

J. MUSSELL.
ELEVATOR MECHANISM.
APPLICATION FILED OCT. 5, 1906. RENEWED JULY 13, 1908.
898,672. Patented Sept. 15, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

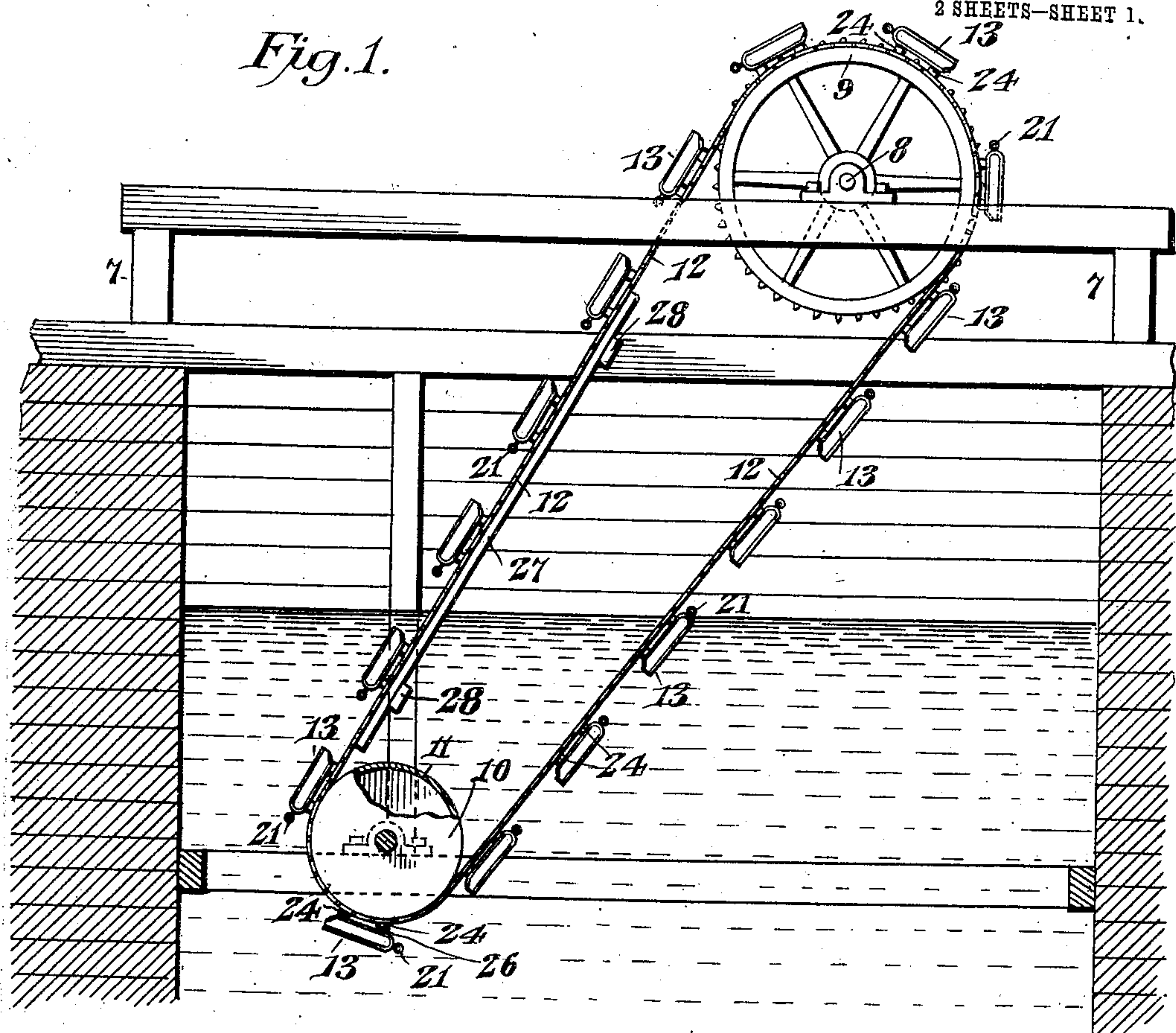
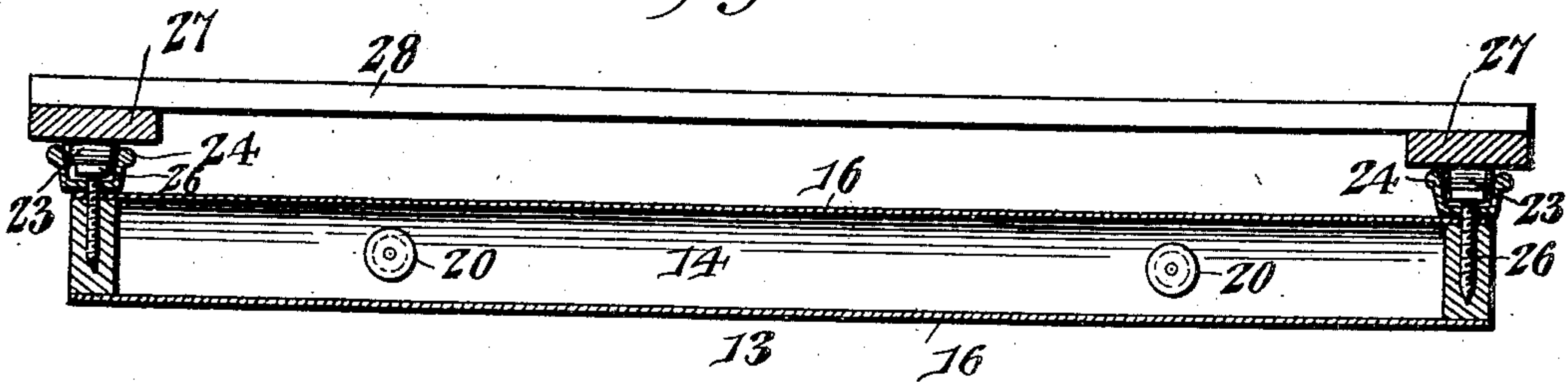


Fig. 2.



Jacob Mussell, Inventor

By

E. G. Siggers

Attorney

Witnesses
Jas. E. McLaughlin
B. H. Fitch

J. MUSSELL.

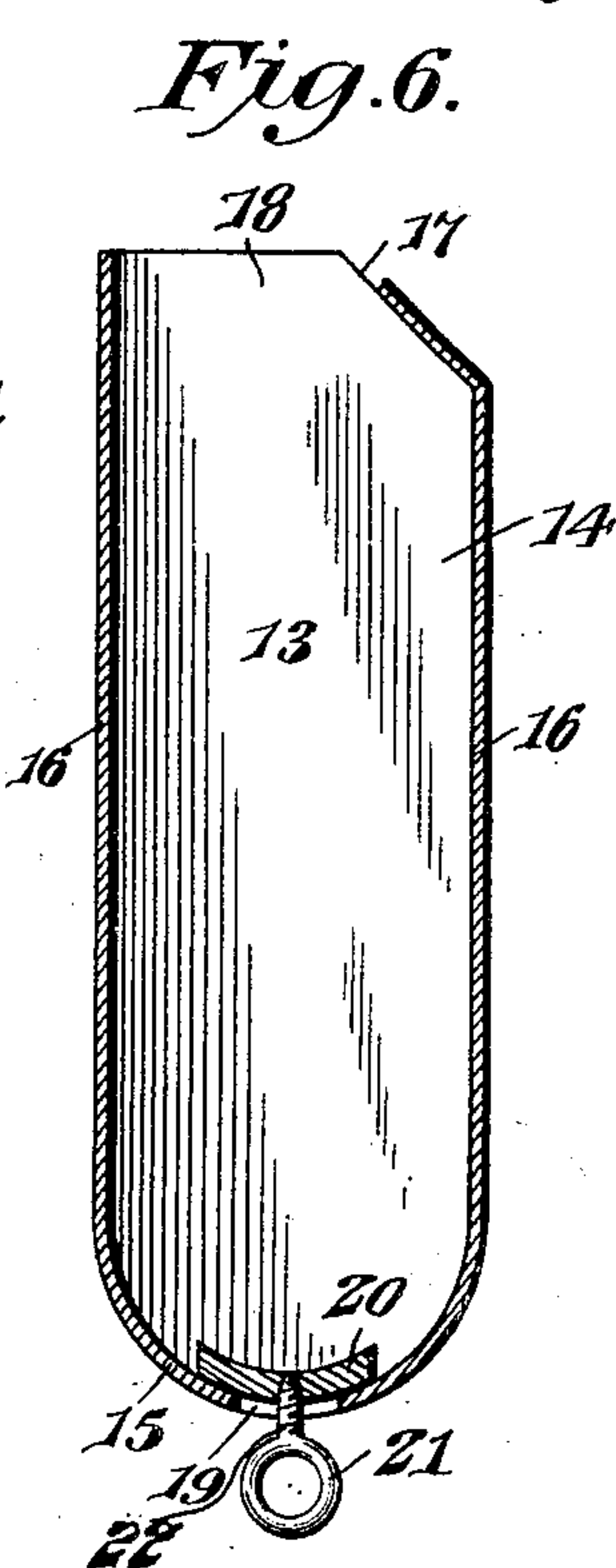
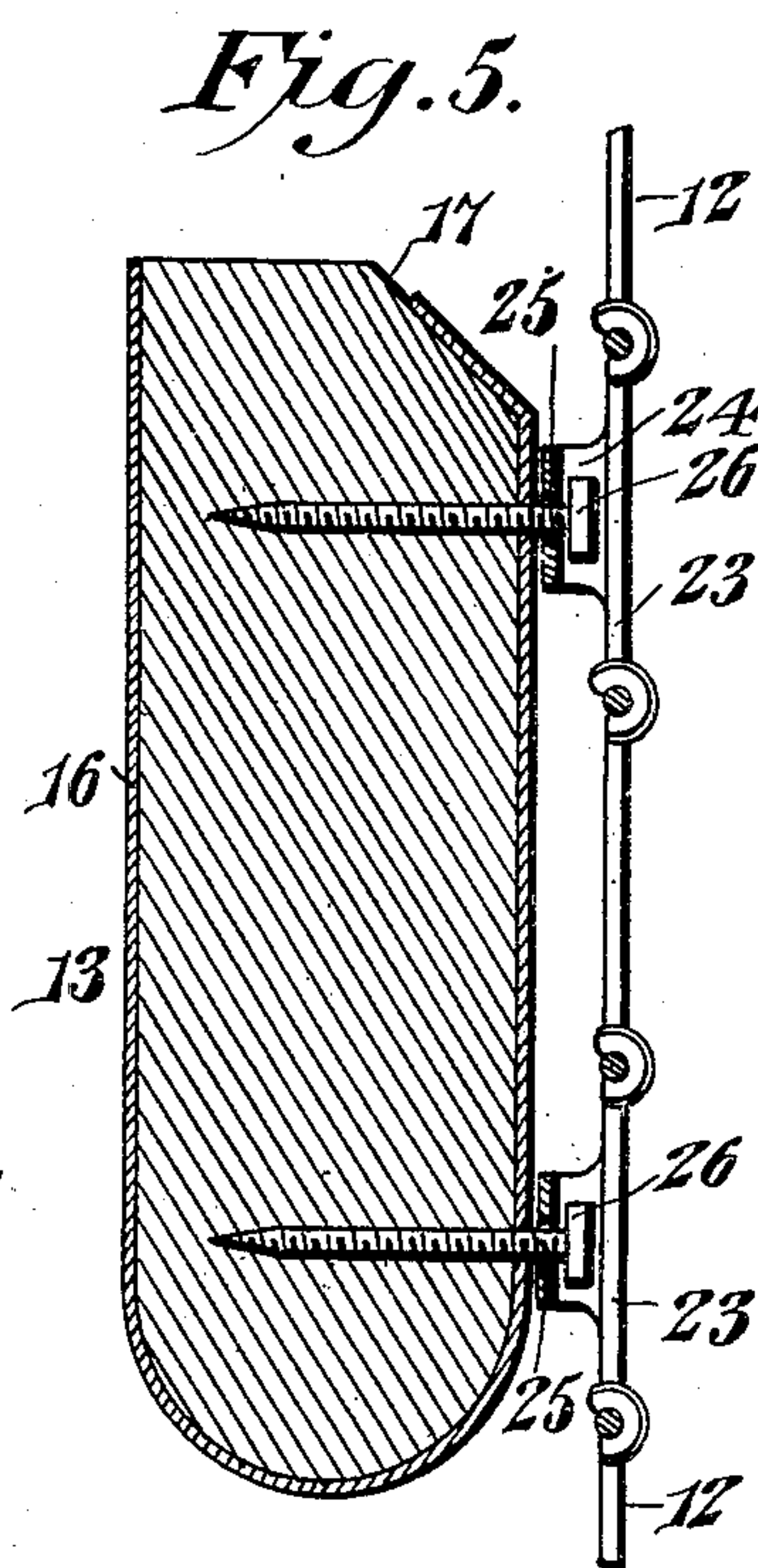
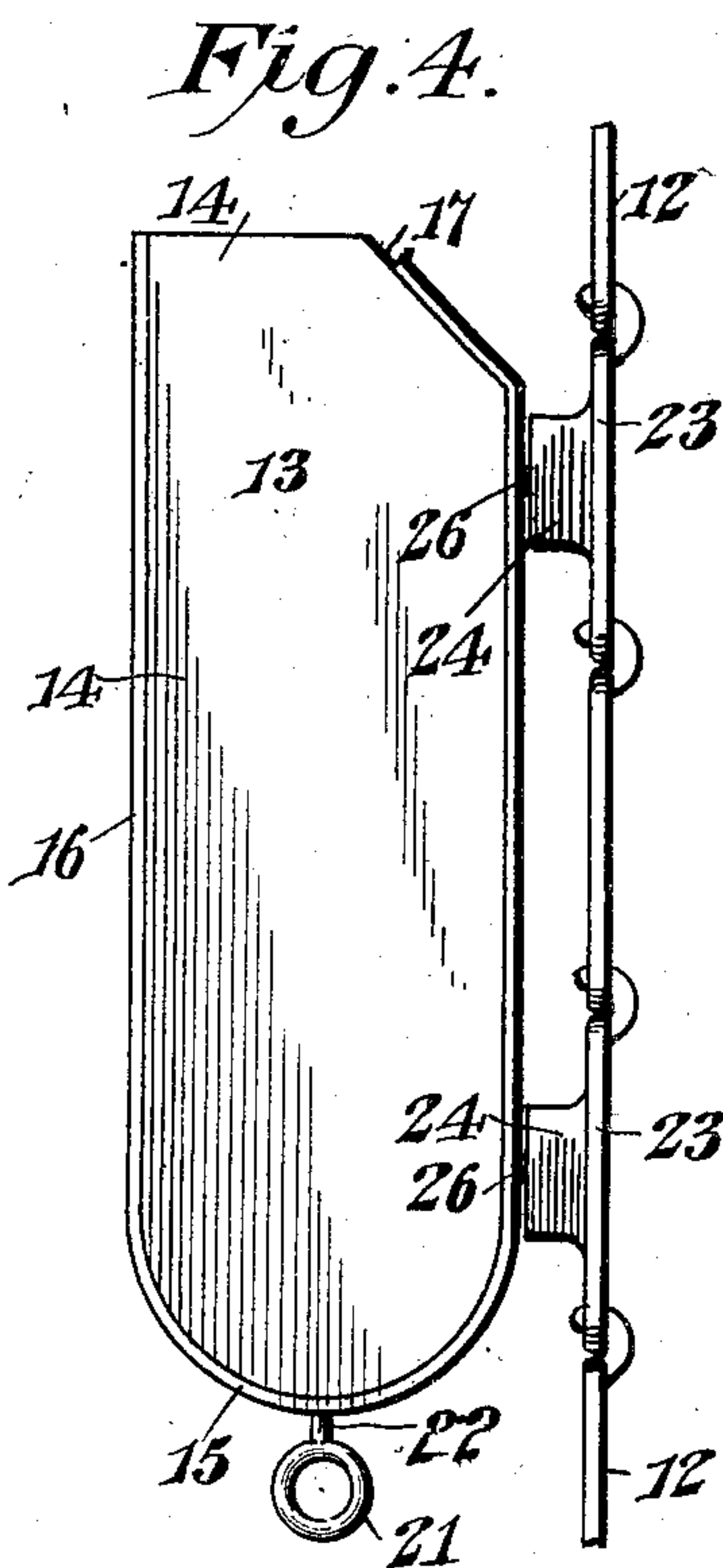
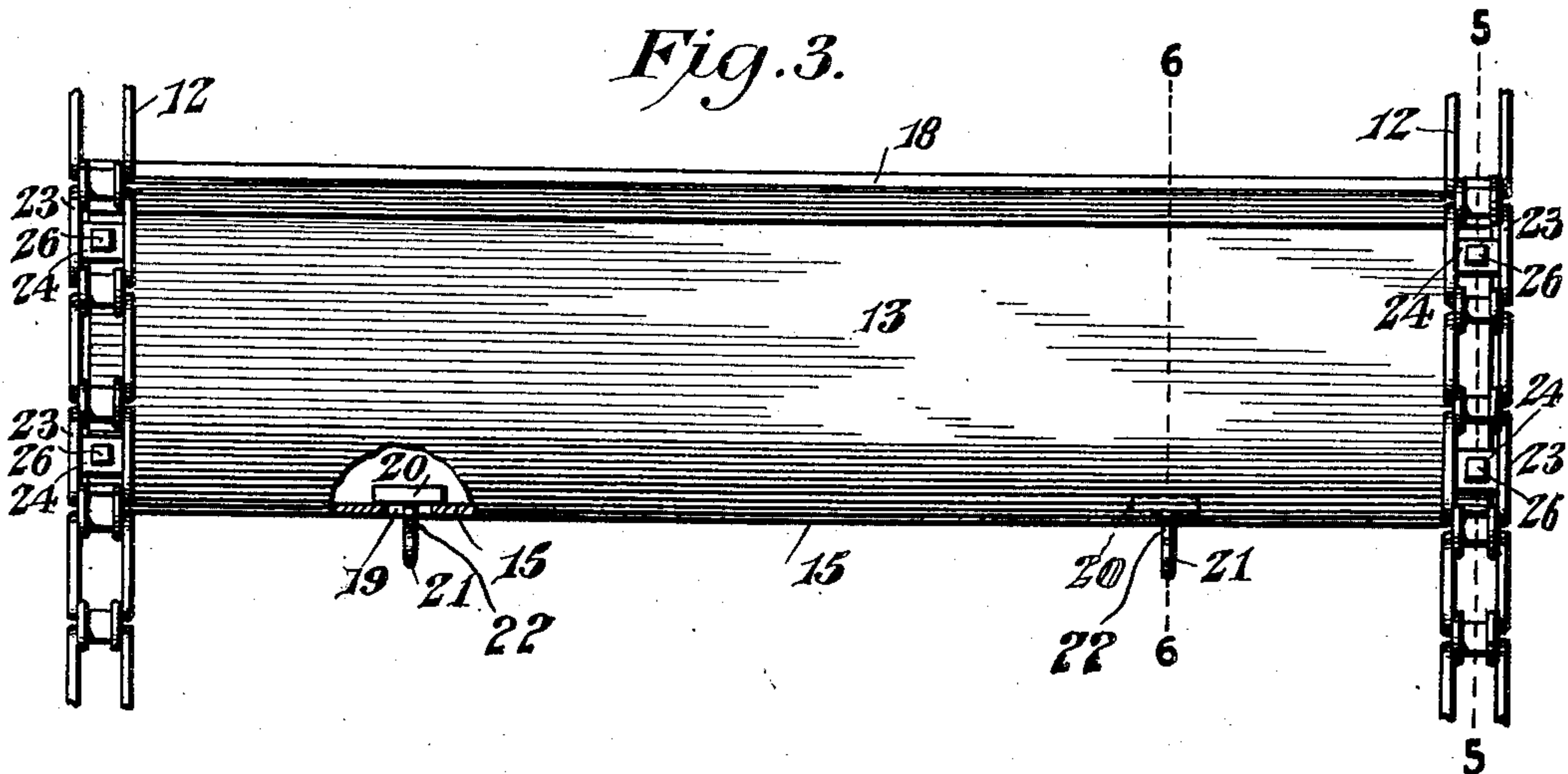
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Jacob Mussell, Inventor

By

E. G. Siggers

Attorney

Witnesses
Jas. K. McElhannon
B. J. Fort

UNITED STATES PATENT OFFICE.

JACOB MUSSELL, OF HOMEDALE, IDAHO.

ELEVATOR MECHANISM.

No. 898,672.

Specification of Letters Patent.

Patented Sept. 15, 1908.

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To all whom it may concern:

Be it known that I, JACOB MUSSELL, a citizen of the United States, residing at Homedale, in the county of Owyhee and State of Idaho, have invented a new and useful Elevator Mechanism, of which the following is a specification.

The present invention relates more particularly to means for elevating water but is unquestionably useful for other purposes.

The principal object is to provide a novel, simple and effective elevator, which can be readily installed, is cheap to manufacture, and is provided with buckets that will expeditiously fill and empty themselves.

The preferred form of construction is illustrated in the accompanying drawings, wherein:—

Figure 1 is a view in elevation of the mechanism. Fig. 2 is a horizontal sectional view on an enlarged scale therethrough. Fig. 3 is a rear elevation of one of the buckets and portions of the chains. Fig. 4 is an end view of the parts shown in Fig. 3. Fig. 5 is a sectional view on the line 5—5 of Fig. 3. Fig. 6 is a sectional view on the line 6—6 of Fig. 3.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the structure shown, a suitable supporting frame 7 is employed on which is journaled an upper shaft 8. Spaced sprocket wheels 9 are fixed to this shaft. A drum 10, submerged in the liquid or other material to be elevated, has a substantially smooth peripheral wall 11, and is disposed at one side of the vertical plane in which the shaft 8 is located.

Spaced sprocket chains 12 pass around the wheels 9 and also around the drum 10. These sprocket chains are connected by and carry buckets 13. The buckets, as clearly illustrated in Figs. 3—6 inclusive, each comprises end walls 14, a curved bottom 15 and side walls 16, the bottom and side walls being preferably formed of sheet metal that is bent around the end walls. The lower ends of the end walls are curved, the upper ends are tapered by having their rear edges beveled, as shown at 17. As a result and by reference to Fig. 6, it will be noted that a contracted mouth 18 is provided. The bottom 15 of each bucket is provided with spaced openings 19 controlled by valves in the form of flexible disks 20, arranged within the buckets and movable over the openings. Screw

eyes 21 have their heads disposed exteriorly of the buckets, and have shanks 22 passing through the openings 19 and threaded into the valve disks 20.

The buckets are secured to the chains by the following means: Said chains are provided at intervals with sets of links 23 having offset webs 24 provided with openings 25. Through these openings are passed headed screws 26 that are threaded into the end walls 14, the screws 24, however, being loose in the webs in order to permit the relative play in the links 23 with respect to the buckets during their passage around the sprocket wheels 9 and the drum 10. Preferably each chain has two such links connected to each bucket and separated from each other by an ordinary link, as shown in Fig. 5.

It will be observed that because of the disposition of the lower drum and upper wheels, and as shown in Fig. 1, the upper stretches of the chains are disposed at an inclination, and in order to prevent the filled buckets from swaying, guide strips 27 are employed that are disposed longitudinally of and beneath the chains, said chains running on the strips. These strips are preferably connected to cross beams 28 that are fastened to the frame, and serve to support the strips in place.

It will be apparent that the structure disclosed is exceedingly simple, and experience has demonstrated that it is capable of rapid operation because of the rapidity with which the buckets will fill and empty themselves. Thus as the buckets pass downwardly into the water, the valve disks 20 will be in positions that will leave the orifices 19 entirely open, consequently the air will freely escape from said buckets while the water can readily enter the same. As soon as the buckets pass around the drum, however, the valves will gravitate to closed positions, and the water will be retained in the buckets until said buckets are inverted. As soon as the water begins to flow from the buckets, the valves will open, permitting the free ingress of air and consequently the quick outflow of water.

From the foregoing, it is thought that the construction, operation, and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing

from the spirit or sacrificing any of the advantages of the invention.

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

1. In an elevator of the character described, the combination with an endless chain, of elongated narrow buckets mounted thereon, each bucket having a contracted mouth and an opening in its bottom, a flexible valve disk located in each bucket and movable to a position across the opening, and a screw eye having a head disposed outside the bucket, and a shank extending through the opening in the bottom and threaded into the disk.

2. In an elevator of the character described, the combination with end walls, of chains extending across the rear sides of the buckets adjacent to the end walls, said chains including links having off-set webs that are disposed against the buckets and having openings, and headed fastening devices loosely passing through the openings into the rear edges of the end walls, said devices permitting the relative movement of the links and buckets.

3. In an elevator of the character described, the combination with an upper shaft and spaced sprocket wheels thereon, of a lower drum having a substantially smooth peripheral wall, spaced sprocket chains extending around the wheels and drum, said chains including links having offset webs that are provided with openings, buckets having contracted mouths and openings in their bottoms, said buckets having their rear walls disposed against the offset webs of the links, headed bolts passing through the openings of the webs and engaging the buckets, valve disks located in the buckets and controlling the bottom openings, and screw eyes having shanks passing through the openings and threaded into the valve disks.

4. In an elevator of the character described, the combination with an upper shaft having spaced sprocket wheels, of a lower drum disposed at one side of the vertical plane in which said shaft is located, sprocket chains passing around the wheels and drum, the upper stretches of said sprocket chains being disposed at an inclination, buckets connected to the sprocket chains and having rear walls provided with margins that are inclined away from said chains and form contracted mouths, guide strips located longitudinally of and beneath the upper stretches of the sprocket chains, and means for supporting said strips.

5. In an elevator of the character described, the combination with an upper shaft and spaced sprocket wheels thereon, of a lower drum having a substantially smooth peripheral wall, spaced sprocket chains extending around the wheels and drum, buckets having contracted mouths and openings in their bottoms, and valve disks located in the buckets and controlling the bottom openings.

6. In an elevator of the character described, the combination with an upper shaft having spaced sprocket wheels, of a lower drum disposed at one side of the vertical plane in which said shaft is located, sprocket chains passing around the wheels and drum, the upper stretches of said sprocket chains being disposed at an inclination, and buckets connected to the sprocket chains and having rear walls provided with margins that are inclined away from said chains to form contracted mouths.

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

JACOB MUSSELL

Witnesses:

JNO. J. PLOWHERD,
OWEN M. VAN DUYN.