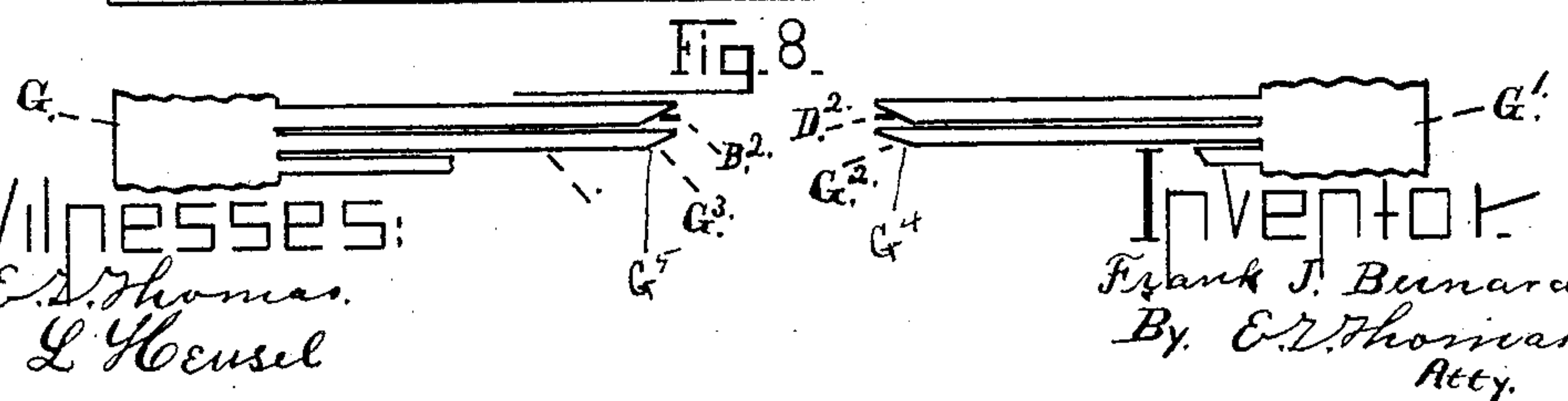
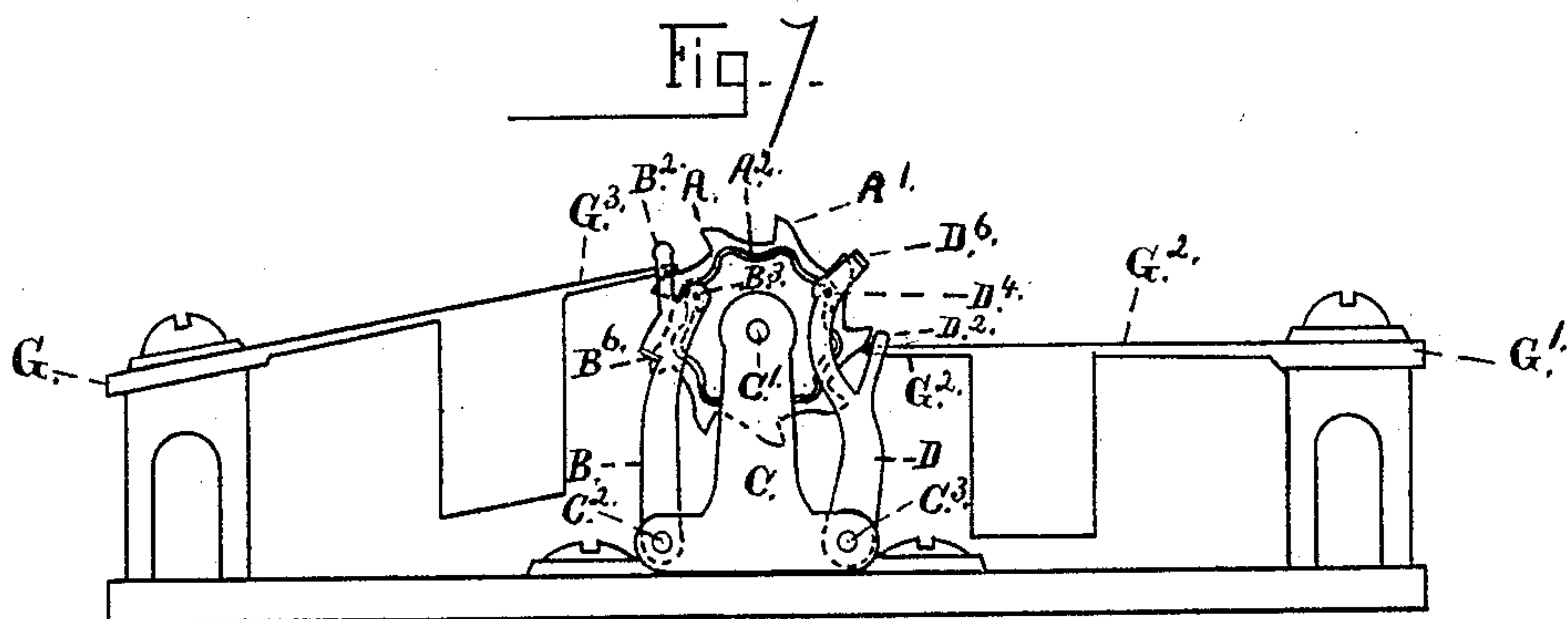
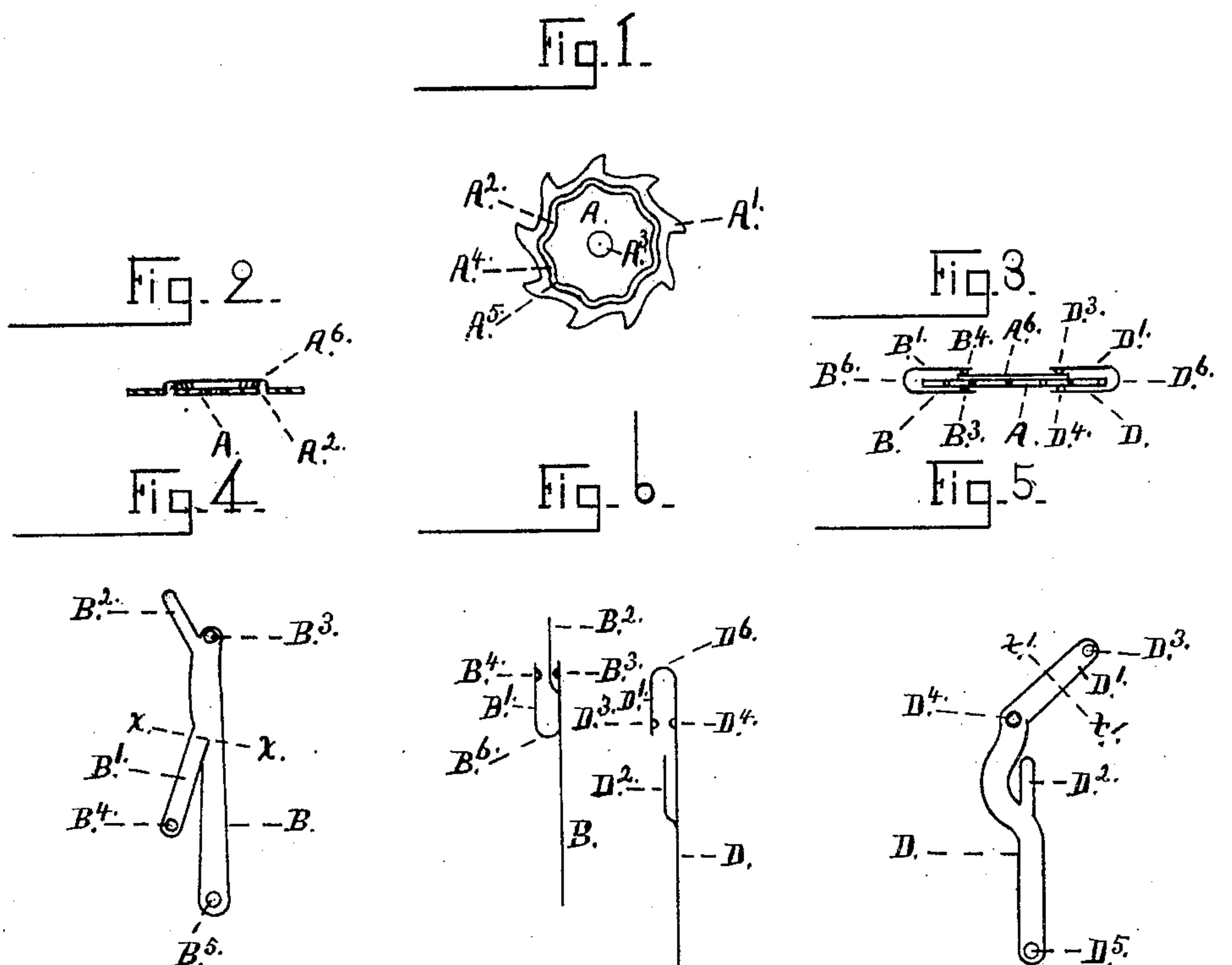


(No Model.)

F. J. BERNARD.
MUSIC BOX DAMPER.

No. 570,898.

Patented Nov. 10, 1896.



Witnesses:
E. S. Thomas.
L. Heusel

Inventor:
Frank J. Bernard.
By E. S. Thomas.
Atty.

UNITED STATES PATENT OFFICE.

FRANK J. BERNARD, OF WEST NEW YORK, NEW JERSEY.

MUSIC-BOX DAMPER.

SPECIFICATION forming part of Letters Patent No. 570,898, dated November 10, 1896.

Application filed March 6, 1896. Serial No. 582,158. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. BERNARD, a citizen of the United States, and a resident of West New York, county of Hudson and State of New Jersey, have invented a new and useful Improvement in Music-Box Dampers, of which the following is a specification.

The object of this invention is to provide a grooved star-wheel for a music-box to automatically work the dampers.

The invention consists in an irregular groove in the face or side of a star-wheel for a music-box, and a damper so constructed as to be operated by the said groove.

Figure 1 is a face or side view of a music-box star wheel. Fig. 2 is an edge sectional view of Fig. 1. Fig. 3 is a top view of the star-wheel and dampers, showing their position. Fig. 4 is a right-hand damper-blank before bent or shaped. Fig. 5 is a blank of a left-hand damper before bent or shaped. Fig. 6 shows the edge view of the right and left dampers after being shaped or bent. Fig. 7 shows an end view of the reed-plates and the action of the dampers operated by the grooved star-wheel, and Fig. 8 shows the action of the damper-fingers upon the reeds.

A in the several figures represents a star-wheel of a music-box for operating the reeds and dampers. It is provided with teeth A' and arbor-hole A^3 . Near its periphery, as shown in Figs. 1, 2, and 7, a narrow cam or scalloped groove A^2 is stamped or milled. This groove is formed with extending sections A^5 , opposite each tooth-point A' , and contracted sections A^4 between the teeth-points, as shown in Fig. 1.

B, Fig. 4, is a metal blank having tension-arms B' and damper-fingers B^2 , and is provided with arbor-hole B^5 , by which it is pivoted to the holder C, Fig. 7. The tension-arm B' is bent on line $x x$, Fig. 4, forming a U-shaped yoke, as shown at B^6 , Figs. 3 and 6, in which the star-wheel runs.

B^3 and B^4 show the metal to be embossed, forming two points or lugs B^3 and B^4 , Fig. 6, which are exactly opposite each other after the arm B' is bent, as shown in Fig. 6. The lug B^3 travels in the groove A^2 , causing the damper B to be moved to the right and left as the star-wheel A is turned, while the lug B^4 presses lightly upon the opposite side of

the star-wheel, causing a slight tension and holding the lug B^3 in the groove A^2 .

D, Fig. 5, is a metal blank having tension-arm D' , damper-fingers D^2 , and arbor-hole D^5 . This blank D is bent on line $x' x'$, forming a U, as shown at D^6 , Fig. 6. Two lugs D^3 and D^4 are formed in the same manner and for the same purpose as described for lugs B^3 and B^4 , both dampers B and D being operated by the same groove A^2 and star-wheel A and accomplishing the same result.

G and G' , Figs. 7 and 8, are comb-plates supported in the usual manner and are provided with reeds G^2 and G^3 , having the beveled points G^4 and G^5 , against which the damper-fingers B^2 and D^2 are pressed by the action of the extended section of the groove A^5 , preventing the reeds from vibrating until another tooth A' of the star-wheel again operates the reed. The action of the contracted section A^4 of the groove releases the damper-fingers from the reeds in time for another action of the star-wheel.

The operation is as follows: When the star-wheel A is turned by the tune sheet or cylinder, (not shown,) the dampers are operated against the beveled ends of the reed-fingers G^2 and G^3 by the extending sections A^5 of the groove A^2 , preventing the reeds from vibrating before another tooth of the star-wheel operates them, but not until the contracted section A^4 acts to release the damper-fingers B^4 and D^2 from the reeds. After the groove A^2 has been stamped in the star-wheel the ridge A^6 is ground off even with the surface of the star-wheel.

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

1. A music-box having reeds G^2 , with beveled points G^4 and star-wheels A, provided with a cam-groove A^2 , having a corresponding number of elevations A^5 , and depressions A^4 , as there are teeth on said star-wheel to positively operate a damper without a spring, in combination with a pivoted damper provided with a lug to run in the said cam-groove, as and for the purpose described.

2. A music-box star-wheel provided with a cam-groove A^2 , having a corresponding number of elevations A^5 , as there are teeth on the said star-wheel, to positively operate a

damper, in combination with a pivoted damper, provided with a lug B^3 , and a U-yoke, the said U-yoke having a lug B^4 , which presses against the opposite side of the grooved star-wheel and holds the lug B^3 , in the groove A^2 , as and for the purpose described.

3. A music-box star-wheel provided with a cam-groove A^2 , having a corresponding number of elevations A^5 , as there are teeth on said star-wheel to positively operate the dampers B, and D, against and from the reeds G^2 , and G^3 , in combination with the pivoted dampers B,

and D, provided with fingers B^2 , and D^2 , and having lugs B^3 , and D^4 , to engage with the cam-groove A^2 , on the star-wheel as and for the purpose described. 15

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 20th day of July, 1895.

FRANK J. BERNARD.

Witnesses:

E. T. THOMAS,
A. LANCELOT.