No. 677,965. Patented July 9, 1901.

F. ENNIS.

OILING ATTACHMENT FOR TROMBONES.

(Application filed Feb. 11, 1901.)

(No Model.)

Fig. 1.

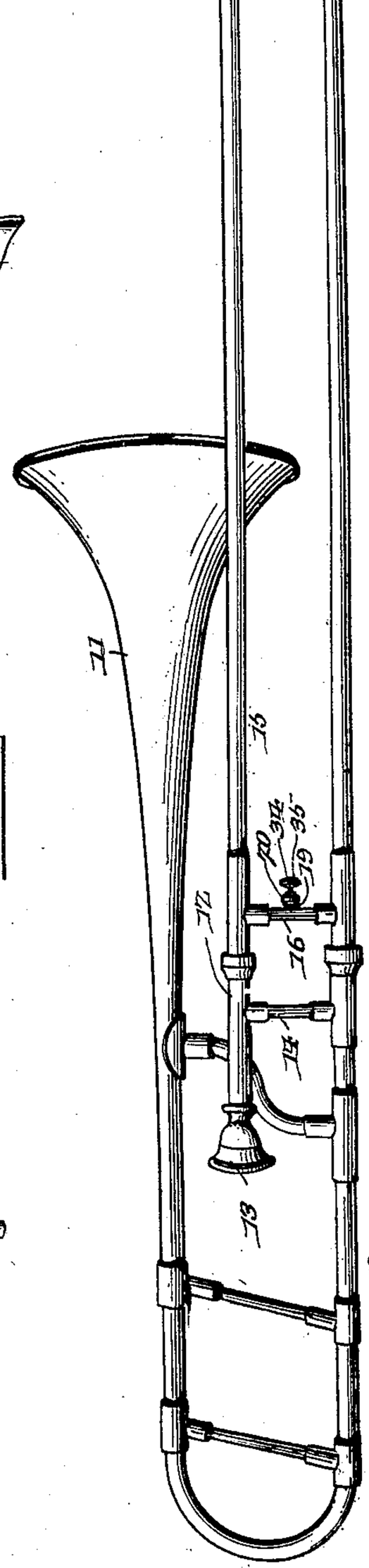

Fig. 5.

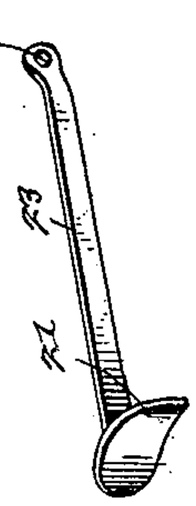

Fig. 3.

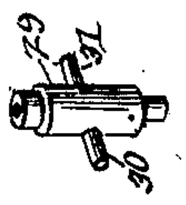

Fig. 4.

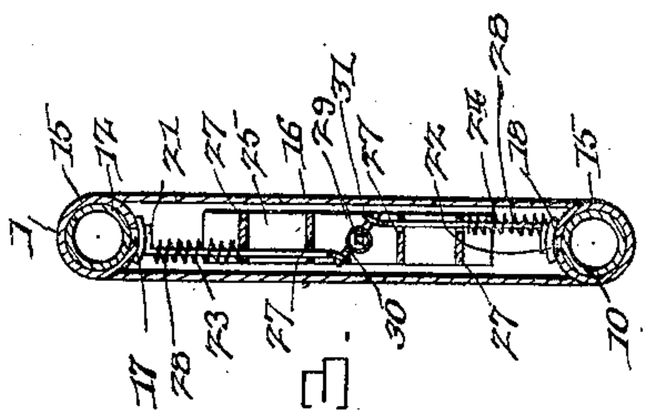

Fig. 6.

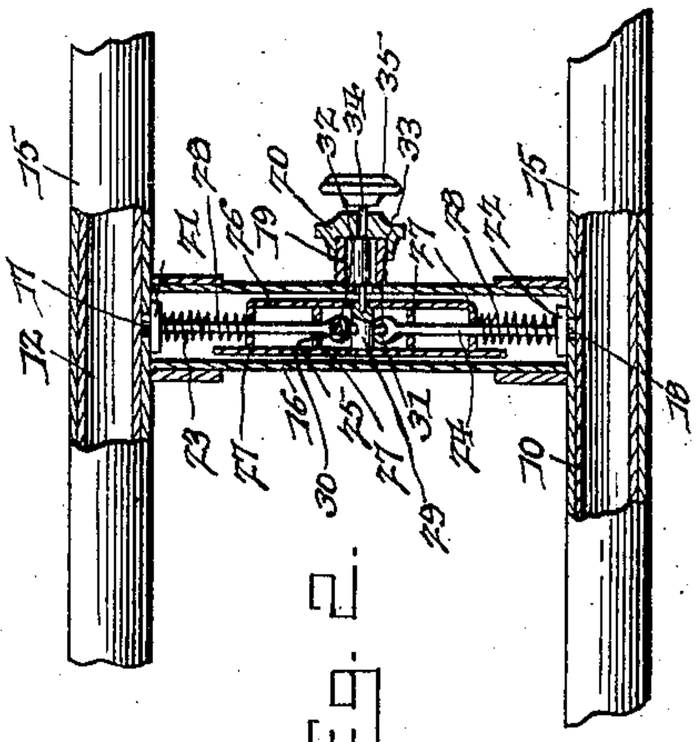

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

FRANK ENNIS, OF CLARE, IOWA.

OILING ATTACHMENT FOR TROMBONES.

SPECIFICATION forming part of Letters Patent No. 677,965, dated July 9, 1901.

Application filed February 11, 1901. Serial No. 46,911. (No model.)

To all whom it may concern:

Be it known that I, FRANK ENNIS, a citizen of the United States, residing at Clare, in the county of Webster and State of Iowa, have invented a new and useful Oiling Attachment for Trombones, of which the following is a specification.

This invention relates to oiling attachments for trombones; and it has for its object to provide a device that will be carried by the slide of the trombone and will be constructed and arranged to supply oil when desired to the faces of the tubes with which the slide is engaged.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a perspective view showing the trombone with the attachment in place. Fig. 2 is an enlarged detail view showing a portion of the sides of the slides and of the tubes with which they are engaged, portions thereof, as also the slide-brace, being shown in section. Fig. 3 is a section taken through the slide, the tubes, and the slide-brace in a plane at right angles to that of Fig. 2. Fig. 4 is a detail perspective view of the spindle connected with the oil-hole covers for operating them to uncover the holes. Fig. 5 is a detail perspective view showing one of the oil-hole covers.

Referring now to the drawings, there is shown a trombone including a tube 10, with which is connected the bell 11 and a second and parallel tube 12, with which is connected the mouthpiece 13, these tubes having the usual brace 14. Upon the tubes 10 and 12 is disposed the usual U-shaped slide 15, having a cross-brace 16, which serves the purpose of a handle for reciprocating the slide in the formation of the different tones. The brace 16, as usual, is formed of a section of tubing having its ends fitted against the sides of the slide and provided with reinforcements, and in the sides of the slide and communicating with the interior of this tubular brace 16 are perforations 17 and 18, through which oil may be fed from the tubular brace to the interior of the slide and against the faces of the tubes with which it is engaged.

To supply oil to the brace 16, a nipple 19 is attached thereto and communicates with the interior of the brace at a point midway of its ends and at the under side thereof, and this nipple has a closing-cap 20, adapted to be screwed thereonto to prevent egress of the oil through the nipple. To regulate the supply of oil from the brace to the slide, adjustable closures 21 and 22 are provided and having stems 23 and 24, which are slidably engaged with a supporting-frame within the brace 16. This frame comprises spaced side plates 25 and 26, having connecting cross-pieces 27, and it is with openings in these cross-pieces that the stems are engaged. The closures are held normally in position to close or cover the openings by helical springs 28, disposed upon the stems and between the closures and the adjacent end pieces of the supporting-frame.

To move the closures from their operative positions to permit of passage of oil to the parts to be lubricated, a spindle 29 is rotatably mounted in the frame, within the brace 16, and has radiating fingers 30 and 31 at diametrically opposite points thereof, and these fingers are engaged with eyes 32 and 33 at the ends of the stems of the closures. Thus if the spindle be rotated in one direction the fingers will be moved to raise the closures from the oil-holes and the oil may pass into the slide, and if the spindle be released the springs will return the closures to their operative positions. To rotate the spindle, a shaft 34 is provided and is passed inwardly through the cap 20 and has its inner angular end engaged with a corresponding socket in the end of the spindle, the outer end of the shaft having a knob 35 for rotating it. The nipple being at the lower side of the brace 16, it does not interfere with the fingers that grasp the brace, the brace being grasped with the first and second fingers at the under side and with the thumb at the upper side, and by operating the spindle at any time a supply of oil may be fed to the parts to be lubricated.

It will be understood that in practice various modifications of the specific construction shown may be made and that any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

1. In a trombone, the combination with the

slide and the tubes with which it is engaged, of a lubricating device disposed between the sides of the slide and connected with the interior of both sides of the slide to supply a lubricant thereto.

2. In a trombone, the combination with the slide, and the tubes with which it is engaged, of a lubricating device carried by the slide and constructed and arranged to supply a lubricant to the tubes with which the slide is engaged.

3. In a trombone, the combination with the slide and a hollow brace therefor, said slide having openings therein communicating with the interior of the brace, of adjustable closures for the openings, said brace having an opening for the introduction of a lubricant.

4. In a trombone, the combination with the slide of a tubular brace having communication with the slide and adapted to receive a lubricant, closures for governing the communication between the brace and slide, a rotatable spindle, and connections between the closures and spindle for operating the closures, said brace having a filling-opening.

5. In a trombone, the combination with the slide of a tubular brace connecting the sides thereof, said slide having openings leading to the interior of the brace, a frame within the brace, closures for the openings having stems slidably engaged with the frame, a spindle in the frame having fingers with which the stems are engaged to operate them to lift the closures from the openings, helical springs disposed upon the stems between the closures and frame to hold the closures yieldably in operative positions, and means for rotating the spindle.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRANK ENNIS.

Witnesses:
M. J. LAHIFF,
J. M. FORD.