sup> then air can pass through this port into the corresponding chamber G<sup>2</sup> and against the under side of the diaphragm J, the upper side of which is under the suction action of the air drawn from the suction-chamber G, whereby the diaphragm J moves into an uppermost

position and in doing so moves the valve I' off its seat and the valve I to its seat to close the port *b* and to open the port *c*. When this takes place, the suction-chamber G is connected by the port *c* with the corresponding valve-chamber F, and the latter in turn is connected by a port *a*, *a'*, or *a''* with the corresponding pneumatic D, D', and D'' to cause deflation thereof. When this takes place, the crank-arm B, B', or B'' of this pneumatic stands in an uppermost position, and consequently when the pneumatic begins to deflate its pitman C, C', or C'' falls on the corresponding crank-arm, so as to rotate the shaft A in the direction of the arrow *f'*. In order to allow the air to exhaust from the chamber G<sup>2</sup> when the valve K closes the ports *d*, *d'*, or *d''*, the chamber G<sup>2</sup> is connected with the chamber G by port *g*, as shown in Fig. 2.

Now as the shaft A is rotated its valve K by the slot *e* successively opens the ports *d*, *d'*, and *d''*, so that the pneumatics D, D', and D'' are actuated in rotation, and consequently a continuous rotary motion is given to the shaft A. The slot *e* is sufficiently long so that at least one of the ports *d*, *d'*, or *d''* is uncovered at a time to insure continuous uniform turning of the shaft, as before described.

When a crank-arm B, B', or B'' moves into a lowermost position, then the corresponding port *d*, *d'*, or *d''* is cut off by the valve K to again connect the corresponding pneumatic with the outer air, and thereby allow the pneumatic to open, and hence during the return stroke of the crank-arm no undue resistance is had from the pneumatic and its corresponding pitman.

By having the screw L engaging a slot in the bracket K' the valve can be readily set on loosening the screw L and turning the collar and valve K until the latter assumes the proper position relative to the ports *d*, *d'*, and *d''* and the slot *e*. Furthermore, by the arrangement described the screw does not interfere with the action of the spring O for pressing the valve against the valve-seat E'.

From the foregoing it will be understood that the impulses are given to the shaft A during the deflation of the pneumatics; but the action may be reversed—that is, the impulses may be given to the shaft A during the inflation of the pneumatics by air under pres-

sure. It will also be seen that the number of pneumatics may be increased if desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A driving device of the character described, consisting of a support having forwardly-projecting members upon the outer face of one of which a valve-seat is formed, a shaft mounted in the projecting members of the support and provided between its ends with a plurality of cranks standing at angles one to the other, a plurality of pneumatics arranged side by side and below the said shaft, a pitman connecting each crank with the movable member of a pneumatic, valve-chambers in the body of the support, each valve-chamber being connected with a pneumatic and with the outer air, a suction-chamber below and in communication with each valve-chamber, the several suction-chambers being connected with each other, valves in each valve-chamber, one for controlling the opening leading to the outer air and the other for controlling the communication between each valve and suction chamber, the valves being mounted on a common stem, a diaphragm in each suction-chamber and secured to the lower end of the stem of the said valves, a chamber below the suction-chamber and connected therewith, each chamber being provided with a port leading to the valve-seat on the projecting member of the support, and an adjustable and spring-pressed valve on one projecting end of the said shaft and working on the valve-seat, said valve being provided with a curved slot, as set forth.

2. A driving device having a valve-seat formed with ports, a shaft, a valve held loosely on the said shaft and formed with an elongated slot for registering with the said ports, a collar on the said shaft, a spring interposed between the collar and the valve, and a screw for securing the collar to the shaft and for engaging a slotted bracket on the valve, as set forth.

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

HERMANN MEYER.

Witnesses:

HUGO F. RINA,  
AMEDE RINA.