

No. 639,527.

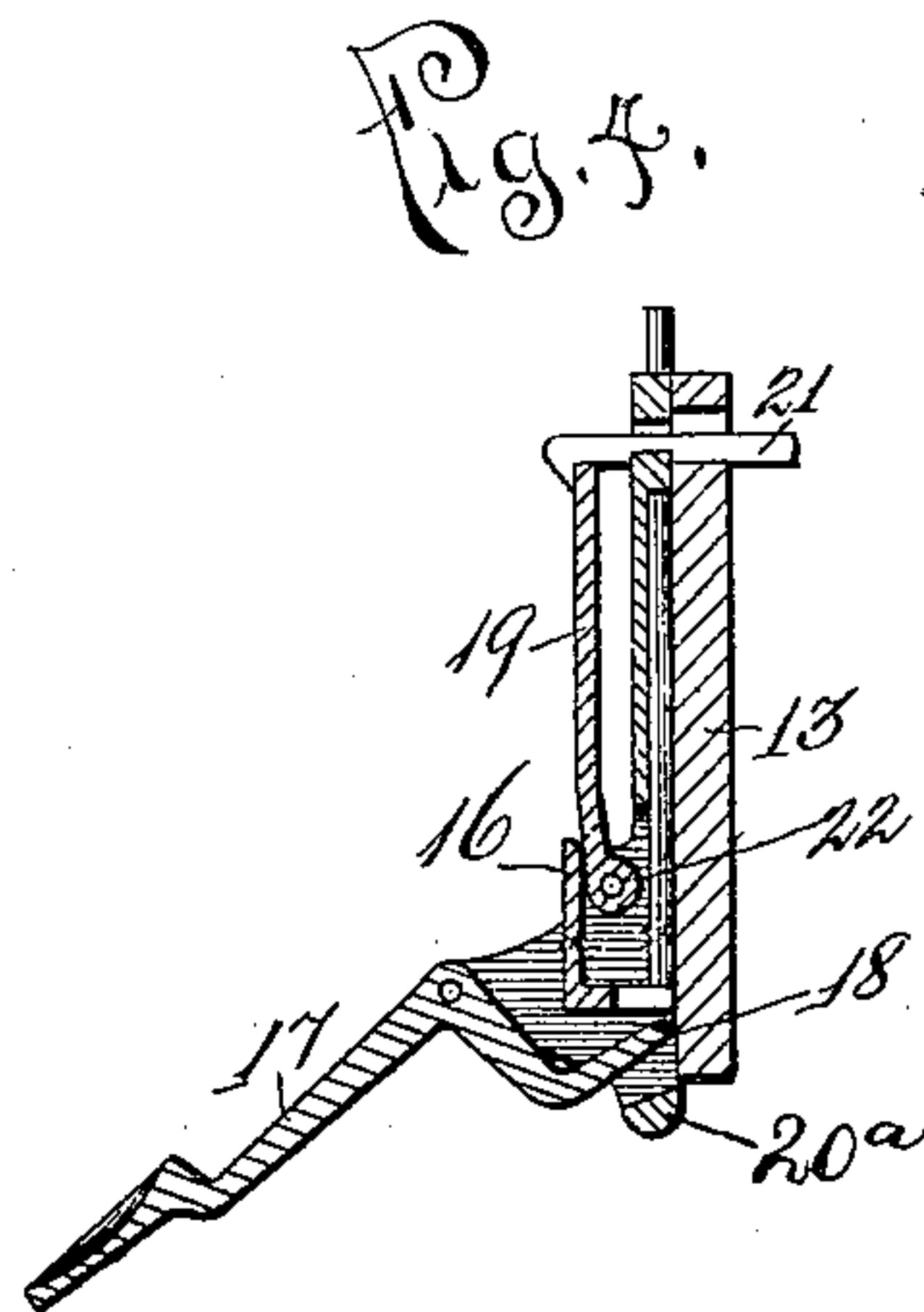
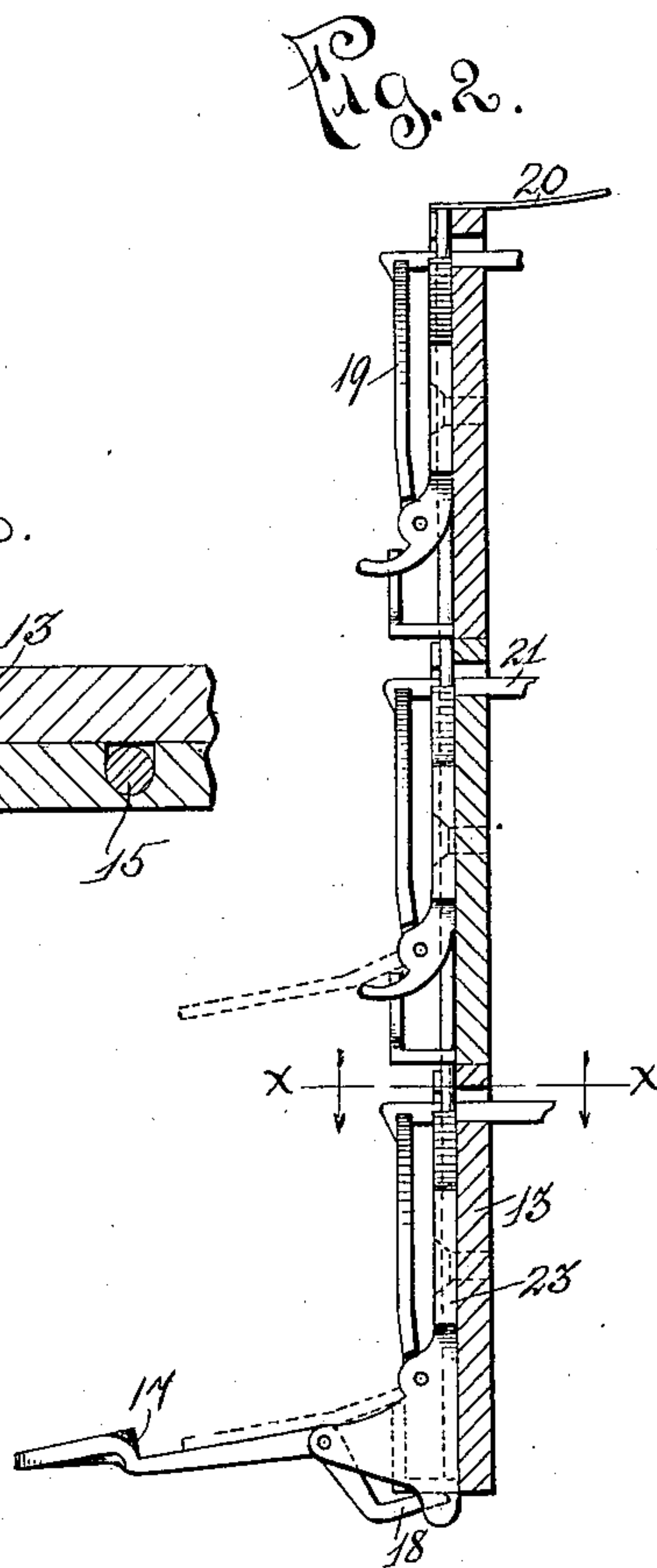
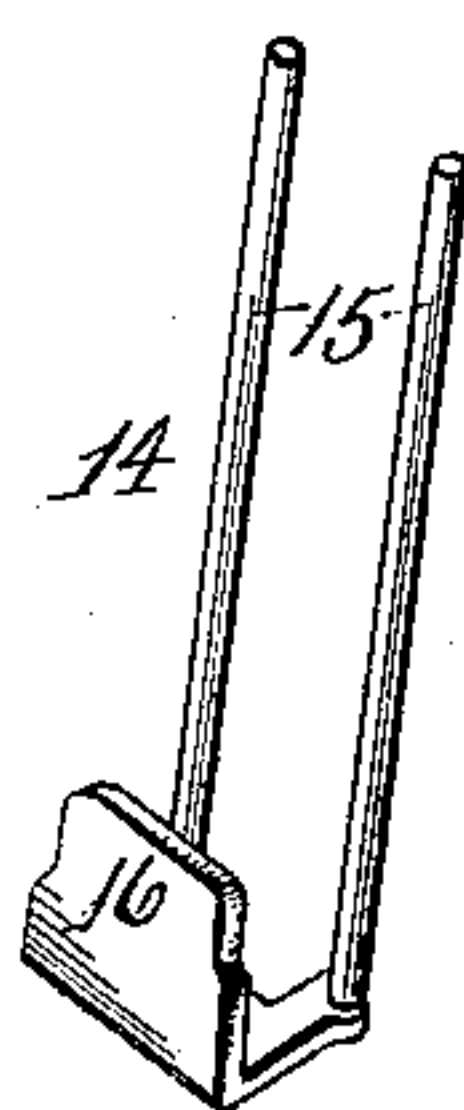
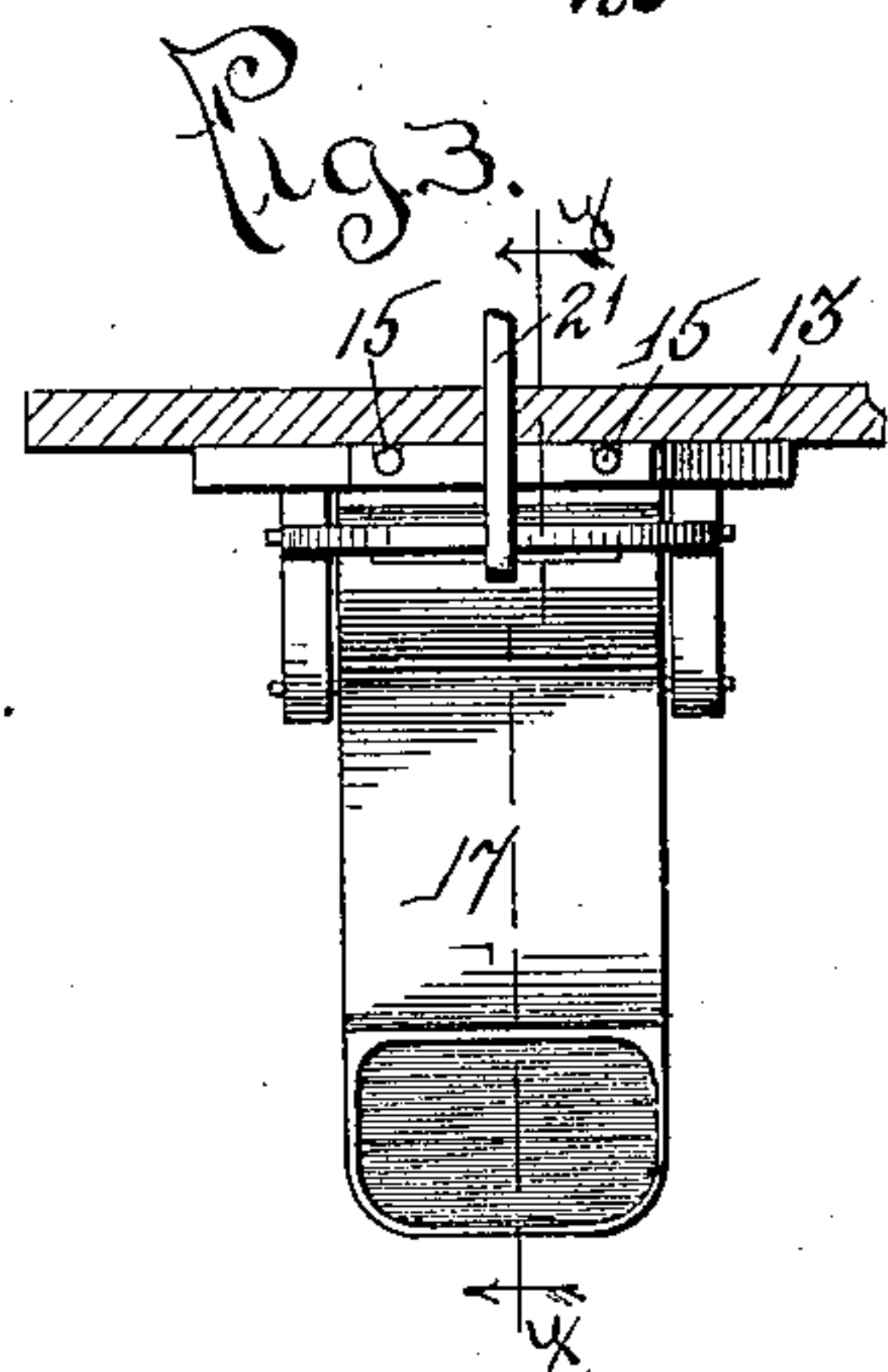
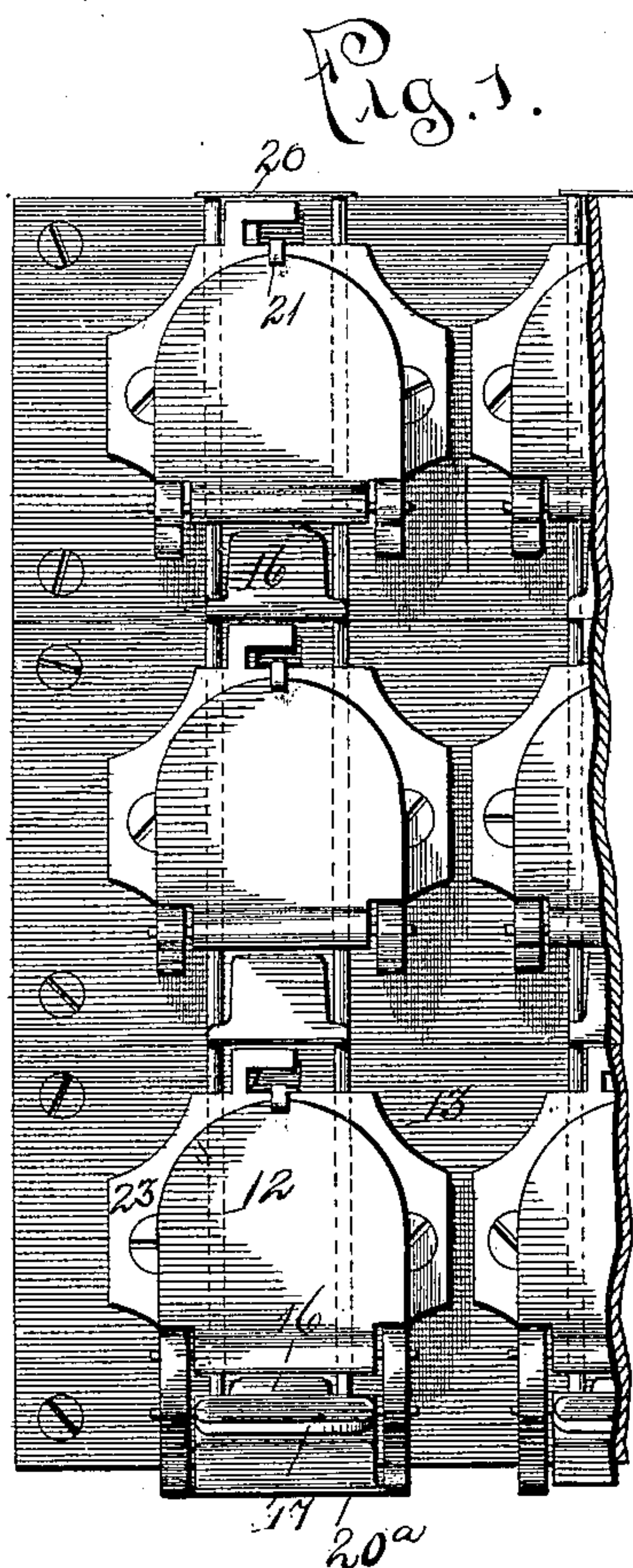
Patented Dec. 19, 1899.

F. B. COOK.

DROP RESTORING DEVICE FOR TELEPHONE SWITCHBOARDS.

(Application filed Nov. 20, 1896.)

(No Model.)



Witnesses:
W. H. Keir
J. H. Bull.

Inventor
Frank B. Cook,
By Chas. C. Buckley
Att'y.

UNITED STATES PATENT OFFICE.

FRANK B. COOK, OF CHICAGO, ILLINOIS.

DROP-RESTORING DEVICE FOR TELEPHONE-SWITCHBOARDS.

SPECIFICATION forming part of Letters Patent No. 639,527, dated December 19, 1899.

Original application filed November 30, 1894, Serial No. 530,441. Divided and this application filed November 20, 1896. Serial No. 612,841. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. COOK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Drop-Restoring Devices for Telephone-Switchboards, of which the following is a specification.

This application is a division of Serial No. 530,441, filed November 30, 1894.

My invention relates more particularly to means whereby annunciator-drops of a telephone-switchboard may be restored to their normal position.

My invention has for its object the provision of a simply-constructed device which is of compact form and capable of simultaneously restoring to their normal position a number of annunciator-drops usually arranged in vertical rows upon the face of the switchboard.

My invention consists in certain details of construction whereby the foregoing object is accomplished, including the idea of separability of the connecting parts between the various annunciator-drops arranged in vertical rows, whereby the parts of the simultaneous restoring device are attached to the various drops, so that when the drops are positioned the restoring device as a whole is also connected together into the position to be operated, whereby to simultaneously restore the drops of any given vertical row.

In carrying out my invention I separate the drop-restoring apparatus into parts or separate members which are assembled upon each of the annunciator-drops, whereby when the drops are arranged in position in vertical rows upon the switchboards the separable parts of the drop-restoring apparatus are positioned together in such a manner that all the drops of each vertical row are capable of restoration simultaneously from one point of operation.

My invention also has certain other objects in view; and it consists in certain features of construction to be described, reference being now had to the accompanying drawings, in which—

Figure 1 is a front elevation of a number of annunciator-drops assembled in position and operated for restoration by my improved

apparatus. Fig. 2 is a side or edge view of same. Fig. 3 is a top edge view looking down upon the drops and restoring apparatus. Fig. 4 is a vertical section on the line *y y* of Fig. 3. Fig. 5 is a detail perspective view of one separable lifting member. Fig. 6 is an enlarged detail sectional view on the line *x x* of Fig. 2.

In the operation of a telephone-exchange switchboard it is well known that the annunciator-drops are arranged in what may be termed "vertical" rows, one drop for each line, and that these drops are caused to fall when a signal is extended over the corresponding line. It is also necessary when self-restoring drops are not employed to manually restore each drop after it has displayed the indicating-number to a normal position in readiness to be again operated when a signal is extended. In order to expedite the restoration of the drops, it has heretofore been customary to employ means whereby all the drops on any given section of switchboard may be simultaneously restored from one point of operation. This plan or method of restoring drops has been also employed to a considerable extent in what are known as "hotel annunciator systems," as well as for elevators and other like devices.

Each horizontal row of annunciator-drops are mounted upon a base-strip, and these strips are in turn secured the one above the other on the frame of the switchboard. Each annunciator-drop is provided with a separable lifting member, Fig. 5, consisting of the lifting rod or rods, projected from the lifting and holding lip. The lip may be made of soft metal having sufficient flexibility to permit it to be bent and adjusted to the required thickness of the drop-shutter.

It will be observed that each drop has a lifting member interposed and held separably connected with the lifting member of the next succeeding drop in the vertical row, and thus the several separate lifting members constitute, in effect, a continuous lifting member extending from the lever to the uppermost drop of the vertical row and carrying lifting and holding lips to engage the shutter of each drop. A spring bears upon the uppermost lifting member,

and thus exerts a pressure which tends to cause the lifting members to assume positions with their lips 16 out of engaging position with the shutters, as shown in Figs. 1 and 2.

5 A cross-bar 20^a serves as a stop to limit the downward movement of the lifting members, the lug 18 engaging said cross-bar. When the lever 17 is manually pressed downward, the lifting members unitedly act as a con-
10 tinuous member to raise all the lips 16 of that vertical row and engage any shutter 19 which may have fallen in that vertical row, and if more than one has fallen they are raised simultaneously. The lifting-lip 16 also serves
15 to hold the shutter 19 in a vertical position momentarily until the annunciator-hook 21 has engaged the shutter to lock it in position. This result is accomplished by reason of the length of the lip 16, which extends when
20 raised to restore a shutter above the pivot 22 of the shutter, and therefore holds the shutter closed from the time the lip 16 reaches a level with the pivot 22 during the balance of the upward movement, the time the lip is
25 stationary, and after the downward movement is started until the lip assumes a position below said pivot.

It will be observed that the lifting-rods 15 are extended through channels in the drop-
30 plate 23, as shown in Fig. 6, and that each of the lifting members are held movably in position.

From the above description it is evident that the restoring device need not be manu-
35 ally held until the indicator is locked, as in some annunciators, nor need the indicator be thrown above or beyond its normal position to allow time for a catch to operate while the indicator is returning to its normal position,
40 as in other annunciators. While I have shown and described such a device, I do not wish to be understood as limiting my invention to the idea of separable parts, it being evident that certain features of my invention
45 may be used in connection with other than separable parts.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

50 1. An annunciator-drop-restoring device consisting of a plurality of separable lifting members, one member assembled upon each annunciator-drop, whereby when the drops

are positioned upon the switchboard-frame the said lifting members are connected in a 55 manner to form a continuous lifting member for each vertical row of drops upon the board, and means for operating the continuous lifting member from one point to restore all the fallen drops of the vertical row simultane- 60 ously.

2. In a restoring device for the pivoted shutters of annunciators, the combination with a reciprocating lifting-rod and manually- 65 operated lever for actuating said rod, of a series of engaging members each consisting of a forwardly-extended portion projected from the lifting-rod and an upturned lip, which lip engages the face of the shutter and slides 70 downwardly along said face when the lifting-rod is released, whereby the shutter is momentarily held in a stationary position after the lifting-rod is released, and a latch for engaging the shutter, the engagement of which is insured by holding the shutter momen- 75 tarily in the stationary position aforesaid.

3. An annunciator-drop-restoring device consisting of a plurality of separable lifting 80 members, one member assembled upon each annunciator-drop, whereby when the drops are positioned upon the switchboard-frame the said lifting members are connected in a manner to form a continuous lifting member 85 for each vertical row of drops upon the board, together with a pivoted lifting-lever positioned below the lowermost drop of a vertical row and adapted to engage the continuous 90 lifting member when manually operated to restore all the fallen drops simultaneously from one point of operation.

4. In a restoring device for annunciators adapted to engage and restore the shutters while being moved manually in one direc- 95 tion, means for engaging the face of said shutters said means having a portion of their movement parallel to the engaged faces of the shutters thereby holding them in a stationary position momentarily after the restoring de- 100 vice is released and moving in the other direction.

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

FRANK B. COOK.

Witnesses:

J. B. WEIR,

CHAS. C. BULKLEY.