A. Fritsche's Clarinet.

PATENTED JAN 10 1871

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Fig: 1.

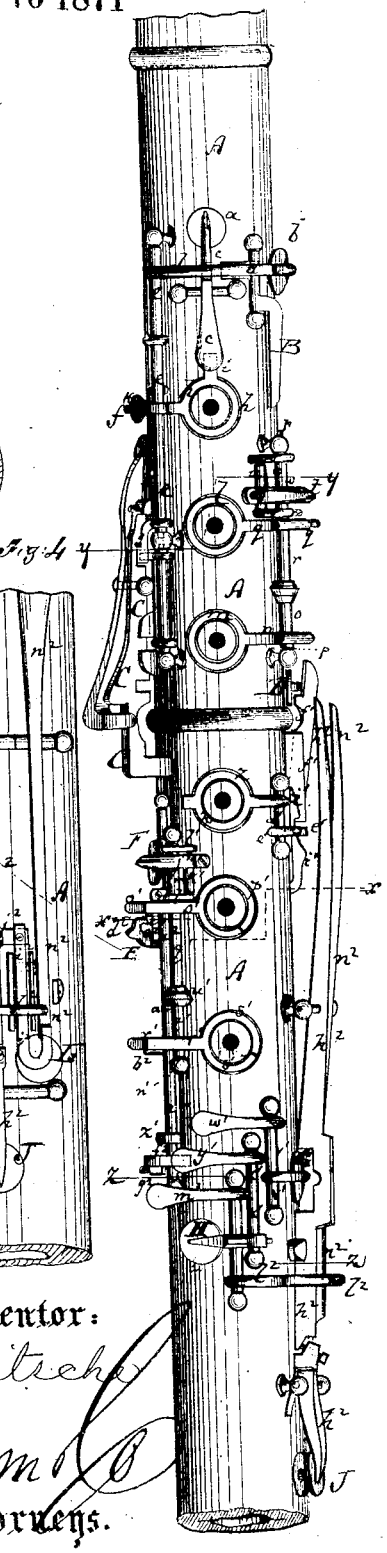


Fig: 2.

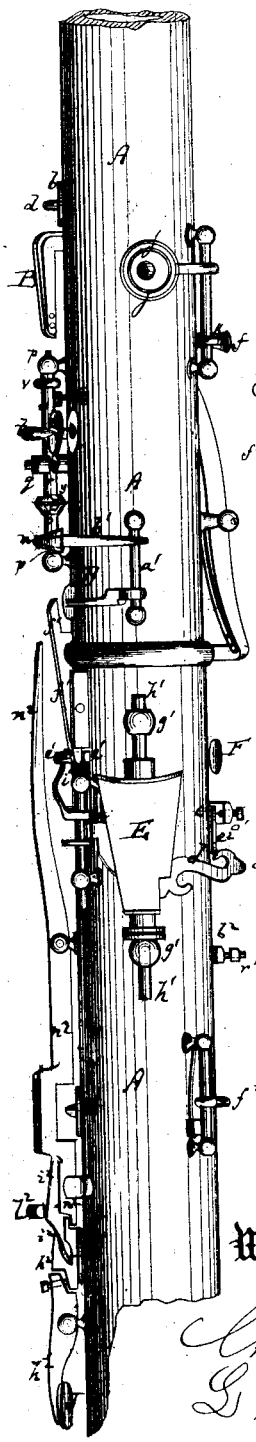


Fig: 6

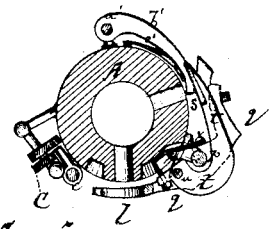


Fig: 5

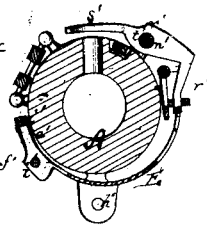


Fig: 7.

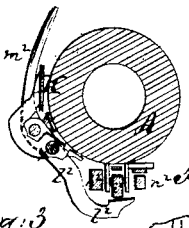
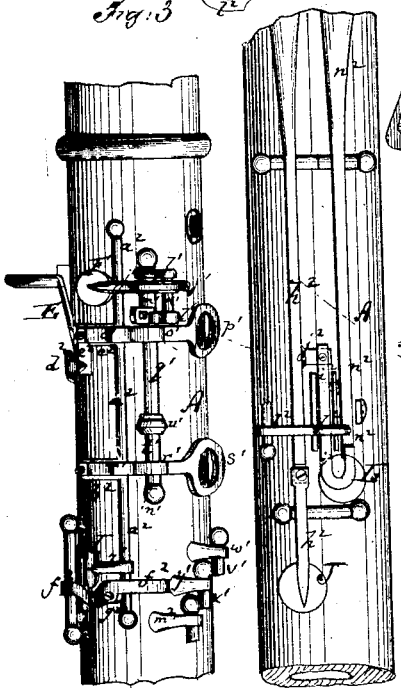


Fig: 4

Fig: 3



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ANTON FRITSCHE, OF NEW YORK, N. Y.

Letters Patent No. 110,845, dated January 10, 1871.

IMPROVEMENT IN CLARIONETS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ANTON FRITSCHE, of the city, county, and State of New York, have invented a new and improved Clarionet; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a face view of my improved clarionet.

Figure 2 is a back view of the same.

Figure 3 is a detail view of a portion of the right side of the same.

Figure 4 is a detail view of a portion of the left side of the same.

Figure 5 is a detail transverse section of the same, taken on the plane of the line *x x*, fig. 1.

Figure 6 is a detail transverse section of the same, taken on the plane of the line *y y*, fig. 1.

Figure 7 is a detail transverse section of the same, taken on the plane of the line *z z*, fig. 1.

Similar letters of reference indicate corresponding parts.

This invention has for its object to improve the arrangement of keys, levers, and the working mechanism on clarionets, so that the same may be played with less difficulty than the instruments now in use under the same name.

The difficulties to be chiefly overcome consist in such a position of the keys on the old instruments that the fingers must at times be rocked on the instrument in order to change from one key to another, which is a very tiresome movement.

Also, in such an arrangement of keys that certain trills or rapid changes must be produced by the little finger, which is easily tired.

Also, in the insufficient arrangement of holes, whereby certain sounds cannot be produced with clearness and precision.

My invention consists in the improvement or novel arrangement of six several keys, as hereinafter more fully described, the apparatus pertaining to each of said keys being a separate invention, producing at the same time, by its connection with the other devices, new combinations, as will be more fully explained in the several clauses of claim hereto attached.

A in the drawing represents the tubular body of the clarionet, made in the ordinary or suitable manner, with a mouth-piece of suitable construction.

a is the upper A-key.

b, the upper A-flat key arranged as usual.

c is the longitudinal lever for opening the key *a*, being also the shank to which said key is secured.

d is the shank of the key *b*. It is secured to a longitudinal rock-arbor *e*.

A spring concealed beneath the arbor *e* serves to keep the key *b* closed.

B is a lever pivoted to the tube A, and provided with an arm which is under the shank *d*, so that, by means of said lever B, the key *b* can be raised or opened.

It will be seen that the levers *c* and B are near together. They are thus arranged on every ordinary clarionet.

When a frequent or rapid change is to be made from A to A-flat the first finger must be rocked on the tube A, to transfer the pressure rapidly from the lever *c* to B, and *vice versa*. This rocking motion is extremely inconvenient and tiresome to the player, and cannot be kept up for any length of time. I have therefore attempted to provide against the said difficulty by connecting the arbor *e* with other handles, whereby the key *b* can be opened.

The arbor *e* carries, in the first place, a projecting handle, *f*, whereby it can be rocked to open the key *b*. But the arbor *e* carries also a projecting arm, *g*, which fits under an arm of a longitudinal lever, C.

This lever is held down upon the arm *g* by the same spring which holds the key *b* closed. The said spring is thrown out of action when the handle end of the lever C is depressed, and another weaker spring is, by such motion, liberated to swing the arbor *e* and open the key *b*.

Whenever the lever C is released the key *b* is immediately closed by the first-named spring.

The ring *h*, above the B-hole, is, by its shank, also secured to the arbor *e*, and has a projecting ear, *i*, under the lever *c*.

Whenever the arbor *e* is swung by the aforesaid motion of the lever C to hold the key *b* open, the ring *h* is also raised, and brings its ear *i* so close under the lever *c* that, by rocking said lever *c* alone, both keys *a* and *b* can be played in suitable succession, while (in the same position by pressing upon the ring *h*) the said ring and the key *b* can also be played in suitable order, as well as by merely rocking the lever C.

The ring *j* on the back of the tube A has also a projecting arm, *k*, fitting under the handle *f* of the arbor *e*, so that when, by the lever C, the key *b* is opened, as aforesaid, the ring *j* can be played to alternately play its hole and the key *b*.

By the application, therefore, of the lever C the old

difficulty of rocking the first finger is overcome, and many additional advantages are at the same time obtained, which heretofore could never be had.

l is the A-hole for the lower scale, and

m, the G-hole, both having appropriate rings in the ordinary manner.

The shank *n* of the ring *m* is secured and turns with a tube, *o*, which is fitted loose upon a longitudinal arbor, *p*, that is hung in ears projecting from the tube A.

The shank *q* of the ring *l* is mounted upon a tube, *r*, which is fitted loosely around another portion of the arbor *p*.

The two rings *l m* are, in every ordinary clarionet, for producing the notes A and G. The deficiency in their arrangement consists in the absence of an intermediate hole or key for playing a clear A-sharp, or, with the changing lever, a clear E-flat.

In order to overcome this defect I have made the hole *l* smaller than usual, and have arranged another hole in line with it at the side of the instrument, said hole being provided with a key, *s*.

The shank *t* of this key is pivoted by an arbor, *u*, which arbor has its bearings in ears *v v* that project from a loose tube, *w*, on the arbor *p*.

A spring, *x*, holds the key *s* open. By touching and depressing the ring *m*, which, as well as the ring *l*, is otherwise held open by a spring, the tube *o* is turned and turns, by a clutch, *y*, which is shown in fig. 2, the arbor *e*, so that the same will, by a projecting ear, which strikes a projecting ear of the tube *w*, turn the latter tube and close the key *s*, while the tube *r* will remain unmoved by such action. On the other side, however, by depressing only the ring *l*, the tube *r* is turned, and is, by a projecting arm, caused to turn the tube *w* and close the key *s* without in the least affecting the tube *o*.

I am thus enabled either to close the full opening for A by closing the hole *l* and key *s*, or merely one-half of the same, by depressing the ring *m*, or by directly touching the shank *t* and only closing *s*, and to thereby obtain the clearness of tone and semitone required.

Between the G-ring *m* and the F-ring *z* of the clarionet is arranged the ordinary G-sharp key, not shown. This key is arranged in line with the rings, so that it is played by the fourth finger, and, whenever rapid changes are to be made from G-sharp to another note, the fourth finger must be rapidly played and is soon tired and useless. To prevent this I have arranged an additional G-sharp key D at one side of the instrument, and have connected it with the rings *m* and *z* and with a thumb-slide, E, on the back of the tube A, so that it can be operated without the use of the fourth finger.

The key D is pivoted by an arbor, a^1, which has a projecting arm or crank, b^1, that reaches under the shank *n* of the ring *m*.

The spring, not shown, which holds the ring *m* raised, causes the shank *n* to press on the crank b^1 and to hold the key D closed, while a spring, c^1, fig. 6, tends to open the same.

The ring *z* is pivoted by an arbor, d^1, which has a projecting arm, e^1. The end of this arm e^1 extends under one end of a lever, f^1, whose other end fits over the key D, as shown.

A concealed spring holds the ring *z* raised or open, and the lever f^1 clear of the closed key D. When the ring *m* is pressed down it releases the arm b^1, which is at once thrown up by the spring c^1, fig. 6, so that thereby the key D is opened. The open key D fits close under the end of the lever f^1. By then playing the ring *z* the lever f^1 will be oscillated, and the key D thereby played up and down. Thus the fourth finger is not used for playing the G-sharp key D, as the ring *m* is held down by the third finger of the upper hand and the ring *z* played by the first finger of the lower hand.

In order, however, to disengage the ring *z* from the key D, whenever it is not desired to play said key D, I have arranged on the back of the tube A a slide, E, which is an L-shaped plate pivoted in ears g^1, in which, however, its projecting pivots h^1 can slide.

The thumb-slide, for it is operated by the thumb of the lower hand, carries or actuates a projecting or sliding cam, i^1, which, whenever the slide is moved upward, is brought under the arm e^1, elevating the same. Thereby the lever f^1 is brought upon the closed key D, locking the same, so that it will not be opened by means of the ring *m* unless the slide E is again drawn down to release the arm e^1 and lever f^1.

F is the key for playing F-sharp. Its shank j^1 is pivoted to an arbor, k', which is hung in ears l', that project from a tube, m^1.

This latter tube fits loosely upon a longitudinal arbor, n^1, which is hung to one side of the tube A.

The shank o' of the E-ring p', is affixed to a tube, q', which also turns loose on the arbor n^1.

The shank r' of the D-ring s' is affixed to a tube, t', which also turns loose on the arbor n^1.

Concealed springs serve to raise the rings p' and s', and also the key F, holding the same open.

When the ring p' is depressed it will turn the tube q', and, by a projecting stop, also the tube m^1, so as to close the key F, but not interfere with the ring s'.

When the ring s' is depressed it will turn the tube t', and, by a projecting clutch, u', also the arbor n^1, and, by an arm on the latter, the tube m^1, so as to also close the key F, but not interfere with the ring p'.

The key F will thus, by depressing either one or both the rings p' s', be closed and played, which is a feature not heretofore possessed by clarionets.

G is the ordinary E-flat key, applied to an arbor, v', which has a projecting handle, w', in the usual manner.

H is the ordinary C-key applied to an arbor, x', which has a playing-handle, y'. It will be seen that the handles w' and y' are near together, to be played in rapid succession by the fourth finger of the lower hand. But this motion tires said finger, and the passages to be played by it are therefore often avoided or reduced.

In order to overcome this objection, I have arranged a second E-flat key, I, at the side of the tube A.

The shank z' of this key I is secured to a long arbor, a^2, which extends under the shanks of the rings p' and s', as shown, and which has a projecting crank, b^2, under the shank r', and another crank, c^2, under o'.

A spring tends to open the key I, but the power of the springs which hold the shanks r' o', or either, on the cranks b^2 c^2 is sufficient to keep said key closed.

Whenever the two rings p' s' are both depressed, the cranks b^2 c^2 will be released, and the key I will be opened by its spring.

Such opening of the key I can, however, be prevented by holding an arm, d^2, which projects from the thumb-slide E against an arm, e^2, of the crank c^2 by so rocking the slide E on its pivots. This motion of the slide E will close the key I by pressing against the crank c^2, even if both rings p' s' are depressed.

If, however, the arm d^2 is kept off the crank c^2, the key I can be opened by joint action of p' and s', as aforesaid.

It must here be noticed that the rocking motion of the slide E does not interfere with the position of the arm e^1 and lever f^1, nor does the sliding motion of E interfere with the position of the arms d^2 or e^2.

When the crank c^2 is not held down by the thumb-slide, the rings p' s' will be very useful; singly played they will either of them close the key F, and not interfere with I; jointly played they will also close F but open I, and can thus be used on both F and I at once.

The handle y' of the key H is above a lever, f^2, which extends over another crank, g^2, of the arbor a^2.

Whenever the key I is opened by the rings p' s', it can be closed without raising said rings by pressing upon the handle y', which will also, and at the same time close the key H.

When the rings p' s' are not to be used for playing the E-flat key I, the handle w' can be employed for playing the other E-flat key G.

In this manner a perfect connection is obtained from the key F clear down to H, and with all the intermediate rings. This gives a perfect command over all the said parts of the instrument, heretofore never to be had.

J is the ordinary lower B-key, secured to a jointed lever, h^2, and held open by a concealed spring.

L is the ordinary C-sharp key, secured to a short lever, i^2, which has an arm, j^2, projecting under the lever h^2.

The key L is held closed by means of a transverse lever, l^2, which has a handle, m^2, and a concealed spring to close the said key L. The handle m^2, it will be seen, is near to and parallel with the handle y'.

n^2 is a long lever pivoted to the case A, and fitted with its lower end under the key L to open the same individually whenever desired.

By pressing upon the handle m^2 the pressure on the key L is released, and the same is opened by a concealed spring under it.

Then the lever i^2 of the key L is brought under the influence of the lever h^2 of the key J, so that by playing h^2, J and L will be alternately opened and closed.

By leaving h^2 undisturbed and playing at once on the handles m^2 and y', the keys H and L, or H, I, and L, can at once be played.

The application of the lever l^2 is therefore of great importance, as it gives further facilities for playing the named keys alone or in conjunction, while heretofore only the arms n^2 and h^2 were in use to tire out the fourth finger of the upper hand.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The lever C, applied to a clarionet, in combination with the keys a and b, to facilitate in the playing of the same, substantially as herein shown and described.

2. The ring h, provided with the ear i, and combined with the arbor e and lever c, to operate substantially as and for the purpose herein shown and described.

3. The ring j, provided with the arm k, and combined with the arm f of the arbor e, with the lever C and key b, substantially as herein shown and described.

4. The arbor e, provided with the projecting arm f, shank d, and ear g, to be thereby combined and connected with the key b and lever C, substantially as herein shown and described.

5. The additional key s, arranged in connection with the ring l, for producing the full A or A-sharp, as specified.

6. The combination of the rings l m and tubes r o with the tube w and key s, all arranged to operate conjointly or separately, substantially as herein shown and described.

7. The additional G-sharp key D, actuated by the F-ring z, substantially as herein shown and described, for relieving the fourth finger, as specified.

8. The ring z, carrying the arm e^1, and combined with the lever f^1 and key D, to operate substantially as herein shown and described.

9. The combination of the ring m and its shank n with the key D, spring c^1, and lever f^1, for operating substantially as herein shown and described.

10. The rocking thumb-slide E, arranged on a clarionet substantially as and for the purpose herein shown and described.

11. The sliding cam i^1, operated by the thumb-slide E, and connected with the lever f^1 and arm e^1 for locking the key D, as specified.

12. The key F, connected with the tube m^1 and combined with the rings p' and s', to be closed by either one of the same or by both, as specified.

13. The additional E-flat key I, connected with the arbor a^2, which is held down by the shanks r' and o' of the rings p' s', substantially as herein shown and described.

14. The arm d^2 on the rocking thumb-slide E, arranged as described, to hold the key I closed, as specified.

15. The keys F and I, combined with the rings p' and s', and with the appendages of the same to be operated thereby, substantially in the manner herein shown and described.

16. The lever f^2, fitted under the handle y' of the key H, and combined with the arbor a^2 of the key I, to close said key I, substantially as specified.

17. The lever l^2 and handle m^2, connected with the key L and lever i^2 to operate the said key, substantially as herein shown and described.

18. The jointed lever h^2, connected by the stop j^2 with the lever i^2, to play the keys J and L in conjunction, substantially as herein shown and described.

19. The keys I and L, brought in close proximity by means of the handles y' and m^2, with which they are combined, as set forth.

20. The combination of the levers n^2 and h^2 with the key L, lever i^2 and lever l^2, all operating substantially as herein shown and described.

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