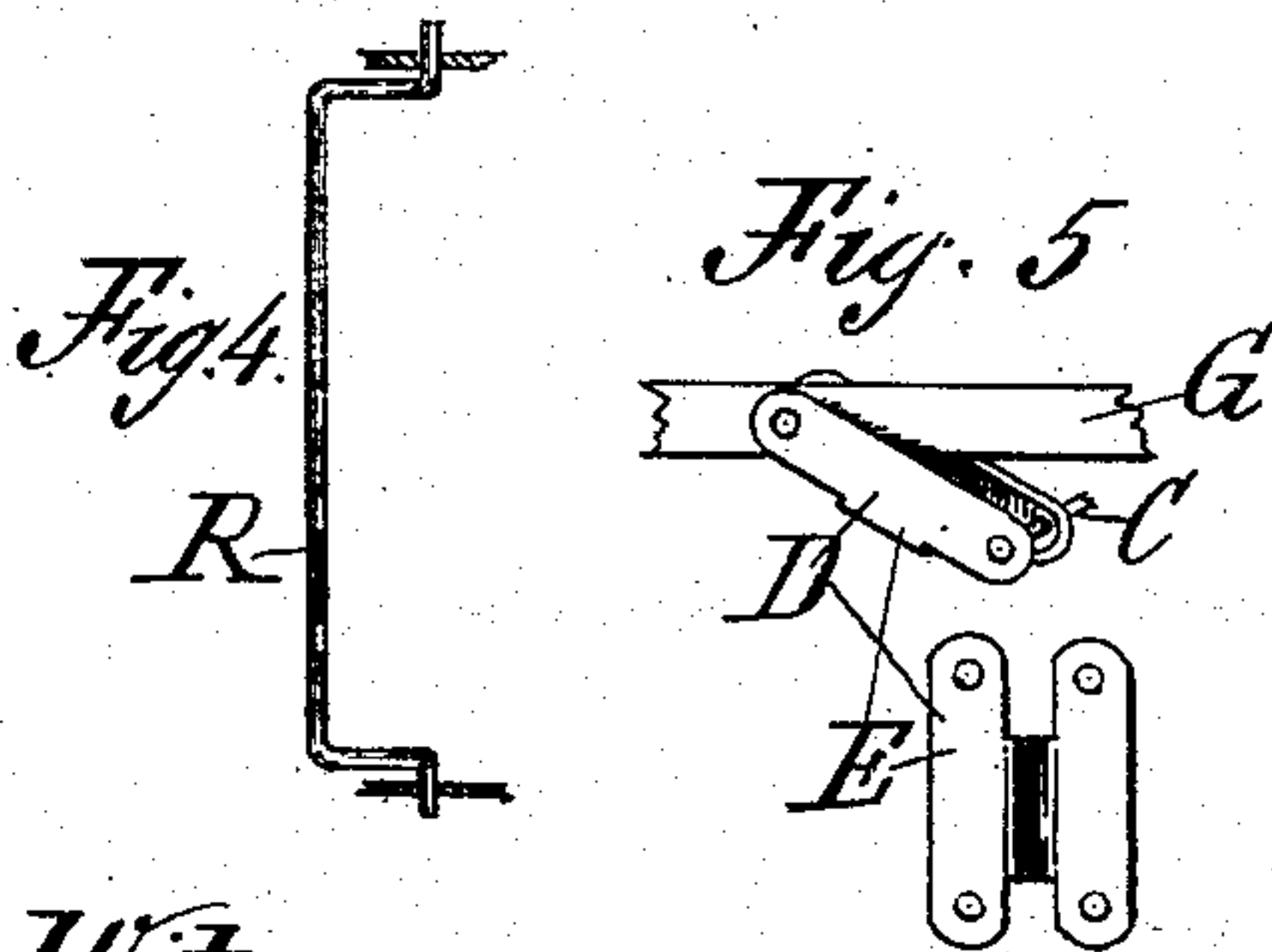
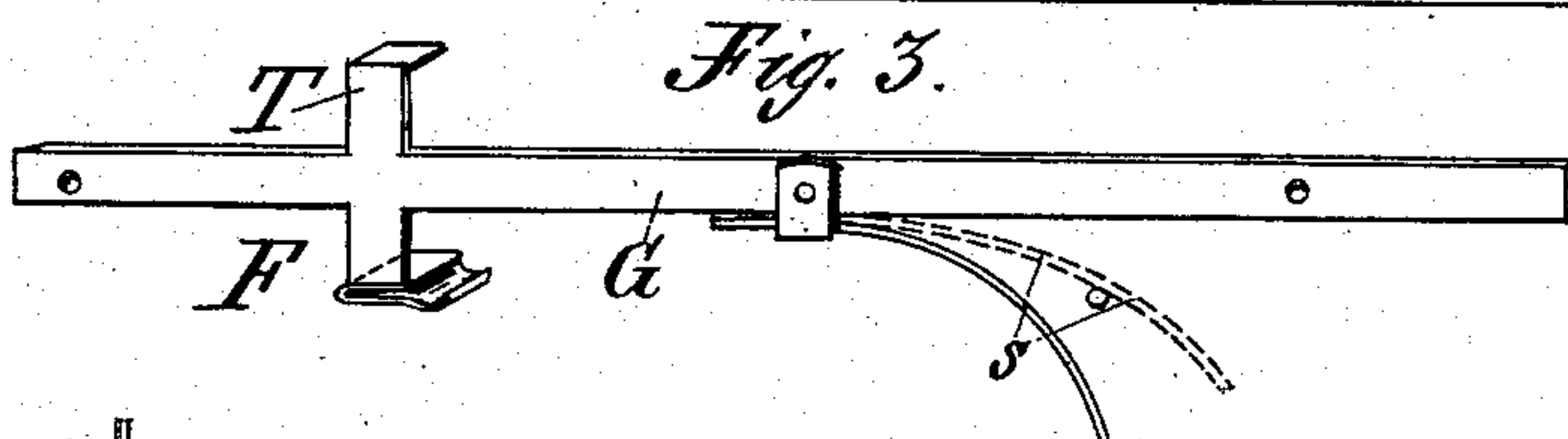
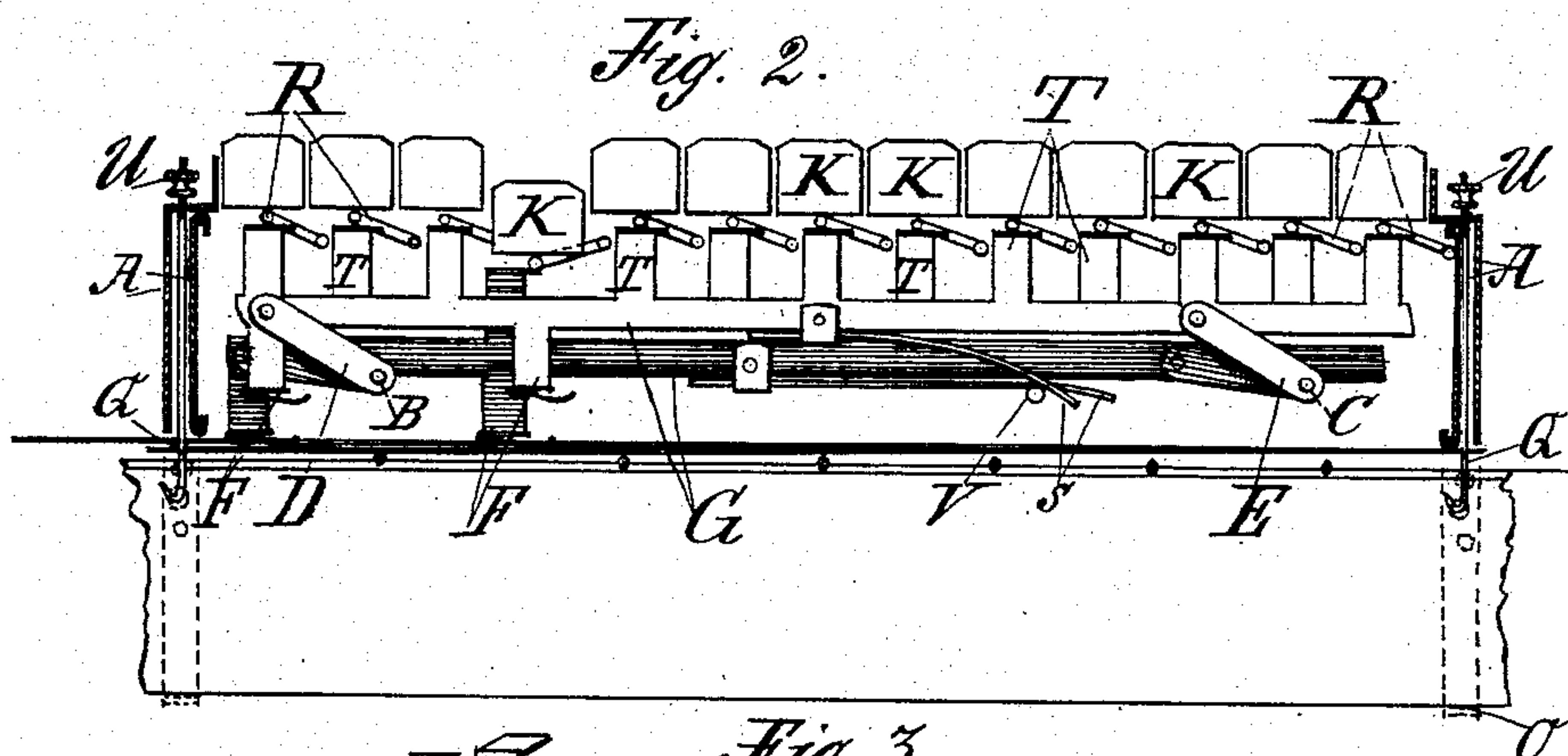
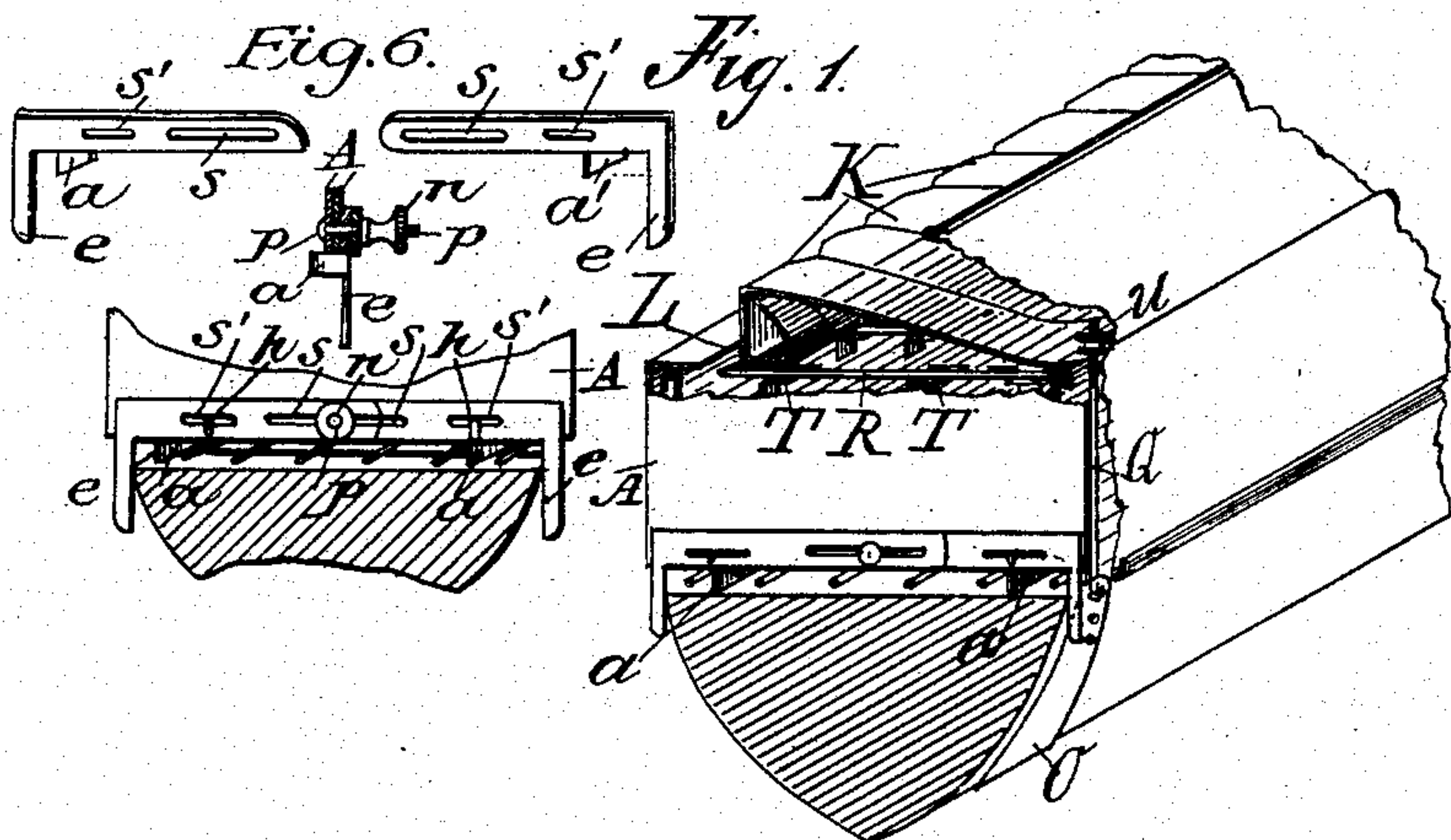


A. PIETSCH.

ATTACHMENT FOR STRINGED INSTRUMENTS.

(Application filed July 17, 1900.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR STRINGED INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 677,427, dated July 2, 1901.

Application filed July 17, 1900. Serial No. 23,971. (No model.)

To all whom it may concern:

Be it known that I, ALBERT PIETSCH, a citizen of the United States, residing in the city and county of Milwaukee, State of Wisconsin, have invented a certain new and useful Improvement in Attachments for Stringed Instruments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, wherein—
10 Figure 1 is an end elevational view of my improvement and a cross-section through the neck of a guitar, looking toward the body portion, showing my attachment applied thereto, and also the means for securing and adjusting the same to the neck of the instrument, some of the casing of the attachment being removed to partly show the interior arrangement. Fig. 2 is a side view of the same, wherein for the same reason the near side wall of
20 the casing is removed. Fig. 3 is a detail of the presser-bars improved by new spring and finger combinations. Fig. 4 is a detail of one of the operating double-crank cross-rods. Fig. 5 is a detail of a double-link connection of one
25 of the presser-bars, and Fig. 6 a detail of the device for adjusting and securing my attachment to the neck of the instrument.

This invention relates to a new and useful improvement in attachments for stringed instruments of that class shown and described in United States Letters Patents Nos. 523,373 and 546,457, issued to me July 24, 1894, and September 17, 1895, respectively.

35 The object of this invention is to provide a device in which all parts act freely, noiselessly, and with as little friction as possibly can be arrived at.

40 With this object in view the invention consists in the improved construction, arrangement, and combination of the several parts comprising my device, as will hereinafter be described, and set forth in the claims.

45 In the drawings, A indicates a suitable double-walled box or casing, preferably of sheet metal and open at its bottom, of which the inside wall affords bearings of the several moving parts.

50 B and C indicate two rods mounted in the case near each end at the lower edge thereof, upon which are mounted double links D and E, respectively. Pivotaly mounted on the opposite ends of these links so that they will

move in parallel lines are presser-bars G, which I found best to centrally provide at their lower edges with rod or bar springs S 55 for the purpose of causing the presser-bars to promptly return to their normal retracted position after operation. These springs are well secured to the presser-bars by any suitable means and raised to a sufficient point of tension by the cross-rod V, the ends of which latter have their bearings in the sides of the inner casing. Thus arranged the springs will act with certainty and will not at all be in the way of any other part of the attachment, 65 and by the application of the double links D and E the motion of the presser-bars will be of the required uniformity, by far more steady and regular than in the attachment patented to me before, in which single links are applied. 70 Projecting from the lower edges of presser-bars G are fingers F, the location of which on the presser-bars depends upon which fret it is desired for a particular lever to operate. The acting part of these fingers is bent to 75 form a spring, as shown in Figs. 2 and 3, by which they are materially improved, as they will thus act like the human fingers. By this new arrangement each of the strings will effectively be acted upon. They may be placed 80 on somewhat rounded or on flat necks without causing too much strain on either of them, whereby the inequality and the hard metallic sound of the tune will entirely be prevented.

85 Upwardly at different points along the length of the presser-bars and well secured to the same are projections or teeth T, which at their upper end are bent at a right angle to afford an extended bearing-surface upon the cross-rods R and prevent wear of the contact- 90 ing parts. Said bends are in perfect line with said crank cross-rods, which latter extend transversely the box. These double-crank cross-rods R are independent of each other and rest loosely upon the teeth-bends immediately beneath them, which teeth may project from any of the presser-bars that it would be desirable to operate by the actuation of the particular cross-rod located thereabove. 95 As will be seen in the detail drawings, Fig. 4, both ends of the cross-rods R are rectangularly bent, so as to form cranks, the pivots of which are introduced into corresponding openings in the sides of the inner casing. 100

The part of R forming the cross-rod I provide with a cover of some soft material, as cotton or woolen cloth, &c., to prevent any noise during actuation. By the introduction of the lever-
 5 power of this double-crank cross-rod the operation of my attachment will be materially facilitated, and it will therefore bear a decided improvement relating to that patented to me September 17, 1895, No. 546,457. In the mo-
 10 ment one of the crank cross-rods R is forced downwardly it depresses the presser-bars whose teeth-bends are located immediately beneath the same, and the fingers F elasti-
 15 cally contact with the string to most harmoni- ously make the chord originally designed. Relating to playing on the instrument, it will be understood that the strings will have to be picked in the ordinary way, as the fingers F only take the place of the operator's fingers
 20 in the different frets to obtain the different chords. The number of presser-bars is not limited, as with this device I can make any chord on any fret, as may be required.

The cross-rods R are actuated by the keys
 25 K, which latter are formed, with their foot part L, out of one piece, preferably of sheet metal. They are properly secured to the corresponding upper edge of the inside casing A, all as shown in the drawings, Fig. 1. It is of
 30 importance that the keys be durably constructed and easy to be operated, that they keep their position without any tendency to move sidewise or to be apt to get out of order, and that they fully transfer the pressure of
 35 the finger to the mechanism in contact therewith. In the application of broad strips of sheet metal, and in such shaping or bending of the same that including in its range an extensive foot part is produced, I have fulfilled
 40 these conditions, as fully shown in the drawings.

The end walls of the casing are provided with a device to support the attachment above the strings, which consists of two angular
 45 pieces of substantial sheet metal, in which *e* represents projections for the inclosure of the neck of the instrument. *a* are angular stands and provided to keep the required space or distance between the strings and the attachment.

50 The adjusting of the attachment to the neck of the instrument is accomplished by the device shown in the drawings, Fig. 6, and in the details belonging thereto. It is made of substantial sheet metal and consists of two
 55 equal parts having corresponding slits *s* for the passage of the threaded end of bolt-screw *p* and smaller slits *s'* for the reception of the hooks *h*. Both halves of the device are provided with end projections *e*, which serve for
 60 embracing the sides of the instrument's neck, while the ribs *a*, properly secured to the device, will sufficiently space the attachment from the strings. The fastening of the de-
 65 vice to the end walls of the casing A is effected by the hooks *h*, bolt-screw *p*, and the nut *n*. It is brought in position by placing the slit *s* of its one part upon the corre-

sponding slit *s* of the other, while the hooks *h*, projecting in the form of short strips of sheet metal from the end walls of A, pass
 70 through the slits *s'*, after which they have to be bent accurately to form the hooks. Next the bolt-screw *p* is applied, so that its head rests against the inside wall of A, finding passage through both walls of the same
 75 (which have no special interspace here) and the slits *s* of the device, as shown in the detail drawings, Fig. 6. It now will be understood that the projections *e e* can easily
 80 be brought to exactly embrace or fit the sides of the instrument's neck by sliding both parts of the device accordingly, whereafter *n* is tightened, and thus the adjustment secured. Secured to the sides near the edges of the
 85 end walls of the casing are straps O, which are provided with eyelets for the reception of the hooks of rods Q, which latter are mounted between the two walls of the casing and so arranged that they can be drawn upward
 90 by a screw-thread and the nut U, by which means the attachment can readily be fastened to the neck of the stringed instrument, as also shown in the drawings.

Having thus fully described my invention, I wish it distinctly understood that I do not
 95 claim in an attachment for stringed instruments the combination with a suitable casing nor of pivot-rods mounted in the casing, as have been used by myself in combination with
 100 single links pivotally mounted on the rods, presser-bars mounted upon the free ends of single links, fingers on the presser-bars, nor any other of the details in combination with the aforementioned parts, as fully described
 105 in my patent dated September 17, 1895, No. 546,457; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In an attachment for stringed instruments, the combination with a suitable dou-
 110 ble-walled casing, of pivot-rods B, C and V mounted in the casing, of double links D and E pivotally mounted on rods B and C, presser-bars G mounted on the free ends of the dou-
 115 ble links, springs S combined with the presser-bars and raised to a sufficient point of tension by the cross-rod V for causing the presser-bars to return to their normal retracted position after operation, fingers F of the presser-
 120 bars provided at their acting parts with springs for contacting with the strings, and teeth T having an angular bend to offer sufficient surface for action and to cause less wear-
 125 ing during operation, all substantially as described.

2. In an attachment for stringed instruments, the combination with a series of inde-
 130 pendently-movable presser-bars G, which are provided with fingers F for contacting with the strings of the instrument, double-crank cross-rods R which extend across the entire nest of presser-bars G and which are pivotally mounted in the casing, and teeth T extending up from said presser-bars and having angular

bend in line with the cross-rods R, whereby when a cross-rod R is actuated, it operates the presser-bars whose teeth are in its line of travel; substantially as described.

5 3. In an attachment for stringed instruments, the combination with a suitable casing, of keys K projecting therefrom, double-crank cross-rods R beneath the foot part L of the keys K, a nest of presser-bars G with
10 teeth T projecting upward therefrom and arranged beneath the double-crank cross-rods R, double links D and E upon which said presser-bars are mounted, springs s for normally holding the presser-bars in an elevated
15 position, and fingers F projecting from the presser-bars G and in line with the strings; substantially as described.

4. In an attachment for stringed instruments, the combination, with a suitable double-walled casing, of double-crank cross-rods
20 mounted in the casing, and presser-bars G, provided with teeth T and fingers F, which are operated by the double-crank cross-rods; substantially as described.

25 5. In an attachment for stringed instruments, the device for supporting and adjust-

ing the attachment above the strings, consisting of two parts each with a projection e and a stand a, corresponding slits s, s, s', s' to be
30 connected with both ends of the attachment by the hooks h and the bolt-screw p and to be adjusted above the strings on the neck of the instrument by said slots and hooks, bolt-screw p and nut n, all substantially as shown
35 and specified.

6. In an attachment for stringed instruments, the device therefor for fastening the same to the neck of the instruments which consists of the rods Q and the straps O provided with eyelets for the reception of the
40 corresponding hook of the rods Q, which latter are provided with a screw-thread and a nut U so that they can be drawn upward; substantially as described.

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

ALBERT PIETSCH.

Witnesses:

FR. M. RUSCHHAUPT,
MARY DULLEA.