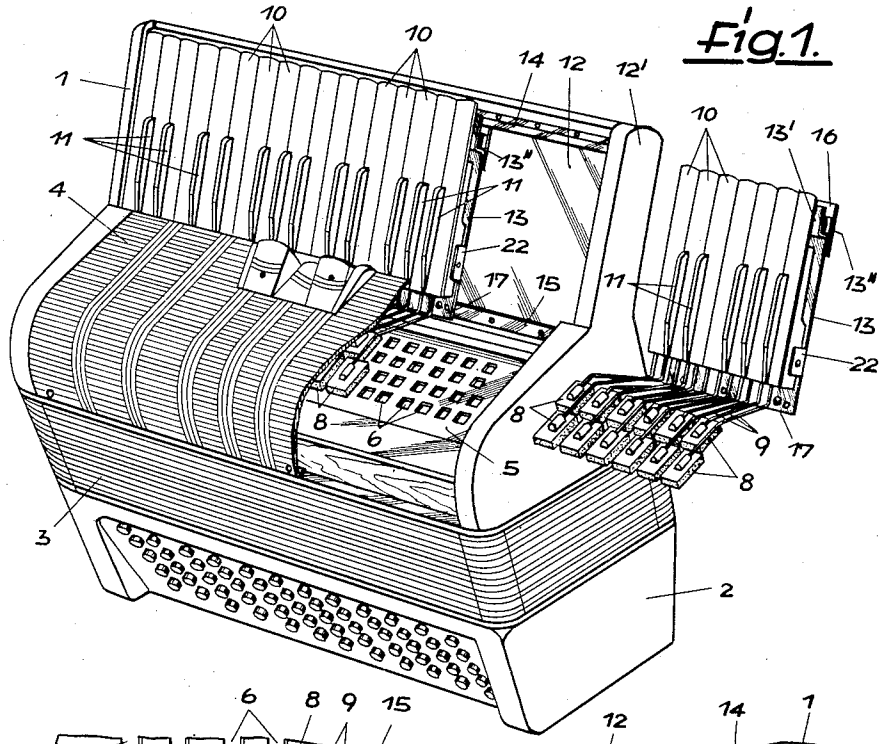
March 18, 1958 K. SCHERER 2,826,953

KEYBOARD FOR MUSICAL INSTRUMENTS, IN PARTICULAR FOR ACCORDIONS

Filed Feb. 29, 1956 6 Sheets-Sheet 1

Fig. 1.



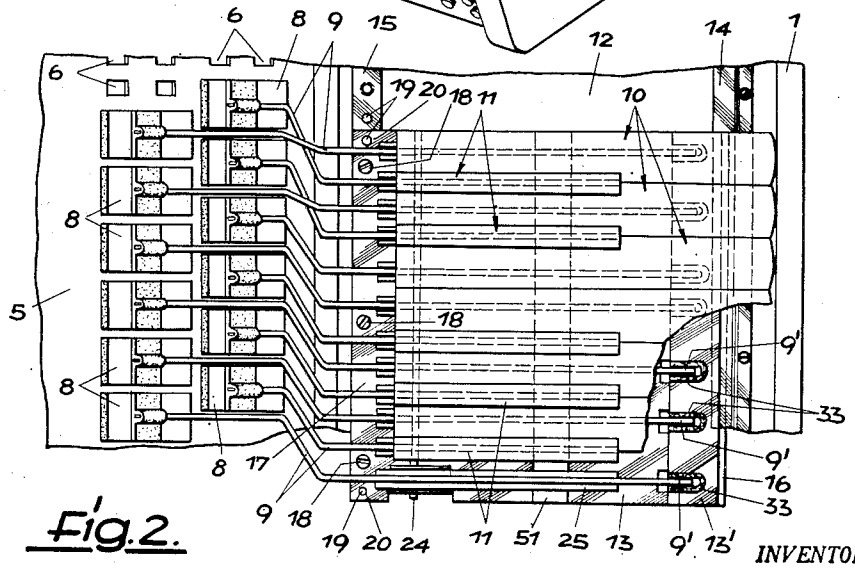


Fig. 2.

INVENTOR.
Karl Scherer
BY Pruett & Hontzsch
Attorney

March 18, 1958 K. SCHERER 2,826,953

KEYBOARD FOR MUSICAL INSTRUMENTS, IN PARTICULAR FOR ACCORDIONS

Filed Feb. 29, 1956 6 Sheets-Sheet 2

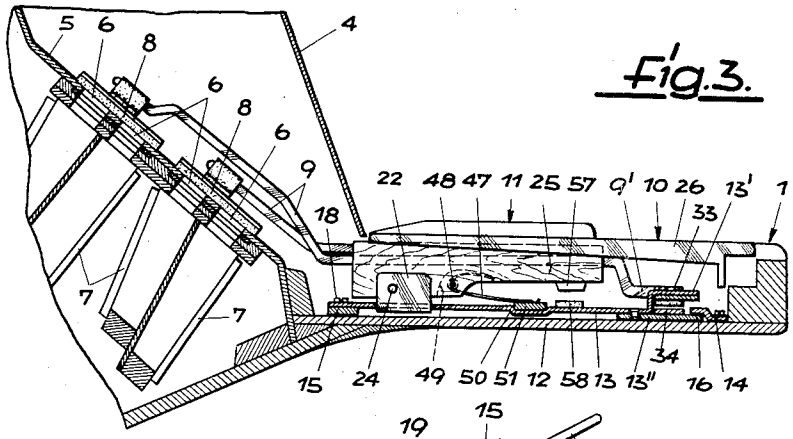


Fig. 3.

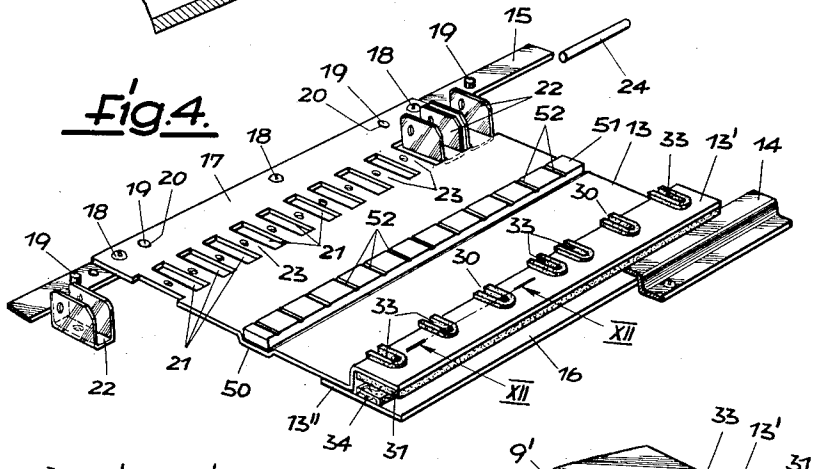


Fig. 4.

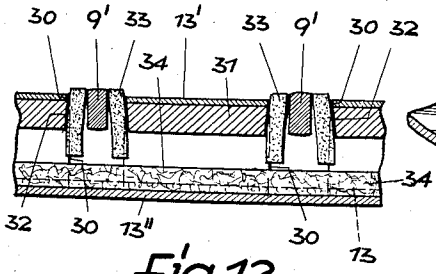


Fig. 12.

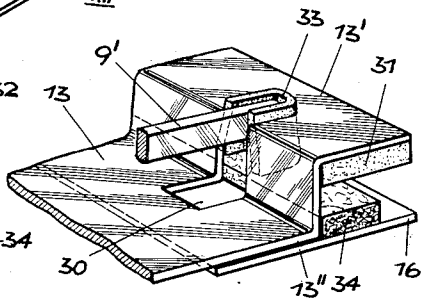


Fig. 11.

INVENTOR.
Karl Scherer
BY Ernest G. Montague
Attorney

March 18, 1958 K. SCHERER 2,826,953

KEYBOARD FOR MUSICAL INSTRUMENTS, IN PARTICULAR FOR ACCORDIONS

Filed Feb. 29, 1956 6 Sheets-Sheet 3

Fig. 20

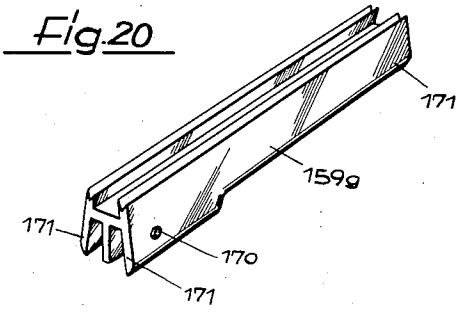


Fig. 21.

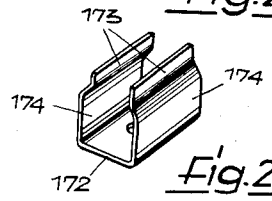


Fig. 21a.

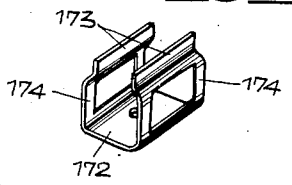


Fig. 22.

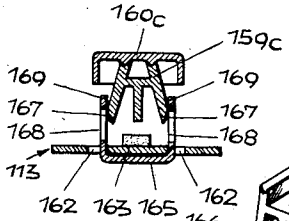


Fig. 23.

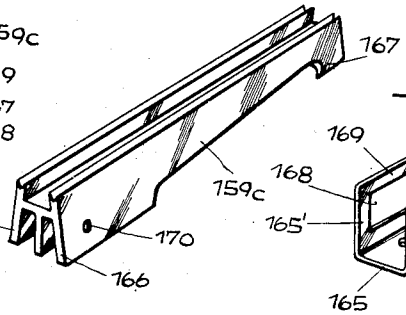


Fig. 24.

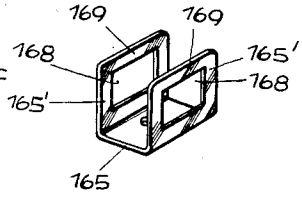


Fig. 25.

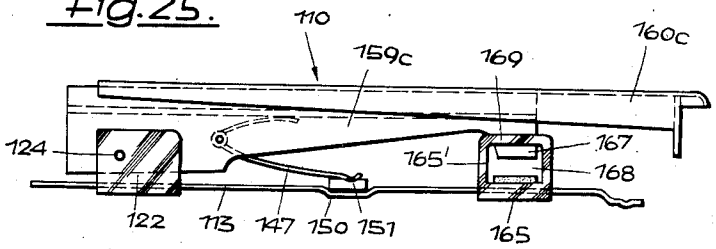


Fig. 26.



Fig. 27.



Fig. 28.



INVENTOR.
Karl Scherer
BY Ernest G. Montague
Attorney

March 18, 1958 K. SCHERER 2,826,953

KEYBOARD FOR MUSICAL INSTRUMENTS, IN PARTICULAR FOR ACCORDIONS

Filed Feb. 29, 1956 6 Sheets-Sheet 4

Fig.5.

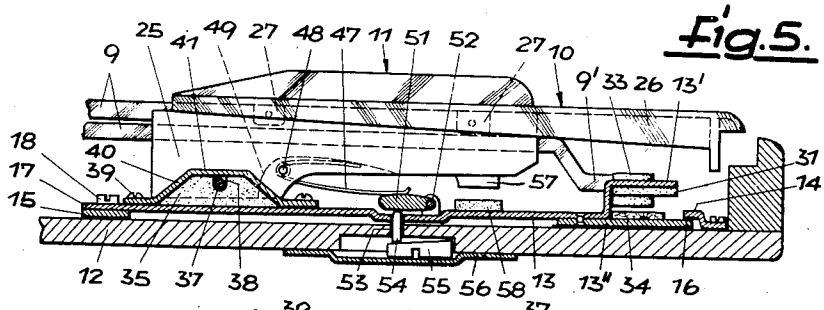


Fig.6.

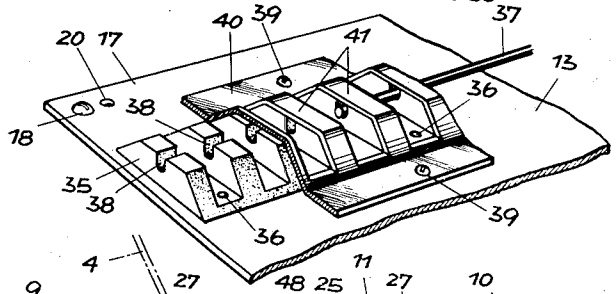


Fig.7.

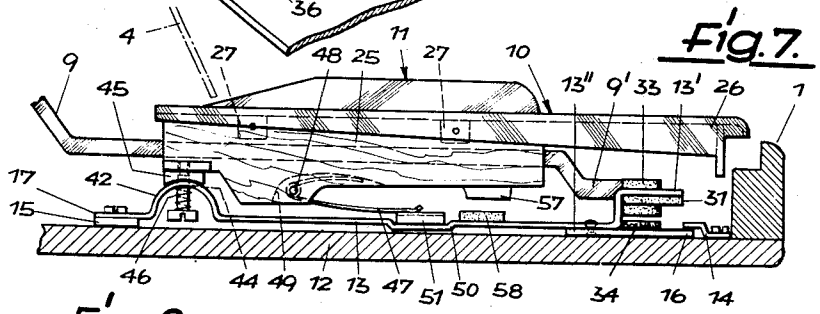


Fig.8.

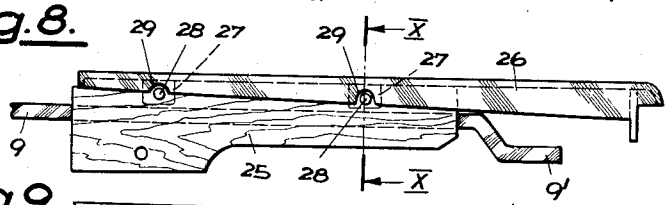
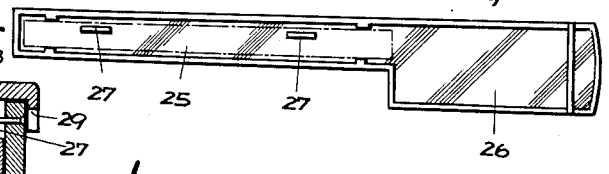


Fig.9.



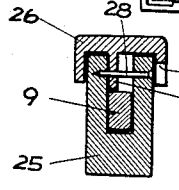


Fig.10.

INVENTOR.
Karl Scherer
BY Lawrence Montague
Attorney

March 18, 1958 K. SCHERER 2,826,953

KEYBOARD FOR MUSICAL INSTRUMENTS, IN PARTICULAR FOR ACCORDIONS

Filed Feb. 29, 1956 6 Sheets-Sheet 5

Fig. 13.

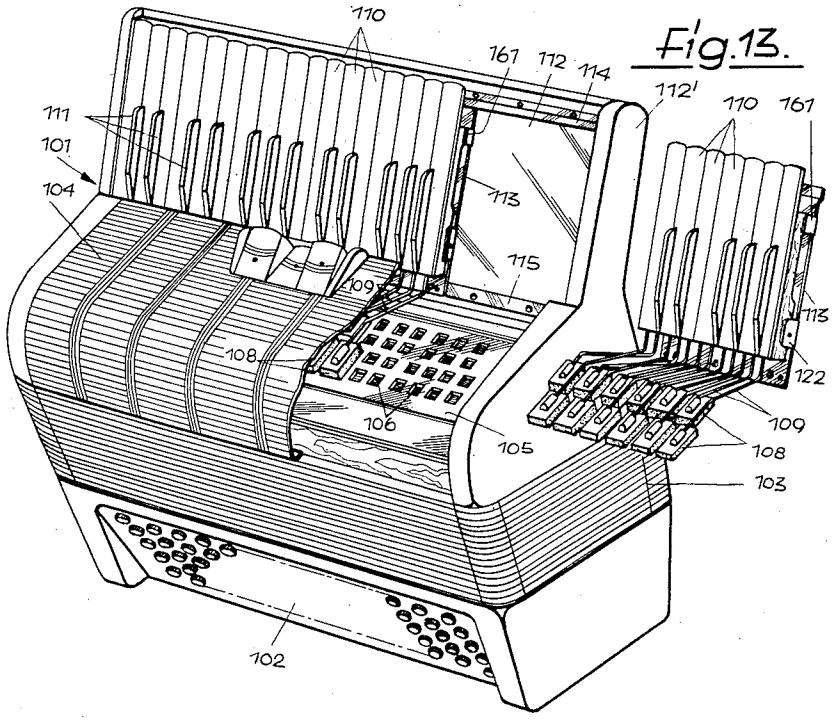
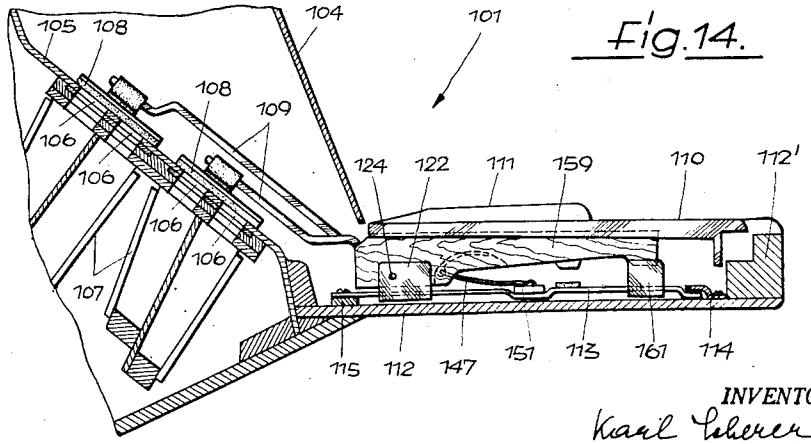


Fig. 14.



INVENTOR.
Karl Scherer
BY
Attorney

March 18, 1958 K. SCHERER 2,826,953

KEYBOARD FOR MUSICAL INSTRUMENTS, IN PARTICULAR FOR ACCORDIONS

Filed Feb. 29, 1956 6 Sheets-Sheet 6

Fig. 15.

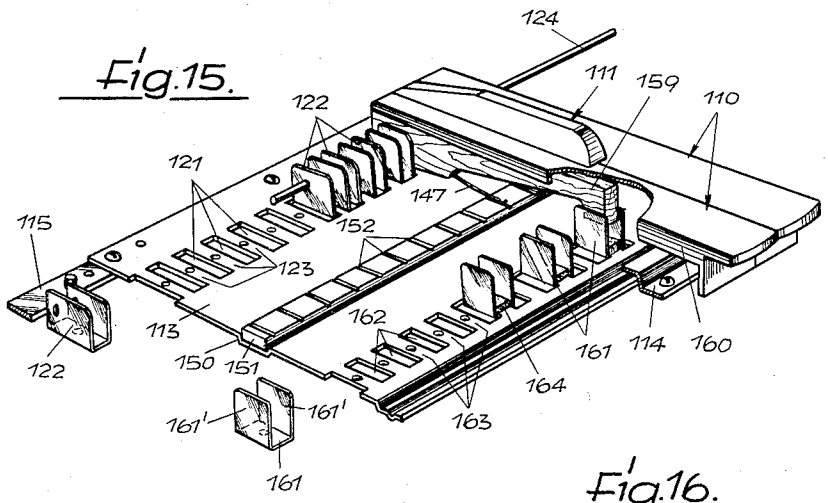


Fig. 16.

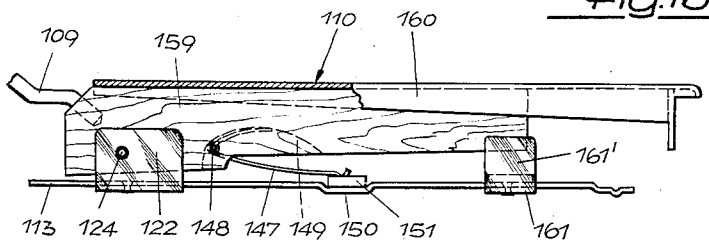


Fig. 17.

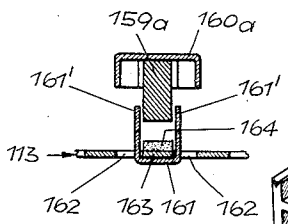


Fig. 19.

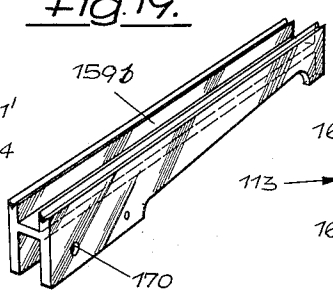
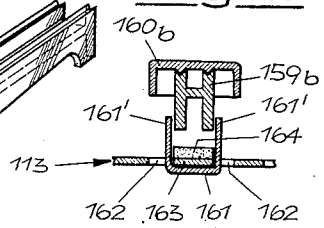


Fig. 18.



INVENTOR.
Karl Scherer
BY Arnett & Kontogne
Attorney

United States Patent Office 2,826,953
Patented Mar. 18, 1958

2,826,953

KEYBOARD FOR MUSICAL INSTRUMENTS, IN PARTICULAR FOR ACCORDIONS

Karl Scherer, Trossingen, Germany

Application February 29, 1956, Serial No. 568,670
Claims priority, application Germany March 4, 1954
18 Claims. (Cl. 84—376)

The present invention relates to a keyboard for musical instruments and in particular for accordions which comprise a plurality of keys, a key enclosure with a key mounting disposed therein and the key wires connecting the air flaps with the keys.

Accordions are known in which the keys are mounted directly on the key enclosure of the instrument and in particular usually by means of an axle extending through the entire line of keys. This long axle with its plurality of bearings must be removed for taking off the keys and then reinserted again, an expedient which leads to appreciable difficulties. In addition the axle must penetrate at least one wall of the enclosure in order to permit gripping of said axle with a tool. This requires a perforation of the enclosure wall, thereby disturbing the smooth surface thereof.

It is, therefore, one object of the present invention to provide a keyboard for musical instruments which is of such construction as to the mounting of the keys in the keyboard enclosure combined with the structure of the keys which brings about a great simplification of the work involved for assembly and disassembly of the keyboard, particularly in the direction that not a complete dismantling of the keyboard is required in each case, and also that perforations of the keyboard enclosure are avoided.

It is another object of the present invention to provide a keyboard for musical instruments in which the keys and their bearings, as well as the key wires connecting the keys and the air flaps are divided into groups and each of said groups is removably secured to a base plate mounted on the instrument. The division into groups may be extended so far that it is theoretically possible that each key with its bearing is mounted separately on a complementary base plate.

It is still another object of the present invention to provide a keyboard for musical instruments of the type stated in the last mentioned object, in which the base plates are secured to the wall of the instrument which carries the keyboard and in particular in connection with an accordion, on the back wall of the keyboard enclosure. It is of advantage not to mount the base plates on the back wall throughout their entire length, rather two special rails are provided which are disposed in the longitudinal direction of the keyboard enclosure which are secured to the back wall of the latter about below the ends of the keys and secure the base plates in position. Any warping of the wall which carries the keyboard is thus not transmitted to the bearings for the keys.

It is yet another object of the present invention to provide a keyboard for musical instruments of the type set forth in the last mentioned object in which the rail disposed under the free ends of the keys forms a notch which receives slidably a projection of the base plate. The opposite edge of the base plate rests on a second rail disposed below the other end of the keys. A locating pin connection disposed between the base plate and the rail for each group of the keys fixes the position of

the base plate in the keyboard enclosure and the position of the key groups relative to each other. The base plate is secured to the rail by releasable means. The keys may be mounted between the leg portions of U-shaped bearing blocks made preferably of metal, which leg portions project through a series of parallel disposed slots of the base plate and are secured thereto. The keys of one base plate coordinated to one key group are pivotally connected to the base plate by means of a common axle extending through the keys and the leg portions of said bearing blocks. The mounting may be also arranged in such manner that an integral group of bearing blocks preferably made of artificial material is connected with the base plate, the keys being mounted between the said bearing blocks by means of a single axle which rests in grooves of the bearing blocks and projects through the keys, which axle is retained in this position by means of a bridge comb secured to the base plate and covering said grooves. In case the bearing blocks are made of artificial material, the grooves are open at one side. The mentioned bridge comb may in some instances secure the bearing blocks to the base plate.

It is still a further object of the present invention to provide a keyboard for musical instruments in which the keys are mounted on a base plate and in which the base plates form a bridge-like recess below the key ends for the mounting of the keys and in which the keys which rest on elastically compressible discs or a band disposed on said recess are retained over said recess resiliently by means of screws or the like which extend through bores provided in said recesses and anchored in said keys. This keyboard mounting avoids the provision of an axle and permits the removal of each key of the group from the base plate upon removal of the latter from the keyboard enclosure.

It is yet a further object of the present invention to provide a keyboard for musical instruments in which the keys of the keyboard comprise a key body made of wood or artificial material and a cover extending over the playing surface and the side faces of the keys, which cover is preferably made of artificial material and is connected with the key body. The key wire is retained in the U-shaped cross section of the key body. The cover for the key body is equipped with projections which extend between the leg portions of the U-shaped key body which serves the purpose to connect the cover to the key body by means of pins or the like, and if necessary, additionally by a gluing operation.

It is also a still further object of the present invention to provide a keyboard for musical instruments in which in one embodiment of the structure the key wires which project through the key bodies are glued at their ends in slots of a crank-shaped portion of the base plate. On the portion of the crank of the base plate which extends parallel to the main plane of the base plate is disposed opposite the wall of the keyboard enclosure, which carries the keyboard, a strip preferably made of pasteboard or the like which has slots of a width greater than the slots of the crank-shaped portion of the base plate. A piece of cloth which encloses the path of the key wire end is disposed inside of the slots of the base plate and of the superposed strip, which piece of cloth is preferably secured to the superposed strip by means of gluing. If desirable a similar guide may be provided without any difficulty also for the half-tone keys.

It is yet another object of the present invention to provide a keyboard for musical instruments in which a ledge is provided in the base plate to operate as a guide for the spring ends for the keys which ledge is equipped with grooves and is preferably set in the base plate. This ledge is preferably adjustable as to its height in order to control the spring force. This adjustment may be

brought about, for instance in such manner, that a ledge coordinated to a key group is tiltably mounted and adjustable by means of a pin which projects through the wall of the keyboard enclosure and is settable by means of a movable wedge. Instead of providing a singular ledge which is coordinated to several keys, it is possible to provide guide elements coordinated to a single key which guide elements function in the same manner, so that the spring force may be adjusted individually for each key and the key pressure adjusted accordingly.

It is also a still further object of the present invention to provide a keyboard for musical instrument in which in accordance with another embodiment of the invention the keys are mounted on one of their ends between two legs of a U-shaped block which surround the key body and the legs of which U-shaped block project through parallel disposed slots of the base plate and are secured to the latter. The key wires thus do not project through the key body and the key bodies are guided in similar manner at their free ends as provided for on the other end between said blocks. The guidance of the keys at their free end is of importance, because the keys are not supposed to engage each other, rather equal narrow spaces are to be provided between the keys and the latter are supposed to move without friction. If the keys are guided by the key wire, the latter is slightly bent in order to properly align the keys. In this manner, however, some friction may occur in the guidance of the key wire which is not desirable. In the mentioned other embodiment of the present invention it is possible to provide a height for the leg portions of the blocks complementary to the stroke of the keys, thereby improving the guiding characteristics and the blocks may be made of a suitable material which has favorable sliding characteristics and which also permits an easy and exact alignment of the leg portions of the blocks. Since both leg portions of the blocks may be aligned and a selective play between the key body and the guide may be arranged, a more preferable alignment is brought about compared with that embodiment in which the key wire must be bent for alignment of the keys. The blocks may be also made of another material than that of the base plate, for instance, of brass, while the material of the base plate may be a light metal. Furthermore, the arrangement of the keyboard in accordance with the present invention brings about the advantage that the key body may be solid, for instance, of wood, because the key wire does not project therethrough. The key body may be also made of a thermoplastic material which in its formation permits arrangement of the bore in the key body for the axle. The thermoplastic material may be any material which may be made to a cast formed by an injection process or which may be pressed, and in particular may be not only an artificial material but also a metal. By forming the key body in the stated manner, according to which the bore for the axle is not provided afterwards, but by inserting a core into the form, it is possible that in each of the key bodies the actual bore assumes always the same position in relation to the key body and, thereby, also to the block. The necessity for aligning the keys due to different sets in the axle bores is in this manner eliminated.

It is yet an additional object of the present invention to provide a keyboard for musical instruments which includes a still further improvement in the guidance for the keys which aim is achieved by arranging on the key body at least within the range of the complementary block diverging guide faces towards the base plate and by providing an outwardly directed projection on the leg portions of the block within the moving range of said side faces. This projection is of such height that the mentioned guiding faces are moved within the range of the complementary projection during movement of the key body, while the key body in its normal position is

guided by the upper ends of the blocks. In order to achieve the same result it is possible to provide the side faces of the blocks with receesses instead of projections in such manner that the side faces of the key body do not find any friction faces upon pressing down of the key. A diverging formation of the guide faces of the key bodies may easily be obtained during the forming of a key if they consist of thermoplastic material. Due to such formation of the key body and of the blocks it is brought about that the side faces of the key body which in normal position of the key engages the sides of the blocks, move past the projections or recesses of the blocks upon pressing down the key, so that the side faces do not create any frictional resistance. On the other hand, the keys have due to such guiding means of the upper ends of the sides an exact spacing from each other. In this manner it is possible to provide a perfect guidance without the use of an axle cloth. The key body may be of course formed in any desirable manner and may, for instance, have a profile which permits of an easy and safe mounting of the key cover over the key body. A filler layer is advantageously provided between the leg portions of the blocks on the base plate as a limiting means for the key stroke.

With these and other objects in view which will become apparent in the following detailed decsription, the present invention will be clearly understood in connection with the accompanying drawings, in which:

Figure 1 is a perspective front view of an accordion, one of the base plates with the keys, key wires, air flaps and key bearings coordinated thereto being removed;

Fig. 2 is a top plan view of a base plate with all the parts secured thereto at enlarged scale;

Fig. 3 is a fragmentary section through the keyboard enclosure showing a first embodiment of the key mounting;

Fig. 4 is a perspective top view of the base plate designed for the key mounting in accordance with Fig. 3;

Fig. 5 is a fragmentary section through the keyboard enclosure showing a second embodiment of the key mounting;

Fig. 6 is a perspective top view of the key mounting means in accordance with Fig. 5;

Fig. 7 is a fragmentary section through the keyboard enclosure showing a third embodiment of the key mounting;

Fig. 8 is a side elevation of a key;

Fig. 9 is a bottom plan view of a key cover;

Fig. 10 is a section through a key along the lines X—X of Fig. 8, shown at enlarged scale;

Fig. 11 is a perspective side view of the guide of the end for the key wire;

Fig. 12 is a section along the lines XII—XII of Fig 4;

Fig. 13 is a perspective front view of another embodiment of the accordion in which one of the base plates with the coordinated keys, the key mounting and the air flap have been taken out;

Fig. 14 is a fragmentary section through the keyboard enclosure showing the key mounting;

Fig. 15 is a perspective top view of a base plate with the key mounting;

Fig. 16 is a side elevation of a single key with its mounting means;

Fig. 17 is a cross section through a key with the solid key body and its guide;

Fig. 18 is a cross section through a key with an H-shaped key body and its guide;

Fig. 19 is a perspective side view of the key body shown in Fig. 18;

Fig. 20 is a perspective side view of a key body with diverging side faces;

Fig. 21 is a perspective side view of a key guide for the key body shown in Fig. 20;

Fig. 21*a* is a perspective side view of another embodiment of the key guide;

Fig. 22 is a cross section through a key having a key body with diverging side faces in combination with the coordinated key guide;

Fig. 23 is a perspective side view of the key body shown in Fig. 22;

Fig. 24 is a perspective side view of a key guide shown in Fig. 22;

Fig. 25 is a side elevation of the key shown in Fig. 22 together with its mounting; and

Figs. 26, 27 and 28 show respective cross sections of key bodies having diverging side faces.

Referring now to the drawings and in particular to Figs. 1 to 12, the accordion comprises in known manner a treble side **1**, a base side **2** and the expandable and contractible portions **3** which connect with the treble side **1** with the base side **2**. The filler **5** is disposed on the treble side **1** below the cover **4**, which filler **5** is equipped with openings **6** for passing of air and the reed cells **7** (Fig. 3) are arranged below the openings **6**.

The air passage through the openings **6** is controlled by means of air flaps **8** which are connected with the keys **10** and **11**, respectively, by means of key wires **9**. The keys are mounted on the wall **12** of the keyboard enclosure **12'**, which wall **12** carries the keys. It is to be understood that the arrangement described so far is of conventional nature.

In the embodiment disclosed in Figs. 1 to 12 the keys **10** and **11**, the key mounting and the key wires **9** which connect the air flaps **8** with the keys **10** and **11** are divided into groups and each group is releasably mounted on a base plate **13** which is releasably secured to the wall **12**. The base plates **13** are supported by rails **14** and **15** which are disposed lengthwise in the keyboard enclosure **12'** in such manner that they bridge over the wall **12**. The rail **14** is preferably designed of Z-cross section so that one edge **16** of the base plate **13** may be inserted into the rail **14**. The opposite end **17** of the base plate **13** rests on the rail **15** and is secured thereto by means of screw bolts **18**. It is of advantage to provide there a locating pin connection in order to secure the base plate **13** in its position during assembly of the accordion. The rail **15** may be provided with locating pins **19** which extend into corresponding bores **20** of the base plate **13**.

The mounting of the keys may be arranged in different manner. In the embodiment shown in Figs. 3 and 4, the base plate **13** is equipped with a plurality of parallel disposed slots **21**. Blocks **22**, preferably made of metal having U-cross section, are inserted from below into these slots so that the legs of the U project therethrough, the blocks **22** being secured to the bridge portions **23** disposed between the slots **21**. The keys **10** and **11** are mounted between the leg portions of the U-shaped blocks **22** and in particular are the keys of one group pivotally mounted by means of an axle **24** which extends through bores of the legs portions of the blocks **22** as well as through bores of the keys **10** and **11**.

The keys comprise, as particularly shown in Figs. 9 and 10, a key body **25**, for instance of wood or artificial material, and a key cover **26** which is preferably made of artificial material. The key body **25** is of U-shaped cross section and the key wire **9** projects therethrough. The key cover **26** covers the key body **25** due to its cup shape. In order to secure the key cover **26** to the key body **25**, the key cover **26** is equipped with projections **27** or the like which extend into the space between the leg portions of the U-shaped key body **25**. The securing of the key cover **26** to the key body **25** is brought about in particular by gluing and also by means of pins **28** which extend through the leg portions of the key body **25** and through the projections **27** of the key cover **26**.

The cup shaped key cover **26** has on one side recesses **29** through which the pins **28** may be inserted.

If full tone keys are provided, the key wires **9** extend through the keys and are cranked at their ends **9'**. These cranked ends **9'** are received in particular in the slots **30** of the base plate **13**.

The base plate **13** has a Z-shaped bend or is forming a step on which the ends **9'** of the key wire **9** rests, thus forming an edge portion **13'** which is disposed parallel to the main plane of the base plate **13**. A plate **13''** is secured to the main portion of the base plate **13**, which plate **13''** extends parallel to and spaced apart from the edge portion **13'** and the edge **16** of the plate **13''** is received below the raised portion of the rail **14**. The slots **30** start in the main portion of the base plate **13** and continue into the edge portion **13'** of the base plate **13** over the vertical connecting portion which connect the edge portion **13'** with the main portion of the base plate **13**. A ledge **31**, for instance of cardboard, is provided below the edge portions **13'**, which ledge **31** is equipped likewise with slots **32** complementary to the slots **30** of the edge portion **13'**, however, with the exception that the slots **32** are wider than the slots **30** of the edge portion **13'** (Fig. 12). The channel formed by a pair of such slots **30**, **32** for guiding the key wire end **9'** is equipped with a lining of soft material **33**, for instance cloth material, which is known per se for such guides. The cloth material is secured to the ledge **31**, for instance by gluing. Due to the different width of the slots **30** and **32**, respectively, it is possible that the guide for the key wire end **9'** is widened from top to bottom, so that the key wire end **9'**, upon pressing down of the coordinated key, is freed and during its upward movement, while it was engaging the cloth material **33** during its normal position.

A second strip **34** of soft material, for instance felt, is disposed adjacent the edge **16** of the base plate **13**, which strip **34** serves as abutment means for the key wire end **9'**, thereby limiting the key stroke.

In the embodiment of a key mounting shown in Figs. 5 and 6 an integral group of bearing blocks **35** preferably of artificial material is secured to the base plate **13**, for instance at **36**. The keys are mounted between the blocks **35** by means of an axle **37** which is received by grooves **38** of the blocks **35**. The axle **37** is retained in its position by means of a bridge comb **40** which is secured to the base plate **13**, for instance at **39**, and which bridge comb **40** may be made of metal and the bridging portions **41** of which cover up the grooves **38**.

In accordance with a still further embodiment of the key mounting, the base plate **13** is equipped with a bridge shaped curved portion **42** which is advantageously of half circular cross section, in order to mount the keys thereon for tilting movement (Fig. 7). The keys **10** and **11** are supported by said curved portion **42** by means of a screw bolt **43** or the like, which projects through a bore **44** of the curved portion **42** and is releasably anchored in the key body **25**. An elastic compressible intermediate member **45** is disposed between the key body **25**, which projects below the key wire **9**, and the curved portion **42**. A spring **46** is also disposed on the screw bolt **43** or the like between its head and the under face of the curved portion **42**, so that the key is pressed resiliently to its support and also receives the required freedom of movement for the tilting action.

The keys **10** and **11** are equipped in conventional manner with springs **47** (Figs. 3, 5 and 7), which springs retain the keys in their normal position in which the air flaps **8** which are connected with the keys **10** and **11** by means of the key wires **9** rest on the air opening **6** of the filler **5**. The springs **47** may be secured, for instance by means of a pin **48** in a lateral recess **49** of the key body **25**. A ledge **51** supporting one leg of the wire spring **47** is arranged on the base plate **13** and preferably set in a lowered portion **50** thereof, which ledge

51 is equipped with grooves 52 adapted to receive one leg of the wire springs 47.

Fig. 5 discloses an arrangement which permits the control of the force exerted by the spring 47. In order to achieve this end, the ledge 51 is pivotally mounted at 52'. The keyboard carrying wall 12 has bores 53 which receive pins 54. The latter are pressed against the ledge 51 by means of a longitudinally slidable wedge member 55 against the force of the spring 47, so that the spring force, and thereby, the required key pressure is increased. If a reduction of the spring force is desired, the wedge member 55 is moved in opposite direction. A cover plate 56 disposed on the outside of the wall 12 covers the wedge member 55, which cover plate 56 has one or more cut outs in such arrangement that the wedge member 55 may be properly moved, without removing the cover plate 56.

If in the case of half tone keys 11 the key wire 9 does not extend through the keys but terminates inside thereof, the key body 25 of the half tone keys 11 is equipped with a downward projection 57. A ledge 58 is disposed on the base plate 13 opposite the projections 57, which ledge 58 is made of soft material and serves as abutment means during operation of the half tone keys.

Referring now again to the drawings, and in particular to Figs. 13 to 28, the accordion disclosed in Fig. 13 comprises a treble part 101, a base part 102 and an expandable and contractible portion 103 which connects the treble part 101 with the base part 102. In the treble part 101 a filler 105 is provided below the cover 104, which filler 105 is equipped with openings 106 for passing of air therethrough, the reed cell 107 (Fig. 14) being disposed therebelow.

The passage of air through the openings 106 is controlled by air flaps 108 which are connected with the keys 110 and 111 by means of key wires 109. The keys are mounted on the keyboard carrying wall 112 of the keyboard enclosure 112'.

The keys 110 and 111, the key mounting and the air flaps 108 together with the key wires 109 are divided into groups and each group is releasably mounted on a base plate 113 which is secured to the keyboard enclosure 112'. The base plates 113 are releasably secured to lengthwise disposed rails 114 and 115 which are mounted on the keyboard enclosure 112'.

In order to mount the keys, each base plate 113 is equipped with a plurality of parallel disposed slots 121 which receive from below the leg portions of U-shaped blocks 122, preferably of metal, which blocks are secured to the bridge portions 123 disposed between the slots 121. The keys 110 and 111 are mounted between the leg portions of the blocks 122 and the keys are pivotally connected to the blocks by means of an axle 124 which extends through bores of the leg portions of the blocks 122 as well as of the keys 110 and 111.

The keys 110 comprise a key body 159 and a cup-shaped cover 160 secured to said key body. In accordance with the present invention the key bodies 159 of the keys 110 are mounted at their end opposite their support in the blocks 122 between two leg portions 161' of U-shaped blocks 161. The latter enclose the key body 159 and their leg portions extend through a plurality of parallel disposed slots 162 of the base plate 113. The blocks 161 are additionally secured to the bridge portions 163 of the base plate 113, which bridge portions 163 are disposed between the slots 162. A layer 164 of felt or the like is disposed on top of the bridge portions 163, which layers 164 are adapted to provide a damping effect upon pressing down the key body 159.

The keys 110 are equipped in conventional manner with a wire spring 147 which may be secured in a recess 149 of the key body by means of a pin 148. On the base plate 113 and particularly set in a recess 150 thereof is a ledge 151 adapted as a spring guide, which ledge 151 is equipped with grooves 152 in which one leg of the wire springs 147 is received (Fig. 15).

A key with a solid key body 159*a* is disclosed in Fig. 17, which key body 159*a* supports a cup-shaped cover 160*a*, while in Figs. 18 and 19 a key body 159*b* of H-shaped profile is shown which supports a cup-shaped cover 160*b*.

Figs. 20 to 28 relate to variations in which the key bodies have side faces which are diverging downwardly.

The key body 159*g* shown in Fig. 20 is equipped with side flanges 171 which diverge downwardly towards the base plate 113. Blocks 172 are provided for guiding the keys in connection with such key bodies 159*g*, the leg portions 173 of the blocks 172 having within the moving range of the flanges 171 of the coordinated key body 159*g* outwardly projecting portions 174. The key body 159*g* is guided in the normal position of the keys by the upper non-projecting parts of the leg portions 173.

The blocks may be inserted into the base plate 113, if the bridge portions 163 are kept so narrow that they may project between the upper non-projecting parts of the leg portions 173 of the blocks 172. The latter are guided in this case in the base plate 113 by the outer edges of the slots 162 through which they project.

Figs. 22 to 25 disclose an embodiment in which the key body 159*c* which is covered by the cup-shaped cover 160*c* is equipped with guiding flanges 166 diverging towards the base plate 113, which guiding flanges 166 are of greater height within the range of the coordinated blocks 165 than that of its adjacent portions and for this reason project further sidewardly. The guide flanges form in their portions of greater height hammer head-like parts 167.

Within the range of those parts 167 of the key body 159*c* are the leg portions 165' of the block 165 equipped with a recess 168, so that in normal position of the key the hammer head-like parts 167 which are preferably rounded up at their ends are disposed between the remaining bridge portions 169 of the blocks 165, while the keys upon pressing down the latter pass by the recesses 168, so that no friction may occur.

It is of course also possible to provide the leg portions 173 of the blocks 172, which leg portions 173 are equipped with projections 174, with recesses similar to those provided for in the blocks 165 (Fig. 21*a*). In this case, keys with a key body having the shape of the key body 159*c* (Fig. 23) are guided by the blocks 172.

Figs. 26, 27 and 28 show other cross sections of key bodies 159*d*, 159*e* and 159*f*, respectively, which have side flanges diverging towards the base plate.

All key bodies 159*a* to 159*g* may be made of thermoplastic material so that during formation thereof the bore 170 of the key body for the axle may be formed or molded simultaneously.

While I have disclosed several embodiments of the present invention, it is to be understood that these embodiments are given by example only and not in a limiting sense, the scope of the present invention being determined by the objects and the claims.

I claim:

1. In a musical instrument in particular an accordion, a keyboard wall, a plurality of base plates, means for releasably securing said base plates along said keyboard wall, each of said base plates being disposed sideways to the adjacent of said base plates, a plurality of reed cells disposed inside of said instrument, a filler board having a plurality of openings, each of said openings being coordinated to and cooperating with one of said reed cells, an air flap disposed on top of each of said openings to assume a closing and lifted position, respectively, each of said base plates including a predetermined number of key mounting means, a key mounted for tilting movement on each of said key mounting means, a key wire connecting each of said keys with one of said air flaps coordinated thereto for common tilting movement therewith, said keys, said key wires and said air flaps corresponding with said

keys mounted on one of said base plates constituting one group individually releasable together with the corresponding base plate from said keyboard wall, and the said keys combined from all said groups constituting the entire keyboard.

2. The musical instrument, as set forth in claim 1, in which said means for releasably securing said base plates to said keyboard wall are outside of the range of said keyboard, thereby, permitting the mounting of the predetermined number of said keys with their corresponding key wires and air flaps on each of said base plates prior to the securing of the latter to said keyboard wall.

3. The musical instrument, as set forth in claim 1, which includes two rails disposed longitudinally parallel to and spaced apart from each other over the entire length of said keyboard wall, and means for rigidly securing said rails to said keyboard wall, said base plates being releasably secured to and bridging said rails.

4. The musical instrument, as set forth in claim 3, wherein one of said rails has a ledge formation adapted to receive one longitudinal edge of each of said base plates, the other longitudinal edge of each of said base plates resting on the other of said rails, and said means for releasably securing said base plates along said keyboard wall being applied to said other of said rails and comprising screw means and locating pins disposed between the latter.

5. The musical instrument, as set forth in claim 1, which includes a block member coordinated to each of said keys, said block member being of U cross section and the said keys being disposed each between the legs of one of said blocks, and in which the said base plates each have a plurality of parallel disposed slots receiving the leg portions of said blocks to secure said blocks to the corresponding of said base plates and an axle coordinated to each of said base plates, said axle extending through the said keys mounted on the corresponding of said base plates as well as through the leg portions of the said blocks carried by said base plates, in order to pivotally mount the said keys coordinated to the corresponding of said base plates on the latter.

6. The musical instrument, as set forth in claim 1, which includes an integral group of bearing blocks secured to each of said base plates, said blocks having longitudinally disposed vertical grooves, an axle received by said grooves, said axle extending through the said keys, the latter being disposed between the said blocks, a bridge comb member arranged on top of said blocks and secured to said base plate, thereby retaining said axle in said grooves.

7. The musical instrument, as set forth in claim 1, in which each of said base plates is provided with an upwardly bent portion adapted to serve as a mounting for said keys, an elastically compressible intermediate member disposed between the said keys and said bent portion and means for retaining said keys in supported position.

8. The musical instrument, as set forth in claim 1, in which the said keys comprise a key body and a key cover, said key body being of U-cross section and receiving said key wire.

9. The musical instrument, as set forth in claim 8, in which said key cover is of cup shape and surrounds the said key body and in which the said key cover has a projection extending into the space defined by the said U-shaped key body, and pins extending through the leg portions of said U-shaped key body and through said projection of said key cover, in order to retain said key cover on said key body.

10. The musical instrument, as set forth in claim 9, wherein said keyboard comprises a first set of full tone keys and a second set of half-tone keys, and in which said, base plate has a cranked portion disposed along one of its longitudinal edges, the said cranked portion having a plurality of parallel, crosswise disposed slots, and said key wires connected with said first set of keys extend through the latter and at their end into said slots of the cranked portion of said base plate.

11. The musical instrument, as set forth in claim 10, which includes a strip disposed longitudinally below said cranked portion of said base plate, the said strip having slots of greater width than that of said cranked portion of said base plate and a lining of soft material being disposed in the said slots of the said strip, which lining encloses the path of the end of said key wire.

12. The musical instrument, as set forth in claim 1, in which said base plate includes a ledge member having a plurality of crosswise disposed parallel grooves, each of said grooves being adapted to receive one end of a spring wire coordinated to each of said keys, said ledge member being secured to the said base plate.

13. The musical instrument, as set forth in claim 12, which includes means for adjusting the height of said ledge member.

14. The musical instrument, as set forth in claim 13, in which said ledge member is pivotally mounted on said base plate and pins projecting through said keyboard wall opposite said ledge member, and wedge means in said wall for adjustingly positioning said pins.

15. The musical instrument, as set forth in claim 1, which includes a guiding means for said keys disposed at the end of said keys opposite said key mounting means, said guiding means comprising a plurality of blocks of U cross section, the space defined by the leg portions of said blocks receiving said respective keys, and the said base plates having a plurality of parallel disposed slots through which the leg portions of said block members project, and means connecting the said last mentioned blocks to said base plate.

16. The musical instrument, as set forth in claim 15, wherein each of said keys comprises a key body and a key cover therefor and in which each of said key bodies has lateral flange portions diverging downwardly towards the said base plate at least within the range of said corresponding blocks, and in which the leg portions of the said blocks have a wider part at least within the range of operation of said flange portions of said key body.

17. The musical instrument, as set forth in claim 15, wherein each of said keys comprises a key body and a key cover therefor and in which each of said key bodies has lateral flange portions diverging downwardly towards the said base plate at least within the range of said corresponding blocks, and in which the leg portions of said blocks have an opening at least within the range of operation of said flange portion of said key body.

18. The musical instrument, as set forth in claim 1, in which each of said keys comprises a key body and a key cover therefor and in which said key body is made of thermoplastic material, in order to permit during its molding simultaneously the formation of a bore, adapted to receive an axle extending through all said key bodies mounted on each of said base plates.

References Cited in the file of this patent

FOREIGN PATENTS

348,871	Italy	June 2, 1937
351,954	Italy	Aug. 27, 1937
657,228	Germany	Feb. 26, 1938