(No Model.) 2 Sheets—Sheet 1.

W. R. EDDINGTON.

MECHANICAL KEY BOARD ATTACHMENT FOR PIANOS AND ORGANS.

No. 326,413. Patented Sept. 15, 1885.

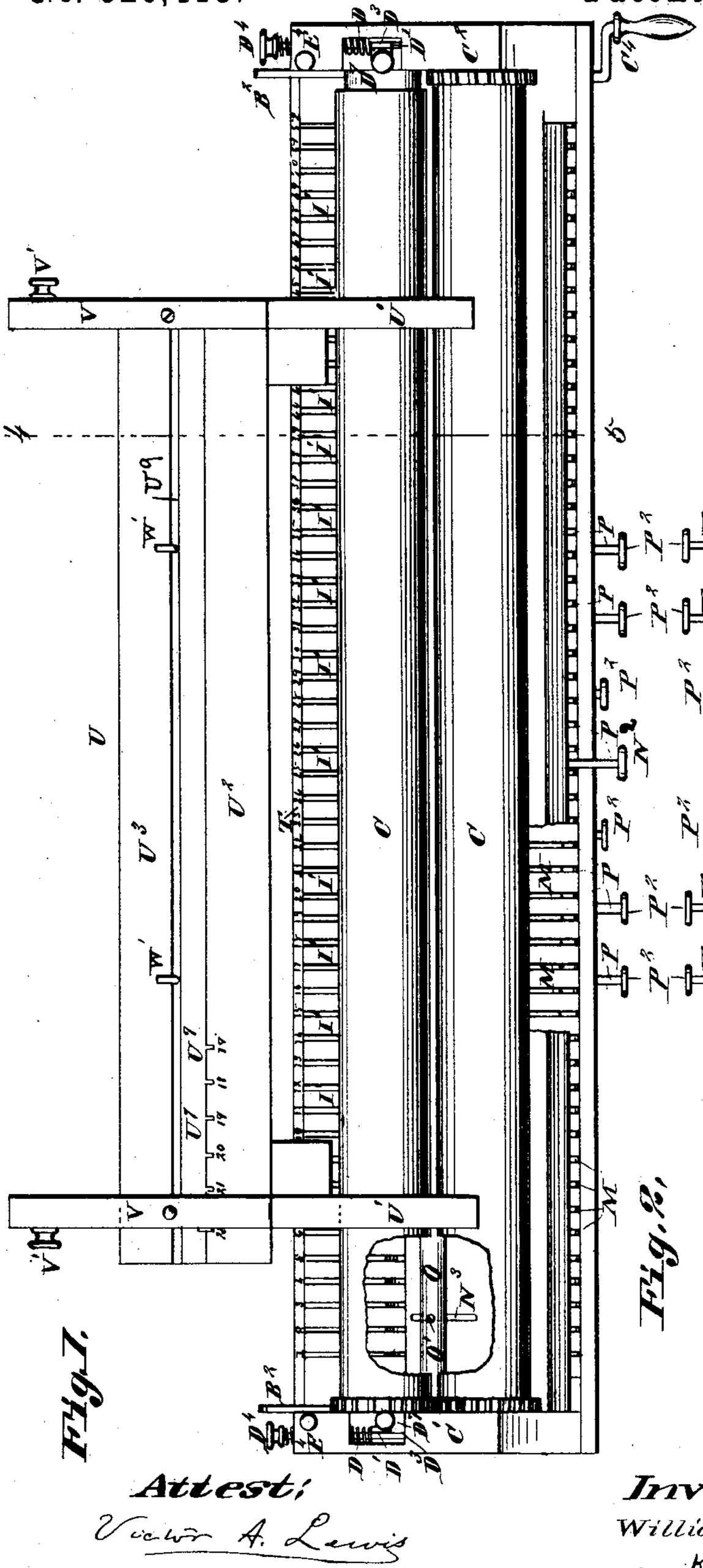

Fig. 1.

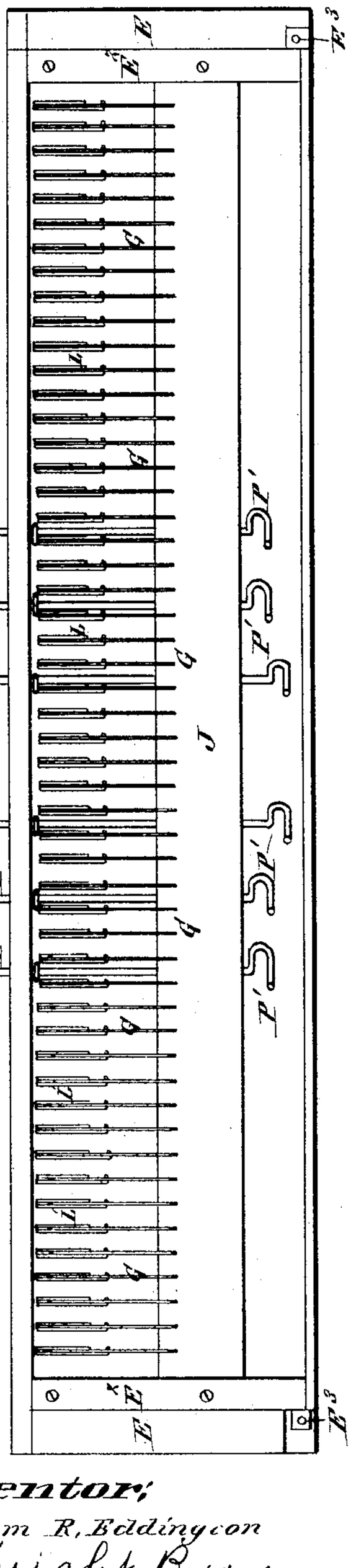

Fig. 2.

Attest;

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Attys.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3

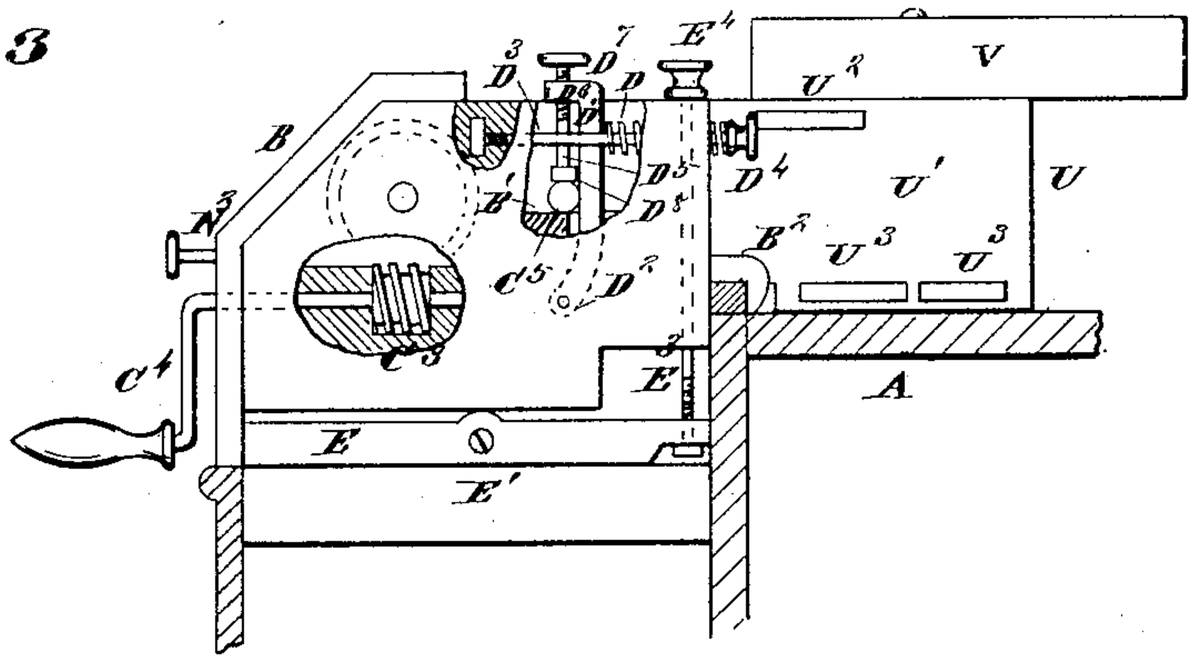

Fig. 4.

Fig. 5.

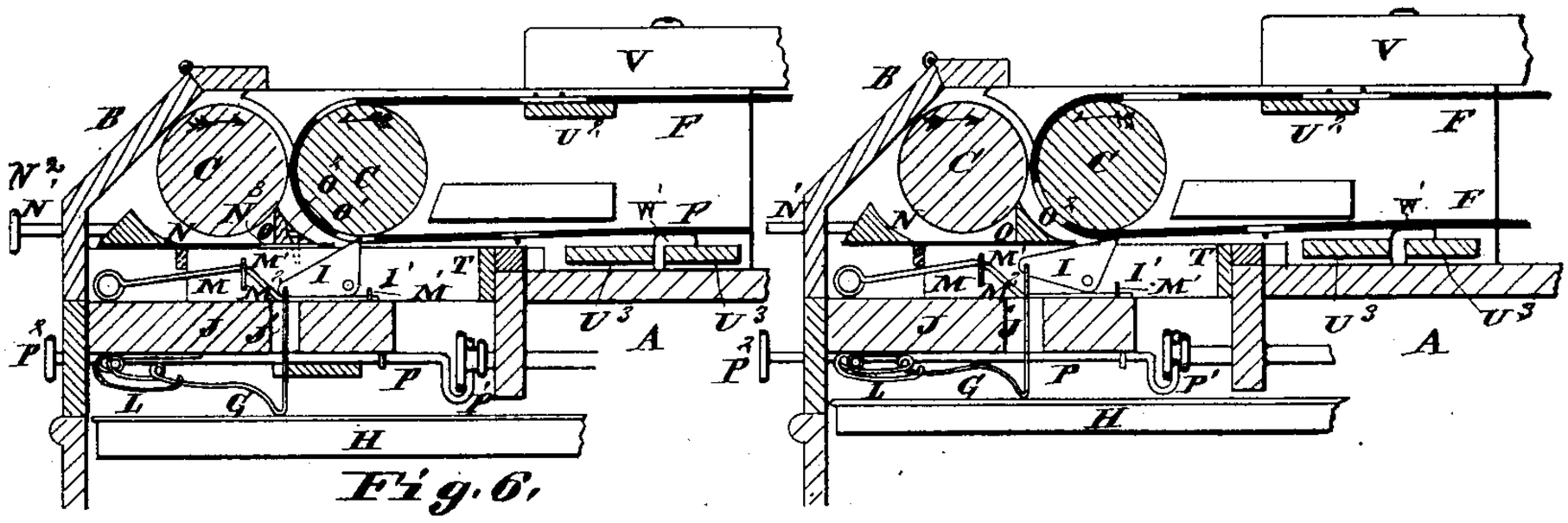

Fig. 6.

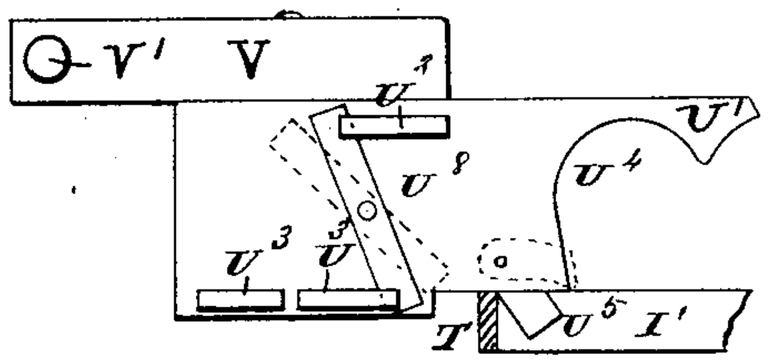

Fig. 7.

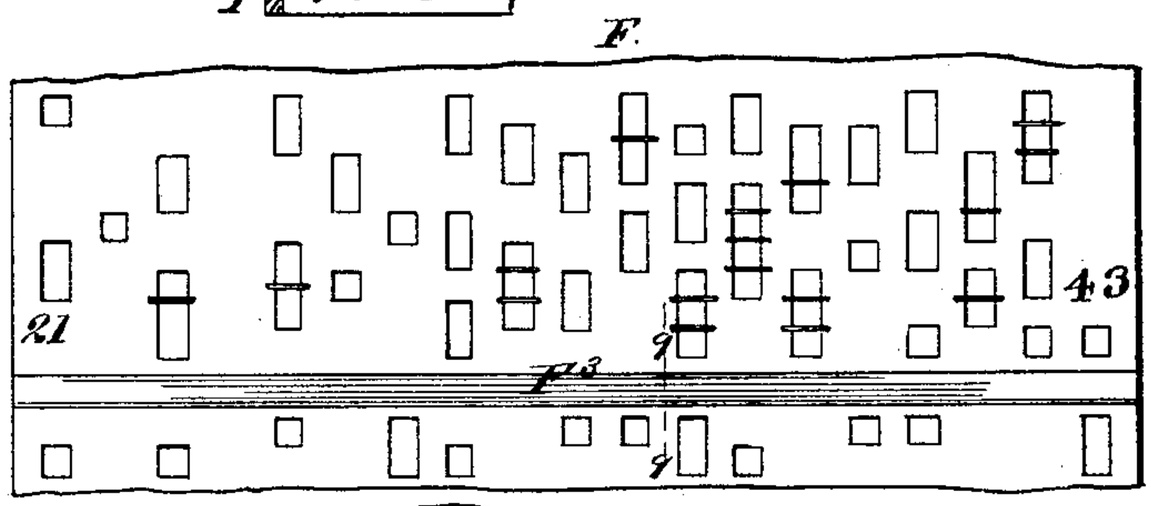

Fig. 8.

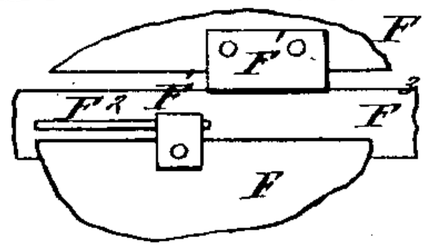

Fig. 9.

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UNITED STATES PATENT OFFICE.

WILLIAM R. EDDINGTON, OF WOODBURN, ILLINOIS.

MECHANICAL KEY-BOARD ATTACHMENT FOR PIANOS AND ORGANS.

SPECIFICATION forming part of Letters Patent No. 326,413, dated September 15, 1885.

Application filed March 14, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. EDDINGTON, of Woodburn, in the county of Macoupin and State of Illinois, have invented a certain new and useful Improvement in Piano and Organ Attachments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top view of my improved attachment, adjacent part of the carrying-rollers being omitted to exhibit that beneath. Fig. 2 is a bottom view of same, showing the position of the hooks on the pull-rods to permit the seating of the attachment and the reception of the stop-knobs within the loops of the hooks. Fig. 3 is an end view of the attachment, part broken away, and a detail vertical section of an organ. Figs. 4 and 5 are vertical transverse sections of the attachment, taken on line 4 5, Fig. 1, and detail vertical sections of an organ, the hook-loops of the pull-rods being shown beneath the knobs of the stops, thus preventing the removal of the device. Fig. 6 is an end view of the apron-guide. Fig. 7 is a detail view of the apron. Fig. 8 is a detail view of the apron, illustrating the manner of securing its ends together; and Fig. 9 is a section of same, taken on line 9 9, Fig. 7.

My invention relates to an attachment for ordinary pianos or organs and other musical instruments of this character, whereby the keys can be operated by mechanical means in the same manner and to the same perfection as if operated by hand; and this invention relates in some particulars to improvements on the attachment shown and described in my application No. 124,178, filed March 14, 1884.

This invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents part of an ordinary organ, over the finger-keys of which my improved attachment is placed, and from which it can be removed at pleasure.

B represents the housing or casing of the attachment that supports rollers C, connected at one end by cog-wheels C′, and one of them having at the other end a worm-wheel, C^2, engaged by a worm, C^3, on a crank-shaft, C^4. By this means the rollers are turned toward each other, as indicated by the arrows, Figs. 4 and 5. The journals or gudgeons C^5 of one of the rollers rest on ledges B′ at the ends of the housing, (see Fig. 3,) and this roller is held over toward the other by springs D, that press against arms D′, pivoted at D^2 to the ends of the housing, and which bear against the gudgeons from behind. The springs surround screw-threaded rods D^3, having knobs D^4 on their outer ends, between which and the arms D′ the springs are located. By screwing the rods inward the tension of the springs is increased to increase the friction of the rollers upon the apron and insure its movement as the rollers are turned. By pulling the upper ends of the arms back against the pressure of the springs the rollers can be moved slightly apart to permit the easy insertion of one end of an apron between them, when it is desired to add another apron.

The adjustable roller is held down upon the ledges B′ by set-screws D^5, that pass through projections D^6 on the arms D′, and which have knobs D^7 on their upper ends, by which they are turned, and collars D^8 on their lower ends, that bear upon the gudgeons of the roller. (See Fig. 3.) By adjusting these screws up or down music sheets or aprons of different thickness can be used.

E represents strips that rest upon the cheek-blocks of the organ, and connected by pins or pintles E′ to strips E^2, made fast to the housing of the attachment. Screw-threaded rods E^3 pass down through the housing and into the ends of the strips E. They have knobs E^4 on their upper ends, by which they are turned to adjust the instrument to suit the keys of the organ or piano upon which it is placed. The housing has hooks B^2, that engage the organ and hold the attachment in place. (See Figs. 1 and 3.)

F represents the apron, which is perforated and which passes between the rollers. As the apron is moved by turning the rollers, springs G, that depress the keys H of the organ or piano, are operated through means of levers I, pivoted to strips I′, located over the bottom board, J. The springs are connected to the

outer ends of the levers, which are raised up by the apron, as shown in Fig. 5, until the slots or perforations in the apron come opposite the levers, when their outer ends will be pulled down by the springs, and the different springs are thus permitted to depress the different keys at the proper time to produce the proper notes; and for the purpose of operating the springs twice where two notes occur on one key, I secure wires across such of these slots (see Fig. 7) as represent two or more notes, and the desired result is obtained.

The ends of the sheet are connected to form a belt by metal strips F′, through which are passed pins F², (see Figs. 8 and 9,) and these strips and pins are covered by a metal strip, F³. (See Figs. 7 and 9.)

The springs are formed of wire bent in the form shown in Figs. 4 and 5. They are secured by their outer ends to the under side of the bottom board, and their inner ends are bent upward and pass through a slot, J′, in the bottom board, above which they are made fast to the levers, as stated. Their power is increased by auxiliary springs L, made fast to them and to the bottom board. (See Figs. 2, 4, and 5.) The ends of these auxiliary springs are connected to the other springs by being hooked over them, so that should the tension of the springs be decreased by use it can be restored by simply unhooking these auxiliary springs, bending them down, and then rehooking them over the other springs again. By making these springs longer or shorter they will have a greater or less leverage over or upon the springs G.

Should it be desired to prevent the operation of any one or more of the springs at any time without interfering with the operation of the others, this can be accomplished by means of sliding rods M, made fast to the bottom boards and to the strips I′ by staples M′, through which they slide. They have bends M², that slide under the outer ends of the levers I, to throw their upper inner ends down and back out of contact with the apron, so that the keys of the organ or piano to which these springs belong will not be operated, and as soon as the rods are pulled forward or outward again these springs will operate again, as described. This same end can be accomplished with all of the springs simultaneously by means of a sliding plate, N, supported on the strips I′, and moved in and out by means of a stem, N′, having a button, N². It is shown in its normal position in Figs. 4 and 5, and when it is shoved in it comes in contact with the upper ends of the levers, forcing them back out of contact with the apron.

O represents a block, located between and beneath the rollers and made fast to the strips I′ by screws O′, that pass through slots N³ in the plate N. It has a concave surface, O², facing the inner roller, and its office is to direct the belt or apron backward as it is introduced between the rollers.

P represents pull-rods suitably connected to the under side of the bottom board, and provided with hooks P′ on their inner ends to engage the stops of the organ, and knobs P² on their outer ends, by which they are forced in and pulled out.

T represents a strip to which the inner ends of the strips I′ are made fast. Upon this strip is placed the number of the keys, (see Fig. 1,) the keys being numbered from left to right consecutively, and each piece of music has the number of its highest key placed on its right-hand corner, and by placing the number to the corresponding number on the strip, which agrees with the number of the key, as stated, any one that can read numbers cannot fail to play the music correctly.

U represents the music-guide, the body of which consists of end pieces, U′, top strip or piece, U², and bottom strip or piece, U³, the end pieces having notches U⁴, (see Fig. 6,) to fit the inner roller. The guide slides upon its support.

By placing the right-hand end of the guide over the number on the strip T, that corresponds with the number of the sheet above mentioned, the proper tune will be played for that piece of music. When the guide is thus adjusted, it is held to its adjustment by buttons U⁵, secured to the end piece, U′, and which can be turned from the position shown in dotted lines to the position shown in full lines, Fig. 6; when they will engage or enter between the strips I′, to hold the guide from movement. The end pieces of the guide can be moved to and from each other to fit the width of different sheets of music, which have their width marked in inches, as shown on the left side of Fig. 7. The strip U² is marked off in inches, opposite which are notches U⁷, to receive the upper end of the button U⁸. By shifting the end pieces to or from each other to the number that corresponds with the number of inches on the music and then turning the button, the end pieces will be held just the width apart of the sheet, the sheet being guided by the end pieces and by pieces V, pivoted to the end pieces and provided with buttons V′, by which they are turned to guide the sheet between the end pieces.

Hooks W′ on the organ engage over the strip U³ on the guide to hold the guide in place. They pass up through a slot, U⁹, in the strip, and are then turned half-way around. (See Figs. 1, 4, and 5.)

I do not claim, broadly, in a mechanical key-board attachment, the pull-rods for operating the stop-knobs of an organ, but only the improved construction of such rods.

I claim as my invention—

1. In an attachment for organs, &c., the springs formed of wire bent in the form shown, having their outer ends secured beneath the bottom board of the housing and their inner ends bent upward and passed through the bottom board, in combination with levers to

which the upper ends of the springs are secured, and by which the latter are connected with the operating devices, substantially as set forth.

2. In an attachment for organs, &c., the combination, with the springs herein shown and described for operating the keys, of the auxiliary springs by which the tension of the key-springs is regulated, substantially as set forth.

3. In an attachment for organs, &c., the combination of the rollers, means for turning the rollers, perforated apron, levers pivoted to cross-strips, bottom board, and springs connected to the bottom board and to the levers, all arranged and operating substantially as shown and described, for the purpose set forth.

4. In an attachment for organs, &c., the perforated apron having wires secured across part of the perforations, substantially as shown and described, for the purpose set forth.

5. In an attachment for organs, &c., the combination of the rollers, apron, and block O, with a concave face, for the purpose set forth.

6. In an attachment for organs, &c., the combination of the rollers, apron, levers, springs connected to the levers and adapted to operate the keys of the organ, and sliding bent rods M, substantially as and for the purpose set forth.

7. In an attachment for organs, &c., the combination of the rollers, apron, levers, springs connected to the levers and adapted to operate the keys of the organ, and sliding plate N, having rod N′, substantially as shown and described, for the purpose set forth.

8. In an attachment for organs, &c., the combination of the apron, rollers, hinged arms located behind the gudgeons of one of the rollers, springs D, and adjusting-rods D^3, arranged and operating substantially as shown and described, for the purpose set forth.

9. In an attachment for organs, &c., the combination of the apron, rollers, hinged arms located behind the gudgeons of one of the rollers, springs D, adjusting-rods D^3, and rods D^5, screwing through the arms and provided with collars on their lower ends, substantially as shown and described, for the purpose set forth.

10. In an attachment for organs, &c., the strip T, having numbers representing the tunes of the music-sheets marked upon it, in combination with the adjustable guide U, adapted to receive the music sheet or apron, substantially as and for the purpose set forth.

11. In an attachment for organs, &c., the adjustable apron-guide U, provided with buttons U^5, for fitting between the strips I′ of the attachment, substantially as and for the purpose set forth.

12. In an attachment for organs, &c., the apron-guide consisting of end pieces and top and bottom strips, the bottom strip having notches and provided with numbers indicating the width of the music sheet or apron, in combination with button U^8, substantially as and for the purpose set forth.

13. In an attachment for organs, &c., the apron-guide consisting of end pieces and top and bottom strips, in combination with the hooks W′, for engaging over the bottom strip of the guide, for the purpose set forth.

14. In an attachment for organs, &c., the pull-rods P, having hooks P′, for engaging the stops of the organ, constructed substantially as shown and described, for the purpose set forth.

WILLIAM R. EDDINGTON.

In presence of—
W. H. GOODELL,
OLIN G. REINIGER.