

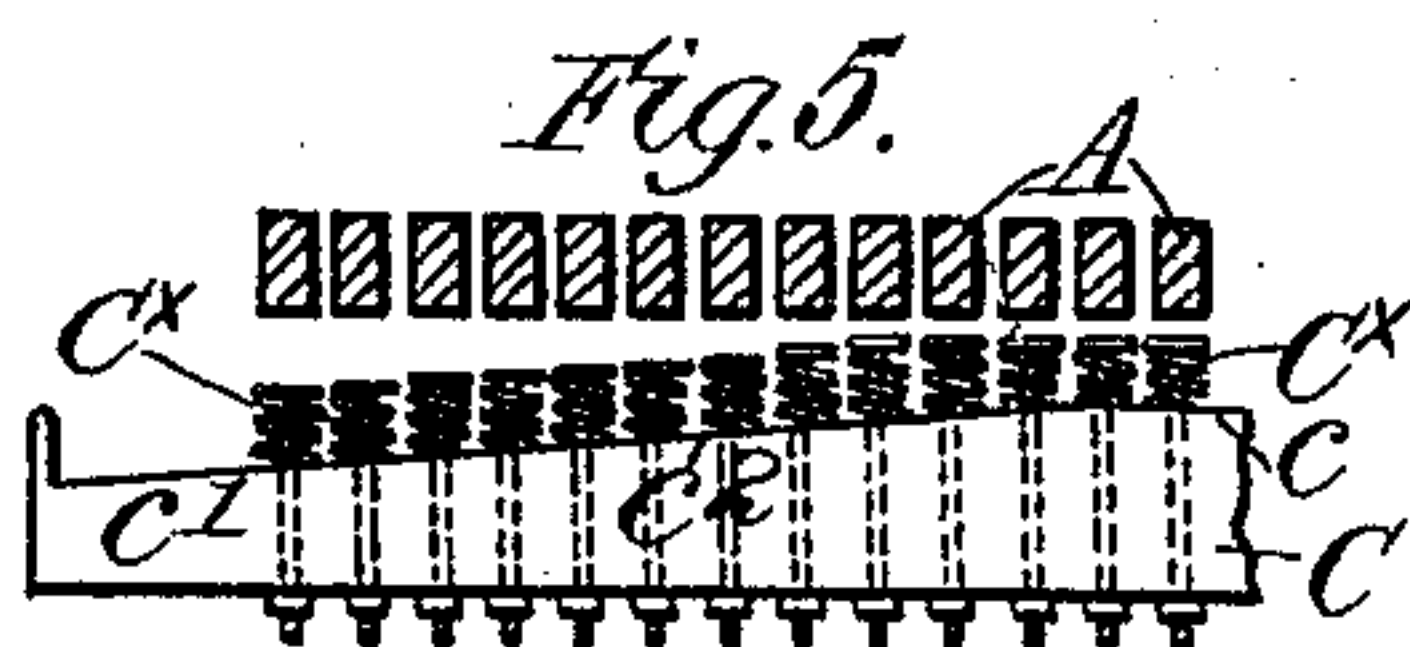
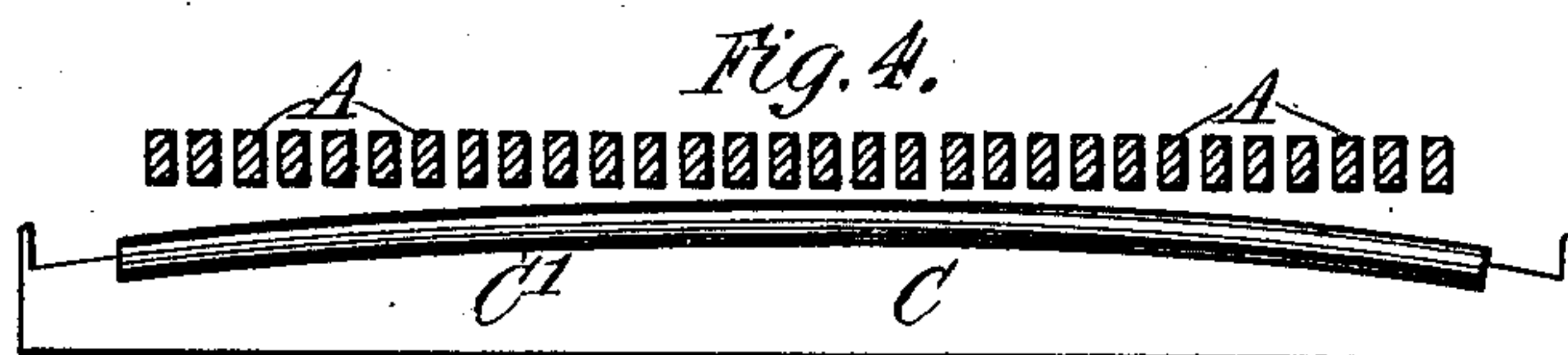
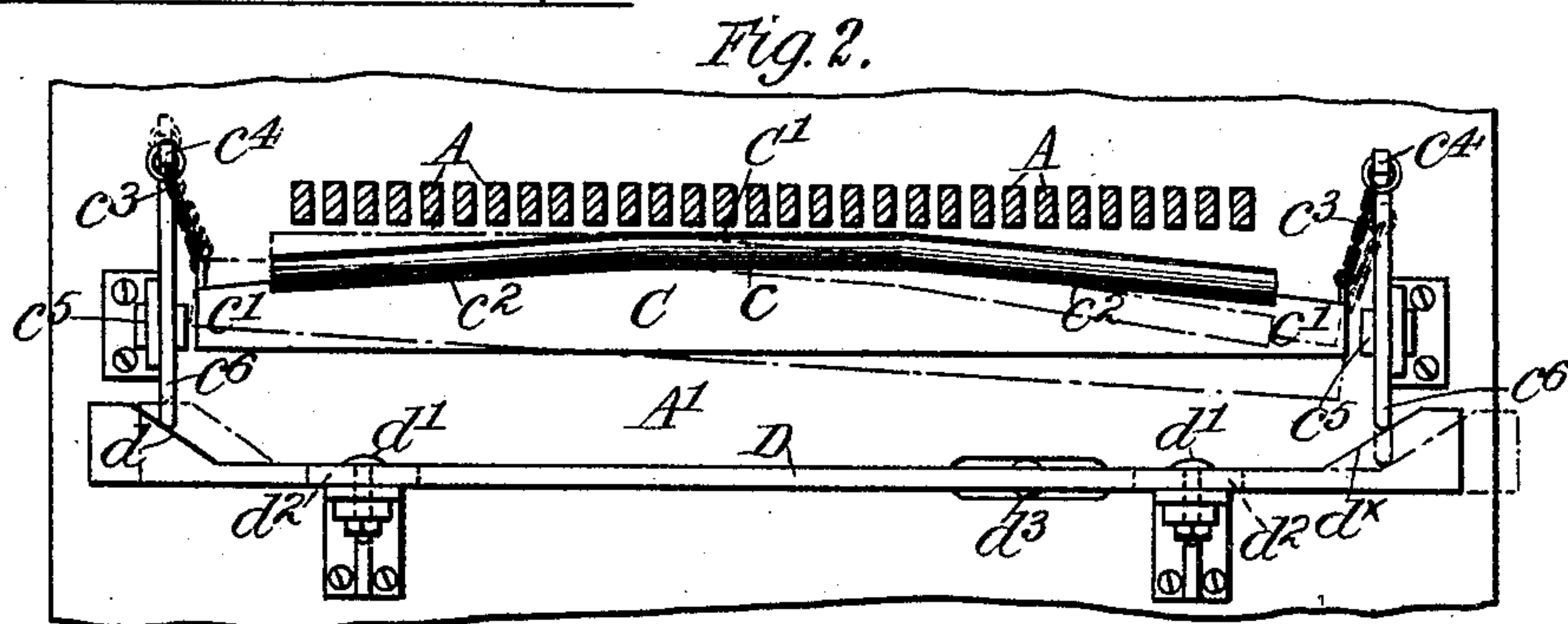
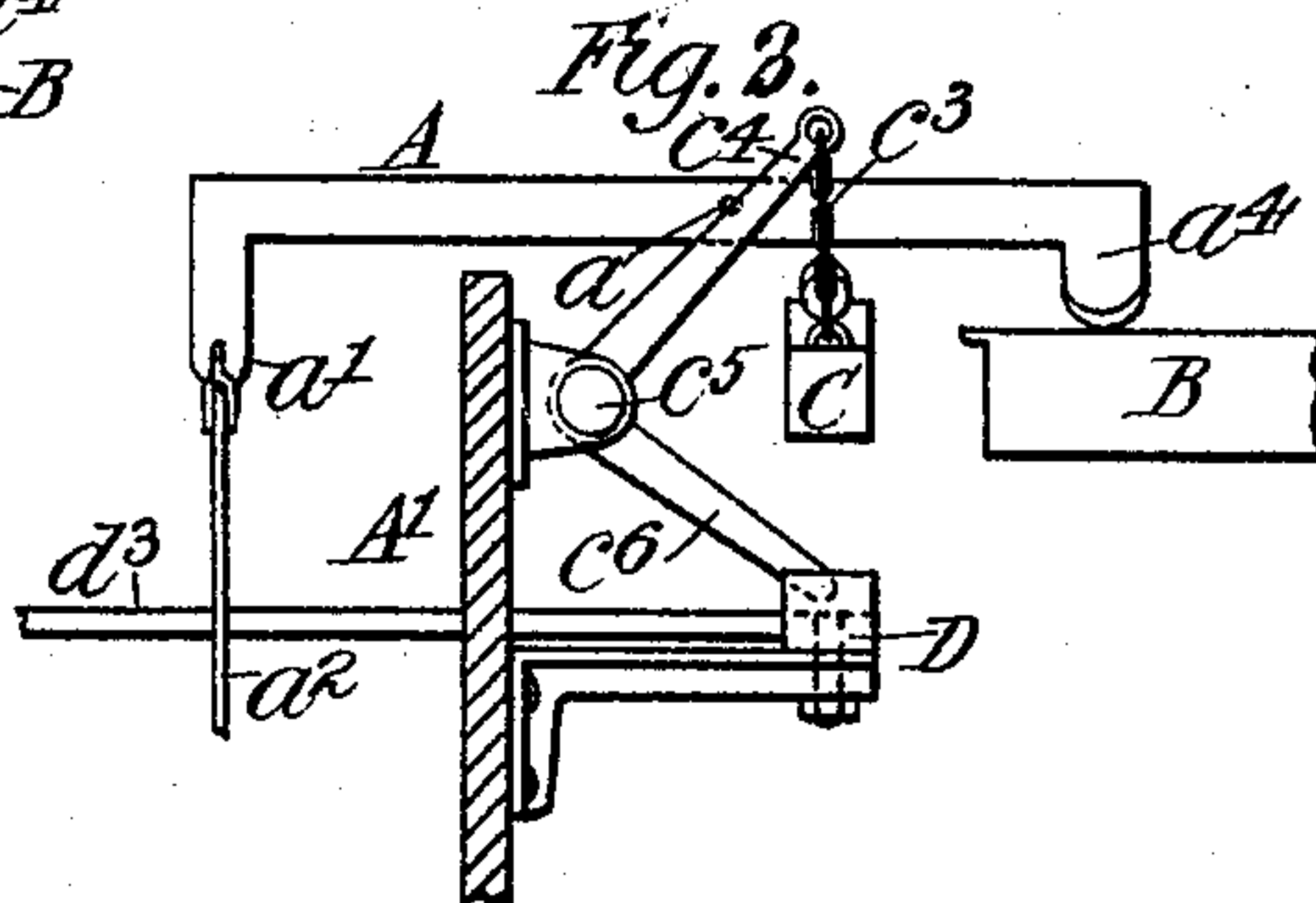
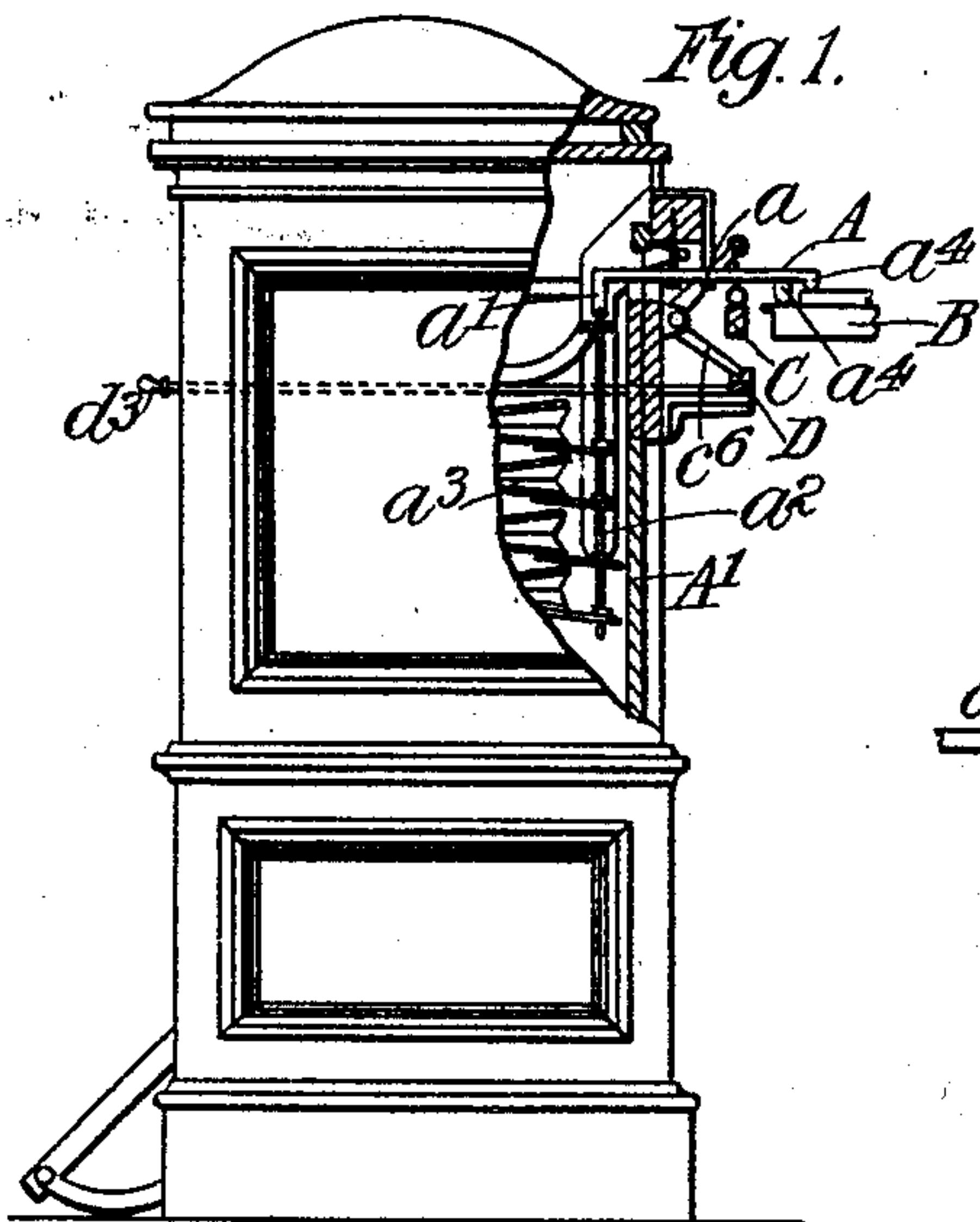
No. 773,044.

PATENTED OCT. 25, 1904.

F. G. WEBB.
AUTOMATIC PIANOFORTE PLAYER.

APPLICATION FILED JUNE 29, 1904.

NO MODEL.



Witnesses
H. H. H. H.
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Inventor
By Richard Brown, Registrar
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UNITED STATES PATENT OFFICE

FRANCIS GILBERT WEBB, OF LONDON, ENGLAND, ASSIGNOR TO THE
AEOLIAN COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW
JERSEY.

AUTOMATIC PIANOFORTE-PLAYER.

SPECIFICATION forming part of Letters Patent No. 773,044, dated October 25, 1904.

Application filed June 29, 1904. Serial No. 214,581. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS GILBERT WEBB, musical critic, a subject of the King of Great Britain, residing at 19 Cathcart road, South Kensington, in the county of London, Eng-
land, have invented certain new and useful Improvements Relating to Automatic Piano-
forte-Players, of which the following is a specification.

10 This invention relates to automatic or mechanical pianoforte-players, and particularly to those of the kind known as "pneumatic" pianoforte-players.

The chief object of my invention is to provide a device for enabling the strength of the blows with which the levers of the pneumatic pianoforte-player strike the keyboard of the pianoforte to be so controlled that the play-
ing of the bass or of the treble may at the will of the performer be softened relatively to each other and in such manner that there will be no sudden transition from the soft bass to the loud treble, and vice versa.

According to my invention I provide at
25 the rear or inner ends of the series of levers that strike the keyboard of the pianoforte (hereinafter referred to as "striker-levers") a movable piece which may be in the form of a rod or bar extending transversely along the
30 entire series of striker-levers. The surface of this rod or bar adjacent to the said striker-levers is made resilient by means of springs, elastic cushions, or the like. For a portion of its length at the middle the resilient or
35 elastic surface of the said rod or bar is preferably made level or parallel with respect to the series of striker-levers, said middle portion being at a higher plane than the end portions and joined thereto by slightly-inclined
40 surfaces. The longitudinal axis of said rod or bar normally lies parallel with the series of striker-levers, and the rod or bar is so arranged that by suitable mechanism it can be shifted at the will of the performer into an
45 oblique position toward the right or the left with respect to said striker-levers. When the rod or bar is in its parallel position, only the middle portion of the striker-levers will

be restrained or restricted in their action on the pianoforte-keyboard and the relative tone at the bass and treble will be unaffected; but when said rod or bar is caused to assume its oblique position the tone of the bass relatively to the treble or of the treble relatively to the bass will be diminished or increased according as the obliquity of the rod or bar is greater toward the left or toward the right of the keyboard.

In order that my said invention may be clearly understood and readily carried into effect, I will describe the same more fully with reference to the accompanying drawings, in which—

Figure 1 is a general view, partly in section, showing my invention applied to a pneumatic pianoforte-player of the well-known "pianola" kind. Fig. 2 is a sectional front elevation; and Fig. 3, a sectional end elevation, on a larger scale, showing my apparatus more clearly. Fig. 4 and 5 are detail views showing modifications of my apparatus.

A A are the series of striker-levers, which are pivoted at a and have their inner ends a' connected by rods a^2 with the pneumatics a^3 , by which they are operated, their outer ends a^4 projecting from the casing A' of the pianola so as to lie above the keys B of the pianoforte in a position to strike the same when actuated by the air-pressure as the perforated tune-sheet travels along the tracker-board of the pianola in the well-known manner. C is the rod or bar that extends transversely beneath the said series of striker-levers A. This rod or bar has its upper surface at the middle part c level or parallel with the series of striker-levers A when said rod or bar is in its normal position, the said middle part being at a higher plane than the ends c' c' of the rod or bar and joined thereto by the slightly-inclined surfaces c^2 c^2 . (See Fig. 2.) The surface of the said rod or bar adjacent to the series of striker-levers A is provided with a resilient cushion C', which may comprise a flexible air-tube closed at its ends, so as to form a resilient air-cushion. If desired, the resilient cushion may be made of a tube of

thin flexible material and be inflated to the extent necessary for obtaining the desired degree of resiliency thereof. In this case the said tube would be provided with a suitable
 5 non-return air-valve analogous to that of a pneumatic wheel-tire. Instead of the said air-cushion any other suitable kind of resilient device may be used. For instance, I may use
 10 helical or other springs C^x , arranged as indicated in Fig. 5 and provided with adjusting-screws for enabling their resistance to be regulated. The said rod or bar C is supported
 15 at its ends by flexible pieces or links c^3 , Figs. 2 and 3, connected with the upper limbs c^4 of bell-crank levers pivoted at c^5 to the casing of the pianola. The lower limbs c^6 of said
 20 bell-crank levers lie above or engage with wedge-shaped or inclined pieces d d^x , formed at or near the ends of a bar D. This bar is supported by fixed studs d' d'' , projecting
 25 through slots d^2 d^3 in said bar, so as to render it capable of moving longitudinally in either direction at the will of the performer. For
 30 thus longitudinally shifting said bar D it is connected with a hand-lever d^3 , whose outer end extends to the exterior of the pianola-casing in a convenient position to be actuated by the performer. When the sliding
 35 bar D is shifted, say, toward the right in Fig. 2, the incline d at the left end thereof will lift the lower limb c^6 of the adjacent bell-crank lever, while the other incline, d^x , at the
 40 opposite end of the said sliding bar D will permit the lower limb of the bell-crank lever adjacent thereto to descend by reason of the
 45 said incline d^x moving from its path. (See the dotted lines in Fig. 2.) The said bell-crank levers therefore operate to raise the left-hand end of the rod C and lower the
 50 right-hand end thereof, with the result that the said rod C assumes the oblique position represented by the dotted lines in this figure—that is to say, the inclined elastic or resilient surface c^2 at the left-hand end of the
 55 rod C comes in proximity to and lies more or less parallel with the left-hand end of the series of striker-levers A, so that the said elastic surface exerts a restraining influence on the blows delivered by the striker-levers at
 60 this part, whereby the treble notes of the pianoforte are softened in tone. The middle surface c of said bar assumes a downwardly-inclined position from the left toward the right, with the result that the middle notes of
 65 the pianoforte will gradually increase in tone from the softened treble to the loud bass. If said rod D be shifted in the reverse direction to that above stated, then the bar C will be placed into an oblique position the reverse to that above stated, with the result that the bass notes will be softened in tone and the middle notes will gradually increase in tone from the softened bass to the loud treble. As already stated, when the said bar C assumes its parallel position—*i. e.*, the position repre-

sented by the full lines in Fig. 2—only the middle notes of the pianoforte will be softened in tone, the tone gradually increasing from the soft middle register toward both the loud bass and the loud treble. Obviously the
 70 extent and direction of obliquity that is given to said bar C by the performer will have the effect of diminishing or increasing the tone of the notes of the bass relatively to the treble or of the treble relatively to the bass.

I do not confine myself to the means hereinabove described for actuating the aforesaid rod or bar C, as any appropriate means may be employed therefor.

Instead of making the aforesaid elastic or
 80 resilient surface with two level surfaces joined by inclined surfaces the entire surface may be made convexly curved from end to end, as shown at Fig. 4.

Although my invention is particularly in-
 85 tended for use with pneumatic pianoforte-players, it may, if required, be applied to other forms of automatic or mechanical pianoforte-players, whether they be of the kind that consist of a separate machine which is
 90 brought to the keyboard of the pianoforte for playing the same or whether they be of the kind in which the pianoforte is combined therewith to form a single instrument.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a mechanical pianoforte-player, the combination with the striker-levers, of a movable bar situated transversely with respect to said striker-levers and having a resilient surface adjacent to the latter, and means whereby the said bar can at the will of the performer be caused to assume an oblique position relatively to the plane of the striker-levers either toward the bass or the treble of
 105 the keyboard for the purpose specified.

2. In a mechanical pianoforte-player, the combination with the striker-levers, of a movable bar situated transversely with respect to said striker-levers and having adjacent to the
 110 latter a double inclined resilient surface joined by an intermediate level one, and means whereby the said bar can, at the will of the performer, be caused to assume an oblique position relatively to the plane of the striker-levers either toward the bass or the treble of
 115 the keyboard for the purpose specified.

3. In a mechanical pianoforte-player, the combination with the striker-levers, of a movable bar situated transversely with respect to
 120 said striker-levers and having adjacent to the latter a double inclined surface joined by an intermediate level one, a resilient cushion on said double inclined and level surface, and means whereby the said bar can at the will of
 125 the performer, be caused to assume an oblique position relatively to the plane of the striker-levers either toward the bass or the treble of the keyboard for the purpose specified.

4. In a mechanical pianoforte-player, the 130

combination with the striker-levers, of a movable bar situated transversely with respect to said striker-levers and having adjacent to the latter a double inclined surface joined by an intermediate level one, a hollow resilient cushion on said double inclined and level surface, and means whereby the said bar can at the will of the performer, be caused to assume an oblique position relatively to the plane of the striker-levers either toward the bass or the treble of the keyboard for the purpose specified.

5. In a mechanical pianoforte-player, the combination with the striker-levers, of a movable bar situated transversely with respect to said striker-levers and having adjacent to the latter a double inclined surface joined by an intermediate level one, an inflatable air-tube on said double inclined and level surface, and means whereby the said bar can at the will of the performer, be caused to assume an oblique position relatively to the plane of the striker-levers either toward the bass or the

treble of the keyboard for the purpose specified.

6. In a mechanical pianoforte-player, the combination with the striker-levers, of a movable bar situated transversely with respect to said striker-levers and having a resilient surface adjacent to the latter, a bar adapted to slide longitudinally with respect to the movable bar, bell-crank levers flexibly supporting the movable bar at the ends, inclined pieces situated near the ends of the sliding bar and supporting the free ends of the bell-crank levers, and lever mechanism for enabling the performer to shift said sliding bar toward the right or the left for the purpose specified.

In testimony whereof I have hereunto set my hand, in presence of two subscribing witnesses, this 17th day of June, 1904.

FRANCIS GILBERT WEBB.

Witnesses:

MELLERSH JACKSON,
W. M. HARRIS.