

(No Model.)

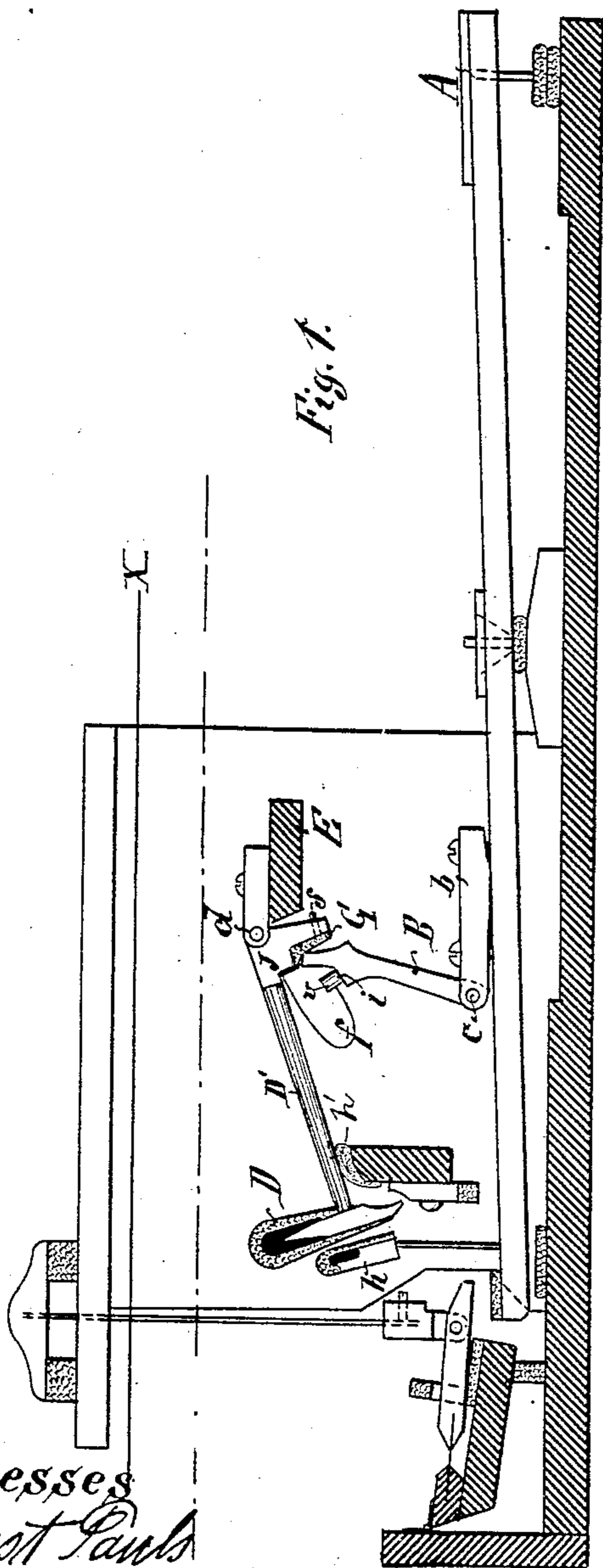
A. BIESE & K. G. ZIEROLD.

5 Sheets—Sheet 1.

PIANO ACTION.

No. 294,004.

Patented Feb. 26, 1884.



*Fig. 1.*

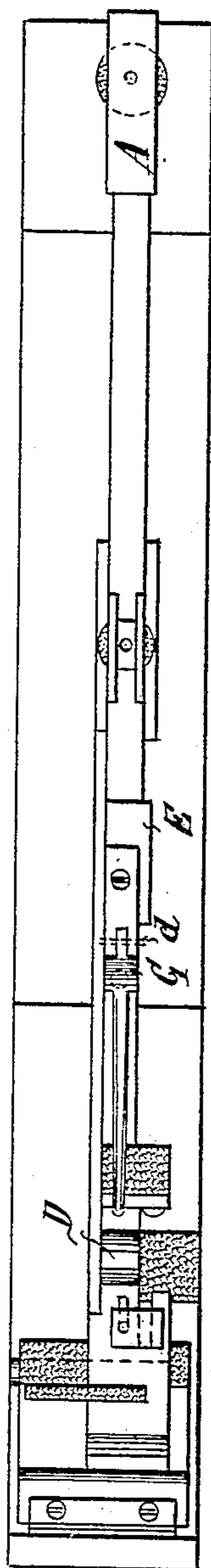


Fig. 2.

Witnesses  
August Pauls  
J. Gammel, Jr.

*Asfred Price*  
*Inventors. Karl Gustav Feinold*  
*per Henry S. Raeder*  
*Attys.*

(No Model.)

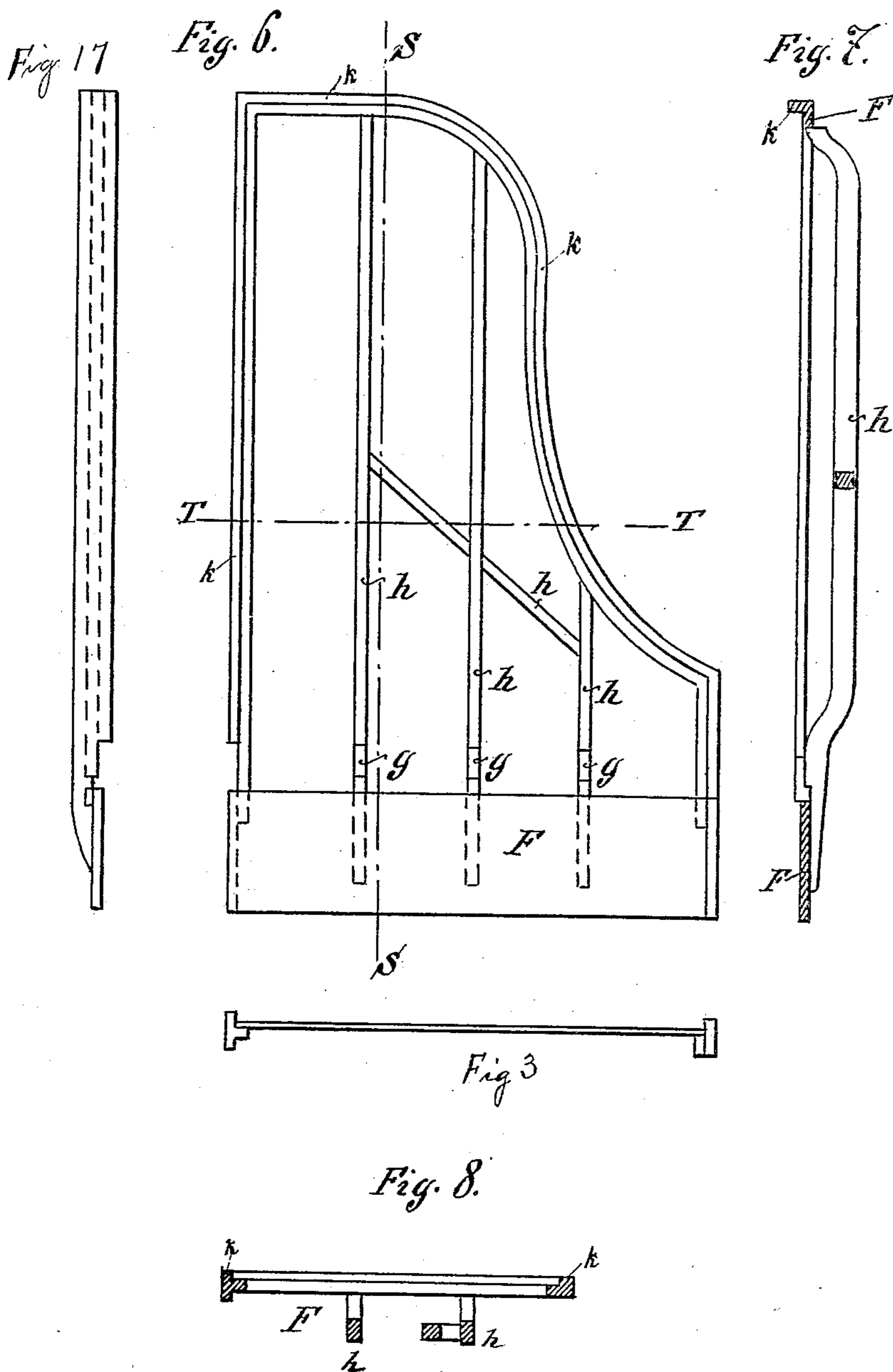
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5 Sheets—Sheet 2.

PIANO ACTION.

No. 294,004.

Patented Feb. 26, 1884.



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(No Model.)

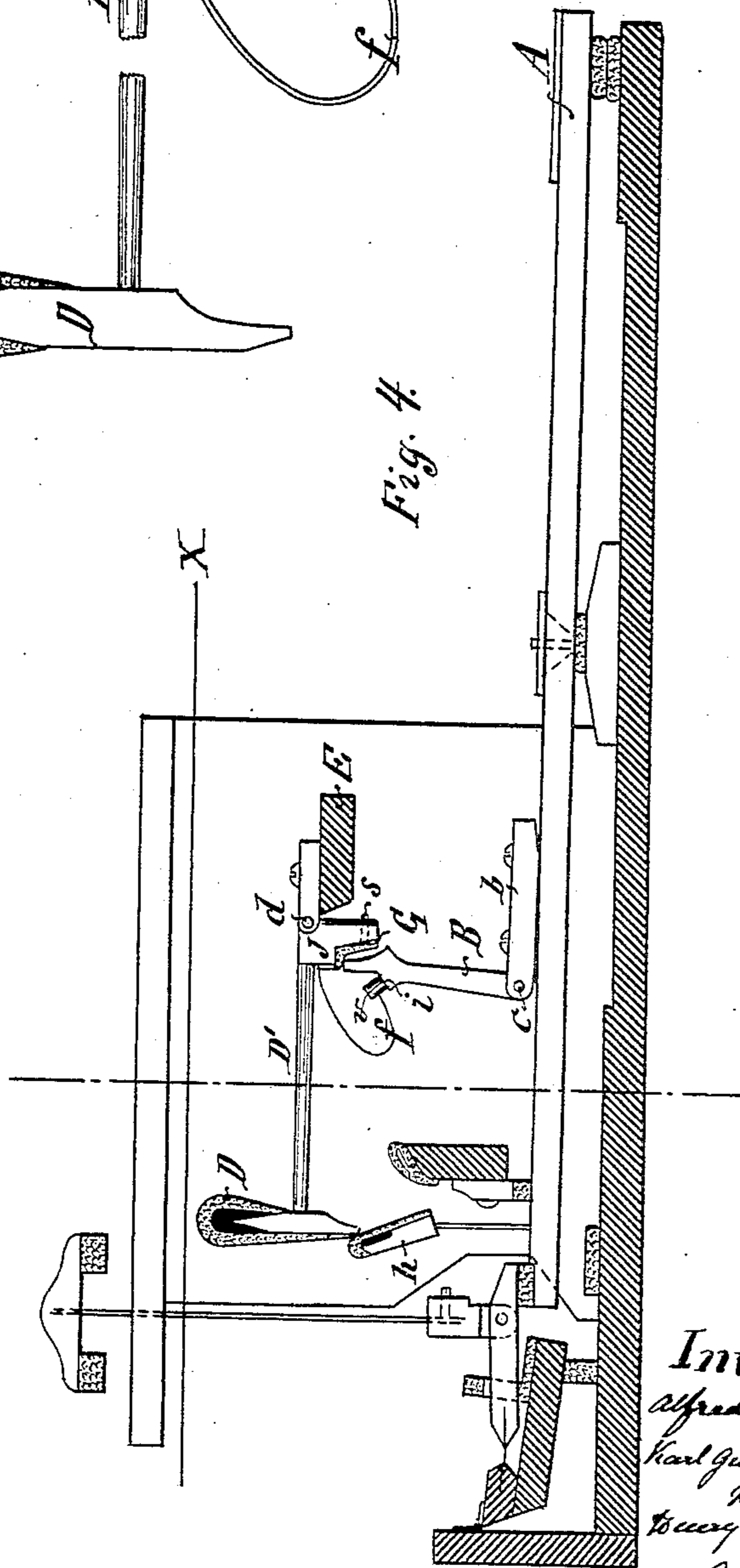
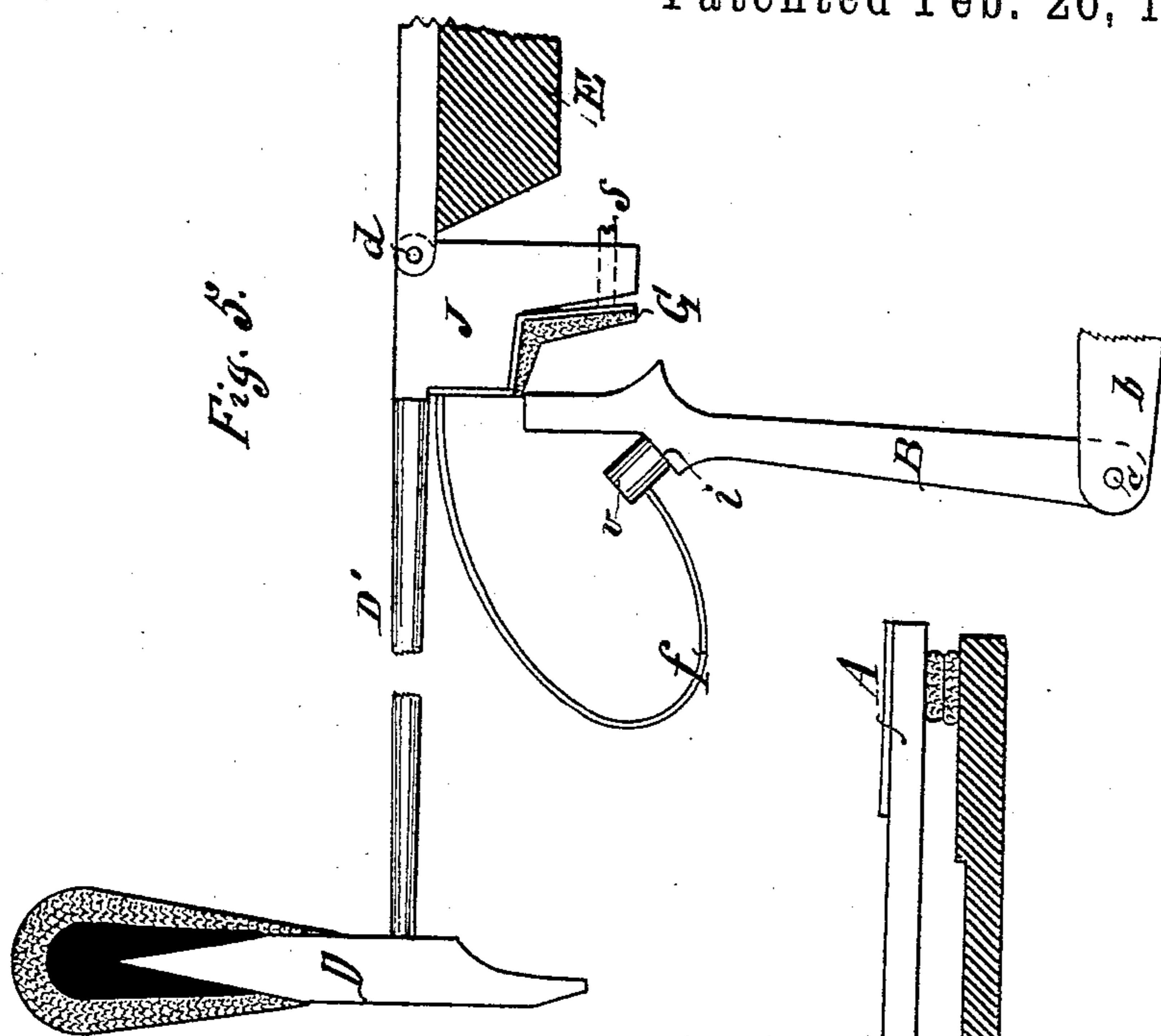
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5 Sheets—Sheet 3.

PIANO ACTION.

No. 294,004.

Patented Feb. 26, 1884.



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5 Sheets—Sheet 4.

PIANO ACTION.

No. 294,004.

Patented Feb. 26, 1884.

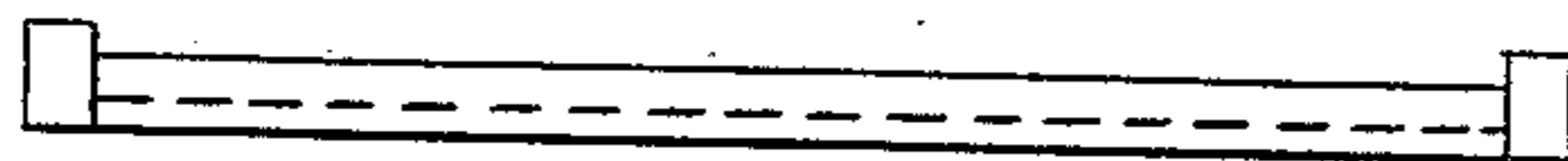
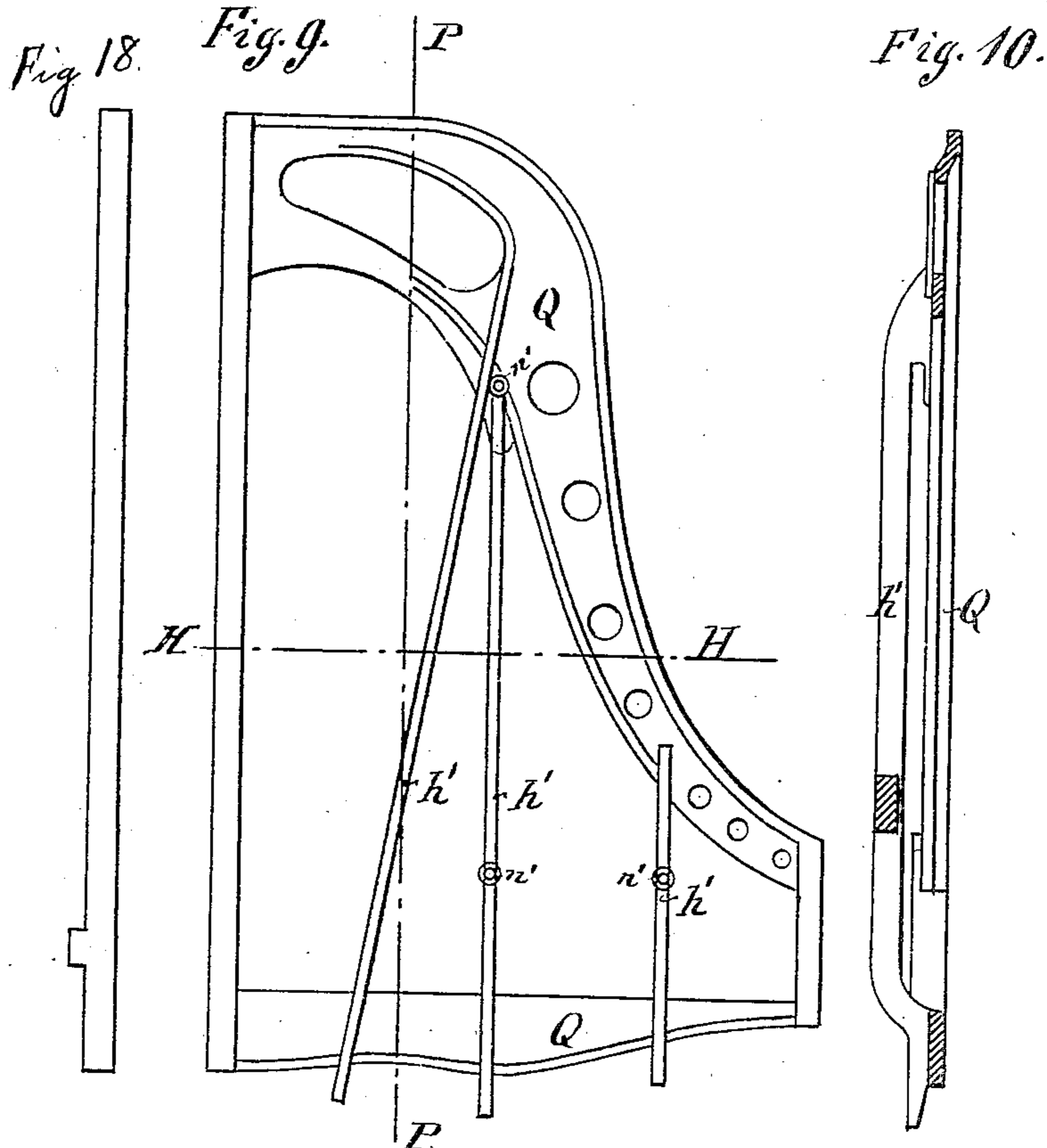
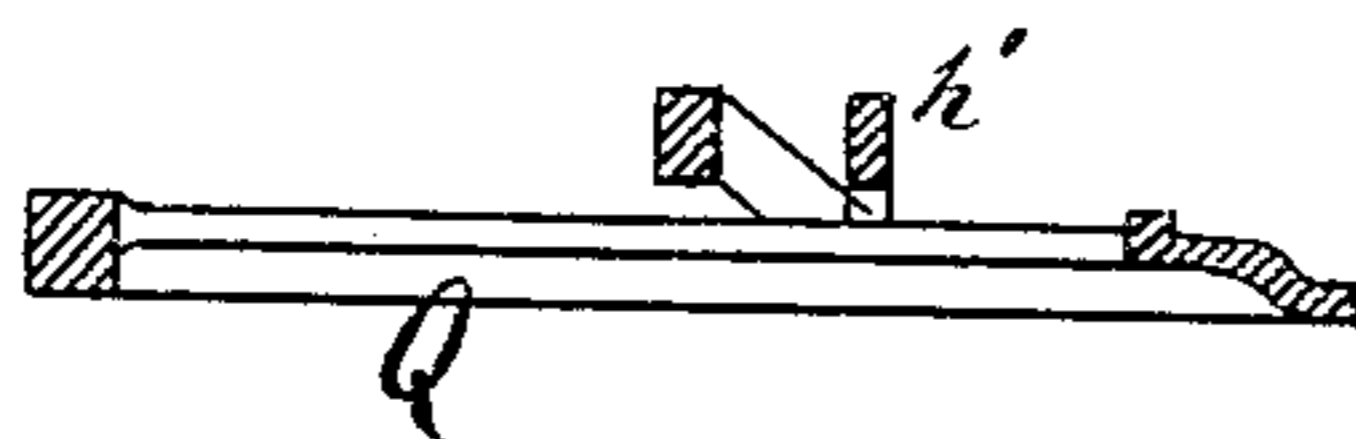


Fig. 16

Fig. 17.



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(No Model.)

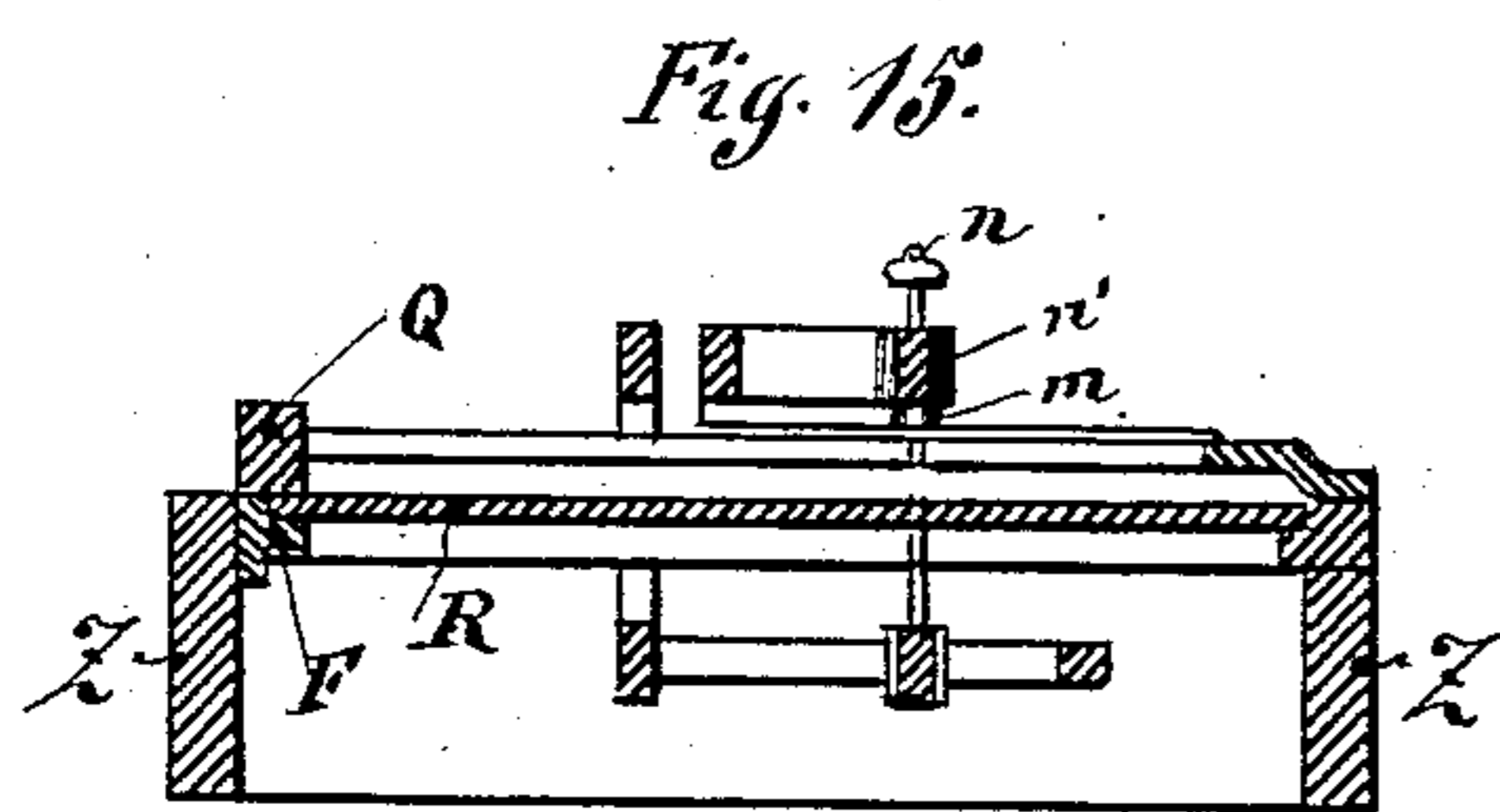
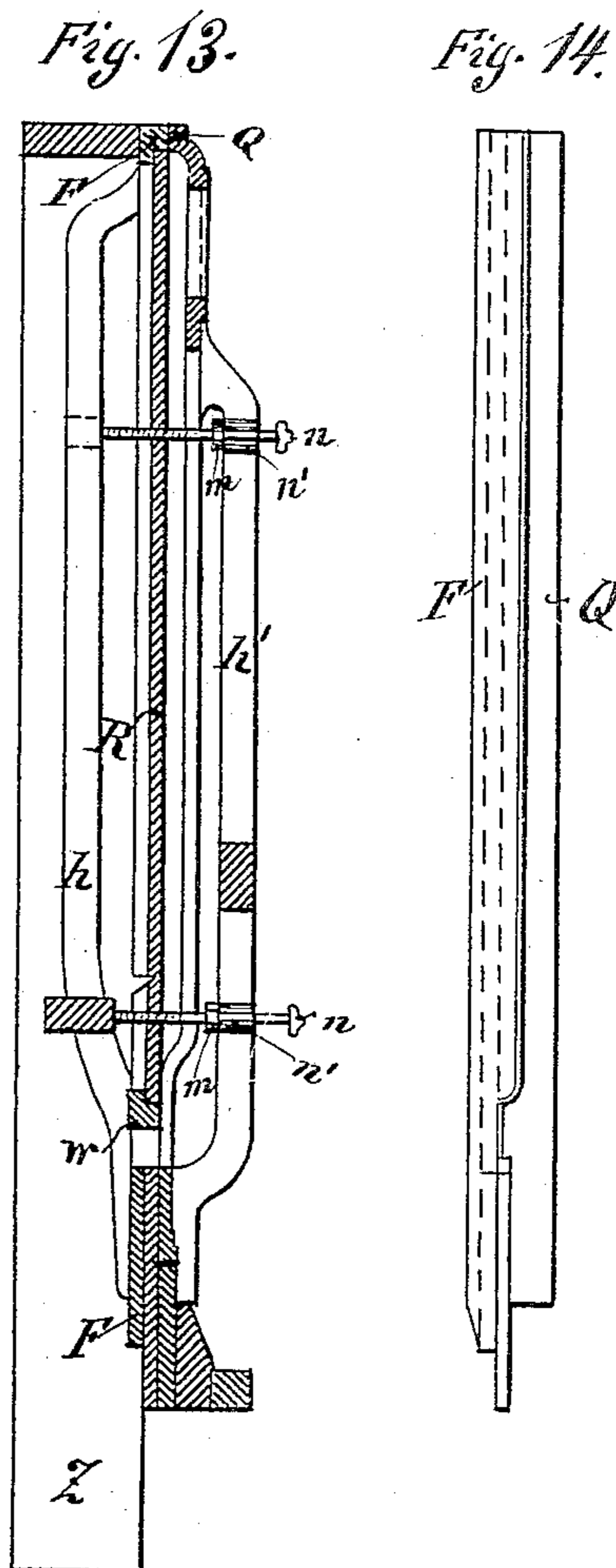
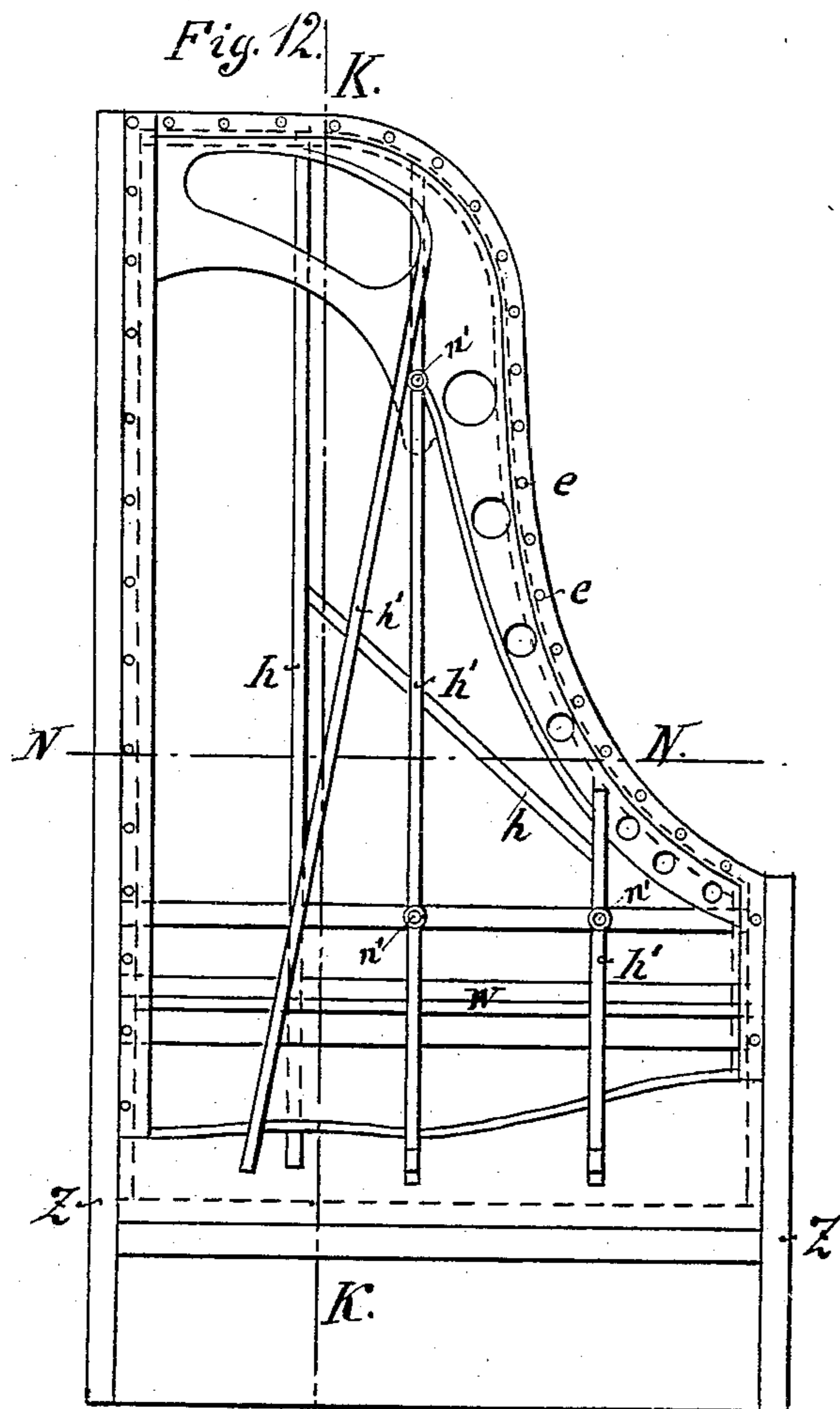
A. BIESE &amp; K. G. ZIEROLD.

5 Sheets—Sheet 5.

PIANO ACTION.

No. 294,004.

Patented Feb. 26, 1884.



Witnesses:  
August Pauls  
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# UNITED STATES PATENT OFFICE.

ALFRED BIESE, OF BERLIN, AND KARL GUSTAV ZIEROLD, OF LEIPSIC,  
GERMANY.

## PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 294,004, dated February 26, 1884.

Application filed March 7, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, ALFRED BIESE, residing at Berlin, and KARL GUSTAV ZIEROLD, residing at Leipsic, both in the German Empire, and citizens of Germany, have invented new and useful Improvements in Piano-Fortes, of which the following is a specification.

This invention relates to piano-actions; and it consists in the construction and combination of the parts substantially as hereinafter set forth.

In the accompanying drawings, Figure 1 is a side view of a piano-action when at rest. Fig. 2 is a top view of the same. Fig. 4 is a side view of the action when the key is pressed down. Fig. 5 is an enlarged view of the hammer and hammer-fly. Fig. 6 is a top view of the bottom iron frame. Fig. 7 is a section of the same at line S S, Fig. 6. Fig. 8 is a cross-section of the same at line T T, Fig. 6. Fig. 9 is a top view or plan of the upper frame. Fig. 10 is a longitudinal section of the same at line P P, Fig. 9. Fig. 11 is a cross-section of the same at line H H, Fig. 9. Fig. 12 is a top view or plan of the upper and lower frame attached to each other. Fig. 13 is a longitudinal section of the same at line K K, Fig. 12. Fig. 14 is a longitudinal end view of the same; and Fig. 15 is a cross-section of the same at line N N, Fig. 12. Figs. 3, 16, 17, and 18 represent additional detail views.

Similar letters represent similar parts in all the figures.

A is the key-lever; B, the hammer-fly hinged at *c* to the fly-foot *b*, which latter is attached to the key A.

E is the cross-bar, to which the feet of the hammers are attached.

D is the hammer; D', the hammer-rod, and J the hammer-butt hinged at *d* to its foot.

*h* is the back check and *h'* is the cushion for the hammer, after the same is released from the action of the key-lever and fly B.

To the hammer-butt J a spring, *f*, is attached, provided with a button, *v*, at its end, acting upon a suitable projection, *i*, provided on the hammer-fly B.

G is the cushion of the hammer-butt J, and is acted upon by a screw-bolt, *s*, so that said cushion G may be moved farther away or closer to the hammer-butt J, as may be desired, for the purpose of increasing or diminishing the force of the blow of the hammer against the strings X. When the key-lever A has been operated and the fly B has operated upon the hammer, the fly glances off, allowing the hammer D to fall back away from the string X only a very short distance, when the same is caught by the back check, *h*. At the same time the button *v* of the spring *f*, acting upon the projection *i* of the hammer-fly B, forces the fly back again under the end of the cushion G and supports the hammer D in that position, thereby enabling the performer to strike again and repeating as many times as he may choose by a very slight motion of the key, without the necessity of allowing the key-lever to return to its original position. The action of the spring *f* propels at the same time the hammer with greater force against the string.

To increase the sound of the instrument, and at the same time be able to counteract the effect of any change of temperature upon the sounding-board, we arrange this sounding-board R between two frames, F and Q. This sounding-board R is placed upon the lower frame, F, into a recess formed by the projecting edges *k* of said frame, the forward end of the sounding-board being supported by the wooden cross-bar *w*, Fig. 13, supported in suitable recesses, *g g*, made in the longitudinal braces *h*, Fig. 6, of said frame. By the arrangement of this wooden cross-bar *w* the metallic sound is likewise prevented. The upper framing, Q, strengthened by suitable longitudinal braces, *h'*, rests upon the lower frame, F, on its projecting edges *k*, and is firmly secured to the same by means of screws or bolts *e*. In the longitudinal braces *h'* of the upper frame, Q, bosses *n'* are arranged, through which bolts or screws *n*, Figs. 13 and 15, pass, bearing upon the longitudinal braces *h* of the lower frame, F, and capable of being regulated by suitable nuts, *m*, whereby the strain of

these frames F and Q may be increased or diminished, as may be desired.

What we claim as our invention, and desire to secure by Letters Patent, is—

- 5 In a piano-action, the combination of the hammer-butt, hammer-fly, and interposed spring with the cushion G, attached to said hammer-butt, and receiving the pressure of said spring, and the adjusting-screw, which  
10 works through said hammer-butt against the

back of said cushion, to regulate the stress of said spring, substantially as set forth.

ALFRED BIESE.

KARL GUSTAV ZIEROLD.

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Witnesses as to Karl Gustav Zierold:

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