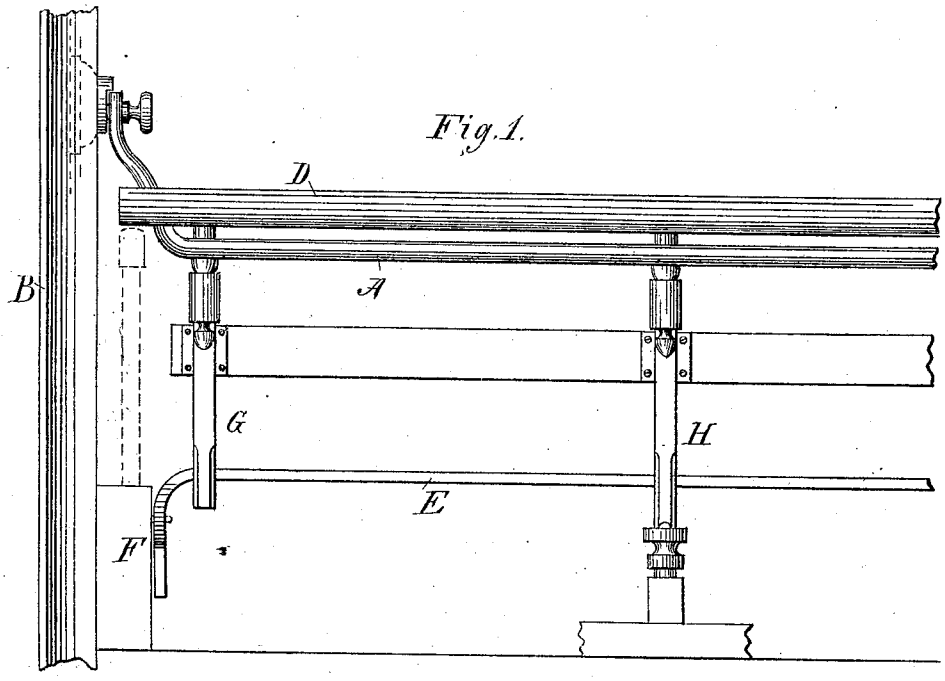
(No Model.)

P. GMEHLIN.

UPRIGHT PIANO ACTION FRAME.

No. 252,370. Patented Jan. 17, 1882.

Fig. 1.



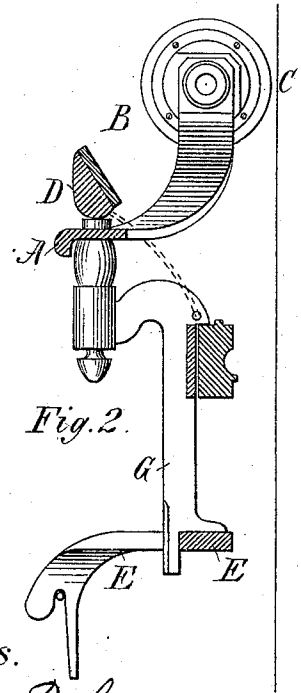


Fig. 2.

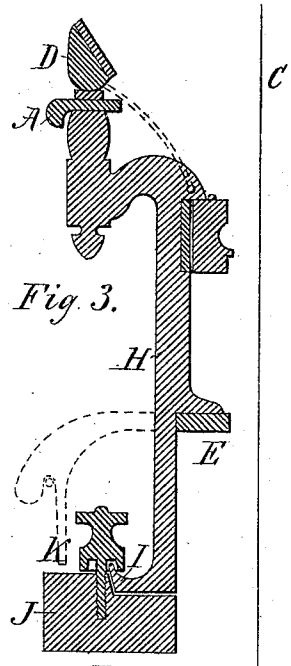


Fig. 3.

Witnesses.

Henry Behs

John F. Wood

Inventor.

Paul Gmehlin.

Per, A Horace Hastings

Atty:

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

PAUL GMEHLIN, OF NEW YORK, N. Y.

UPRIGHT-PIANO ACTION-FRAME.

SPECIFICATION forming part of Letters Patent No. 252,370, dated January 17, 1882.

Application filed August 16, 1881. (No model.)

To all whom it may concern:

Be it known that I, PAUL GMEHLIN, a citizen of the United States, residing at New York city, in the county and State of New York, have invented certain new and useful Improvements in Upright-Piano Action-Frames, of which the following is a specification.

The object of my invention is to produce a metallic, or partly metallic, upright-piano-forte action-frame with more reliable strength and less weight and clumsiness than metallic frames cast in one piece and to produce supporting-rails with sufficient rigidity to avoid the necessity of intermediate fastenings to the string-frame or to the wrest-block between their ends, which are fastened in a novel way. My object is also to produce a more convenient and substantial fastening for the lower ends of the intermediate standards.

In the accompanying drawings, Figure 1 represents a front view of the bass-end half of the frame, showing the end and one intermediate standards, the points of fastening to the case, and the position of the pedal-lifting rod. The other half is a repetition of this. Fig. 2 represents a section of the same at the bass-end standard, showing the curved position of the ends of the supporting-rails, their fastening-points, &c. Fig. 3 represents a section of the same at one end of the intermediate standards, showing the device for fastening the same.

A is the upper and principal supporting-rail. This rail I prefer to make of steel. It can be made of any other metal. I arrange this rail so as to have its widest part in a horizontal position, or thereabout, so as to make the frame stand very rigid as to its forward and backward tendency without much weight of metal, so as to avoid the necessity of any intermediate fastening to the string-frame or wrest-block, (which is the case with others now in use.) The ends of the rail A are extended, bent, and curved into a proper position to fasten to the rims of the case B, instead of fastening by the standards, like others now generally in use, near the string-frame, the position of which is shown in Figs. 2 and 3 by the dotted line C. In this position they are not affected by the warping of the rims. They may in some cases be fastened to the string-frame. Over this rail I arrange the hammer-rest rail D, to swing on centers, like others now in use. I attach a lower metal rail, E, in a similar manner to the upper one, having its ends extended, bent, and curved into a position to fasten to the cheeks F of the piano-case by any means of fastening now in common use. It will be observed that these malleable metallic rails A and E, with their ends curved to fasten to the piano-case, are extra rails, and are not and do not substitute for any of the rails, and are not screwed or bolted to any of the rails necessary for the direct attachment of or support of the several small parts of the action; but, in combination with the standards screwed or riveted thereon, a very rigid and substantial construction of frame is produced without much weight, to which said rails (necessary for the direct fastening of the several small parts of the action) are secured by way of the standards, which precludes many of the difficulties that exist in other action-frames—for instance, those cast in one piece. Where they are light enough to avoid clumsiness they do not cast uniformly, but are warped and twisted into various uncertain shapes—a difficulty which cannot be corrected or avoided—and when they are so heavy as to be clumsy their fastening-points, standards, and rails are easily broken by the slightest accident, and are not easily repaired. Great difficulty is experienced with action-frames where the rails are only of wood in their shrinking and warping, thereby disarranging the action for the want of reliable support, which cannot be had in cast-iron or wooden rails, all of which is obviated in the new construction, inasmuch as the rails are metal and can be bent into their proper shape, and with their curved ends for the fastening of the action into the piano-case they produce an elastic strength and a slight spring-pressure against their fastening-points, so that the frame always shuts into the case snugly, and is never too tight. It will be observed that such a construction of frame (for the support of the wooden rails necessary for the attachment of the several small parts of the action) can be easily reset and made to conform to any scale that has been drawn out of its level by the immense strain of the strings, thereby affording great facility for repairs not known in other frames. It is seen, therefore, that the difficulties aforementioned are effectually pre-

cluded. The upper metallic supporting-rail, A, with its ends curved into arms to fasten to the piano-case, with its widest part lying horizontally, is an important feature in my invention, as the rail is screwed or riveted to the top ends of the standards, there being no necessity of their running above the rail A, and when combined with the lower metallic supporting-rail, E, with its ends curved for the fastening to the cheeks F of the piano-case, they allow of the end standards being very simple and inexpensive, as the action is not fastened to the case by them, and they may be of wood without any of the previous objections.

I make the standards G and H of cast-iron or any other metal, (for some actions they may be of wood,) and screw or rivet them to the supporting-rails A and E. To these standards I screw the wood rails in the ordinary way. The lower ends of the intermediate standards, H, I form into hooks I, which are arranged to swing into a notch or recess in a block of wood, J, which is secured to the key-frame. In this block I insert a screw, K, having a large head with a groove turned in its under part close to its shank, which forms an outer rim. When the frame is swung on its lower centers into position the hook I passes into the notch or recess of the block J under the screw-head K. By turning the screw down the outer rim closes over the end of the hook I, thereby securing the standards firmly without any liability of being clogged with dust or affected with the atmospherical changes.

I am aware that cast-iron piano-action frames cast in one piece, having end standards with curved arms cast thereon for the fastening of the frame into the piano-case, are now in use. I do not claim such a construction; neither do I claim metallic rails for the direct attachment or direct support of the several small parts of the action; neither do I claim rails, straps, plates, shells, or tubes of metal secured directly to wooden rails for that purpose; but

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

1. As an improvement in upright-piano-forte action-frames, the horizontal metallic supporting-rails A and E, said rails being independent of the wooden rails to which the small parts of the action are directly attached, and not screwed or bolted to them, but to serve as a part of the frame to which said wooden rails are secured by the standards, said metallic rails having their ends extended, bent, and curved into a position to fasten to the case or string-frame, thereby securing the action into the piano by the aforesaid metallic rails directly, in combination with the standards G and H, screwed or riveted thereon, as shown and described.

2. The horizontal metallic supporting-rail A under the hammer-rest rail D, constructed as shown, with its widest part in a horizontal or flat position, in combination with the said standards G and H, and being screwed or riveted on the top ends of said standards, substantially as shown and set forth.

3. In upright-piano-forte action-frames, the hook I on the lower end of the standard H, the block J, provided with a notch or recess, the screw K, having a groove in the under side of the head, thereby forming an outer rim or flange, all in combination, arranged to operate substantially as shown and described.

PAUL GMEHLIN.

Witnesses:
HENRY BEHR,
JOHN F. WOOD.