

P. S. STAUFFER.
REGISTER.

APPLICATION FILED APR. 19, 1902.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.

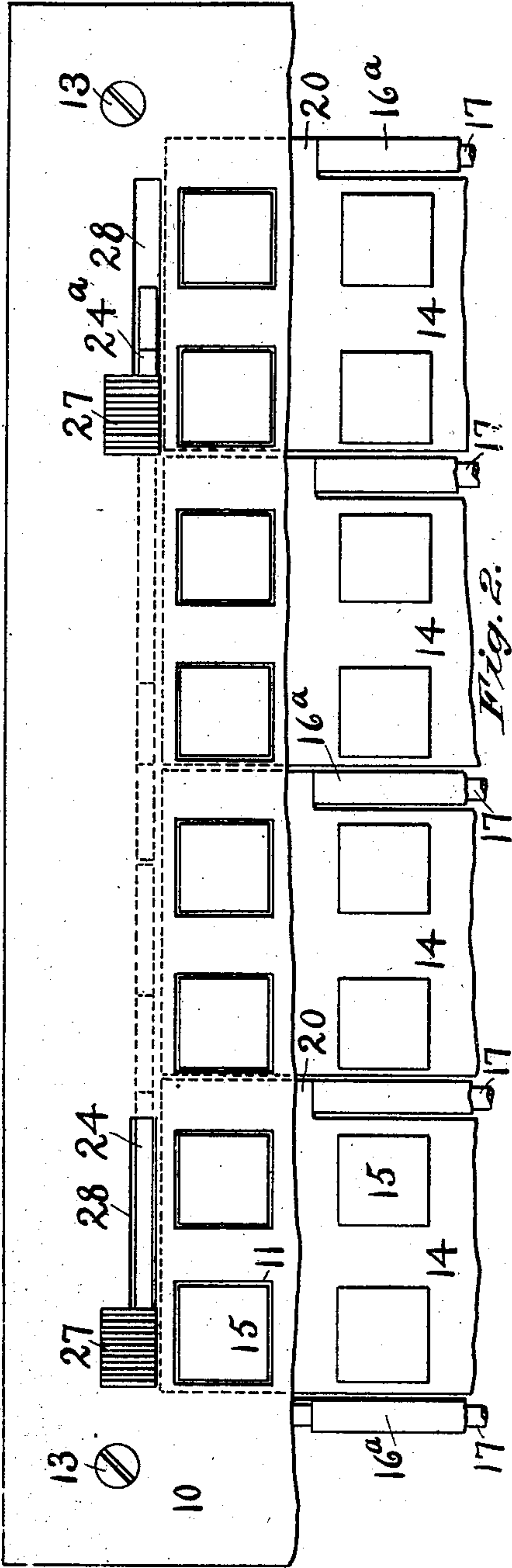
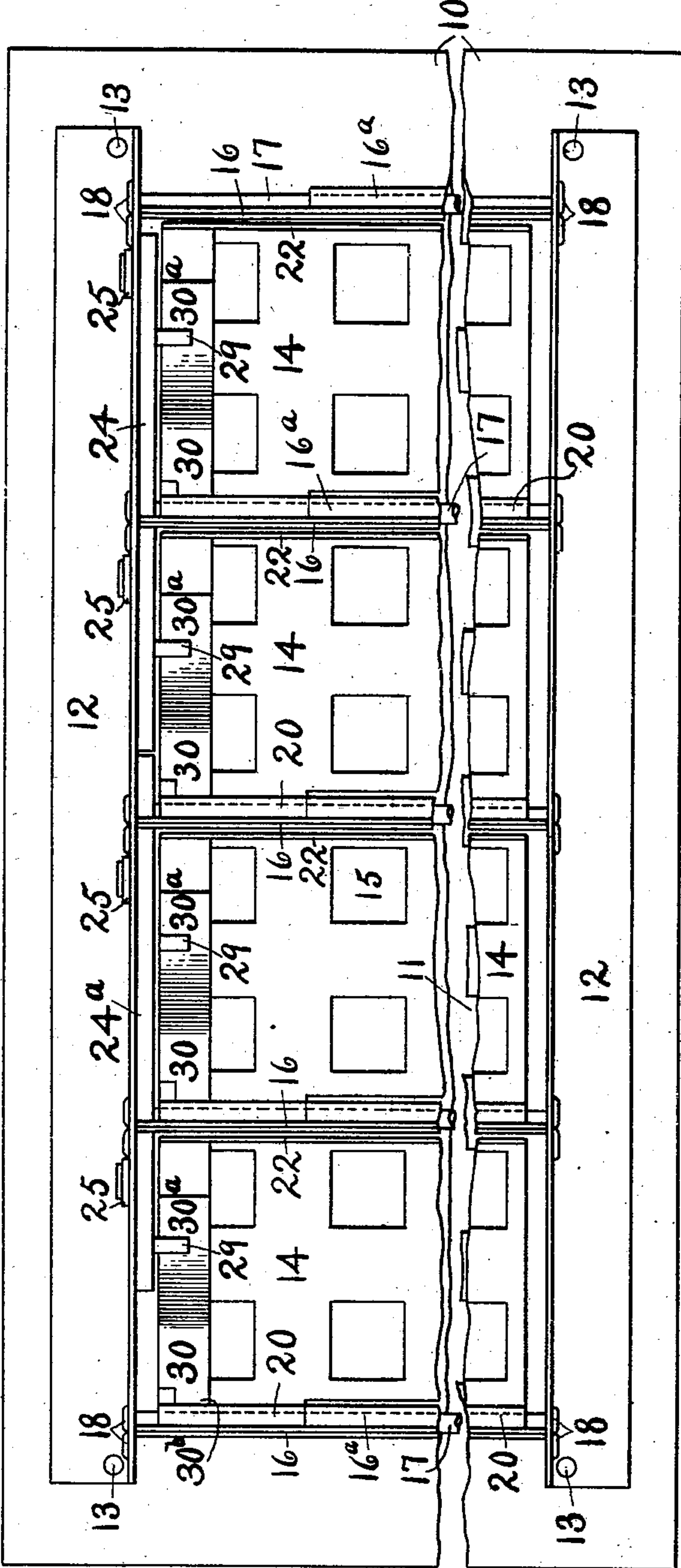


Fig. 2.



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No. 721,106.

PATENTED FEB. 17, 1903.

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3 SHEETS—SHEET 2.

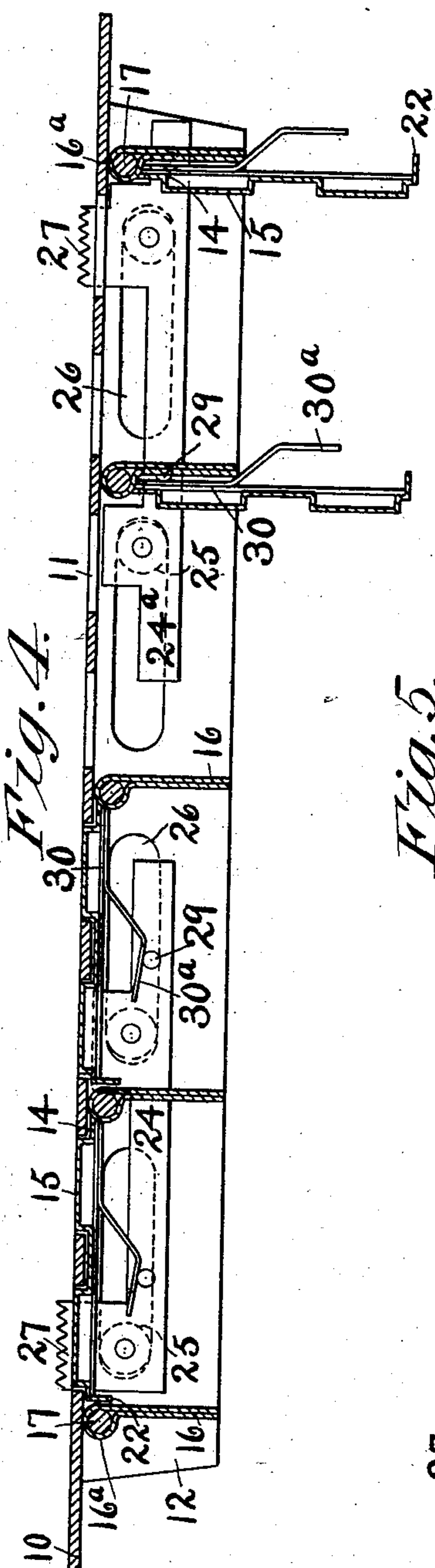
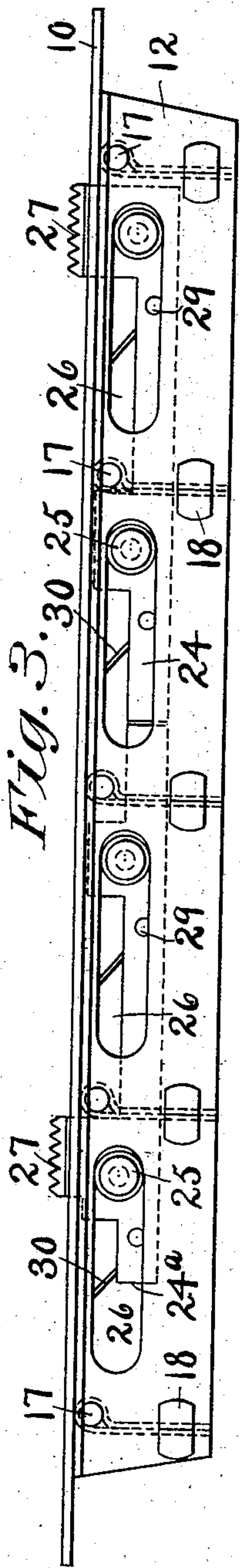


Fig. 5.

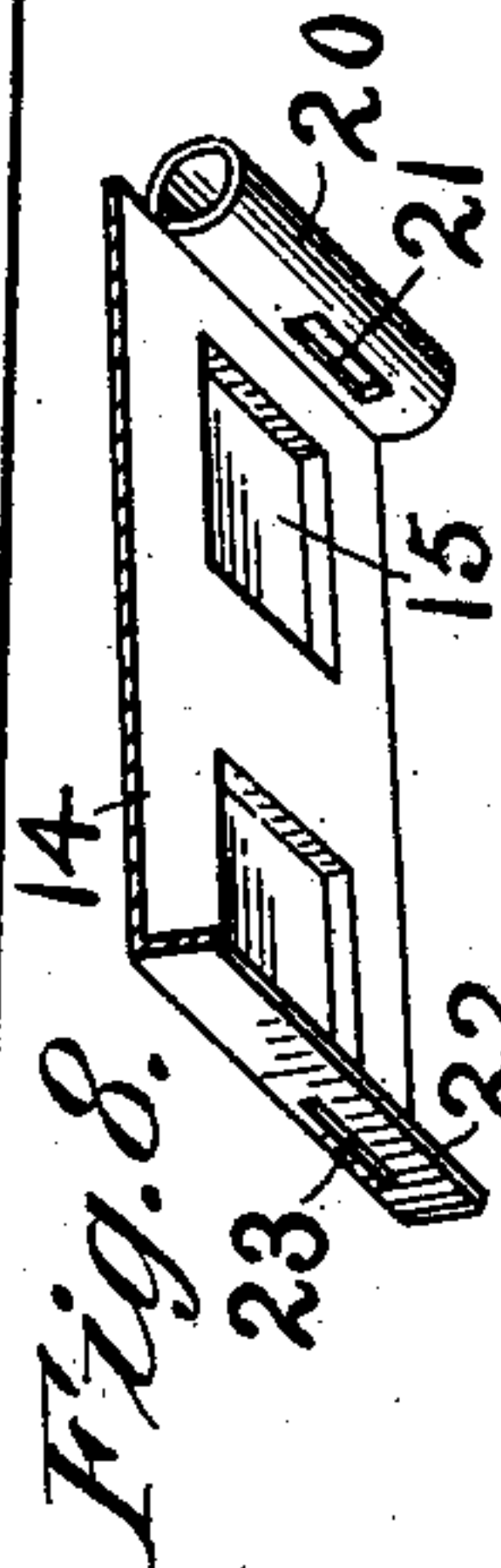
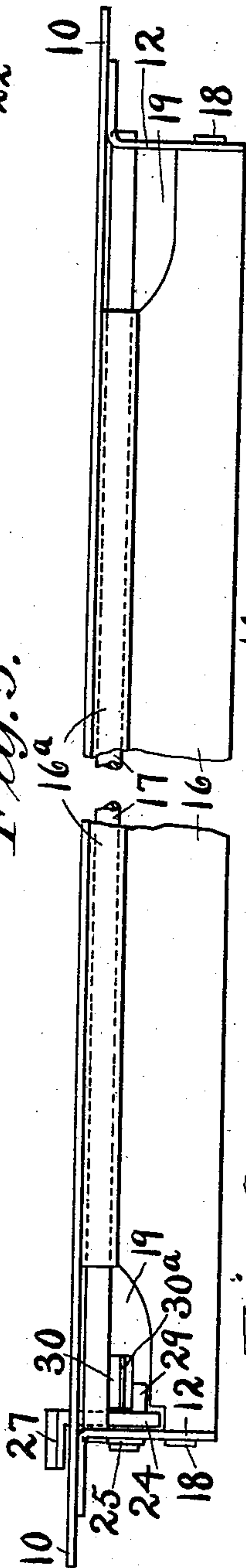


Fig. 6.



Fig. 7.

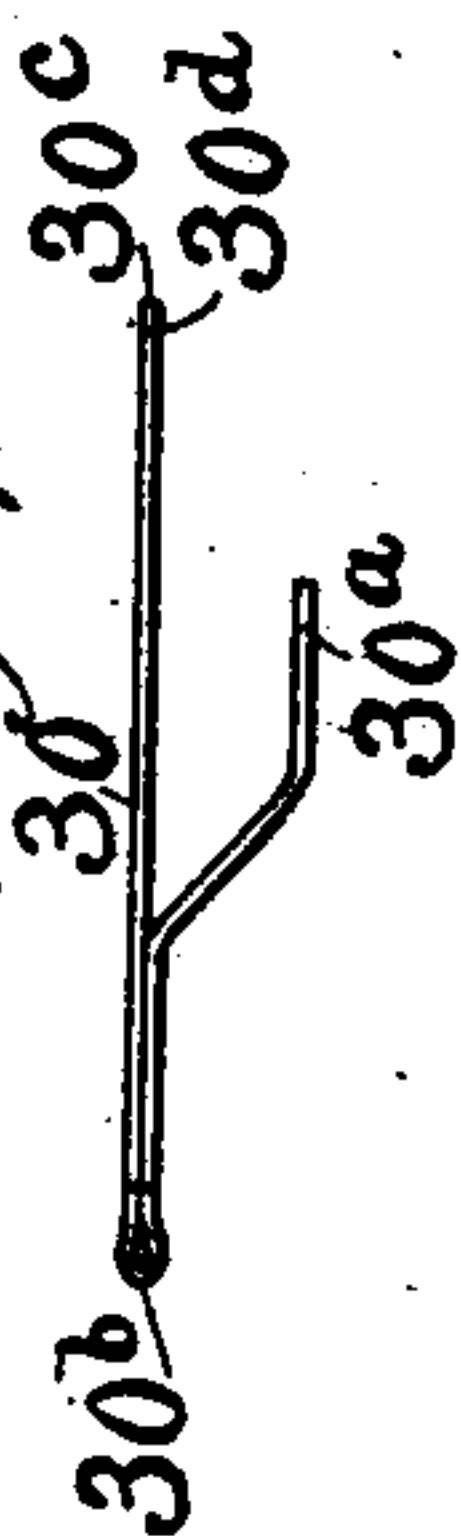


Fig. 8.

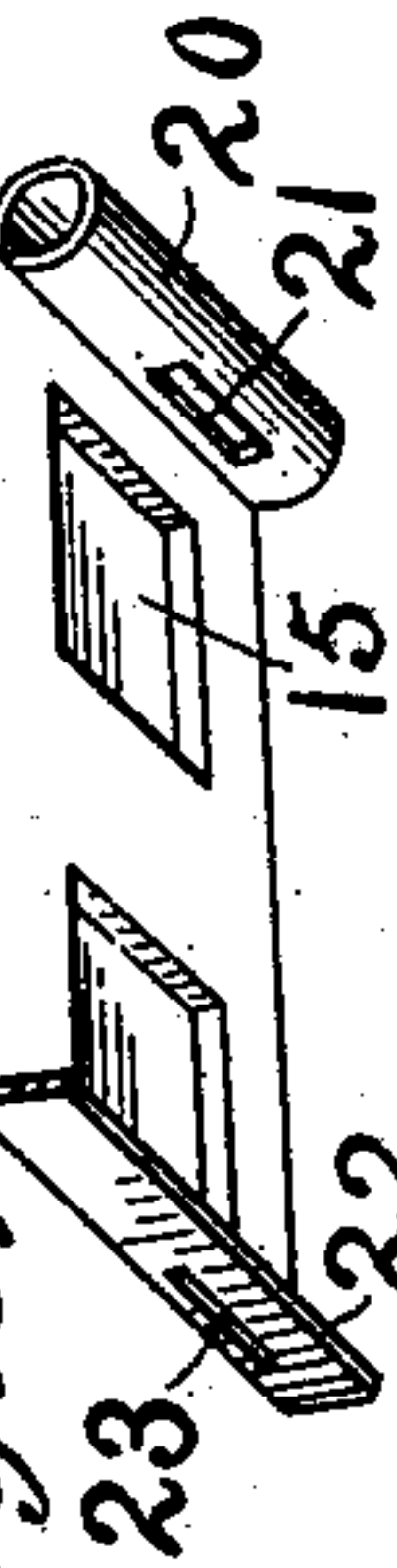


Fig. 9.



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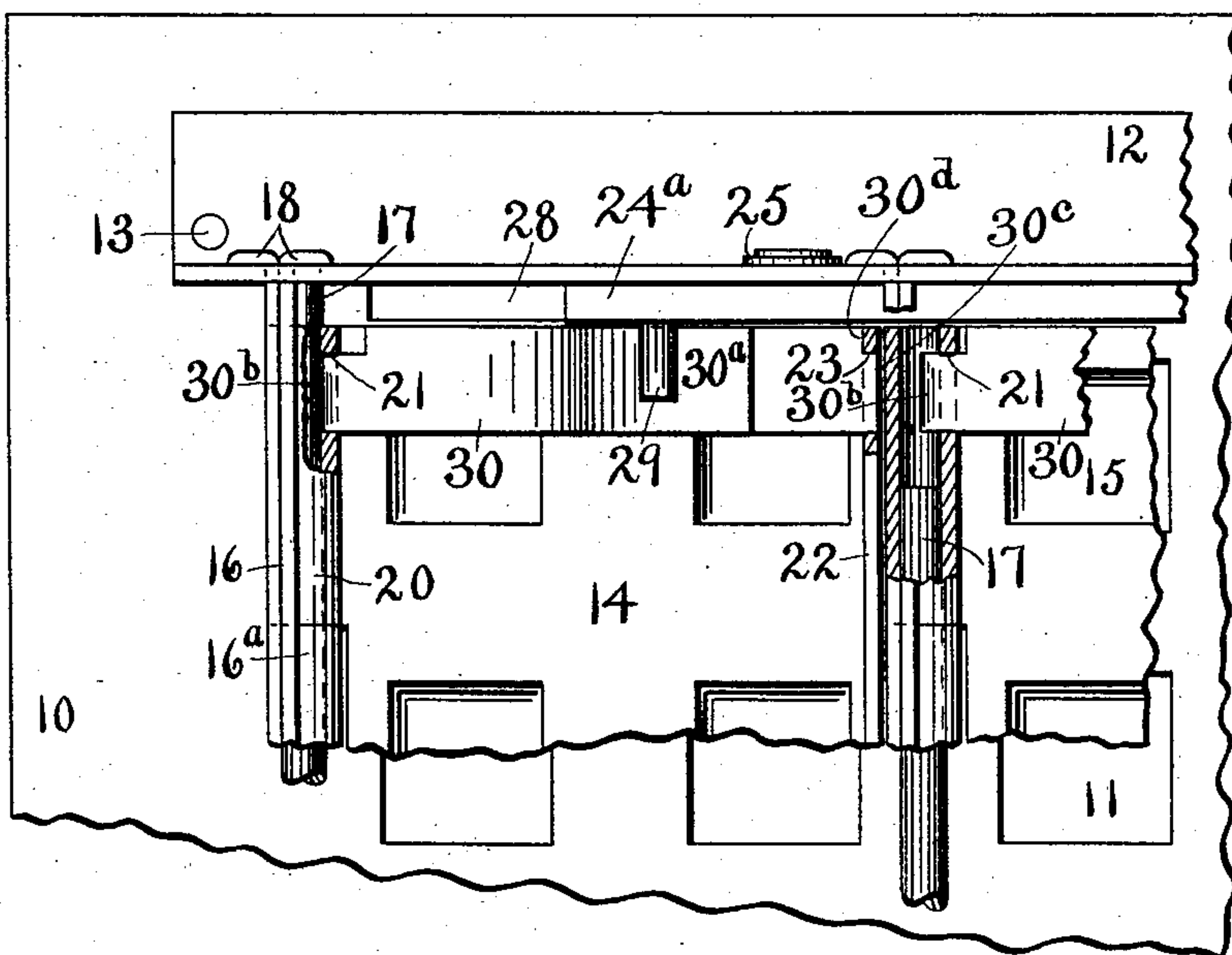
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3 SHEETS—SHEET 3.

FIG. 10.



Witnesses

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UNITED STATES PATENT OFFICE.

PETER S. STAUFFER, OF SPRINGFIELD, MASSACHUSETTS.

REGISTER.

SPECIFICATION forming part of Letters Patent No. 721,106, dated February 17, 1903.

Application filed April 19, 1902. Serial No. 103,713. (No model.)

To all whom it may concern:

Be it known that I, PETER S. STAUFFER, a citizen of the United States of America, residing at Springfield, in the county of Hampden and Commonwealth of Massachusetts, have invented a new and useful Register, of which the following is a specification, the same being an improvement on my invention for which Letters Patent No. 679,789 were issued August 6, 1901.

My invention relates to improvements in hot-air registers, in which peculiarly-constructed braces and hangers, resilient lugs for the operating-pins, slides having roller-bearings, &c., are employed, all as hereinafter fully described, and especially pointed out in the claims; and the objects of my improvement are, first, to produce a register of light weight, but rigid and strong construction, the parts of which can be easily and quickly assembled; second, to provide means for tightly closing the shutters in a positive manner; third, to afford easily-operated means for working said shutters to open or close the same either in pairs or all together when arranged in sets of four, as shown; fourth, to furnish devices for compensating for wear incidental to frictional contact between certain of the operating parts, and, fifth, to provide a register embracing the advantages above set forth. I attain these objects by the means illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of one end of my register, showing the operating parts as viewed from above; Fig. 2, an under side view of said register, the center transversely of the shutters being broken out; Fig. 3, an elevation of the working end; Fig. 4, a vertical section looking toward said working end, showing two of the shutters open; Fig. 5, an elevation of the left-hand side; Fig. 6, a plan view of one of the resilient lugs; Fig. 7, a side view of said lug; Fig. 8, a perspective view showing one end of one of the shutters, with the slots in which the lug is to be received; Fig. 9, a perspective view of the lug; and Fig. 10, an enlarged view of the under side of one corner of the register, parts being broken away to

better illustrate the method of inserting and retaining the resilient lugs in place.

Similar figures refer to similar parts throughout the several views.

A plate 10, which forms the top of the register, has perforations 11 therein, and two hangers 12, preferably in the form of angle-irons, are secured to the under side of said plate at opposite ends by screws 13. Shutters 14, preferably having elevations 15 to fit within the plate-perforations 11 when said shutters are closed, are hung in the register-frame in the manner hereinafter explained. I prefer to make the plate, hangers, and shutters, also the braces 16, of sheet metal in order to secure light weight, the manner of construction giving the required strength and rigidity. Four shutters 14 are shown; but the number is not imperative and may be departed from. The braces 16, which constitute essential parts of the frame, are preferably formed of double thicknesses of metal rolled over at the top to form holders 16^a for the rods 17, and on both ends of each brace are ears 18, which are adapted to pass through openings provided for their reception in the vertical sides of the hangers 12 and to be turned over against the outsides of said sides, thereby securing said braces in place. Each brace is further supported by a rod 17, which passes through the rolled top or holder 16^a into suitable openings in the hangers 12. Portions of the top of said brace at the ends are cut away, as best shown at 19 19, Fig. 5, and each shutter 14 is provided with rolls 20, which operate in said openings on a rod 17. A slot 21 is cut in the inside face of the roll 20 at the working end of the shutter, and a downwardly-turned lip 22, formed on said shutter opposite said rolls, has a slot 23 therein opposite said slot 21. It will now be seen that the shutters 14 are so hung that they can swing freely on the rods 17 in the frame, consisting of the braces 16 and connected parts—a frame which is strong and rigid without being heavy and cumbersome.

Slides 24 and 24^a are provided with rollers 25, which operate in slots 26 in one of the hangers 12, said slides reciprocating against

the inside face of said hanger. Each of these slides is provided with a foot-piece 27, the shank of which extends through a slot 28 in the plate 10. The foot-pieces 27 rise above the upper surface of the plates 10 and are the medium by which the slides 24 and 24^a are reciprocated. Projecting forwardly from the slides 24 and 24^a are pins 29, corresponding in number to the number of shutters.

- 10 A resilient lug 30 is provided for each shutter 14 and is preferably formed by bending a long thin piece of metal over upon itself at one end, then extending the same downward at an acute angle, and finally projecting the free end 30^a in a direction parallel with the straight part, or said free end may be turned upward slightly, for the reason hereinafter set forth. The free ends 30^a of the lugs 30 furnish the bearing-surfaces for the pins 29.
- 15 Each lug 30 is notched or shouldered, as best shown in Figs. 6 and 9, so as to provide a comparatively long projection 30^b at one end and a short projection 30^c at the other end, these projections being adapted to enter the before-mentioned shutter-slots 21 and 23. A shoulder 30^d, adjacent to the projection 30^c, is adapted to bear against the lip 22 when said lug is in position. The lugs 30 are located just inside of the slides 24 and 24^a and constitute an efficient and valuable feature of my invention.

The general method of assembling the parts comprising this register will be understood from the foregoing description; but before the rods 17 are inserted in the rolls 20 at the working end of the register it is necessary to place the resilient lugs 30 in place, which is done in the following manner: First insert the end 30^b of a lug 30 into the corresponding holder-slot 21 and push said lug to the right, as shown at the right hand of Fig. 10, until the end 30^c can be introduced into the corresponding lip-slot 23. Then move the lug to the left until the shoulder 30^d bears against the lip 22. The rod 17 is then passed through the roll 20 behind the end 30^b, thus holding the lug against the lip 22 and securing the same firmly in place.

Assuming that the shutters are closed, the operation of my device is as follows: In order to open two of the shutters, as shown in Fig. 4, force the slide 24^a toward the outside or to the left, which movement withdraws the pins 29 from beneath the ends 30^a of the lugs 30 and permits the two shutters which were supported by said ends to drop or open by gravity. The other two shutters may be opened in a similar manner by actuating the slide 24 inwardly or to the left. If desired to open the four shutters at once, the slide 24 alone is actuated inwardly, contacts with the slide 24^a, and withdraws the supporting-pins from beneath all of the ends 30^a. To close the shutters, (shown open in Fig. 4,) it is only necessary to actuate the slide 24^a toward the center, which movement will also close all of

the shutters in case they are open, as said slide will then contact with the slide 24. The two left-hand shutters may be closed by means of the slide 24 without affecting the other 70 shutters.

From the foregoing it will be readily seen that the slide 24 opens all of the shutters when actuated toward the center and closes two of them when moved to the left, while the slide 24^a 75 opens two only or closes them all, according to the direction in which it is actuated. In closing the shutters the pins 29 first bear against what may be termed the "solid" parts of the lugs 30, then against their inclined surfaces, 80 and finally come to rest beneath the ends 30^a. By inclining the ends 30^a upwardly the pins 30 are brought to rest beyond projections formed by the lower angles of the lugs, and there is thus no danger that said pins will slip back 85 without the application of force. These lugs afford means for operating the shutters in a positive manner without unnecessary shock or jar, and they also serve to compensate for wear, so that there is no looseness or back-lash, and the roller-bearings for the slides 90 permit the same to be operated easily.

Modifications in the shape of the lugs 30 and in the method of attaching them to the shutters may be made without departing from the 95 nature of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A register-frame comprising a plate, hangers depending from said plate, a series 100 of braces formed of double thicknesses of material attached at their ends to said hangers, and provided with rolled tops, and rods passing through said rolled tops into the hangers.

2. The combination, in a register-frame, of 105 a plate having depending hangers, a series of braces each formed of material rolled over at the top and attached at the ends to said hangers, and rods passing through such rolled tops into the hangers.

3. The combination with a register-frame, of a shutter journaled in said frame, a resilient lug on the bottom of said shutter, attached at its ends to depending parts of the shutter and having a separated free end 30^a directed 115 away from the pivotal point of the shutter, and means adapted to engage and release said free end, substantially as set forth.

4. The combination with a register-frame having a rod extending across the same, of a 120 shutter hung by end rolls from said rod, a resilient lug on the bottom of said shutter, attached at its ends to depending parts of the shutter and having a separated free end 30^a directed away from the pivotal point of the 125 shutter, and means adapted to engage and release said free end, substantially as set forth.

5. The combination with a register-frame having a rod extending across the same and slots in one end, of a gravity-opening shutter 130 hung by end rolls from said rod, a slide provided with rollers operating in said slots, a

resilient lug on the bottom of said shutter, attached at its ends to depending parts of the shutter and having a separate free end 30^a directed away from the pivotal point of the shutter, and a pin extending from said slide, arranged to first bear against unyielding parts and then the resilient lug to close the shutter, substantially as described.

6. The combination with a register-frame, of gravity-opening shutters journaled in said frame, slides arranged to move independently in one direction and together in the other direction when one lies in the path of the other, resilient lugs on the bottoms of said shutters, attached at their ends to depending parts of the shutters and having separated free ends 30^a directed away from the pivotal points of the shutters, and pins extending from said slides, arranged to first bear against unyielding parts and then the resilient lugs to close the shutters, substantially as described.

7. The combination with a register-frame having rods extending across the same and slots in one end, of gravity-opening shutters hung by rolls from said rods, slides provided with rollers operating in said slots, resilient lugs on the bottom of said shutters, attached at their ends to depending parts of the shutters and having separated free ends 30^a directed away from the pivotal points of the shutters, and pins extending from said slides, arranged to first bear against unyielding parts and then the resilient lugs to close the shutters, each of the slides being arranged to move independently in one direction and to

actuate its companion slide when moved in the other direction provided said companion slide lies in the path of the first, substantially as specified.

8. In combination with a register-shutter provided with a slotted roll and an oppositely-disposed shutter-lip, a lug having projecting ends adapted to enter the slots in said roll and lip, and a rod extending through the roll behind one end of said lug.

9. In combination with a register-shutter provided with a slotted roll and an oppositely-disposed slotted lip, a resilient lug having a long projection at one end to enter the slot in said roll and a short projection at the other end to enter the slot in said lip, and a rod extending through the roll behind said long projection.

10. The combination with a register-frame and a shutter provided with a slotted roll and an oppositely-disposed slotted lip, a lug having a separated resilient free end 30^a and projecting ends adapted to enter the slots in said roll and lip, a rod extending through the roll behind one end of said lug into said frame, and a slide carrying a pin extending below or behind the shutter and lug, substantially as described.

In testimony whereof I have signed this specification in presence of two subscribing witnesses.

PETER S. STAUFFER.

Witnesses:

FRANK A. CUTTER,
STEPHEN S. TAFT, Jr.