

D. JULLIOT.

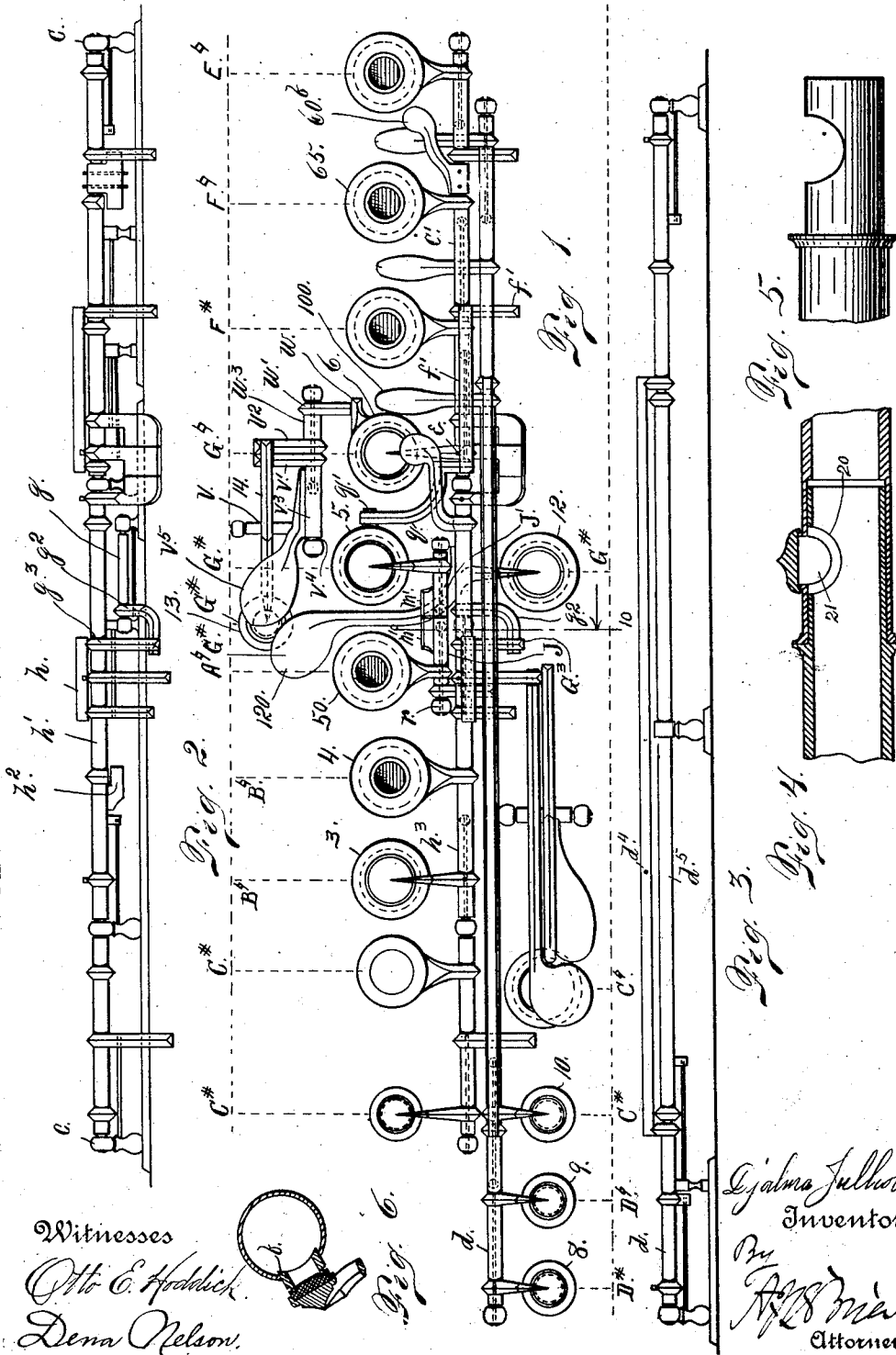
FLUTE.

APPLICATION FILED FEB. 20, 1906.

901,913.

Patented Oct. 20, 1908.

3 SHEETS-SHEET 1.

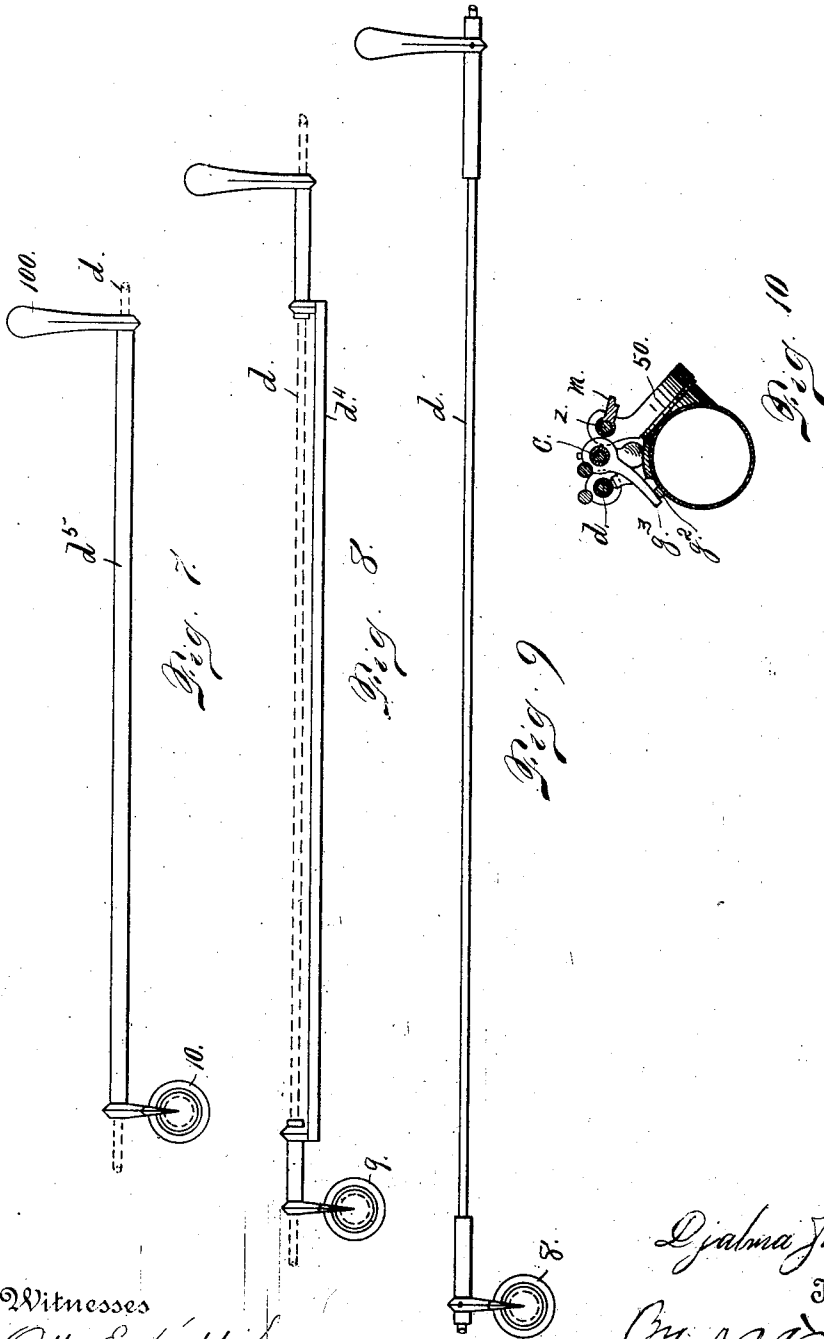


D. JULLIOT.
FLUTE.

APPLICATION FILED FEB. 20, 1906.

Patented Oct. 20, 1908.
3 SHEETS—SHEET 2.

901,913.



Witnesses

Otto E. Hoddick
Dennis Nelson.

Djalma Julliot.
Inventor

By *A. J. B. B.*
Attorney

FLUTE.

Patented Oct. 20, 1908.

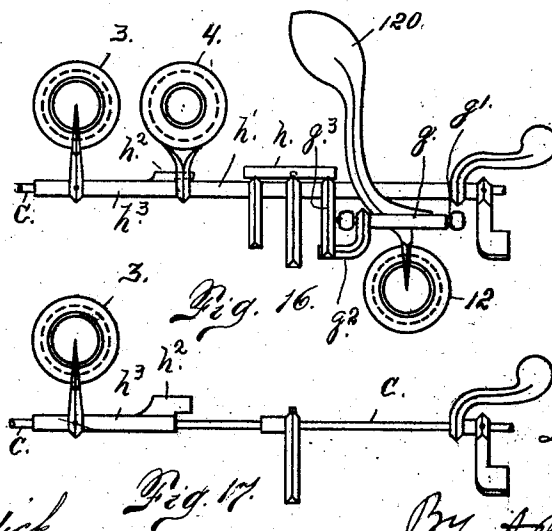
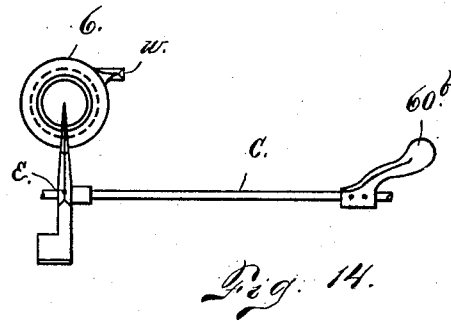
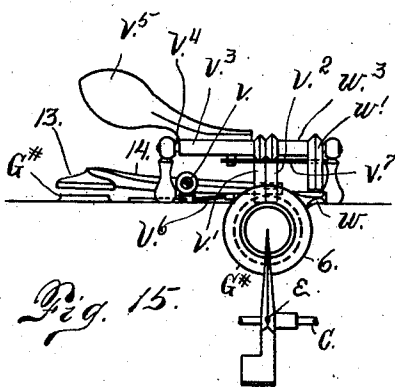
3 SHEETS—SHEET 3.

Fig. 11. Fig. 12. Fig. 13. Technical drawings of a mechanical device, likely a pump or engine component. The drawings show various views and details of the mechanism, including a main assembly (Fig. 11), a detail view (Fig. 12), and a side view (Fig. 13). The components are labeled with letters and numbers, indicating specific parts and dimensions.

Fig. 11 shows a main assembly with a central shaft (f) and a piston rod (f'). The piston rod is connected to a piston (65) which is part of a cylinder (F). The piston rod is also connected to a crank (c') which is part of a crankshaft (f'). The crankshaft is connected to a flywheel (5) which is part of a crank mechanism (q'). The flywheel is connected to a crank (q') which is part of a crankshaft (f'). The crankshaft is connected to a piston rod (f') which is part of a piston (65) which is part of a cylinder (F). The piston rod is also connected to a crank (c') which is part of a crankshaft (f'). The crankshaft is connected to a flywheel (5) which is part of a crank mechanism (q'). The flywheel is connected to a crank (q') which is part of a crankshaft (f').

Fig. 12 shows a detail view of the crank mechanism (q') and the piston rod (f'). The crank mechanism is connected to the piston rod, which is part of a piston (65) which is part of a cylinder (F). The piston rod is also connected to a crank (c') which is part of a crankshaft (f'). The crankshaft is connected to a flywheel (5) which is part of a crank mechanism (q'). The flywheel is connected to a crank (q') which is part of a crankshaft (f').

Fig. 13 shows a side view of the crank mechanism (q') and the piston rod (f'). The crank mechanism is connected to the piston rod, which is part of a piston (65) which is part of a cylinder (F). The piston rod is also connected to a crank (c') which is part of a crankshaft (f'). The crankshaft is connected to a flywheel (5) which is part of a crank mechanism (q'). The flywheel is connected to a crank (q') which is part of a crankshaft (f').



Witnesses
Otto E. Hoddick.
Dena Nelson

Dyanna Julliot
Inventor

Attorney

UNITED STATES PATENT OFFICE.

DJALMA JULLIOT, OF LA COUTURE-BOUSSEY, FRANCE, ASSIGNOR TO JEAN MIGNOLET, OF DENVER, COLORADO.

FLUTE.

No. 901,913.

Specification of Letters Patent.

Patented Oct. 20, 1908.

Application filed February 20, 1906. Serial No. 301,986.

To all whom it may concern:

Be it known that I, DJALMA JULLIOT, a citizen of the Republic of France, residing at La Couture-Boussey, Eure, France, have invented certain new and useful Improvements in Flutes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My present invention relates to improvements in the mechanism for operating the keys and covers of flutes or similar wind instruments in order to simplify the fingering of the old style Boehm flutes, and to obtain truer notes with less difficulty to the performer.

To that end the invention consists in certain novel arrangements and combinations of keys, branch finger pieces, communicating arms, shafts and sleeves especially arranged to produce the purposes as above outlined; all of which I will proceed to definitely describe and then point out in the claims that which I believe to be novel.

In the drawing, Figure 1 is a diagrammatic view, showing the various keys, branch finger pieces, communicating arms, shafts and sleeves in their proper relation to each other but developed on a plane. Figs. 2 and 3 are detail views of the communicating sleeves and some of the rock arms employed. Figs. 4 and 5 are detail views showing the manner of telescoping or joining two parts of the instrument without obstructing the hole arranged at said point. Fig. 6 is a cross section taken through the tube of the instrument and cutting one of the covers. This view shows a special form of construction for preventing the moisture from passing through the opening. Figs. 7, 8 and 9 are detail views showing the manner of mounting the trill covers for convenient manipulation. Fig. 10 is a cross section taken through the tube of the instrument at a point indicated by the line 10—10 Fig. 1 and showing the sleeves, shafts, communicating arms etc., in their radial relation to the tube. Fig. 11 is a detail view showing a special arrangement for compounding two covers. Fig. 12 shows another arrangement for compounding two covers. Fig. 13 is a detail view of

Fig. 12 showing an overlapping projection employed. Fig. 14 is a detail view showing a branch finger piece communicating with a cover. Fig. 15 is a detail view of the means employed for automatically closing an auxiliary cover held open when playing the other covers of the lower octaves and retaining an open position when playing the auxiliary cover. Figs. 16 and 17 are detail views showing a special arrangement for conveniently alternating between two covers.

In the figures of the drawing the reference numerals indicate the keys, closed covers, perforated covers and branch finger pieces, and the reference letters indicate the shafts, sleeves, and connections between said finger pieces, covers, etc.

Like numerals and figures refer to like parts in the several views, and the present specification is confined to these novel arrangements.

First. Referring to Figs. 1 and 11 the perforated cover 65 is connected to a short sleeve C' fitted on a shaft C, the sleeve C' being in turn connected with a rock arm *q* by the bar *f*, the rock arm *q* passing around the cover 6 and resting on a stop *q'* soldered to the cover 5. The bar *f* is secured to the sleeve C' and oscillates about the shaft C. A stop *f'* limiting the play of the covers 5 and 65 is secured to the sleeve C' as shown.

Second. The arrangement of the mechanism as shown in detail in Figs. 12 and 13 for the purpose of combining the movement of the cover 50 with the cover 5. Upon the shaft *z* arranged parallel with the shaft C and opposite the covers 5 and 50 is fitted a sleeve divided into equal parts J and J' provided with overlapping projections *m* and *m'*. The covers 5 and 50 are secured to the said sleeves and normally held in their raised position by a spring *r* as illustrated by dotted lines in Fig. 12. By reason of the projection *m'* resting beneath the projection *m* the cover 5 may be closed independently and at the same time the cover is operated in combination with the cover 50 when the primary action is given to the cover 50.

Third. A finger piece 60^b for manipulating the cover 6. This is arranged as shown in Fig. 1 and in detail in Fig. 14. Said arrangement consists of the finger piece 60^b rigidly secured to the main shaft C by the small pin *i* and the cover 6 which is also rigidly secured to the shaft C by the small pin *e*.

Fourth. The introduction of the auxiliary hole with cover 13 which is operated by a finger piece and facilitates the alternative fingering between the notes G# and all the other notes. (See Figs. 1 and 15.) This cover 13 is mounted on the arm 14 pivoted at V. Resting beneath the arm 14 at the end opposite the cover 13 are rock arms V' and V². The rock arm V' is rigidly secured to a sleeve V³ which is fitted on a short shaft V⁴ running parallel with the main shaft C. Secured to the sleeve V³ is the finger piece V⁵. The cover 13 would normally remain open by reason of the short spring V⁶ secured to the under side of the pivoted arm 14, but the rock arm V' which is acting under tension of the spring V⁷ which is greater than the force of spring V⁶ thus holds the cover 13 normally in its closed position. This cover is closed, however, while playing the lower notes by reason of the following: A small projection *w* is soldered to the cover 6 on a line with the rock arm *w'*. The rock arm *w'* is rigidly secured to the sleeve *w³* which is fitted over the short shaft V⁴ and adjoins the sleeve V³. The rock arm *w'* is secured at one end of the sleeve *w³* and has its free end resting beneath the lug *w*. Secured to the opposite end of the sleeve *w³* is the rock arm V² the free end of which rests beneath the pivoted arm 14. It will be seen that by this arrangement the cover 13 may be held in its open position by pressing the finger piece V⁵ (the position shown in Fig. 15) while at the same time, should any of the lower notes be operated and with them the cover 6, the cover 13 would be automatically closed.

Fifth. The introduction of a supplementary trill key the cover of which is marked 10 and its manipulating finger piece 100. This key is independent of the main key, whose covers are marked 8 and 9 but for convenience of operation, the mounting and communicating finger pieces have been arranged as shown in the drawing. The supplementary cover 10 is rigidly secured to a sleeve *d⁵* (see Fig. 7). This sleeve *d⁵* is also fitted upon the shaft *d* resting parallel with and spanned by the oscillating shaft *d⁴*. The cover 10 is secured to one end of the sleeve *d⁵* and its finger piece 100 is rigidly secured to its other end.

Sixth. An arrangement for overcoming fork fingering. To accomplish this purpose I have mounted the covers 3, 4 and 12 as

shown in Fig. 1 and in detail in Figs. 16 and 17 in which the cover 3 is shown rigidly connected to the main shaft C and directly operated by the finger piece 55. This cover 3 is also indirectly operated with the cover 4 and perforated cover 12 by the manipulation of the finger piece 120 which is arranged as follows: The finger piece 120 is rigidly secured to a sleeve *g* fitted over a short shaft *g'*. The cover 12 is rigidly secured to said sleeve *g* and is normally closed. A rock arm *g²* is also rigidly secured to the sleeve *g* and has its free end resting beneath the rock arm *g³*. An oscillating shaft *h* communicates the motion of the rock arm *g³* to a short sleeve *h'* to which the perforated cover 4 is secured. When operating the cover 4 through the mechanism just described, the cover 3 is carried with it by means of a projection lug *h²* mounted on the sleeve *h³* which is secured to and turns with the main shaft.

Seventh. An arrangement to prevent the water or saliva in the tube from passing out through the holes which are shown in detail in Fig. 6. A short tubular fitting *b* is secured in the hole but protruding slightly beyond its inner face and having its inner edge cut on a radius with the center of the tube and forming a slight projection around the mouth of the hole. The outer edge of the fitting *b* is cut at right angles so as to present flat seats for the covers.

Eighth. The manner of telescoping or joining two parts of the instrument without obstructing the hole arranged at this point. The parts have each formed therein respectively registering holes 20 and 21. The hole 20 in the inner section is cut larger than the hole 21 so as to permit a limited rotation of one tube upon the other without reducing or obstructing its note-producing function.

Having thus described my invention, what I claim is:

A flute having telescoping parts provided with registering holes, the inner hole being larger than the outer hole to permit adjustment of said parts, substantially as shown and described.

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

DJALMA JULIOT.

Witnesses:

CAMILLE LOUIS,
ALBERT MAULVAULT.