K. TOBIAS.

FOLDING GATE.

APPLICATION FILED SEPT. 9, 1913.

**1,122,441.** Patented Dec. 29, 1914.

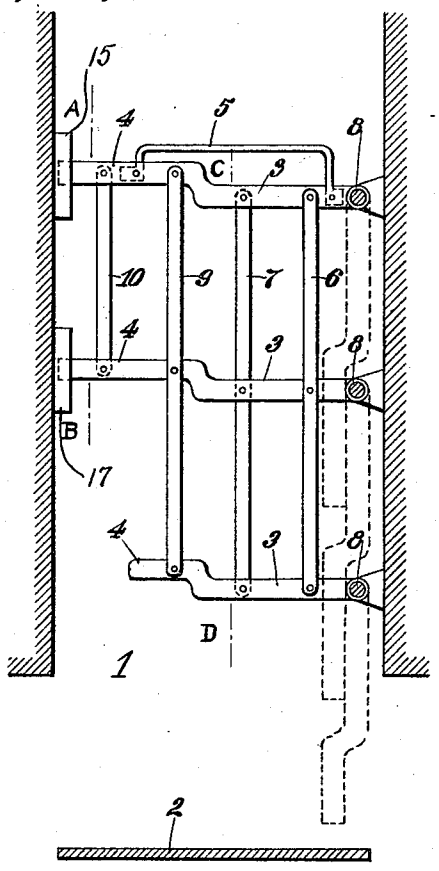


FIG. 1.

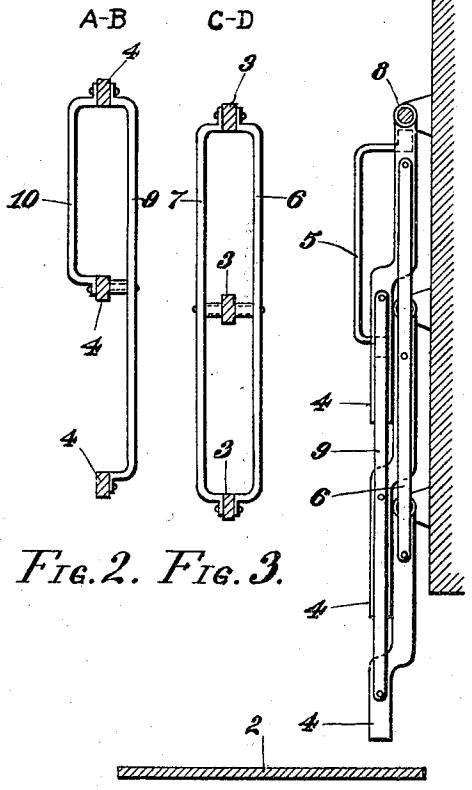


FIG. 2. FIG. 3.

FIG. 4.

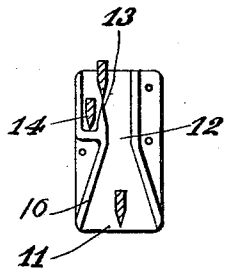


FIG. 5.

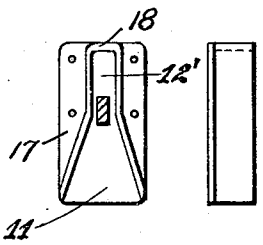


FIG. 6. FIG. 7.

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# UNITED STATES PATENT OFFICE.

KARL TOBIAS, OF BUDAPEST, AUSTRIA-HUNGARY, ASSIGNOR TO BUDAPESTI VILLAMOS VÁROSI VASUT RESZVÉNYTÁRSASÁG/ELECTRICAL MUNICIPAL RAILWAY COMPANY LTD. IN BUDAPEST/, OF BUDAPEST, AUSTRIA-HUNGARY.

## FOLDING GATE.

1,122,441. Specification of Letters Patent. Patented Dec. 29, 1914.

Application filed September 9, 1913. Serial No. 788,877.

*To all whom it may concern:*

Be it known that I, KARL TOBIAS, a subject of the Austrian Emperor, King of Hungary, and resident of Budapest, in the Empire of Austria-Hungary, have invented a new and Improved Folding Gate, of which the following is a specification.

This invention relates to a folding gate which is intended especially for the platforms of railway vehicles and which consists of a plurality of movably connected bars which when the gate is expanded extend partly horizontally and partly vertical. The length of at least two of the horizontal bars corresponds to the width of the platform opening, and all the horizontal bars are hinged at one end to one of the sides of said opening and may be swung down in their own plane around the respective hinges. Opposite to the latter, fastening devices for the other ends of the bars in question are provided at the other side of the platform opening. The configuration of the horizontal bars is such that when they have been swung downward, *i. e.* into vertical position, they lie partly one over the other and partly side by side, irrespective of whether there are but two or more of, such bars. The vertical bars, however, which are alternately connected to one and the other side of the horizontal bars remain always vertical, but form two sets or groups, one being located upon the outer side, the other upon the inner side of the other bars. Therefore, all bars together, when the gate is collapsed, require but very little space. In fact, it is practically merely double the breadth of two of the vertical bars. This minimum space required for the collapsed gate is, however, not the only advantage of the new construction in question. Further advantages reside second in the very convenient collapsibleness or foldableness of the gate, third, in the safety of the gate when in its locking position, and fourth, in the gate being practically not subjected at all to wear and tear.

In order to make my invention more clear, I refer to the accompanying drawing, in which similar letters denote similar parts throughout the several views, and in which:

Figure 1 is a front view of the folding gate in its expanded state, Fig. 2 is a vertical section in line A—B of Fig. 1, Fig. 3 is a similar section in line C—D of Fig. 1, Fig. 4 shows the folding gate collapsed, Fig. 5 is a front view of one of the guiding and fastening-devices for the upper horizontal bar, Fig. 6 is a similar representation of the guiding device for the lower horizontal bar, Fig. 7 is a side view of the part shown in Fig. 6.

1, Fig. 1, is the platform opening and 2 is the step leading to the platform. At the right side of said opening are provided hinges 8 arranged in one vertical line or plane and having attached to them the bars 3 which have a horizontal position when the lattice, of which they form parts, is expanded, as shown in Fig. 1. The bars 3 may be swung downward from the position represented in Fig. 1 to that represented in Fig. 4, when the folding-gate will be collapsed and the platform accessible. The bars 3 are crooked, as shown, in such a manner that when they have been swung down, the free or crooked end 4 of the upper bar will lie exactly over the free or crooked end 4 of the lower bar, but side by side with the hinged end or half of the same, as represented in Fig. 4 in full lines and in Fig. 1 in dotted ones. The vertical bars 6, 7 however, which are movably connected with the crooked bars, by means of bolts or the like, and which alternate with respect to the front side and the rear side of these bars, are separated some distance one from the other when the folding gate is expanded, and lie side by side when it is collapsed. In the form of construction shown, there are three horizontal bars 3, and four vertical bars 6, 7, 9, 10, the bars 6 and 9 being located at the outer side and the bars 7 and 10 at the inner side of the bars 3. The bent bar 5 affixed to the uppermost bar 3 serves as a handle. As a matter of course, there may be more than four vertical bars and more than three horizontal ones, and where the lowermost of the horizontal bars is rather near to the platform, as in the form of construction shown, this lowermost bar is somewhat reduced in length so as not to interfere with the step 2 when the folding gate is collapsed.

To support, and secure in position, the bars 3 when the gate is expanded, the parts shown in Figs. 5–7 are provided. There is, for each folding gate, a support 15 for the uppermost bar and a guide 17 for the

next lower one. The support 15 has ridges 16 forming between them a guide groove which is widest at its lower end where the bars enter the groove. One of the ridges forms an upwardly extending point 13 and, at the side of this point, an auxiliary groove 14, the bottom of which serves as support proper when the end of the bar has passed through the narrowest part 12 of the main groove, as well as over said point. The end of the bar is represented in three different positions; first, when entering the main groove; then when passing just over the point 13; and finally when having arrived in the auxiliary groove 14. It is obvious that the gate is now safely locked by its own weight. The part 13 being pointed or wedge-shaped, and also the lower side of the bar end being sharpened, as shown (Fig. 5), there is no possibility of the bar assuming any intermediate position, but it locks the gate either not at all, or completely. The other horizontal bar is held in position by means of the part 17 (Fig. 6) which has a guide groove 12′ similar to the main groove of Fig. 5. That guide groove is, however, closed at its upper end, there being merely left as much space as is required to lift the upper bar over the point 13, as described. The ridge part 18 (Fig. 6) serves as a stop, preventing the whole gate from being raised more than is necessary to effect the locking.

Having now described my invention, what I desire to secure by a patent of the United States is:

1. In a platform folding gate for railway vehicles, the combination, with a plurality of horizontal, vertically crooked bars and a hinge for one end of each bar, of vertical bars movably connected with said first-mentioned bars and distributed upon the two sides of the same, and of a support for the free end of one of the same, said support having an upwardly extending guide groove and a downwardly closed supporting groove, substantially as shown and described.

2. In a platform folding gate for railway vehicles, the combination, with at least two horizontal vertically bent bars hinged each at one end and adapted to be placed one partly above the other and partly side by side, of a support for the free end of one of said bars and of a guide for the free end of the other of said bars; said support having an upwardly extending guide groove, a downwardly closed supporting groove, and a lug between the upper ends of said grooves, the upper end of said lug being wedge-shaped, substantially and for the purpose as described.

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

KARL TOBIAS.

Witnesses:
MAX ADLER,
JOHN J. RONTS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."