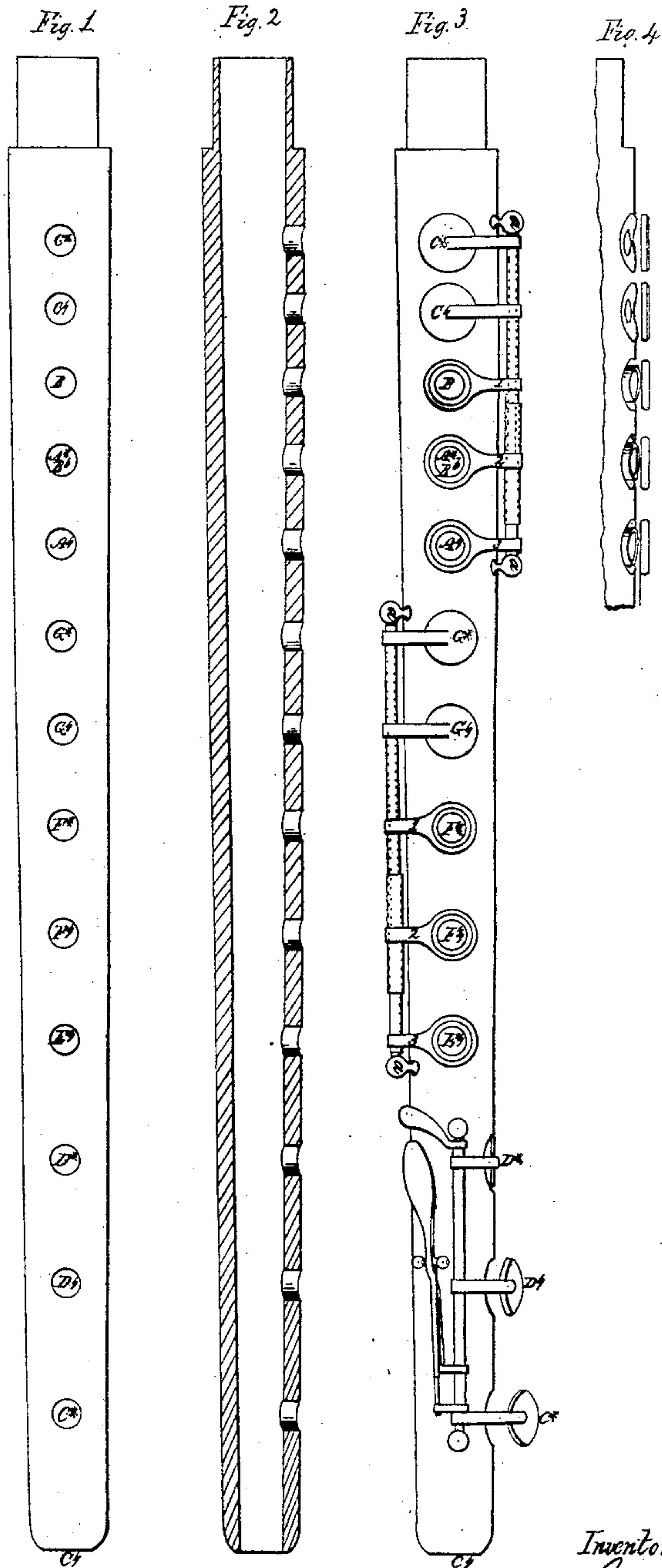


S. C. Goodsell,

Flute,

N^o 58,022,

Patented Sept. 11, 1866



Witnesses:

*Prof. Sanford
Chas. A. Jacobs*

Inventor:

*Saml. C. Goodsell
By *John B. Case**

UNITED STATES PATENT OFFICE.

SAMUEL C. GOODSSELL, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO
HIMSELF AND BENNET HOTCHKISS, OF SAME PLACE.

IMPROVEMENT IN FLUTES, &c.

Specification forming part of Letters Patent No. 58,022, dated September 11, 1866.

To all whom it may concern:

Be it known that I, SAMUEL C. GOODSSELL, of New Haven, in the county of New Haven and State of Connecticut, have invented new and useful Improvements in Flutes and Wind-Instruments; and I do hereby declare the following to be a full, clear, and exact description of the same, when taken in connection with the accompanying drawings and the letters of reference marked thereon, and which said drawings constitute part of this specification, and represent, in—

Figure 1, the lower part of a flute; Fig. 2, a longitudinal section of the same; and in Figs. 3 and 4 the mechanical arrangement and operation of the keys.

My invention consists in a mechanical arrangement of the keys whereby I am enabled to produce with ease and rapidity G sharp, B flat, and C natural without the use of the thumb and finger (fourth) of the left hand, both of which must be used in flutes of common construction.

To enable others skilled in the art to better understand my invention, I will proceed to describe the same in connection with the accompanying drawings.

E, F, and F sharp are skeleton keys, as seen in Fig. 3, the openings to be closed by the first three fingers of the right-hand in similar manner as in the common flute. G natural and G sharp are solid keys. The key G sharp is fixed to a beam or shaft hung in bearings *a a*, and the skeleton key F natural is fixed to the same shaft, so that by closing the hole F natural the hole G sharp will also be closed, or, if only the hole G sharp is to be closed so as to produce G natural, press with the

second finger upon the shank 2 of said F-natural key. This will leave all holes below G sharp open and produce G natural.

I place a hollow tube over the shaft to which G sharp and F natural are attached, and to the said tube attach the G-natural key and F sharp and E natural skeletons. Now, to produce F sharp—these explanations are made supposing all the holes above G sharp closed—slide the three fingers back onto the shanks 1, 2, and 3 of the skeleton keys. This opens the three holes, but still retains the G natural and G sharp closed, and F sharp is produced. To produce G natural, raise the first and third fingers, holding down the second. This allows the key G natural to open. Raise the three fingers and G sharp is produced as before. Thus the first three fingers only are used to produce five notes, and without changing them from their own keys.

I arrange a double beam in the same manner for the five holes above, extending to and including C sharp. By this arrangement I am not required to use the thumb and little finger of the left hand to produce G sharp, B flat, (A sharp,) or C natural, as in the ordinary flute or similar wind-instrument.

Having therefore fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is—

The within-described mechanical arrangement of the keys, substantially as and for the purpose specified.

SAMUEL C. GOODSSELL.

Witnesses:

HORACE C. PECK,
JOHN E. EARLE.