A.D. 1862, 15th *March.* N° 723.

Tumbler Locks.

LETTERS PATENT to George Hamilton, of No. 6, Willow Terrace, Islington, in the County of Middlesex, for the Invention of "IMPROVEMENTS IN TUMBLER LOCKS."

Sealed the 12th September 1862, and dated the 15th March 1862.

PROVISIONAL SPECIFICATION left by the said George Hamilton at the Office of the Commissioners of Patents, with his Petition, on the 15th March 1862.

I, GEORGE HAMILTON, of No. 6, Willow Terrace, Islington, in the County of Middlesex, do hereby declare the nature of the Invention for "IMPROVEMENTS IN TUMBLER LOCKS," to be as follows:—

This Invention has for its object the so constructing tumbler locks that the proper positions of the tumblers for allowing the bolt to be shot may not be detected by applying pressure to the bolt in the well-known manner. For this purpose I mount the tumblers on an excentric, the pin of which is carried by the case of the lock. The tumblers are each capable of turning round the excentric, and when the tumblers are correctly set by the key before the bolt is shot back, the excentric will not be caused to turn on its pin, but when the bolt is pressed back before the tumblers are correctly placed, the stump upon the bolt will press against the tumblers and cause them to recede, the excentric by turning on its pin allowing them to do so. The turning of the excentric on its pin I arrange to bring into action a catch or stop for the bolt to come against, and I also arrange the lock so that the bolt when further pressed on shall, by acting on the stop, cause the excentric still further to turn on its pin, and so move back the tumblers away from the stump on the

bolt, in order that the stump shall no longer press against them. This may be effected in various ways, for instance, there may be a projection upon the excentric, which, when the excentric is turned, is brought into such a position that the bolt as it is pushed back shall come against it, and which, if the bolt is still further pushed back, shall be acted on by the bolt, so as to cause the excentric to turn still further, and thus cause the excentric still further to draw back the tumblers, so that the stump on the bolt shall no longer bear against them. The same object may be attained by there being connected to the excentric which carries the tumblers another excentric which turns around the same pin; this second excentric is received in a slot in the rear end of the bolt, and when the excentric carrying the tumblers is turned will raise the rear end of the bolt, so that if the bolt be further pressed back it shall come against a fixed stop on the case; the face of the stop against which the bolt comes and the part of the bolt which comes against it may both be made inclined, so that if the bolt is still further pressed back the rear end of the bolt shall be still further raised; this will cause the excentric which is received in the slot in the bolt still further to rotate, and will thus by turning the excentric which carries the tumblers cause the tumblers to be moved back away from the stump on the bolt, so that the stump can no longer press against them. In place of the second excentric being caused to move the rear end of the bolt, so that it may come against a fixed stop, the second excentric may be received in a slot in a sliding piece, so placed that when the excentric is turned on its pin it shall be brought into such a position that the bolt when further pushed back shall come against it, and the part of the sliding piece against which the bolt comes is made inclined, so that if the bolt is pushed against it the sliding piece shall be still further raised, and the excentric still further rotated, and the levers or tumblers thus drawn back from the stump on the bolt.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said George Hamilton in the Great Seal Patent Office on the 15th September 1862.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, GEORGE HAMILTON, of No. 6, Willow Terrace, Islington, in the County of Middlesex, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Fifteenth day of March, in the year of our Lord One thousand eight hundred and sixty-two, in the twenty-fifth year

of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said George Hamilton, Her special licence that I, the said George Hamilton, my executors, administrators, and assigns, or such others as I, the said George Hamilton, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN TUMBLER LOCKS," upon the condition (amongst others) that I, the said George Hamilton, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said George Hamilton, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

This Invention has for its object the so constructing tumbler locks that the proper positions of the tumblers for allowing the bolt to be shot may not be detected by applying pressure to the bolt in the well-known manner. For this purpose I mount the tumblers on an eccentric, the pin of which is carried by the case of the lock. The tumblers are each capable of turning around the eccentric, and when the tumblers are correctly set by the key before the bolt is shot back, the eccentric will not be caused to turn on its pin, but when the bolt is pressed back before the tumblers are correctly placed, the stump upon the bolt will press against the tumblers and cause them to recede, the eccentric by turning on its pin allowing them to do so. The turning of the eccentric on its pin I arrange to bring into action a catch or stop for the bolt to come against, and I also arrange the lock so that the bolt when further pressed on shall, by acting on the stop, cause the eccentric still further to turn on its pin, and so move back the tumblers away from the stump on the bolt, in order that the stump shall no longer press against them. This may be effected in various ways; for instance, there may be a projection upon the eccentric, which, when the eccentric is turned, is brought into such a position that the bolt as it is pushed back shall come against it, and which, if the bolt is still further pushed back shall be acted on by the bolt, so as to cause the eccentric to turn still further, and thus cause the eccentric still further to draw back the

tumblers, so that the stump on the bolt shall no longer bear against them. The same object may be attained by there being connected to the eccentric which carries the tumblers another eccentric which turns around the same pin; this second eccentric is received in a slot in the rear end of the bolt, and when the eccentric carrying the tumblers is turned, will raise the rear end of the bolt, so that if the bolt be further pressed back it shall come against a fixed stop on the case; the face of the stop against which the bolt comes and the part of the bolt which comes against it may both be made inclined, so that if the bolt is still further pressed back the rear end of the bolt shall be still further raised, this will cause the eccentric which is received in the slot in the bolt still further to rotate, and will thus by turning the eccentric which carries the tumblers cause the tumblers to be moved back away from the stump on the bolt, so that the stump can no longer press against them. In place of the second eccentric being caused to move the rear end of the bolt, so that it may come against a fixed stop, the second eccentric may be received in a slot in a sliding piece, so placed that when the eccentric is turned on its pin it shall be brought into such a position that the bolt when further pushed back shall come against it, and the part of the sliding piece against which the bolt comes is made inclined, so that if the bolt is pushed against it the sliding piece shall be still further raised, and the eccentric still further rotated, and the levers or tumblers thus drawn back from the stump on the bolt.

And in order that my Invention may be fully understood, and readily carried into effect, I will proceed to describe the Drawings hereunto annexed.

Description of the Drawings.

Figure 1 is a front view, and Figure 2 a back view, of a tumbler lock having the tumblers mounted on an eccentric, and arranged in such manner that when the bolt is pressed back before the tumblers are correctly placed, the tumblers by being carried back with the bolt turn the eccentric on its pin, and bring into action a catch or stop for the bolt to come against; the lock is arranged according to the first of the methods above described. In these Figures the front and the back plate of the case of the lock are respectively removed, in order that the working parts of the lock may be seen. Figure 3 is a section of the lock taken through the line A, B, Figure 1; Figure 4 is a back view, shewing the position the parts of the lock assume when the bolt is pressed back.

a is the bolt of the lock, which is guided to and fro in its movement by a fixed stump *b* working in a slot in its rear end; *c* are the tumblers, each capable of turning around an eccentric *d*, which has passing through it a

pin d^1, and upon which it turns; this pin is fixed to the back of the case of the lock. A portion of the eccentric d which is in the same plane as the bolt is cut away, as shewn in Figure 2, thus forming an angular projection d^2, the point d^3 of which when the eccentric is turned by the tumblers being pressed backwards enters the notch a^1 in the under side of the bolt a; the bolt a is formed as usual with a stump a^2, which passes through the slots of the tumblers. When in order to pick the lock pressure is applied to the bolt to force it back, the back of the stump a^2 will press back the tumblers, and cause the eccentric d to turn round on its pin, and thus cause the projection d^3 to enter the notch a^1 in the under side of the lock, and if the bolt be still further pressed back, the eccentric will still further be turned on its pins, and the tumblers will thus be still further drawn back, so that the back of the stump a^2 on the bolt will not be in contact with them, so that the correct position of the tumblers for allowing the bolt to be shot back cannot be detected by applying pressure to the bolt. Supposing that from any attempt to pick the lock the tumblers have been moved back as above described, they can be brought back again to their correct position by means of the true key, the part of the bolt which is acted on by the key being formed as shewn in the Drawings, so that if the bolt has been pressed back, the key on being turned in the proper direction to unlock the lock, will first act to press the bolt forward to its proper position, and thus free the eccentric upon which the tumblers are mounted, and the tumblers being pressed on by their springs will cause the eccentric to turn back and bring the tumblers into their original position, the key will then unlock the lock.

I would now remark that I have only thought it necessary to shew a Drawing of one way of carrying out my Invention, as from the description above given a workman could readily carry it out in other ways.

In witness whereof, I, the said George Hamilton, have hereunto set my hand and seal, the Second day of September, in the year of our Lord One thousand eight hundred and sixty-two.

GEORGE HAMILTON. (L.S.)