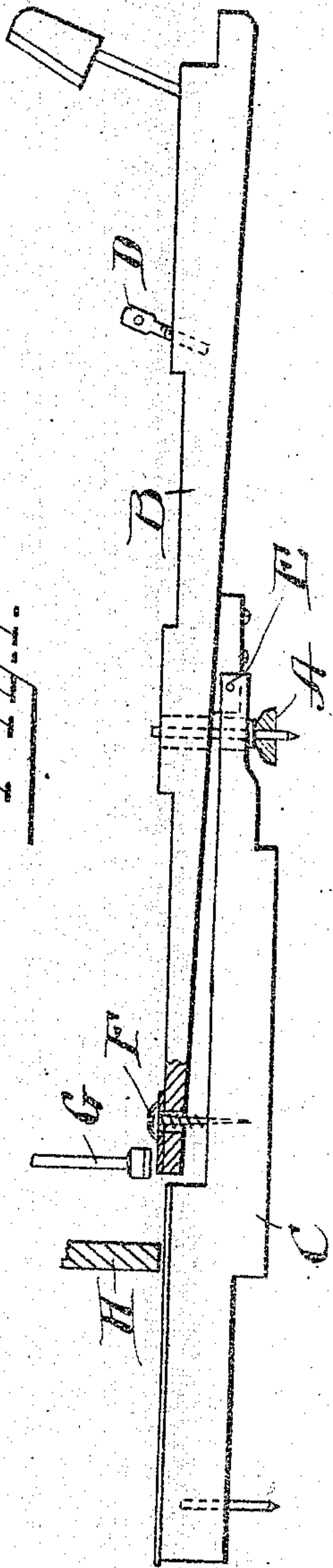
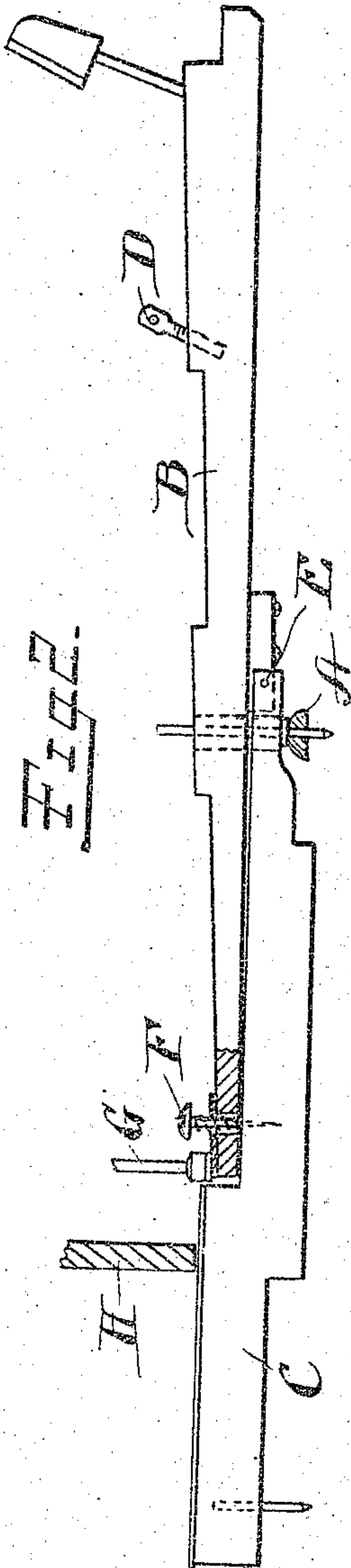


932,705.

[illegible]

Witnesses:  
Alice Morford  
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[illegible]

Inventor  
N. D. HOSLEY.  
By his Attorney,  
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# UNITED STATES PATENT OFFICE.

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## MECHANICAL PIANO.

932,705.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed April 19, 1909. Serial No. 490,717.

*To all whom it may concern:*

Be it known that I, NELSON D. HOSLEY, a citizen of the United States, residing at Meriden, county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Mechanical Pianos, of which the following is a full, clear, and exact description.

My invention relates to improvements in automatic musical instruments and has particular reference to the action of a horizontal grand-piano having its mechanism embodied within the case of the instrument for sounding the notes mechanically, said mechanism being controlled by the usual perforated note sheet.

In an ordinary grand-piano the action is manually operated by keys. Each key is poised on a balance rail, so-called, the front of all the keys constituting the keyboard. The rear end of each key carries suitable means for engagement with the hammer. Each key, at the keyboard, has a certain preferable range of movement, which range is carefully determined so as to give the proper movement to the hammer mechanism.

When the piano is to be operated automatically, or mechanically, it is desirable that the "striker" of the mechanical action should impart the same movement to the hammer mechanism as that produced by hand.

One of the chief features of my invention is to so arrange and construct the parts that the stroke of the hammer will be substantially the same, whether actuated manually or mechanically. It is also desirable that the automatic mechanism should be disposed above the keys and behind the keyboard for ready access. It is also desirable that when the instrument is to be played mechanically, the outer or exposed end of each key shall remain stationary. These and other advantages will be apparent to the mechanic skilled in the art.

To accomplish the various objects of my invention, I have devised what I may term a duplex key, said key constituting two parts, both of which may be simultaneously operated, or one of which may be operated independently of the other.

In the accompanying drawings, I have shown only such parts of a piano action as are necessary to an understanding of my invention, the parts not shown being of any

suitable conventional type found in horizontal grand-pianos.

In the drawings, Figure 1 is a side elevation of my improved duplex key, showing the parts in the normal position. Fig. 2 is a similar view but showing the key struck by the mechanical "striker" when the instrument is being played automatically.

A represents the balance rail upon which the duplex key is mounted to tilt.

B—C represent the two parts of the key.

D represents what I may term the jack carrier, by which the hammer mechanism (not shown) is actuated.

E represents a pivotal connection between the parts B and C. This pivotal connection E is located to the rear of the balance rail A an appropriate distance, which may be varied within reasonable limits, depending upon the particular design of each key.

From the foregoing it will be seen that the part B, together with the part C, may tilt upon the balance rail A.

F is a screw passing through a clearance slot or groove in the forward end of the part B. This screw F takes into the section C, as best seen in the drawings. The head of the screw limits the degree to which the part B may be tilted up at its forward end.

G represents the lower end of a "striker" carried by a suitable mechanical action arranged above the keyboard and to the rear of the front panel H of the piano case.

Operation: Assuming the parts are in their normal position shown in Fig. 1, the manual depression of the key section C at its forward end will tilt both parts B and C upon the balance rail A to cause the hammer to be actuated. When it is desired to operate the instrument mechanically, the striker G is employed, this engaging the outer end of the tilting part B of the key as shown in Fig. 2, depressing the latter without moving the part C. At this time the part B tilts upon the pivot E. By this arrangement, substantially the same stroke may be given to the key section B, when actuated by the striker G, as when the key section B is operated manually from the forward end of the section C. In other words, the center A bears approximately the same relation to the length of the entire key from the point D to the extreme forward end thereof that the center E bears to the length of the part B. By this means not only is



great compactness obtained, but it has been found that very superior results may be secured.

What I claim is:

5 1. A duplex key for a horizontal grand piano, said key comprising two parts overlapping at their ends, a pivotal connection between said parts and arranged between the rear end of one part and an intermediate portion of the other part, a stop carried  
10 by the first mentioned part and arranged to engage the adjacent end of the second mentioned part to limit the tilting movement of said second part on the first, and a balance  
15 rail or support for both of said parts, said balance rail being arranged between said pivotal connection and said stop.

2. A duplex key for a horizontal grand

piano, said key comprising two parts overlapping at their ends, a pivotal connection 20 between said parts and arranged between the rear end of the lower part and an intermediate portion of the upper part, a stop carried by the lower part and arranged to engage the adjacent end of the overlying 25 part, to limit the tilting movement of the latter on the former, and a balance rail or support for both of said parts, said balance rail being arranged between said pivotal connection and said stop and directly supporting the lower part. 30

NELSON D. HOSLEY.

Witnesses:

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