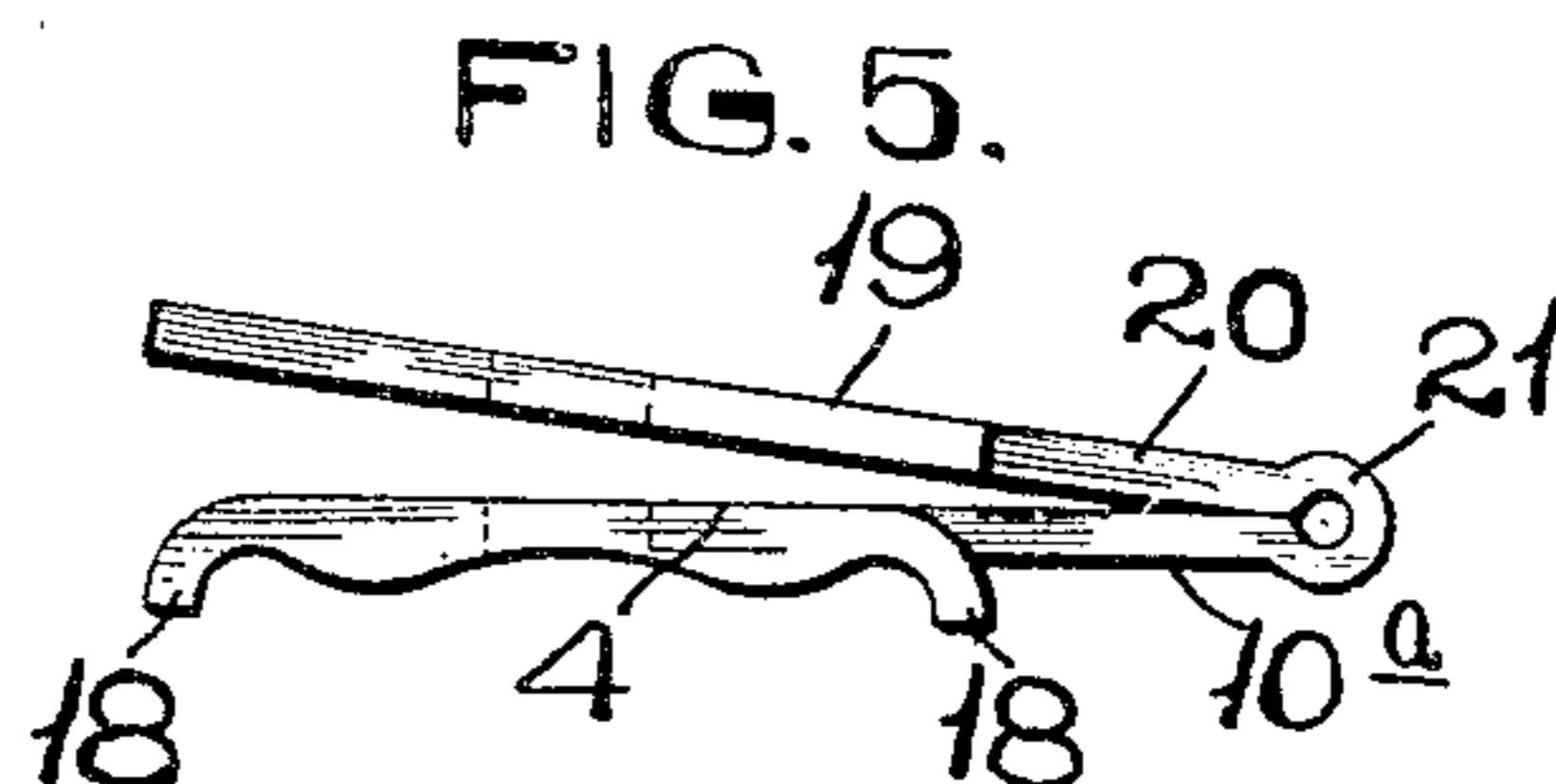
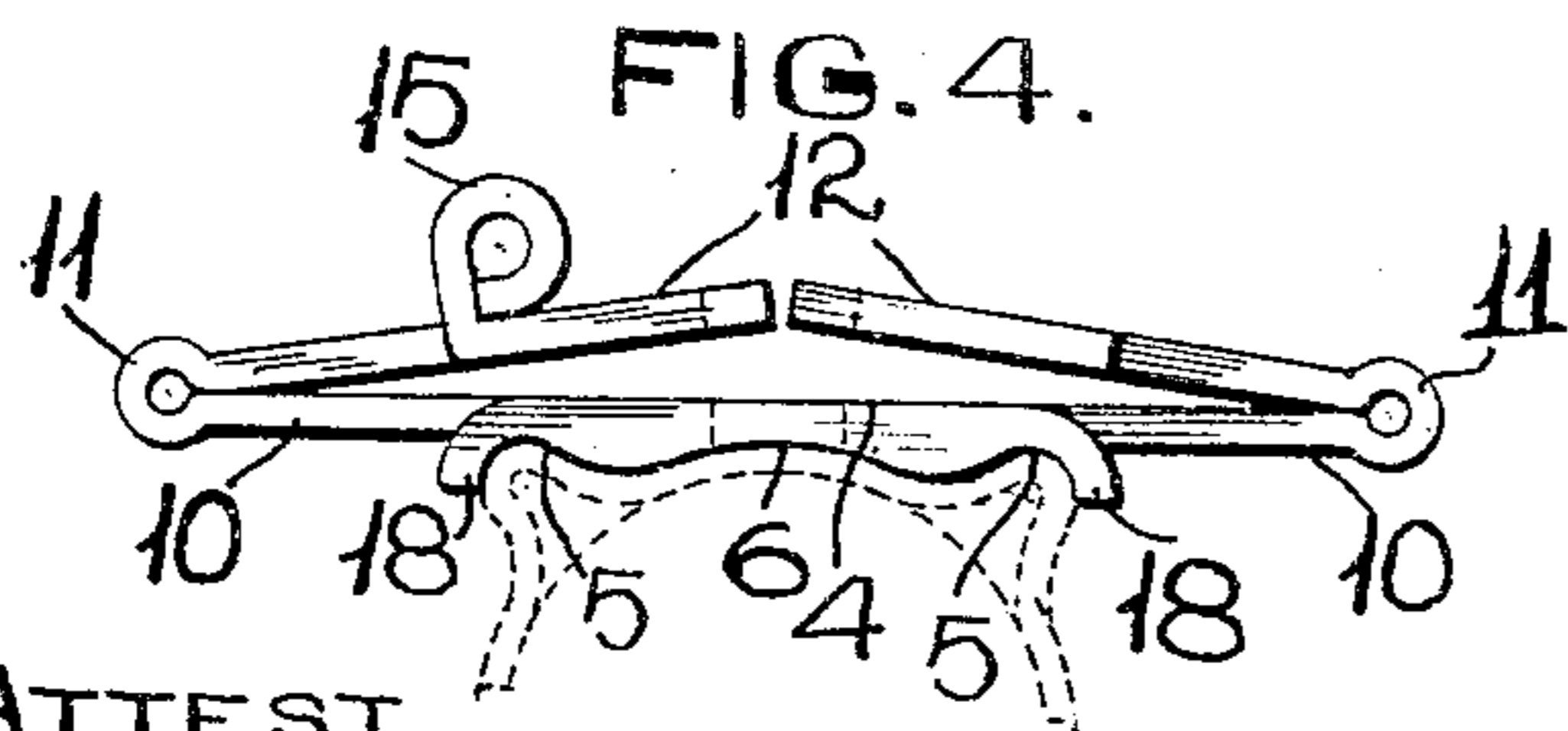
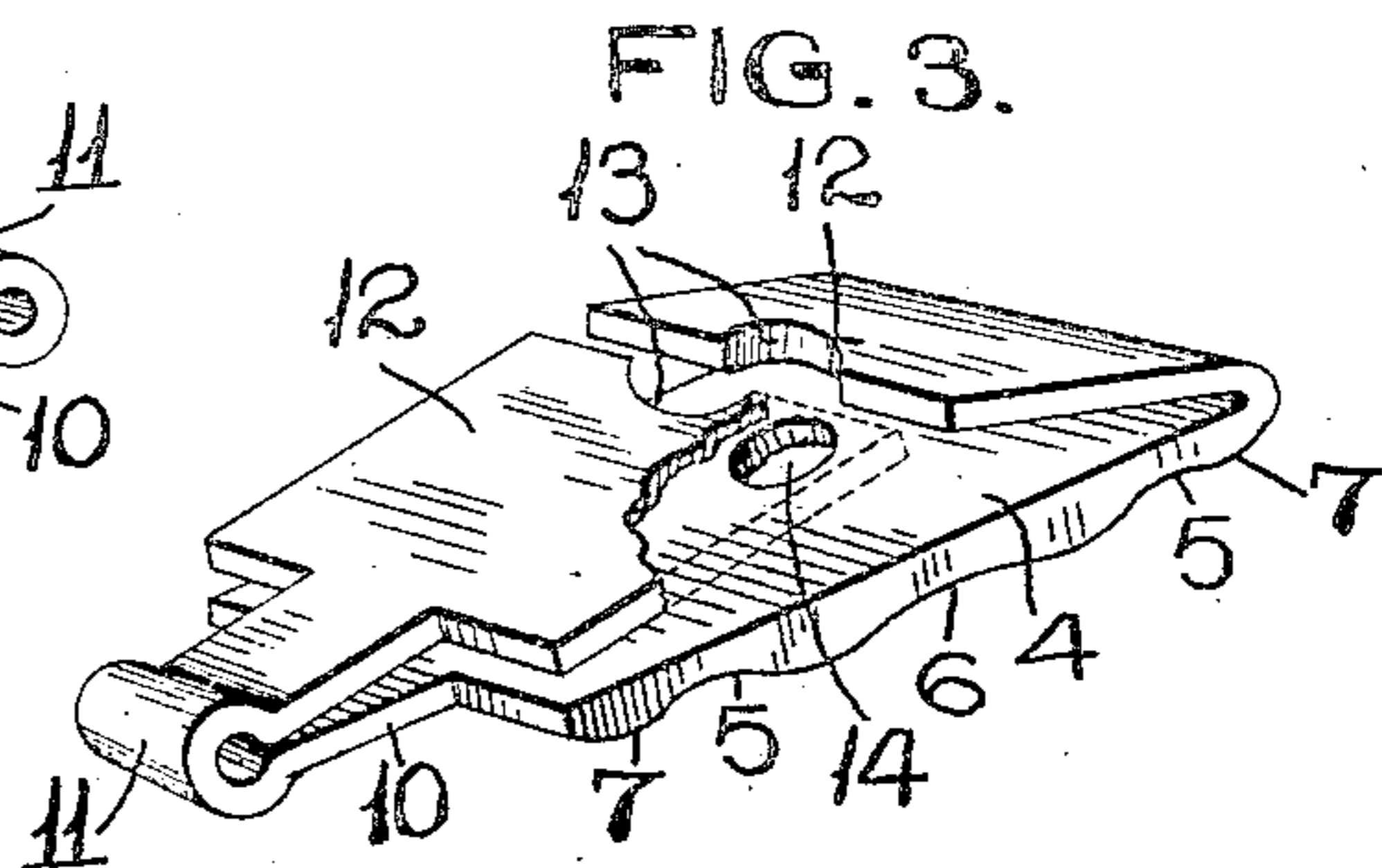
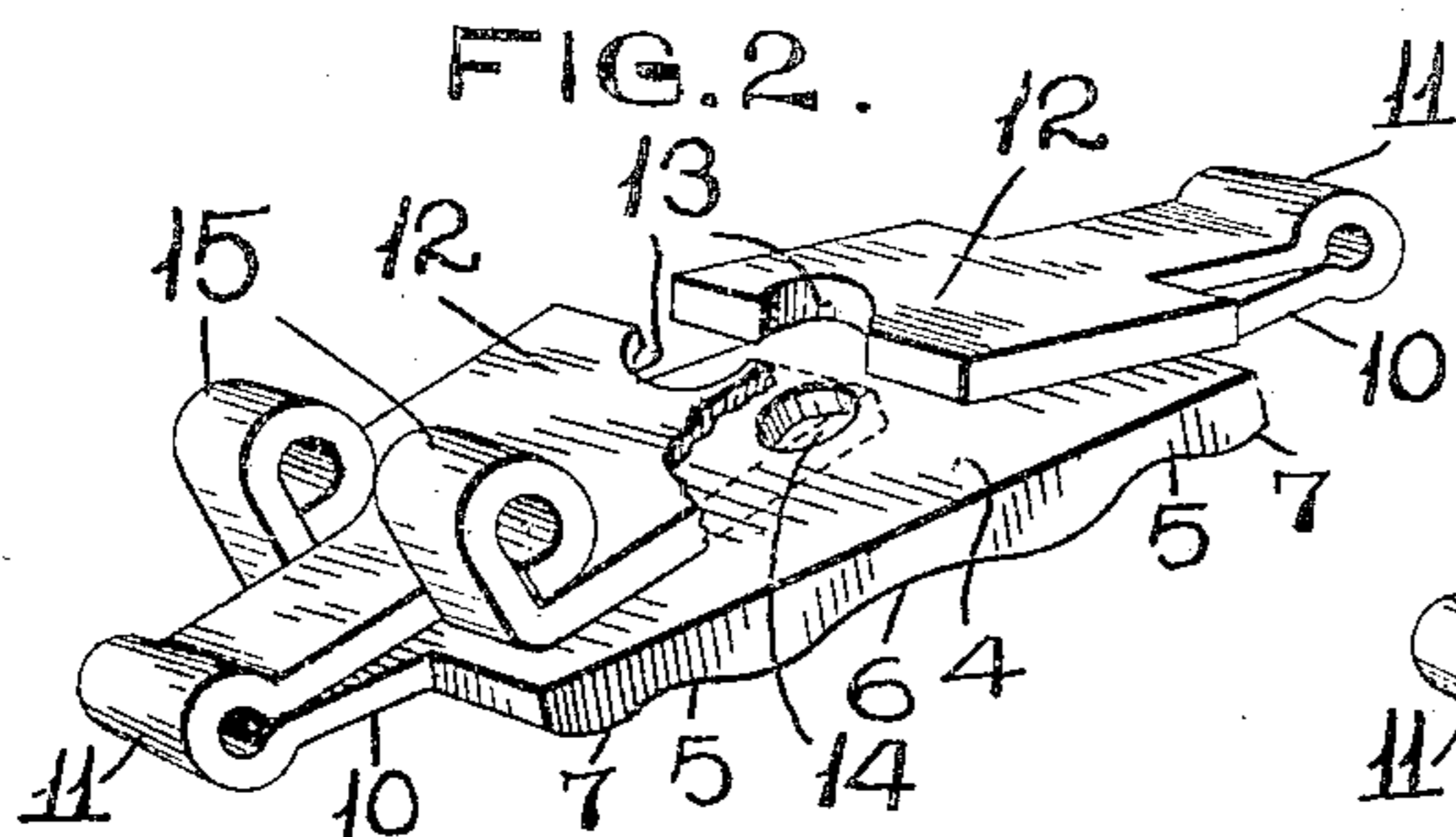
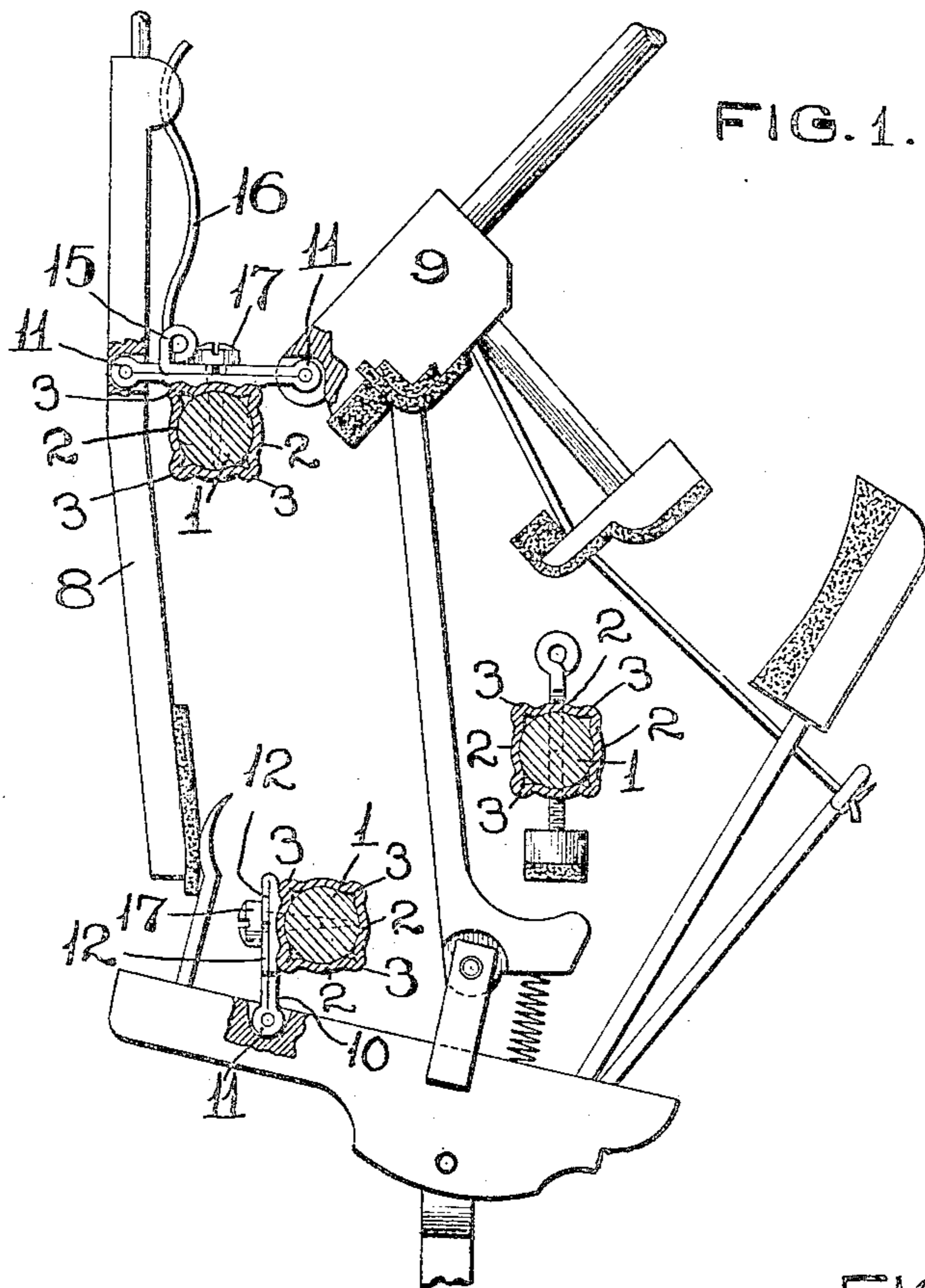


No. 822,716.

PATENTED JUNE 5, 1906.

F. C. BILLINGS.
FLANGE FOR PIANO ACTIONS.
APPLICATION FILED AUG. 28, 1905.



ATTEST.

H. J. Fitches.
M. P. Smith.

INVENTOR.
FREDERICK C. BILLINGS
BY *Higdon & Fougau.*
ATTY'S.

UNITED STATES PATENT OFFICE.

FREDERICK CHRISTOPHER BILLINGS, OF ROCKFORD, ILLINOIS.

FLANGE FOR PIANO-ACTIONS.

No. 822,716.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed August 28, 1905. Serial No. 276,101.

To all whom it may concern:

Be it known that I, FREDERICK CHRISTOPHER BILLINGS, a citizen of the United States, and a resident of Rockford, Illinois, have invented certain new and useful Improvements in Flanges for Piano-Actions, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates generally to flanges for piano-actions, and more particularly to flanges used for pivoting the damper, hammer-butt, and whip and connecting these parts to the various transverse rails in a piano.

My invention consists in certain novel features of construction and arrangement of parts, which will be hereinafter more clearly set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section taken across the rails of the piano-action and showing the damper, hammer-butt, and whip connected to said rails by my improved flanges. Fig. 2 is an enlarged perspective view of the form of flange made use of for pivotally connecting the damper and hammer-butt to the transverse rail. Fig. 3 is a perspective view of the form of flange made use of in pivotally connecting the whip to one of the transverse rails. Figs. 4 and 5 are side elevations of modified forms of the flanges seen in Figs. 2 and 3.

In certain makes of pianos, the transversely-arranged rails, to which the various parts of the action are connected, comprise wooden rods 1, which are inclosed in metallic tubes 2, that are approximately rectangular in cross-section, and provided with longitudinally-extending ribs 3, which are disposed so as to form corners upon the rails.

Ordinary metallic and wooden flanges cannot be readily fitted onto rails of this construction, and I have therefore constructed flanges such as are hereinafter described in order to fit these peculiarly-constructed rails.

In the construction of my improved flange I make use of a plate 4, approximately rectangular in plan view and provided in its under side with a pair of transverse grooves 5, formed to fit the ribs 3 of the tube 1, and between these grooves is a larger transverse groove 6, which receives the curved face of the tube 2 between the ribs 3. Formed inte-

gral with the extreme outer ends on the under side of the plate 4 is a pair of transversely-arranged ribs 7, which engage on top of the ribs 3 and which assist in maintaining the flange in position after it has been fastened to the transverse rail.

In the form of flange used for pivoting the damper 8 and the hammer-butt 9 each end of the plate 4 is provided with an outwardly-extending finger 10, and the material of which these fingers are formed is doubled back onto the top side of the plate 4, and there being the transversely-arranged bearings 11 formed at each end of the flange. The plates 12, that are bent backwardly onto the top of the plate 4, meet at a central point on said plate 4, and their meeting edges are provided with semicircular recesses 13, and formed through the plate 4 in the center thereof immediately below these recesses is an aperture 14, which is for the reception of the screw that secures the flange to the rail. Formed integral with the outer edge of one of the plates 12 is a pair of loops 15, which serve as means for securing the lower end of the spring 16, that bears upon the upper end of the damper. The inner meeting ends of the plates 12 normally occupy positions a slight distance above the surface of the plate 4, and as the flanges are constructed of resilient material the plates tend to act as springs and are only depressed when the fastening-screw, such as 17, is passed through the apertures and tightened upon the flanges. When these flanges are positioned on the rails and fixed thereto by means of the screws, the bearing 11 at one end receives the pivot-pin of the damper 8, and the corresponding bearing 11 at the opposite end receives the pivot-pin of the hammer-butt 9. The grooves 5 in the under side of each plate receive two of the ribs of the rail, and the ribs 7 bear on the tops of said ribs. This construction prevents any horizontal shifting or displacement of the flange after it has once been secured in position by properly seating the retaining-screw.

The whip-flange, which is used for pivotally connecting the whip to one of the rails, is seen in Fig. 3, and said flange is very similar to the flange just described, with the exception that the loops 15 and one of the bearings 11 are dispensed with.

In the modification seen in Fig. 4 the ribs 7 on the under side of the plate 4 are dispensed with, and downwardly-pending lips

18 are formed integral with the ends of the plate 4 at the sides of the fingers 10, which lips engage over the ribs 3 of the rail.

In Fig. 5 a further modification of the flange is shown, in which the plate 4 is provided at its ends with the downwardly-pending lips 18, and a finger 10^a is formed integral with one end of the plate 4 and there being a flat plate 19 positioned immediately above the plate 4, and which plate 19 is provided with a finger 20 to correspond with the finger 10^a and there being a transverse bearing 21 formed at the point where said finger 20 joins with the finger 10^a.

Flanges of my improved construction are simple in construction, can be easily and cheaply manufactured, can be readily applied to the rails of a piano-action, and when in proper position cannot shift or become easily disengaged from the rails.

I claim—

1. A flange for piano-actions, constructed with a plate, ribs formed on the under side thereof, narrow plates extending outwardly from the ends of said plate, bearings formed integral with the ends of the narrow plates, and spring-plates extending inwardly from the bearings on top of the first-mentioned plate; substantially as specified.

2. In a flange for piano-actions, a plate, alternate grooves and ribs on the under side thereof, the ends of said plate being extended and bent backwardly over the body of said plate, apertures being formed in said plate, and in the ends of the doubled-back portions to receive a fastening device; substantially as specified.

3. In a flange for piano-actions, a plate, alternate ribs and grooves on the under side thereof, the ends of which plate are extended and bent backwardly onto the top of said plate, means whereby the flange is secured to the rail, and bearings formed at the points

where the ends are doubled back, substantially as specified.

4. In a flange for piano-actions, a plate, ribs and grooves formed on the under side thereof the ends of which plate are extended and then bent backwardly onto the central portion of the plate, bearings formed at the points where the ends are doubled back, and downwardly-projecting lips integral with the plate at the sides of the extended ends; substantially as specified.

5. In a flange for piano-actions, a plate, alternate ribs and grooves on the under side thereof, the ends of said plate being extended, bearings formed at the ends of the extended portions, and lips integral with the ends of the plate at the sides of the extensions thereof, which lips project downwardly; substantially as specified.

6. In a flange for piano-actions, a plate, ribs and grooves on the under side thereof, a finger integral with and projecting outwardly from the center of said plate at one end thereof, a bearing formed at the outer end of said finger, and lips integral with and projecting at right angles from the ends of the plate; substantially as specified.

7. In a flange for piano-actions, a plate the ends of which plate are extended and bent double backwardly onto the body of the plate, bearings formed at the points where the ends are doubled back, and a pair of aligned bearings formed integral with one of the doubled-back ends; substantially as specified.

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

FREDERICK CHRISTOPHER BILLINGS.

Witnesses:

M. M. CORBETT,
RUBY MINARD.