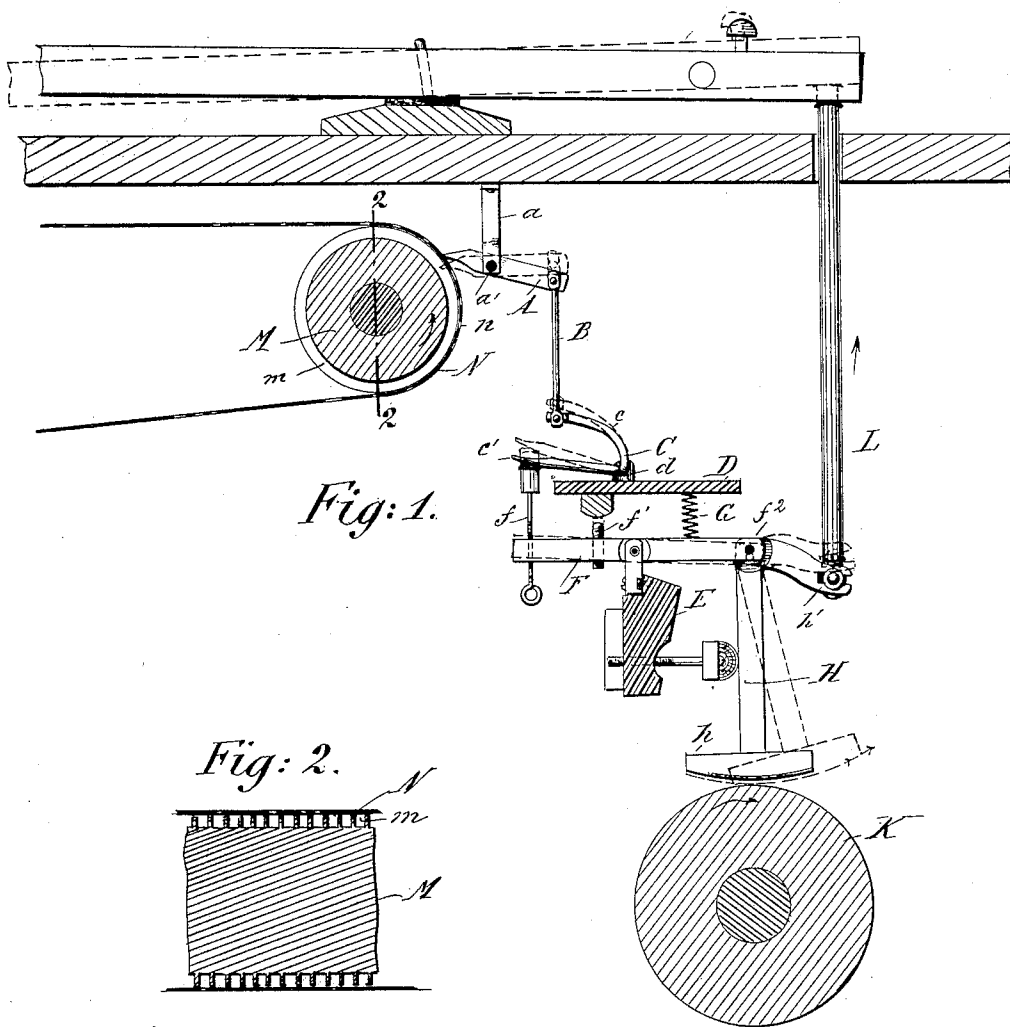


G. P. CLARK.

ATTACHMENT FOR MUSICAL KEYBOARD INSTRUMENTS.

No. 579,958.

Patented Apr. 6, 1897.



WITNESSES:

A. M. Whyte
Alfred Linchey

INVENTOR
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BY *Chas. Kay*
ATTORNEY.

(No Model.)

3 Sheets—Sheet 2.

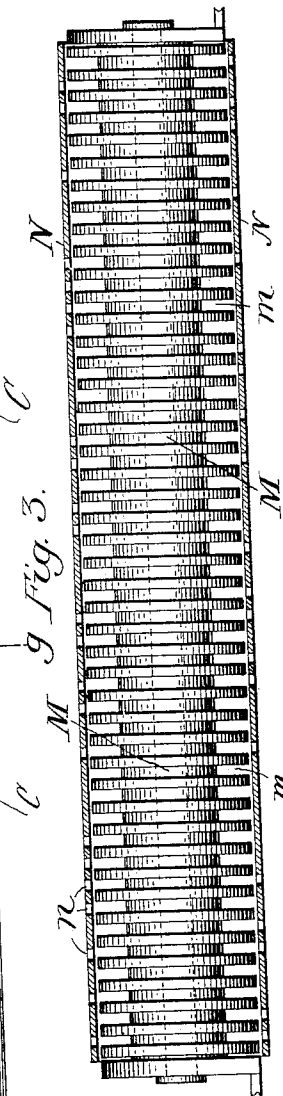
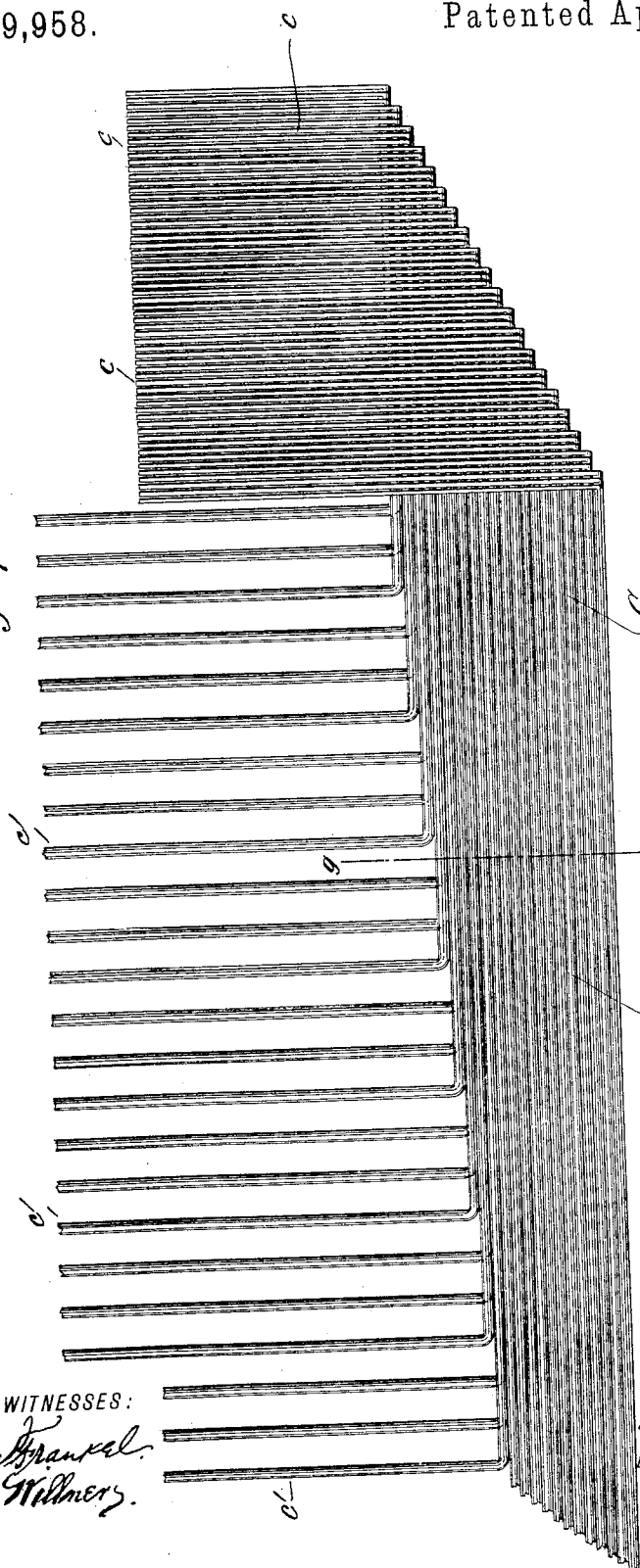
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Fig. 4.



WITNESSES:

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Harry M. Willmery.

INVENTOR

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(No Model.)

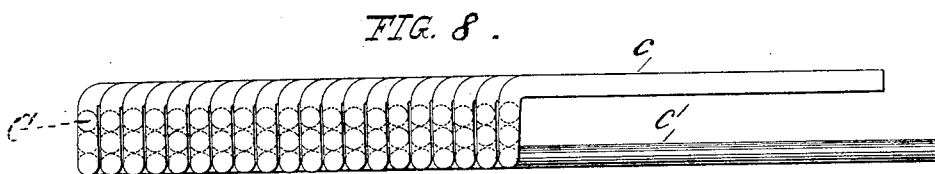
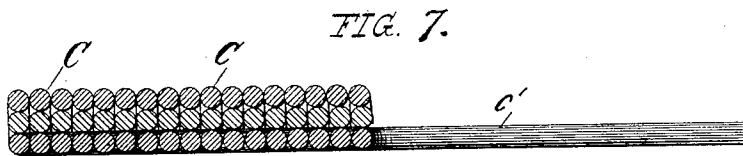
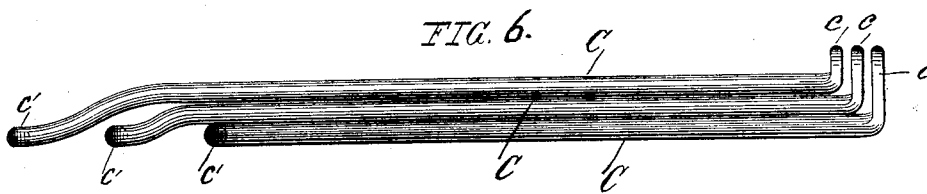
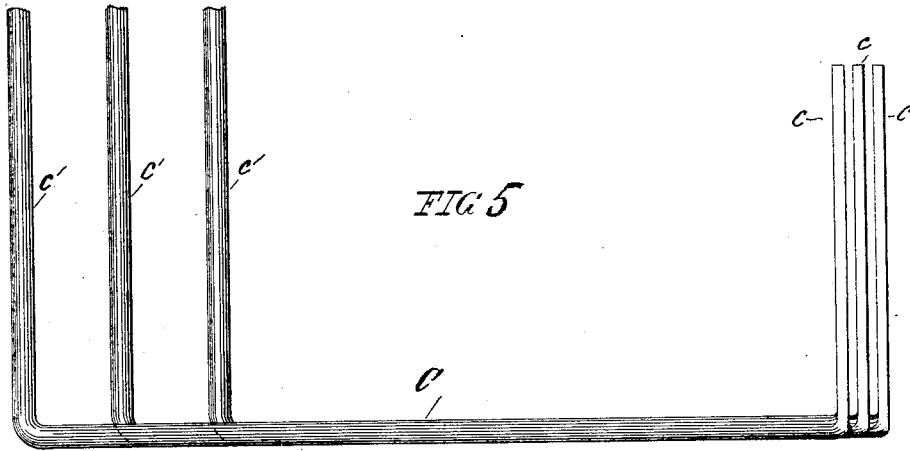
3 Sheets—Sheet 3.

G. P. CLARK.

ATTACHMENT FOR MUSICAL KEYBOARD INSTRUMENTS.

No. 579,958.

Patented Apr. 6, 1897.



WITNESSES:

Charles Franckel
Harry M. Walker.

INVENTOR

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BY Charles Karp
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UNITED STATES PATENT OFFICE.

GEORGE P. CLARK, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO
GEORGE D. BLANCHARD, OF SAME PLACE, AND ERNST ERSCHIELL, OF
LONG ISLAND CITY, NEW YORK.

ATTACHMENT FOR MUSICAL KEYBOARD INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 579,958, dated April 6, 1897.

Application filed April 15, 1896. Serial No. 587,707. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. CLARK, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Attachments for Musical Keyboard Instruments, of which the following is a specification.

The invention relates to certain new and useful attachments for musical keyboard instruments by means of which the music is created by the action of a perforated music-sheet upon the keys of the instrument.

The invention consists in the combination and arrangement of the various parts, as will be hereinafter more fully described, and particularly pointed out in the claims.

In all of the attachments with which I am familiar the life of the perforated sheet-music is of short duration. This is principally due to the faulty construction of the fingers, but more particularly to their bad arrangement with respect to the passing music-sheet, which causes the tearing of the "bridges" between the perforations and soon renders the music-sheet worthless. As the cost of a roll of such music is quite expensive, the loss thus sustained is necessarily somewhat of an item. The present invention is designed to overcome these defects, the principal object being to produce an attachment by means of which a perfect operation of the perforated music-sheet upon the action of the keyboard instrument will be attained, and this object is accomplished by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a section of my improved attachment, showing one of the operating-fingers and connecting mechanism; Fig. 2, a longitudinal sectional view of a portion of the music-sheet feed-roller; Fig. 3, a plan view of the roller, showing the perforated music-sheet in section; Fig. 4, a view showing the arrangement of the wires connecting the fingers with the key-operating mechanisms; Fig. 5, a top plan view of one series of said wires; Fig. 6, a side view of the same; Fig. 7, a sectional view on line 9 9 of Fig. 4, and Fig. 8 an end view of said Fig. 4.

Referring to the several views, the letter A

indicates a straight finger fulcrumed approximately midway between its length to a suitable hanger or support *a*, secured to the instrument beneath the keyboard. One end of the finger is pivoted to one end of a connecting-rod B, the other end of said rod being pivoted to a rectangularly-bent arm *c* of a wire C, loosely fitted in a bracket *d*, supported by a fixed bar or rod D. Fulcrumed to a bar or rod E is a lever F, which carries at one end *f*² a swinging pendant II, the other end being provided with a pin *f*, which contacts with the other rectangularly-bent arm *c'* of the wire C. Situated between the bar D and the lever F is a spring G, which exerts a constant downward pressure upon that end of the lever carrying the pendant II and an upward pressure upon the other end, so that the pin *f* will exert a constant pressure against the arm *c'* to bring the mechanism of the action into operative connection with a friction-driver, to be hereinafter explained. A set-screw *f'* serves to regulate the tension of the spring G and the pressure of the pin *f* on the arm *c'*.

The pendant II is provided with a shoe *h*, which is adapted to contact with a friction-driver K when the end *f*² of the lever F is lowered. The upper end of the pendant is provided with an arm *h'*, the outer end of which is connected to one end of a striker-pin L, depending from a key of the instrument.

The letter M indicates the roller which carries the perforated music-sheet N, and it is provided with a series of peripheral grooves corresponding with the lines of perforations in the music-sheet. The manner in which the roller M is supported in the instrument and the mechanism to revolve it are well known in this class of attachments, and therefore it is not deemed necessary to a clear understanding of the present invention to either illustrate the same in the drawings or describe the same in the specification further than to state that the roller is so situated that the free pointed end of the finger is always in contact with that portion of the music-sheet which revolves around the periphery of said roller, as shown in Fig. 1.

While I have described but one operating-

finger and its various adjustments, it will be readily apparent that each key of the instrument will be provided with its individual finger and the described connecting mechanism, and it will be also apparent that my improved attachment is equally well adapted for organs as for pianos.

The operation of the mechanism as thus far described is as follows: Power being applied to revolve the roller M, the music-sheet N is caused to travel in the direction of the arrow, Fig. 1, and as the music-sheet moves the pointed end of the finger will drop or fall into a perforation in said music-sheet. As the pointed end of finger drops into the perforation the constant force exerted by the spring G upon the lever F will cause pin *f* to push up arm *c'* and rock the wire C and at the same time push down the pendant upon the friction-driver K, which, rotating in the direction of the arrow, will cause the pendant to swing in the direction shown by the dotted lines in Fig. 1. As the pendant swings backward, its arm *h'*, moving upward, forces up the striker-pin, which raises the rear end of the key and operates the piano-action. As soon as the end of the perforation engages the free end of the finger said finger will be forced upward and will rest upon the bridge portion of the sheet, as shown in full lines in Fig. 1, until the next perforation comes in line with the finger, when the operation just described will be repeated. As the finger is forced out of the perforation the connecting-rod B is pushed down, and consequently the arm *c*, rocking the wire C in the opposite direction and causing the arm *c'* to exert pressure upon the pin *f* to force down the free end of the lever F and raise the end carrying the pendant. This operation will release the pendant from contact with the friction-driver and permit the key to resume its rest or normal position. It will be observed that the free end of the finger will readily drop into or be pushed out of the perforations in the music-sheet without a particle of strain on the fulcrum-pivot or longitudinal pull on the finger, thus preventing tearing of the bridge portions heretofore mentioned.

To operate all the keys of an instrument by a music-sheet of the usual size, the connecting-wires are constructed and arranged as shown in the drawings. As heretofore described, each wire C has two rectangularly-bent arms *c* and *c'*. These wires are arranged, preferably, in series of three, one above another, as shown in Fig. 6, with the arms *c* bent vertically at right angles to the body portion, and then horizontally at right angles to said vertical portion, as shown in Fig. 5. The arms *c'* are bent at right angles to the body portion of the wires and in the same di-

rection as the horizontal portion of the arms *c*, but the body portion of the second or middle wire of the series extends beyond the lower wire and is bent downward over the arm of said lower wire, and the body portion of the upper or third wire of the series extends beyond the middle wire and is bent down and over said middle wire in such manner that their respective arms will be in the same horizontal plane with the arm *c'* of the lower wire, as shown in Fig. 6, said arms being such a distance from each other as to correspond with the location of the keys of the instrument. Twenty such series may be arranged in one attachment, the second series being placed in the front of the first series, the third series in front of the second series, and so on until the entire twenty series are completed.

It will be obvious that when the single wires are properly bent and placed each wire can be easily and freely operated by the action of the finger on the perforated music-sheet, said operation being positive and without interference with any one of the adjacent wires.

I do not wish to be understood as limiting myself to the specific construction of the key-operating mechanism, as other forms equally well adapted for the purpose may be employed without departing from the spirit of my invention or sacrificing the principle thereof.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an attachment for keyboard instruments, the combination of a series of straight operating-fingers fulcrumed on a suitable support, connecting-rods pivoted to said fingers wire levers having arms connected with the connecting-rods and with the key-operating mechanisms the arms of the respective levers being situated side by side and the body portions one above the other in series of three or more, substantially as specified.

2. In an attachment for keyboard instruments, the combination of the operating-fingers fulcrumed on the frame of the instrument, with connecting-rods pivoted to said fingers, and wire levers attached to the connecting-rods to operate the keys said wire levers consisting of rectangular arms *c* and *c'*; the arms *c* being attached to the connecting-rods and the arms *c'* situated side by side with each other, while the body portions of each are arranged one above the other in series of three or more, substantially as specified.

Signed at New York, in the county of New York and State of New York, this 9th day of April, A. D. 1896.

GEORGE P. CLARK.

Witnesses:

A. F. W. MEYER,
ALFRED GINSBERG.