

No. 619,558.

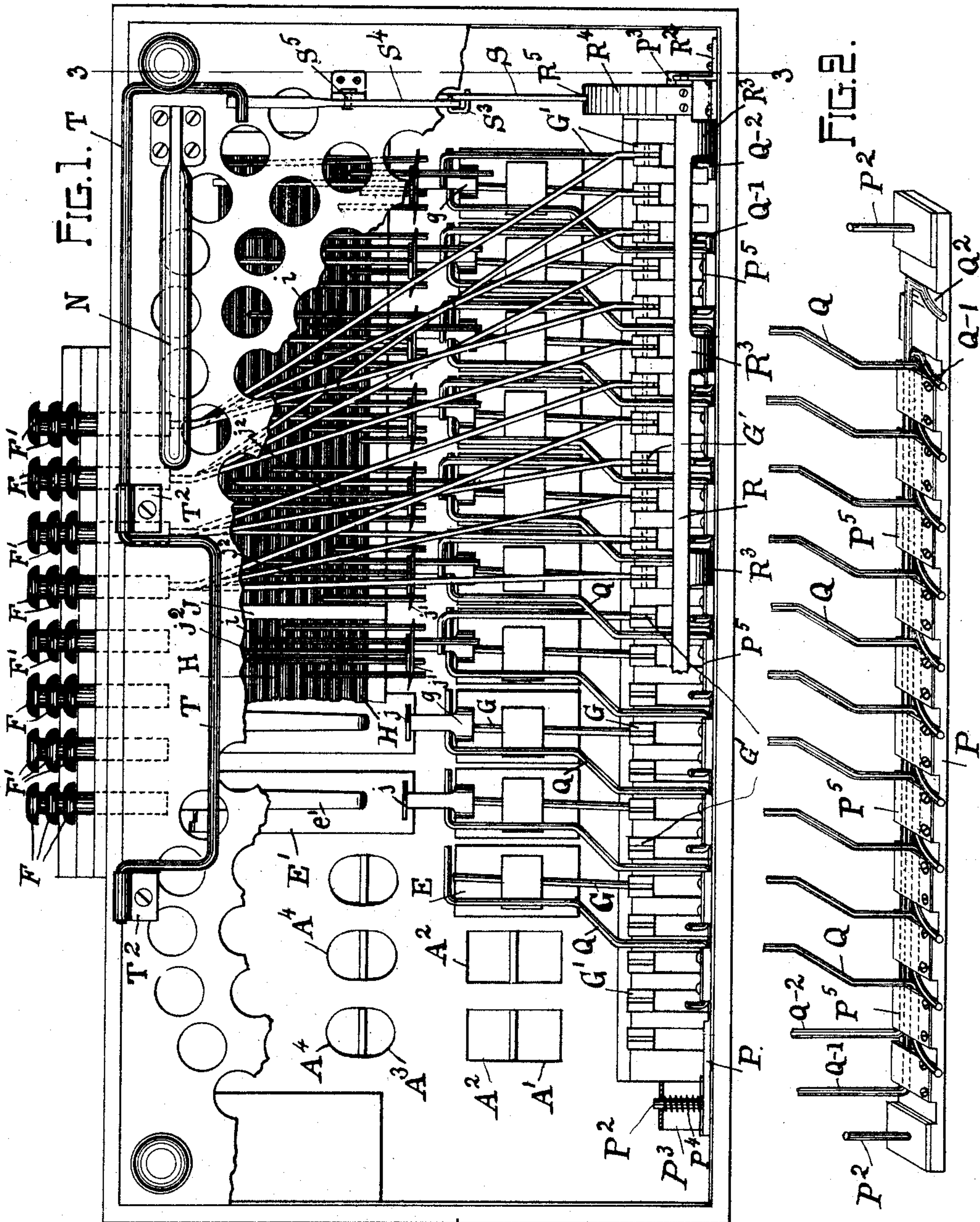
Patented Feb. 14, 1899.

J. GALLEAZZI.
ACCORDION.

(Application filed Mar. 31, 1897.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES
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J. GALLEAZZI.

ACCORDION.

(Application filed Mar. 31, 1897.)

3 Sheets—Sheet 2.

(No Model.)

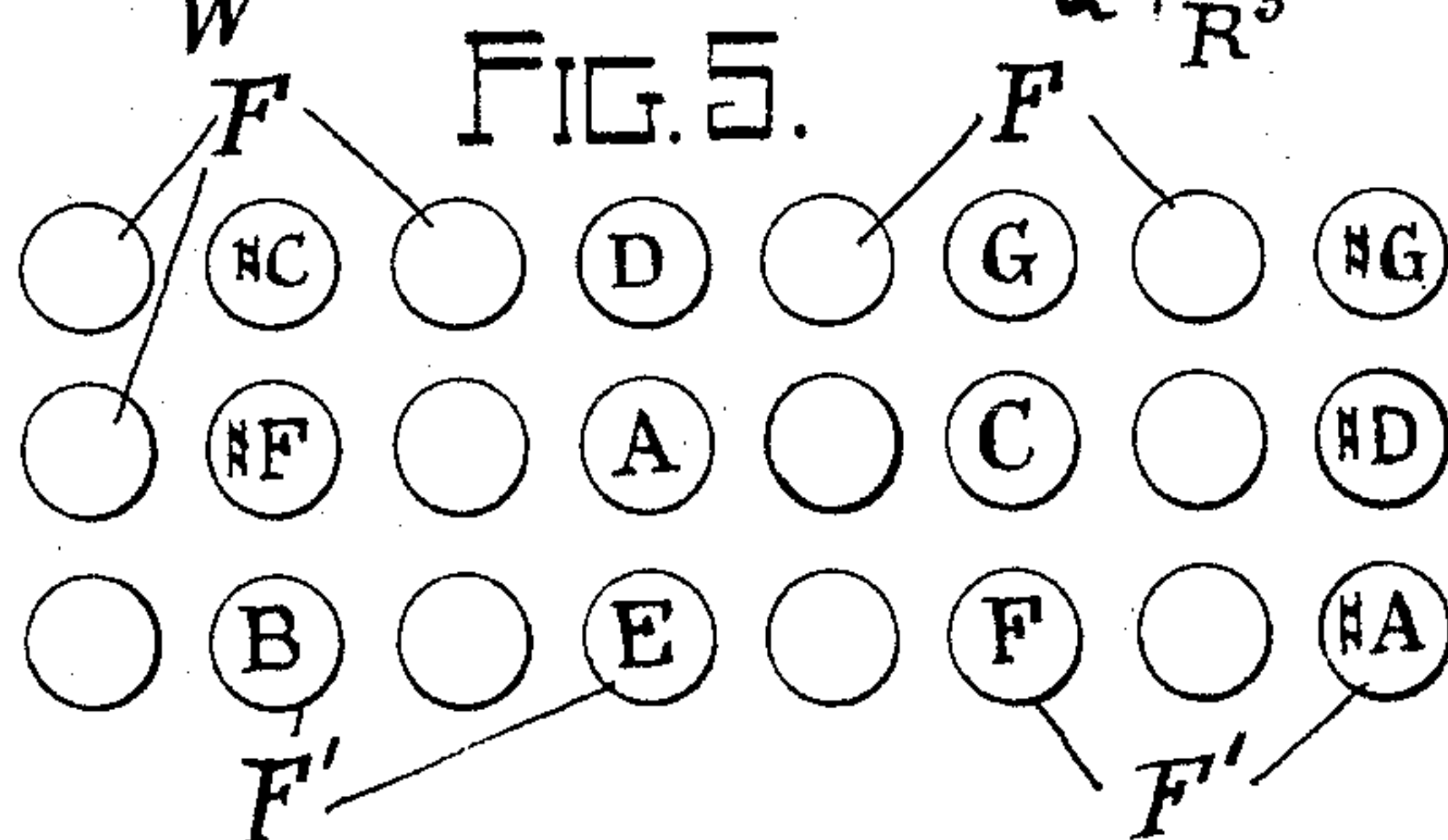
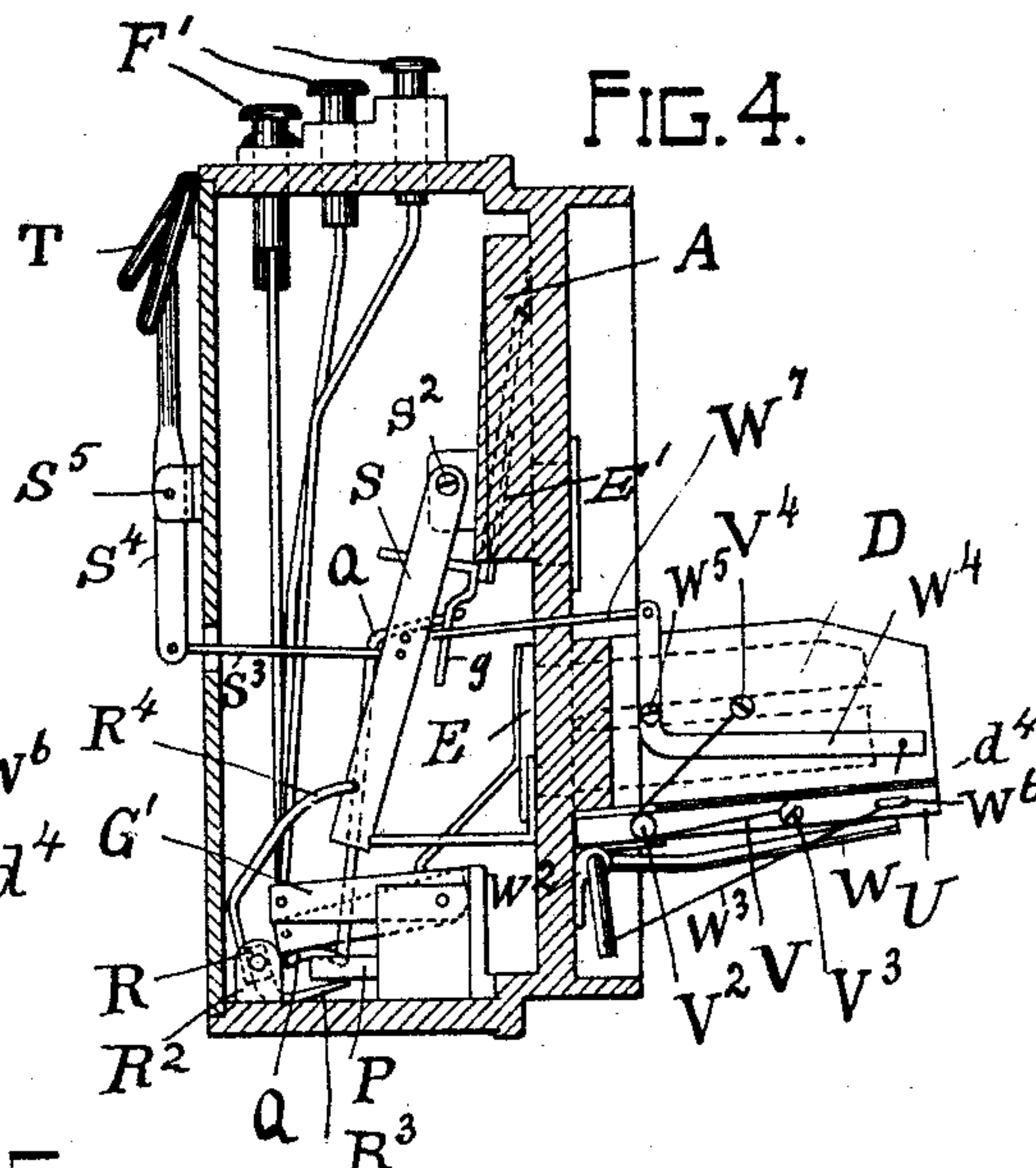
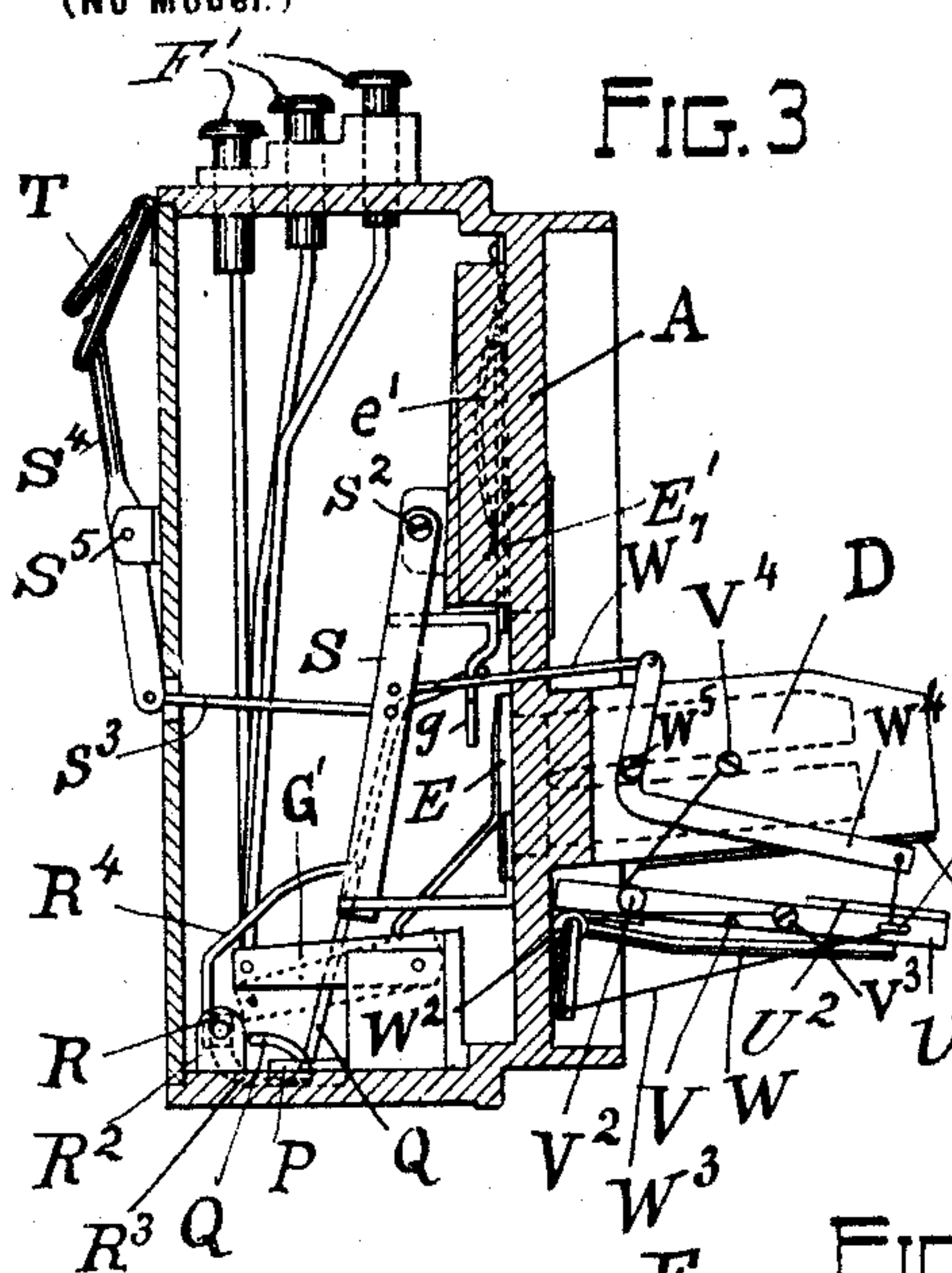


FIG. 6.

B	E	A	D	G	C	F	HA	ND	NG	NC	NF
3	4	5	6	7	8	9	10	11	12	1	2
1	2	3	4	5	6	7	8	9	10	11	12
12	1	2	3	4	5	6	7	8	9	10	11
9	10	11	12	1	2	3	4	5	6	7	8
NC	NF	B	E	A	D	G	C	F	HA	ND	NG

WITNESSES

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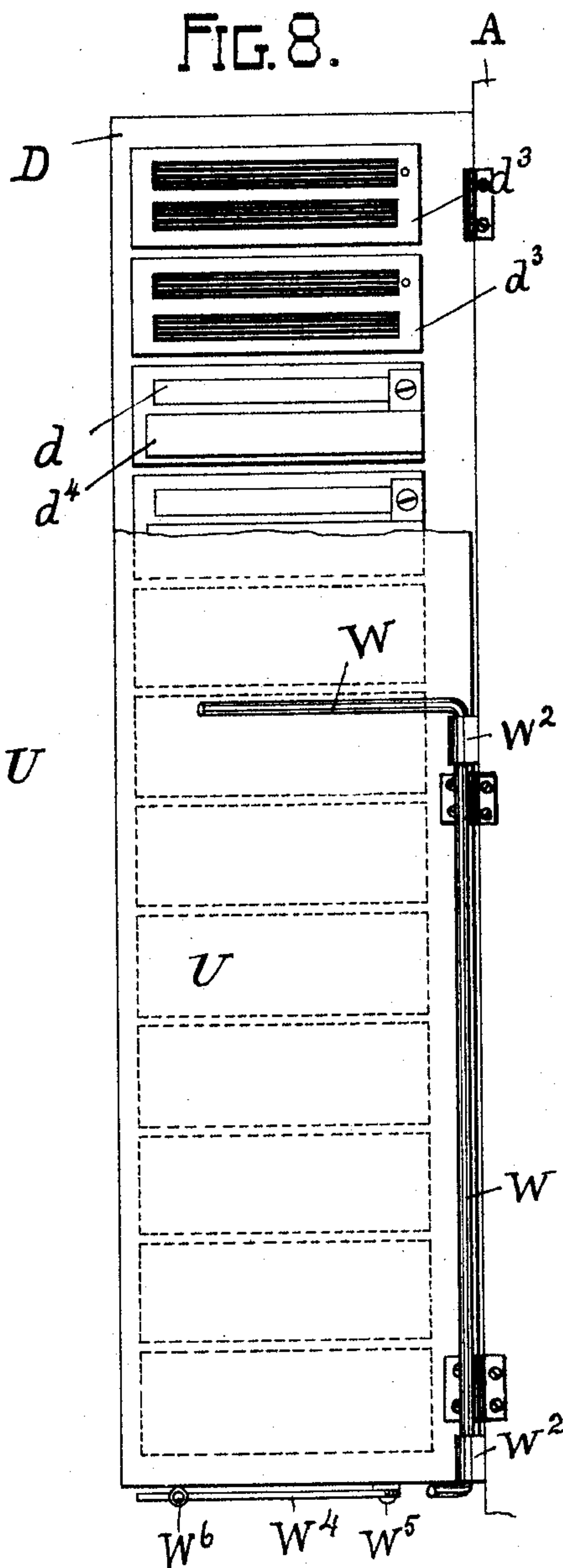
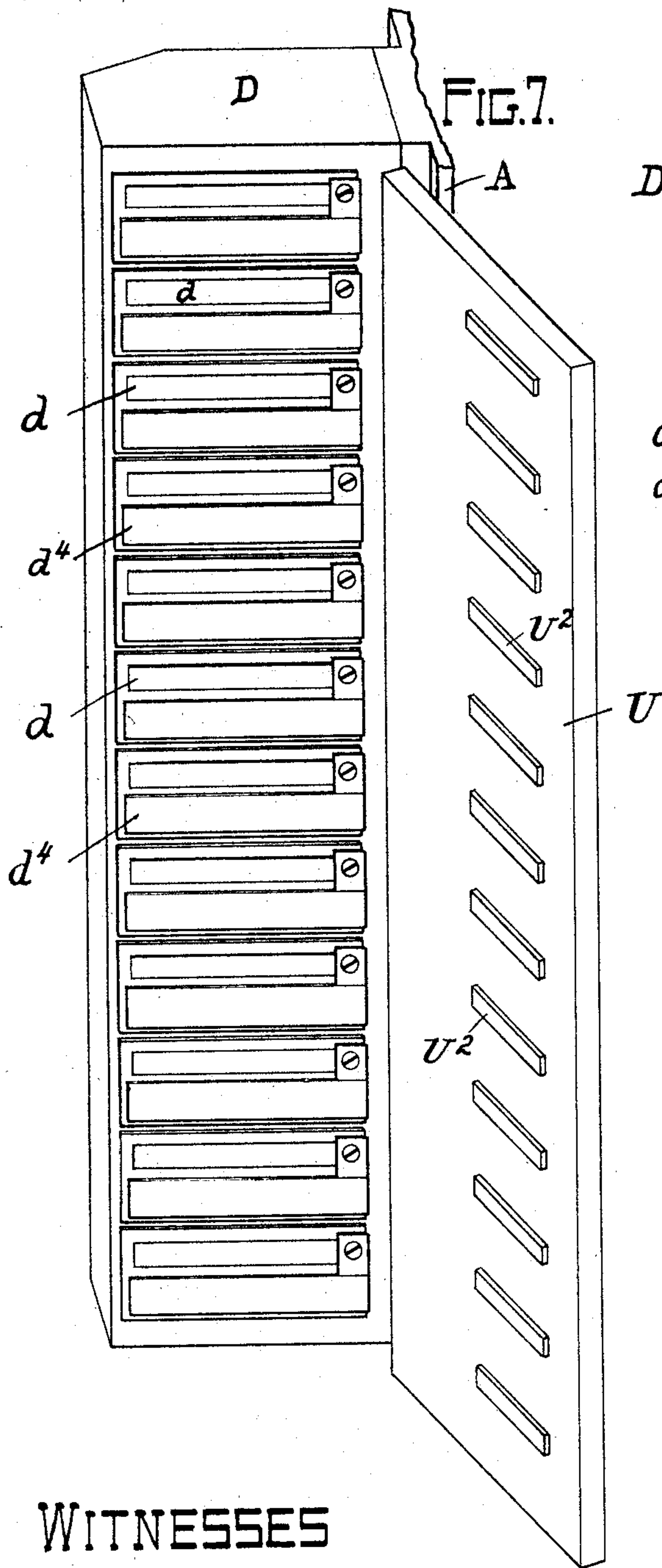
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J. GALLEAZZI.
ACCORDION.

(Application filed Mar. 31, 1897.)

(No Model.)

3 Sheets—Sheet 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOSEPH GALLEAZZI, OF SAN FRANCISCO, CALIFORNIA.

ACCORDION.

SPECIFICATION forming part of Letters Patent No. 619,558, dated February 14, 1899.

Application filed March 31, 1897. Serial No. 630,175. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH GALLEAZZI, of the city and county of San Francisco, in the State of California, have invented a new and
5 useful Improvement in or Appertaining to Accordions and Similar Musical Instruments, of which the following is a specification.

This new improvement consists of an addition to the musical instrument for which
10 I have been granted Letters Patent of the United States Nos. 517,648 and 566,269, the first one dated April 3, 1894, and the second August 18, 1896.

The object of the invention is to provide an
15 instrument of still greater compass than the one already patented to me without increasing its external dimensions or adding materially to its weight, and this is done by the use of a simple supplemental mechanism which
20 though allowing the same music to be rendered as heretofore is capable of producing also chords of the seventh, and, further, by the use of a damper of peculiar construction adapted to shut off the bass when desired, so
25 the melody alone will be heard, all as hereinafter described.

Referring to the drawings accompanying this specification, Figure 1 is a plan representing the end of the accordion to which my
30 improvement is applied, the same being broken away at different places in order to show the construction as it appears at different levels. Fig. 2 is a partly-broken perspective view of a sliding plate carrying levers respectively adapted to open the fourth valve
35 required in each instance to obtain the various chords of the seventh that can be played with the instrument. Fig. 3 is a cross-section, on a reduced scale, of the construction represented at Fig. 1, the same being taken
40 from line 3 3 of the latter figure, looking to the left. Fig. 4 is a view similar to Fig. 3, but showing some of the working parts in a different position. Fig. 5 is a diagram illustrating the arrangements of the keys or digi-
45 tals used at that end of the accordion which contains my improvement. Fig. 6 is another diagram indicating some of the triads and the seventh chords which my improved ac-
50 cordion will produce. Fig. 7 is a detailed view in perspective of the reed board or block and damper shown in Figs. 3 and 4, the dam-

per being opened or thrown back more than appears in Fig. 3. Fig. 8 is a side view of the construction shown at Fig. 7, the damper
55 being closed, as in Fig. 4.

As in my two patents aforementioned the letter A designates one of the two perforated boxes that are united by a bellows and together with it constitute the body of the in-
60 strument. The other box and bellows illustrated in my first patent are omitted herein, because the present improvement, like that of my second patent, is connected merely with the box A.

A' A² A³ A⁴ designate, respectively, the
65 valved openings, under which are located the four sets of reeds with which the box A of my patent, as well as of my improved accordion, is provided. Only one set of these reeds
70 *d* is shown herein, for the reason that it is the only one to which my present improvement has any direct relation. The reeds *d*, as also those which are not shown, are secured at one end to slitted metal plates *d*³,
75 fitted over small compartments or cells formed in a board or block D after the manner illustrated in my first patent aforesaid. The bass tones are rendered by the reeds *d*, placed under the openings A', and their replicates in
80 two higher octaves by the other reeds to be found under the openings A² A³ A⁴ directly opposite. From under the openings A⁴ come the highest tones, and the middle tones come from under the openings A², while from un-
85 der the openings A³ come tones that belong to either one or the other of these two categories, the reeds there being coincident in pitch and playing in unison with either the reeds under A² or those under A⁴ opposite
90 them. As heretofore, the reeds are placed in pairs under each opening, the reeds in each pair being tuned to the same pitch and arranged to vibrate in opposite directions in such a way that one of them always will be
95 sounded, and the same tones may be had continuously as long as desired whether the bellows is being expanded or contracted. The openings are in pairs also and controlled, as in
100 my previous patents, by two rows of oppositely-located valves E E', the openings A' and A² by the valves E, and the openings A³ and A⁴ by the valves E'. Being in pairs controlled by single valves, it follows that two openings

are uncovered at the same time when any one valve is opened and the reeds thereunder are sounded simultaneously or in pairs, giving two tones for each valve that is thus
 5 opened. When two of the valves E E' are opened together, four tones are heard in three octaves. When three valves are opened to produce common chords, six tones are given, and if four valves are opened in order to play
 10 chords of the seventh eight tones are rendered.

The valves E and E' are constructed and arranged as in my two previously-patented accordions, particularly the second one, and
 15 they are also operated in the same manner, except the fourth valve, required to be opened for a seventh chord. Both these rows of valves have similar keys, one of which is provided for each valve, the same consisting of
 20 spring-pressed levers G G' and connecting-rods with finger-pieces, digitals, or buttons F F'. The buttons F are connected with the levers G and the buttons F' with the levers G', the former controlling the valves E and
 25 the latter the valves E'. The levers G have an arm fastened to the valves E, which arm extends under a hook *g*, projecting from the end of the valves E' directly opposite, so that when either of the valves E is raised
 30 from its seat over the apertures A' A² the lever-arm connected therewith will also raise one of the valves E' through the hook *g* thereof, as illustrated and explained in my patents aforesaid. The simultaneous open-
 35 ing of two of these valves causes the melody to be heard at the same time as the bass, as previously, the low, middle, and high tones being produced together by the reeds, save during the application of the damper, here-
 40 inafter described, when the deepest tones are shut off, as will be explained farther below. A spring *e'* is provided for each valve E' in the present improvement also, the same oper-
 45 ating to close the valves E E' and to return the keys to their normal position as soon as released. The levers G' are indirectly connected with their valves E', having each an arm catching under a rod *i*, projected from
 50 each one of a corresponding number of rock-shafts H and extending under one side of a double stationary hook *j*, with which each valve E' is provided. The shafts H are laid parallel, as before, under cross-bars J, and each of them has four rods *i*—that is to say,
 55 three besides the one which is engaged by the arm of the corresponding lever G'. Out of these additional rods one, which may be called the "second" rod of the shafts H, catches under the hook *j* of a second valve E' on the
 60 side opposite to where the first rod comes, while the two others—that is to say, the third and fourth rods—are respectively adapted to alternately engage on opposite sides with inclinable or reversible hooks *j'*, that are con-
 65 nected with the fixed hooks *j*, so that either one of two other valves E' may be raised at the same time as those that are lifted by

the first and second rods when one of the shafts H is rocked, all after the manner speci-
 fied and illustrated in the second of my said 70 patents. The movable hooks *j'* are secured to wires *j*², passed through the head of the hooks *j*, and are inclined to right and left, so as to raise either of the two last-mentioned valves E' by rocking said wires through the agency 75 of the slide-and-lever mechanism described in my said second patent, the same being under the control of the thumb-piece N. The valves E' may thus be opened independently of the valves E by pressing any of the but- 80 tons F', but they are not opened singly, three of them being raised together always and in such order as to uncover air-openings that lead to pairs of reeds, which, being sounded simultaneously, will give common chords or 85 triads, either major or minor, according as to whether or no the thumb-piece N is depressed and whether the inclinable hooks *j* are caused to engage the third or the fourth rod of the shaft H, rocked by the key that is being fin- 90 gered and the first rod *i* thereto connected. The triads that can be produced by any given key are indicated in Fig. 6 and will be pointed out hereinafter.

About all the parts enumerated above, it 95 will be noted, have been sufficiently and more or less fully described in my previous patents. Yet they are intimately connected with and actually form part of the mechanism re- 100 quired to carry out the present improvement. Hence the necessity to which I felt obliged to yield of briefly describing them again herein.

Chords of the seventh are produced in my new improved accordion by opening one valve in addition to the three valves required to 105 be opened for giving common chords. This fourth valve, like the other three, is taken in each instance from the row marked E'. All of the valves E' can thus be taken up in turn to complete the combinations or series of four 110 that are jointly adapted to bring out chords of the seventh.

The fourth valve in each combination or series is raised at the same time as the others by pressing on the same button and through 115 the following means, viz: A sliding plate P is placed behind the levers G G' along the side wall of the box A that is nearest to these levers. This plate extends beyond the levers at each end of the box, and it is provided 120 with guide-pins P², that hold it on edge within straps or brackets P³, the pins P² being passed through suitable holes in the latter. Spiral springs P⁴, only one of which is shown in Fig. 1, are coiled about these guide-pins within 125 the holding-straps, so as to normally keep the sliding plate back against the side wall of the box A, as represented in said Fig. 1 and also in Fig. 3. The plate P has on its face a series of journal-bearings P⁵, in which are 130 journaled levers Q, corresponding in number with the valves E' and respectively adapted to command these valves. The levers Q are bent so that their shorter arm lies always op-

posite one of the levers G' , in the rear thereof, while their longer arm extends forward between the levers G and G' and reaches under the hook g of one of the valves E' in such a way that the short lever-arm in each case is behind a lever G' , which, if worked by its corresponding button F' , will operate to open three valves that will give a certain major or minor chord, and the long lever-arm, on the other hand, is within reach of another valve, which if opened in time will change that particular major or minor chord into a chord of the seventh.

It will be noticed that all the levers Q but two are bent and journaled in the same way, their longer arm reaching the second valve on the right from the first of the series of three valves commanded by the lever G' , behind which their shorter arm is located. The two exceptions are the two levers marked, respectively, Q' and Q^2 , the short arms of which are behind the last two levers of the series G' on the right and the long arms of which have to reach the first two valves in the row at the opposite end of the box A on the left. As shown in Fig. 2, these levers Q' and Q^2 run in a direction opposite to that of the others, and their journals are placed lower down in the bearings P^5 of the plate P . Normally the short arms of the levers Q are out of the reach of the levers G' owing to the springs P^4 , which keep the plate P back, so that if the levers G' be worked, as indicated by dotted lines in Fig. 3, without advancing the plate they will merely operate to produce common chords, as heretofore; but if the plate P be slid forward to the position illustrated in Fig. 4 and the levers G' pushed back then the latter will reach the short arms of the levers Q opposite and swing them so the levers Q will rock in their bearings on the plate P and their long arms will catch under the hooks g of the valves E' which they respectively command and will raise them at the same time as the other valves that are raised normally by the levers G' and connected parts, thereby operating to produce seventh chords. The sliding plate is moved by a rocking bar R , journaled in brackets R^2 above it and having fingers R^3 , that bear against its rear surface. Upon the bar being rocked the fingers R^3 press on the plate and cause it to slide forward, so it will stand in the position represented in Fig. 4. The bar is thus rocked by means of a curved arm R^4 , secured to it at one end and itself swung by a lever S , engaging a notch R^5 , made in the free end of the said curved arm. The lever S is fulcrumed at S^2 near one end of the row of valves E' and is connected by a link or rod S^3 to a second lever S^4 , fulcrumed at S^5 on the top of the box A . The free end of this second lever is under a depressor T , which consists of a rod held by suitable loops or eyes formed on small plates T^2 , screwed to the cover of the box A , and is bent so it may be worked by the palm of the hand that fingers the buttons $F F'$ whenever required. Press-

ing down on the rod T causes both the levers S^4 and S to oscillate and at the same time raise the arm R^4 , thereby rocking the bar R , swinging the fingers R^3 thereof, sliding the plate P forward, and carrying the levers Q to an operative position. Releasing the depressor allows the parts to resume their former position owing to the action of the springs P^4 , and the lever S is so connected, besides, with other mechanism, hereinafter described, that its free end remains normally in a downward position, leaving the arm R^4 down and causing the lever S^4 to keep the depressor raised.

In Fig. 6 are indicated the various chords which my improved accordion is now adapted to produce, both triads and sept-chords. As will be observed, this figure is made of two parts separated by blank spaces, but divided into corresponding sections by the same vertical lines. In the sections of the lower part are shown the keys or buttons which produce the chords, and next above each key or button are the ordinals of the valves which it commands when rendering a major chord. The corresponding sections of the upper part give in each case the number of the fourth valve, which is opened, in addition to the other three valves, by the button below, when the depressor is used at the same time that the button is pressed, and also the additional tone then rendered, which converts the triad into a seventh-chord. Thus, taking the first section of the diagram, we find the key of C sharp there represented with the numbers "1," "12," and "9" immediately above it, and beyond the blank space higher above we see the numeral "3" and the letter "B." This means that when the button bearing the sign of " C sharp" is pressed without working the depressor only the first, twelfth, and ninth valves of the row E will be opened and the reeds thereunder will sound the tones composing the chord of C -sharp major; but if the depressor and the button are pressed at the same time the third valve in the same row will be opened, together with the other three valves last mentioned, and the reeds under said third valve sounding the tone " B " the chord will not be a triad, but it will be a chord of the seventh—that is, one of four tones. Going to the following section we find the sign " F sharp" at the bottom of it, the figures "2," "1," and "10" next above, and at the top of the same column over the blank space the letter " E " and numeral "4." This signifies that by pressing the button marked " F sharp" the second, first, and tenth valves of the row E' will be raised and the chord of F -sharp major sounded if the depressor is left in its normal position; but if the depressor is forced down while the button is pressed a seventh-chord will be had instead, because then the fourth valve E' will also be raised and the tone " E " rendered simultaneously with the others; and so on with all the other sections of the diagram.

The minor chords have not been indicated

in Fig. 6, as this would be a mere repetition of what appears in my first patent and would not help to understand any better the nature of my present invention. It will be sufficient to note that minor chords can be had now as before by pressing down the thumb-piece N at the same time that the buttons F' are pressed, so that a change will take place in the series of three valves commanded by any one button. For example, if the thumb-piece is depressed while pushing on the button marked "C sharp" in Fig. 6, the fourth valve E' will be opened instead of the ninth and the chord of C-sharp minor will be given, the same as in my previously-patented accordions. If the thumb-piece is down while the button bearing the sign "F sharp" is pressed, the fifth valve E' will be raised in place of the tenth and the chord of F-sharp minor will be obtained. The same holds good for all the chord-producing buttons F' whenever they are depressed together with the thumb-piece N. It will be noted also that chords of the seventh can be had just as well when the buttons F' and the thumb-piece N would otherwise be in position to produce minor chords if the depressor is worked at the same time. Only, the chords then had are different from those obtained when the thumb-piece is not used. Thus it will be seen that four different chords can be had with my new improved accordion by pressing a single button—that is to say, one major chord, one minor chord, and two chords of the seventh—and this is true of each and every one of the series of buttons F' with which the instrument is provided. All depends, as above explained, on how the buttons are manipulated, whether alone or together with the depressor, or with both the depressor and the thumb-piece. The buttons, depressor, and thumb-piece are worked together with the one hand, the palm of the hand bearing on the depressor, the extended thumb on the piece N, and either of the fingers on the button that will bring out the chord desired.

The buttons, digitals, or finger-pieces F and F', hereinabove described, are preferably arranged on the instrument after the manner illustrated at Fig. 5. There it will be seen that they are twenty-four in number, distributed into three rows of eight buttons each, covering altogether but a small space. Those comprised in the vertical rows designated by the letter of reference F are those hereinabove referred to as being adapted to raise the valves E and E' together, so that both the bass and melody will be heard simultaneously. Those included in the alternate vertical rows designated by the letter of reference F' are those which it has been said will operate to open the valves E' in threes or fours independently of the valves E and so as to produce triads and sept-chords. The latter are the same that have been reproduced in a single row and in sequence at the bottom of Fig.

6, where are pointed some of the chords which they command. Other arrangements of the buttons F F' could of course be made; but I find the arrangement illustrated a practical and convenient one.

The damper hereinbefore referred to is designated by the letter U. It consists of a small board hinged to the under side of the box A and adapted to cover that side of the block D where the reeds d are located. Its purpose is to check the action of these reeds whenever it is brought to bear against them and the buttons F are pressed at the same time. It has small pieces of felt or leather U^2 , secured at suitable intervals on its inner surface, that bear directly on those reeds which out of each pair of the reeds d are fastened to the outside of the slitted plates d^3 and vibrate outwardly from the reed-block. The spaces or parts of board between the pieces U^2 , on the other hand, bear on the leather strips d^4 , that cover the slits in the plates d^3 , opposite those other reeds d which are fastened on the inside and vibrate inwardly with respect to the block D, the relative position of the several reeds and leather strips opposite each being the same as is shown in my first patent aforesaid. The construction is such that when the board U is away from the reed-block, as in Figs. 3 and 7, the wind has full access to the reeds d within their respective compartments or cells under the openings A', whichever way the bellows is worked, and whenever the buttons F are pressed the reeds d are sounded simultaneously with the other reeds that are under the openings A², A³, and A⁴, and both the bass and melody are heard; but when the board U is closed upon the reed-block, as in Figs. 4 and 8, then the wind is cut off from the reeds d , their vibration is checked, and the bass is no longer heard, only the melody.

The damper is normally kept away from the reed-block by a spring V, coiled at V² and having its ends secured by screws V³ V⁴, one to the board U and the other to the block D. It is applied to shut off the tones of the bass by means of a swinging rod or lever W, passed through lugs W², secured to the box A near the point where the board U is hinged. This rod is bent so that one end of it will extend downward across the middle of the damper, in the rear thereof, as shown in Fig. 8. The other end of the rod W stands out and is connected by a string W³ to one end of a bell-crank lever W⁴, fulcrumed at W⁵ on the end of the block D, the string W³ passing through an eye-screw W⁶, driven into the end of the board U near its lower edge. The other end of the bell-crank is connected by a link W⁷ to the lever S, hereinbefore described, and through the latter and its connections—namely, the link S³ and lever S⁴—the damper is thus brought under the control of the depressor T. Pressing on the depressor therefore operates both to bring the plate P and

its levers Q forward and also to shut down the damper. The resulting effect is according to which set of keys is used. If the buttons F are pressed so the valves E and E' will open together, the damper will prevent the sounding of the reeds *d*, located below the apertures A' under the valves E, and the music will be rendered without the graver tones. If the buttons F' are pressed instead, the damper has no particular function to fulfil, but the levers Q will be in the position required to obtain chords of the seventh, as previously explained.

The advantage in having the depressor work the mechanism for seventh-chords and the damper for the bass jointly lies in that but one depressing device need be employed, and the use of an extra or separate depressor for working either part is thereby avoided. When the depressor is released, the spring V reopens the damper and in conjunction with the springs P⁴ operates to raise the depressor itself, as will be readily understood.

The use of the damper, it will be observed, considerably enlarges the compass of the instrument, since with it the player can have twenty-four different replications of the bass and melody by fingering only twelve keys or buttons—namely, the set designated by the letter F. If to this is added the forty-eight chords that can be played by fingering singly the twelve other keys or buttons indicated by the letter F' one may have an idea of what my improved accordion can now perform. Of course reference is had here only to the full-sized instrument, because, as heretofore, I make also smaller instruments of less compass on the same principle.

Having described my new improvement, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In an instrument of the character described, the combination of valves, an operating key or button, mechanism operated by said key for opening said valves in series to produce triads, mechanism for changing one valve of the series whereby either a major or a minor chord is produced, an independent valve, operating mechanism therefor, and means for placing said last-mentioned mechanism in position to be actuated by said key whereby said independent valve is operated with either the original or the altered series so as to change either the major or minor chord to a seventh-chord.

2. In an instrument of the character described, the combination of valves, an operating-key, mechanism operated by said key for opening said valves in series of three to produce triads, means for causing the opening of another valve for one of the series of three, an additional valve, mechanism for operating the same including a lever normally out of operative relation with said key, and means for moving said lever into operative relation with said key whereby said additional

valve can be opened with either the original series or the altered series of three.

3. In an instrument of the character described, the combination of valves, an operating-key, mechanism operated by said key for opening said valves in series of three to produce major and minor chords, means for effecting a change in the series so as to obtain either chord, a supplemental valve, mechanism for operating the same including a lever normally out of operative relation with said key, and means for bringing said lever into operative relation with said key.

4. In an instrument of the character described, the combination of valves, an operating-key, mechanism operated by said key for opening said valves in series of three, means for causing the operation of another valve in place of one of said series of three to change a major to a minor chord, a supplementary valve, mechanism for operating the same comprising a lever, a spring-pressed plate carrying said lever, and a rocking bar arranged to slide said plate to place said lever under control of the operating-key, a depressor, and connections between the latter and the rocking bar for operating the same.

5. In an instrument of the character described, the combination of bass and melody reeds, valves controlling the same, reeds that sound tones in chords, valves for the latter, operating-keys and connections for said valves, supplemental valves, operating-levers therefor, a damper for the bass-reeds, a depressor, mechanism connecting said depressor with said supplemental-valve levers, and other mechanism connecting the damper with the aforesaid mechanism and through it with the depressor, whereby both the damper and the supplemental-valve levers are operated by the single depressor.

6. In an instrument of the character described, the combination, of valve E', operating-levers therefor, mechanism for operating said levers including a depressor and a lever S, a damper, and mechanism for operating the same connected with said lever S whereby both the damper and valves E' are operated by said depressor.

7. In an instrument of the character described, the combination of a reed-board and reeds, a damper therefor, and operating means for the damper comprising a bell-crank lever fulcrumed to said reed-board, a lever W, a flexible connection between the bell-crank lever and the lever W, a spring for holding the damper open, a depressor, and connections between the depressor and said bell-crank lever.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH GALLEAZZI. [L. S.]

Witnesses:

A. H. STE. MARIE,
HENRY P. TRICOU.