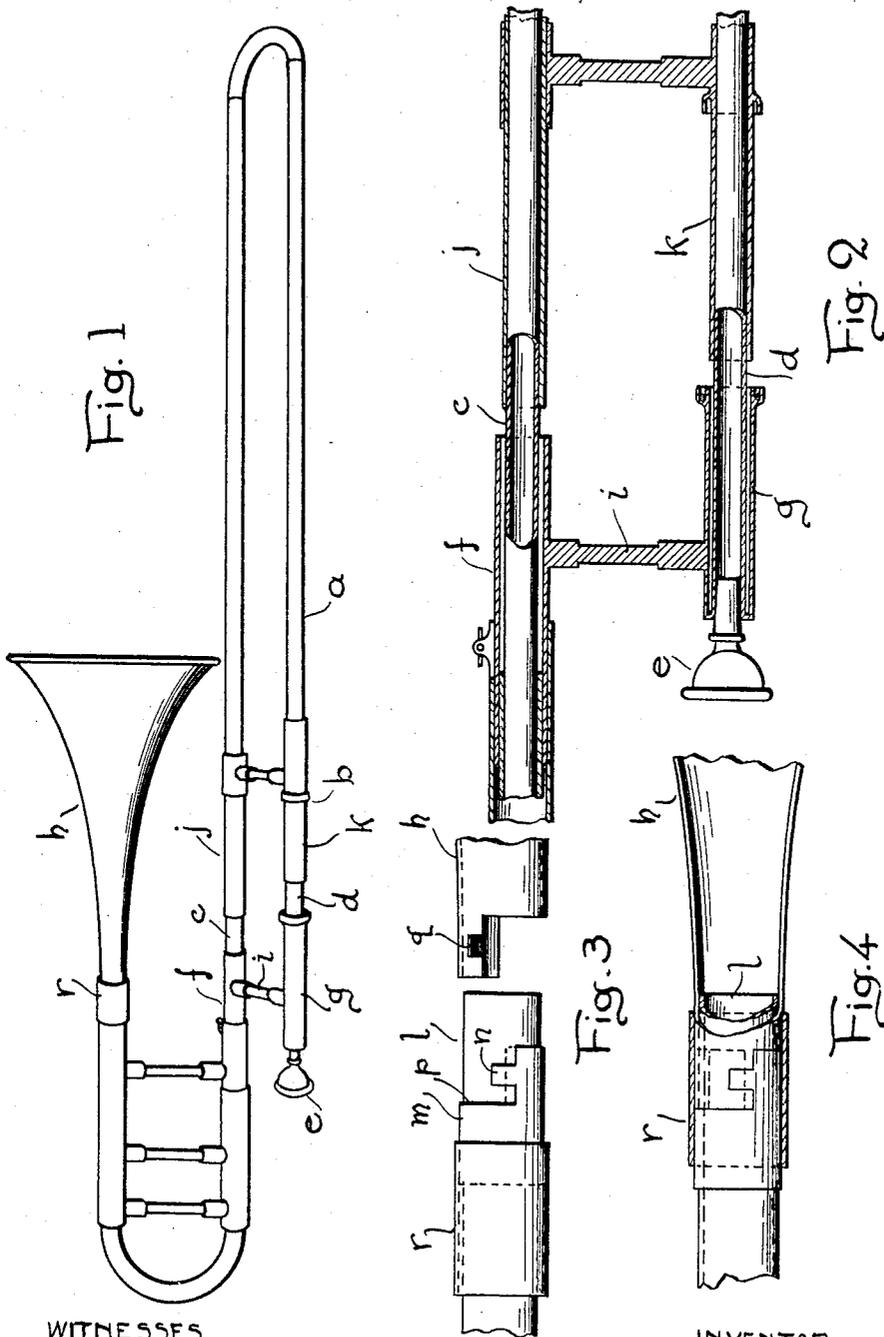


1,176,206.

Patented Mar. 21, 1916.



WITNESSES

*Robert N. Van Dine*  
*Virginia C. Spratt*

INVENTOR

*Joseph L. De Good*  
BY  
*Ralzemond A. Parker*  
ATTORNEY

# UNITED STATES PATENT OFFICE.

JOSEPH L. DE GOOD, OF DETROIT, MICHIGAN.

TROMBONE.

1,176,206.

Specification of Letters Patent.

Patented Mar. 21, 1916.

Application filed August 2, 1913. Serial No. 782,593.

To all whom it may concern:

Be it known that I, JOSEPH L. DE GOOD, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Trombones, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to musical instruments and especially to a trombone that has an elongated slide that gives a greater bearing surface to resist the tendency of the slide to cramp upon its bearing when the slide is extended to the extreme outward position.

A second feature is a structure which removably supports the bell so that it may be removed and another substituted.

In the drawings: Figure 1, is an elevation of the trombone. Fig. 2, is a section of the trombone adjacent the mouth piece showing the structure that makes possible the elongated slide. Fig. 3, is a detail of the bell joint. Fig. 4, is a detail partly in section of the bell joint.

*a* represents the slide which on an ordinary trombone is cut off at *b*. The bearing tube *c* leads toward the bell. The bearing tube *d* leads from the mouth piece *e*. The sleeve *f* is supported concentric to the bell tube *c* and the sleeve *g* is supported concentric to the bearing tube *d*. The sleeve *f* is fastened to the members that lead therefrom to the bell *h*. The sleeve *f* has an integral brace *i* which supports the sleeve *g* which in turn supports the bearing tube *d*. These concentric exterior sleeves of the bearing tubes form wells into which the extended portions *j* and *k* of the slide may telescope. These extended portions give a longer and a greater bearing surface to the slide when it is extended to extreme outward position for in this extreme position the leverage of the extended slide is great and there is considerable tendency for the slide to cramp upon its bearings. The provision of the wells permits these extended portions to be used with the slide.

It is desirable in musical instruments of this class to change the bell at times. To permit of this I employ a joint such as

shown in Figs. 2 and 3. *l* indicates the tube leading to the bell. *m* designates a sleeve which has about one-quarter cut away. In this cut away portion projects a locking lug *n*. The adjacent end of the bell *h* similarly has a portion cut away and a notch *q* for the reception of the locking lug *n*. The bell end may slide over the tube *l* and when it abuts against the shoulder *p* of the sleeve *m* the bell may be turned to bring the notch *q* about the lug *n*. The two members then cannot be pulled apart except they first be turned to bring the lug out of the notch. When the lug and the notch are together the sleeve *r* may be slid over the joint so as to conceal it and cover it.

What I claim is:

1. In a trombone, the combination of a tube, a sleeve fastened thereto and provided with a cut away portion having a lug projecting laterally into said cut away portion, and a bell adapted to slip upon said tube and provided with a cut away portion having a laterally opening notch whereby the bell end may be slipped upon said tube and the tube turned to bring the notch about the lug, substantially as described.

2. In a trombone, the combination of a tube, a sleeve fastened thereto provided with a cut away portion having a laterally projecting lug, a bell provided with a cut away end having a laterally extending notch therein whereby the bell end may be slipped over the tube and the bell turned to bring the notch about the lug, and a sleeve adapted to slide over the cut away sleeve and the bell end, substantially as described.

3. A trombone having in combination bearing tubes, a pair of rigidly connected sleeves carried by said tubes and each arranged concentric with one bearing tube, a slide provided with a handle mounted on said bearing tubes and having its ends extending more than the usual distance above the handle, the ends telescoping in the spaces formed by the sleeves and being entirely inclosed therein when the slide is in its closed position, the said ends constituting bearings for the slide and preventing the binding thereof when in its extended position.

4. In a trombone the combination of a U-tube, provided with a handle and having end portions extending more than the usual distance beyond said handle, internal tubes telescoping with the U tube, and constituting

ing bearings for the latter, sleeves connected with and concentric with the internal tubes and forming a space in which the extended ends are inclosed when the slide is in its closed position, the said ends constituting bearings for the slide and preventing binding of the same when in its extended position.

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5. In a trombone, inside bearing tubes, a slide provided with a handle mounted on said tubes, the said slide having its end portions extending more than the usual distance beyond the handle, tubular receiving portions on the bearing tubes receiving the said extended end portions of the slide when the same is in its closed position, a collar on one of said end portions constituting a stop to limit the movement of the slide inwardly, the end portions constituting bearings for the slide at all times and preventing the

binding of the same when in its extended position.

6. In a trombone, tubular bearing portions, a slide provided with a handle movable thereover and having its ends extending more than the usual distance above the handle, tubular receiving portions on the tubular bearing portions receiving substantially the full length of the extended end portions when the slide occupies its first position, the said extended end portions constituting bearings for the slide at all times, and preventing the binding thereof when in its extended position.

In testimony whereof, I sign this specification in the presence of two witnesses.

JOSEPH L. DE GOOD.

Witnesses:

STUART C. BARNES,  
VIRGINIA C. SPRATT.

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