

(No Model)

2 Sheets—Sheet 1.

W. O. WHITNEY.
ADJUSTABLE SHELVING.

No. 575,747.

Patented Jan. 26, 1897.

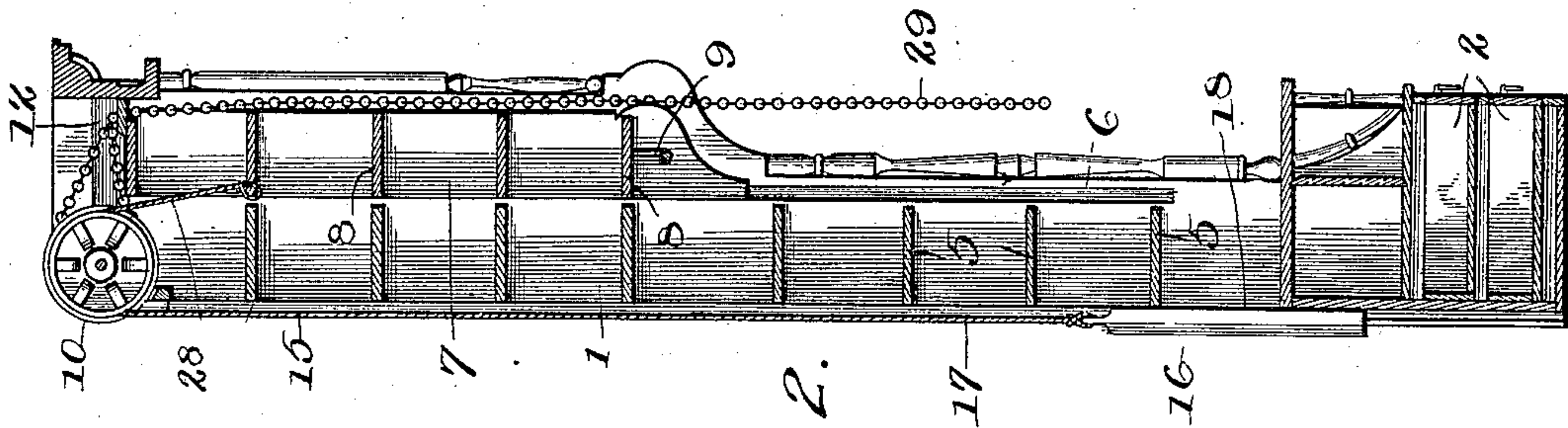


Fig. 2.

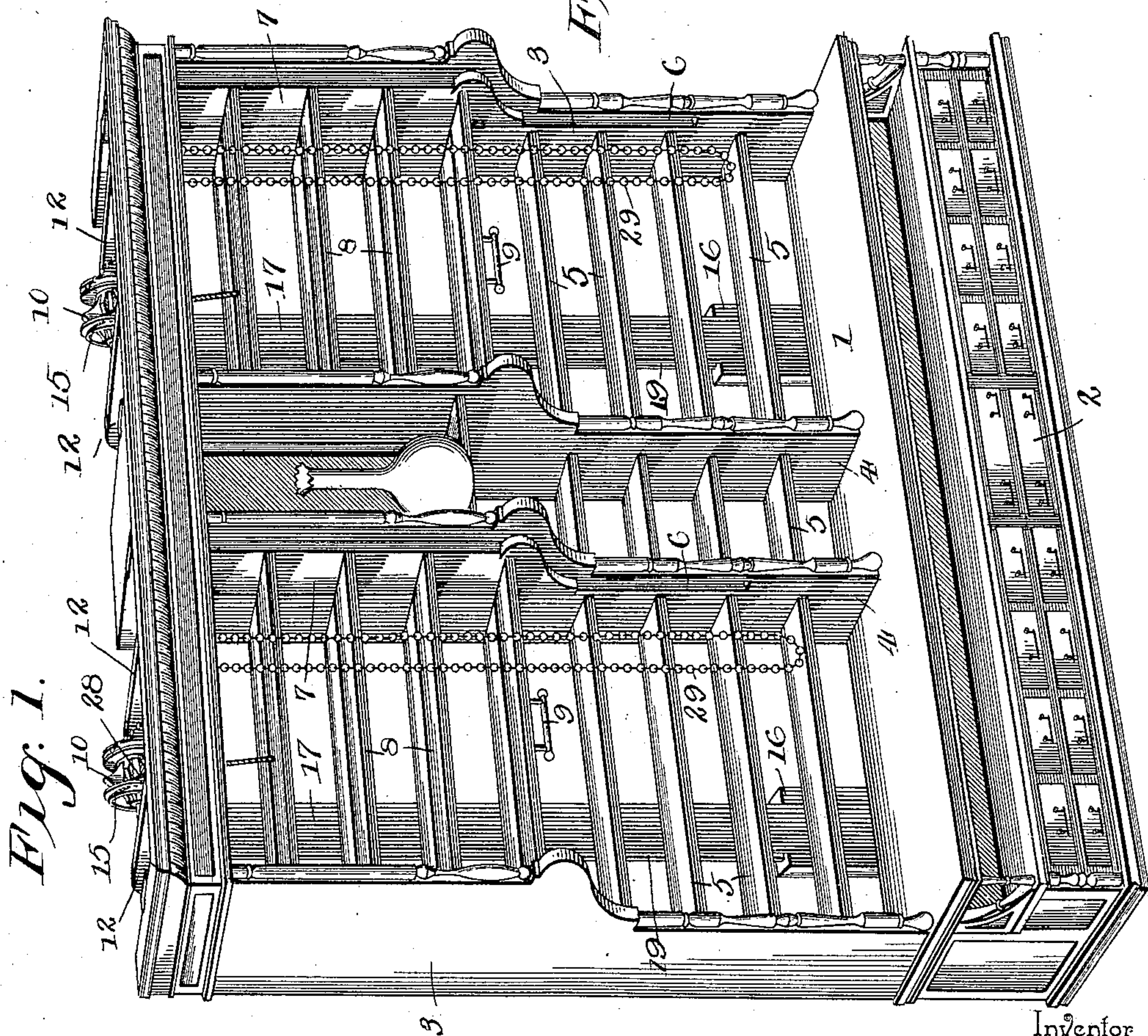


Fig. 1.

Witnesses.

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By his Attorneys,

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Inventor
William O. Whitney,

(No Model.)

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Fig. 3.

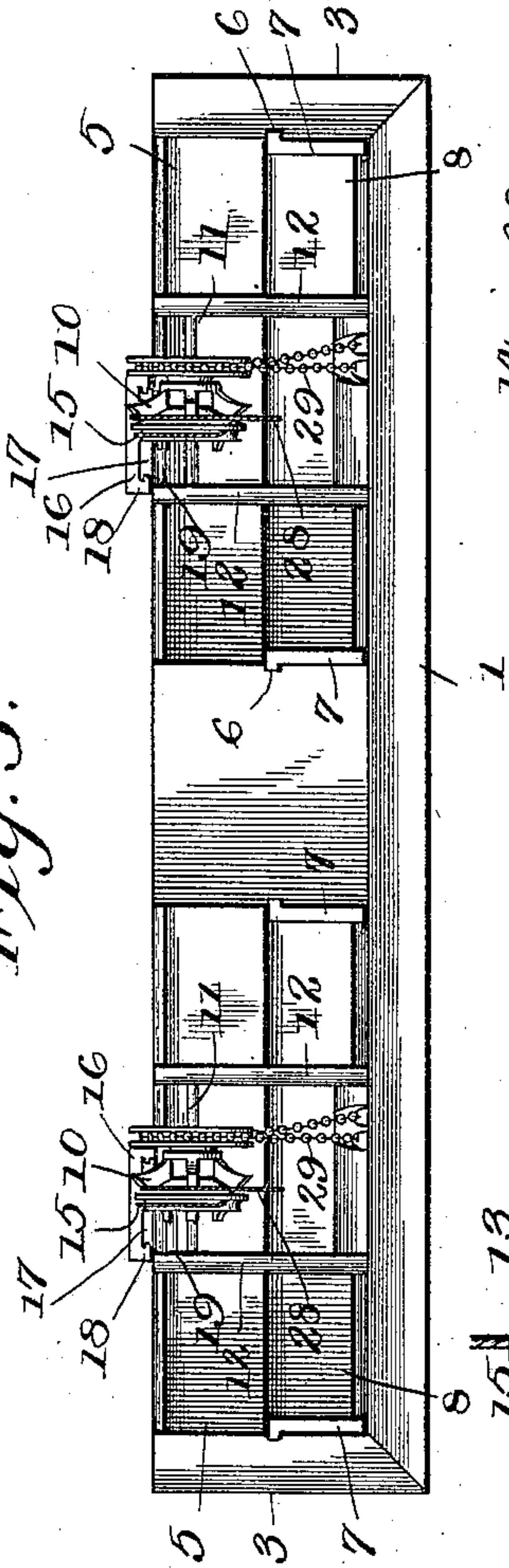


Fig. 7.

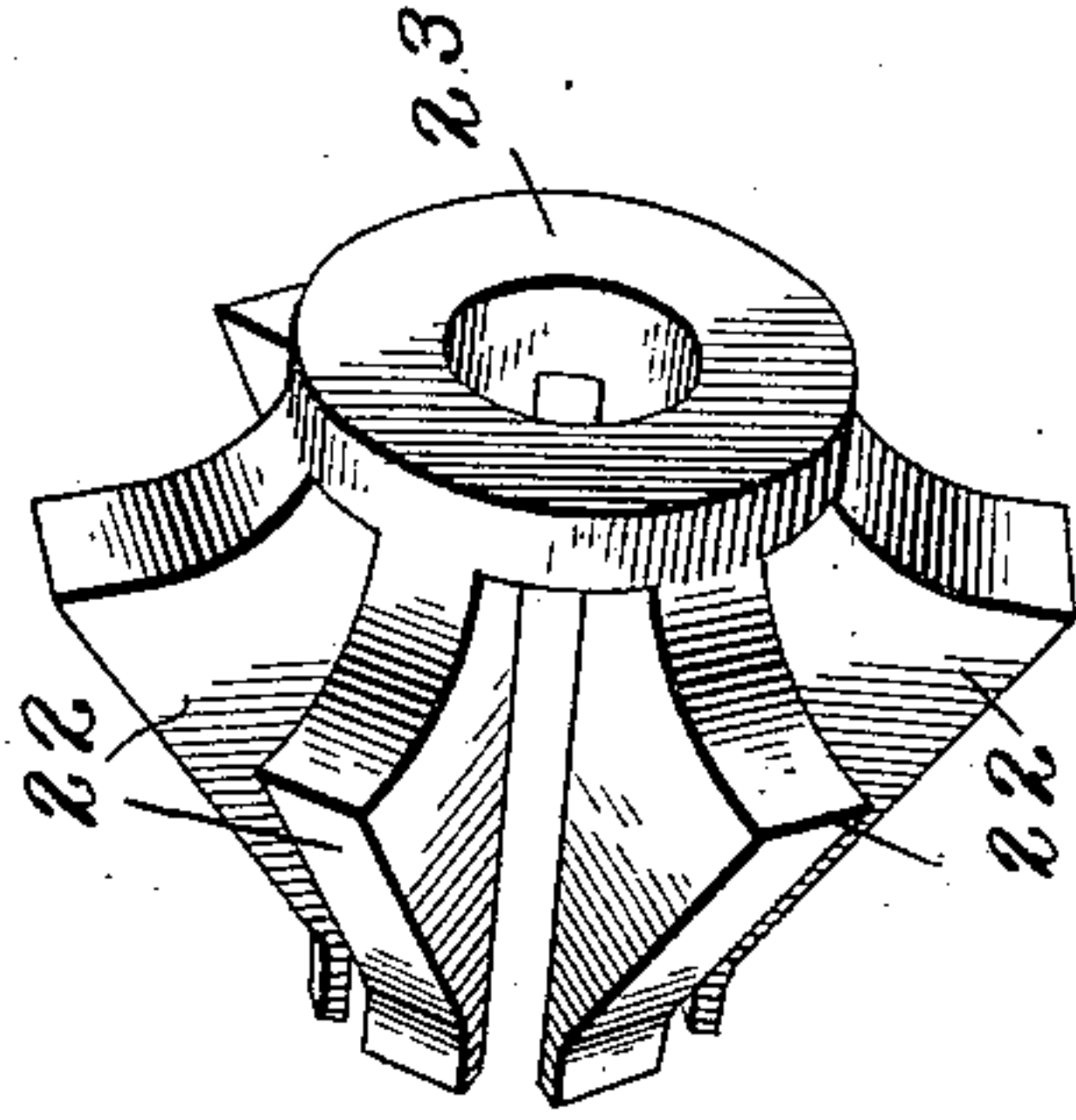
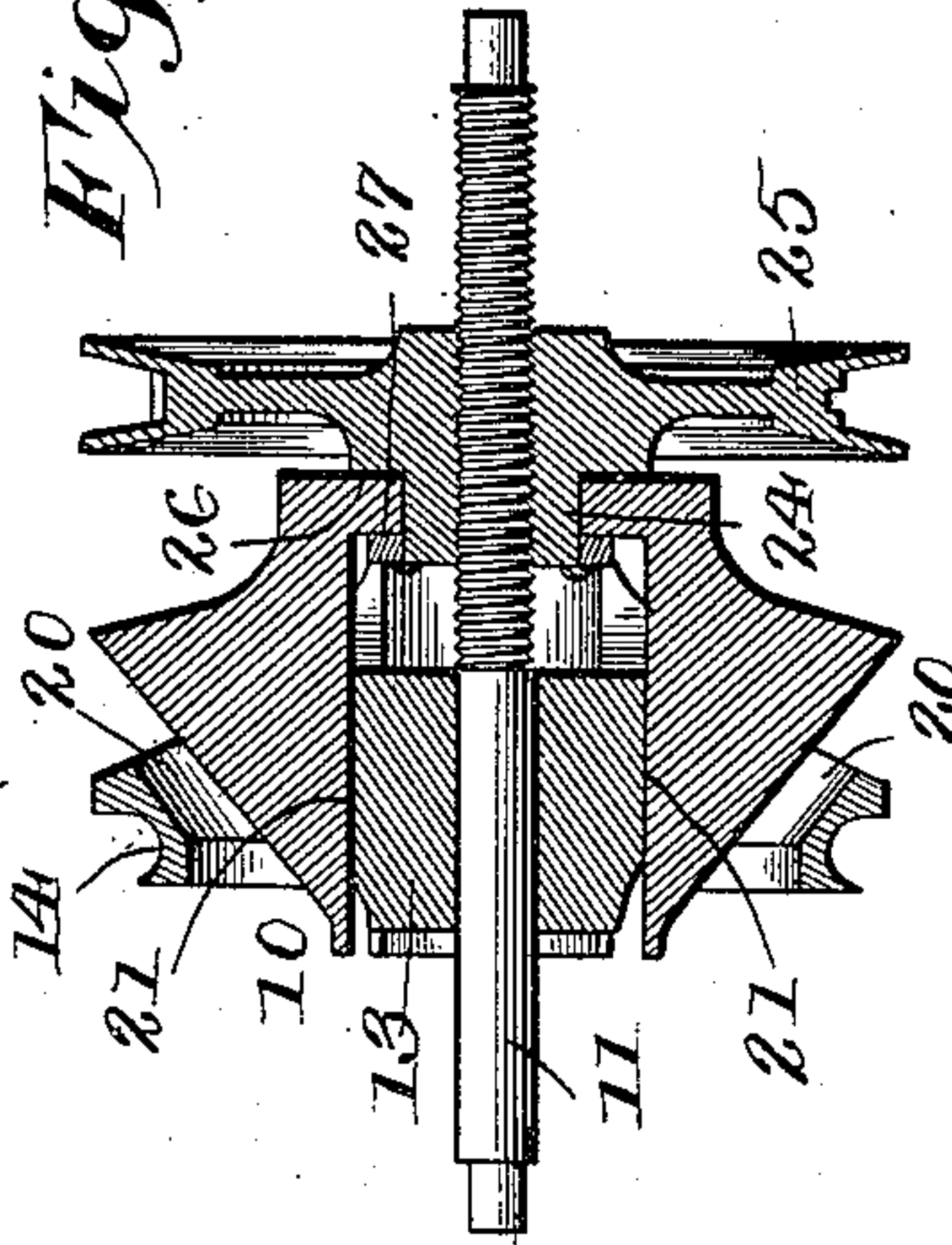


Fig. 6.

Fig. 4.

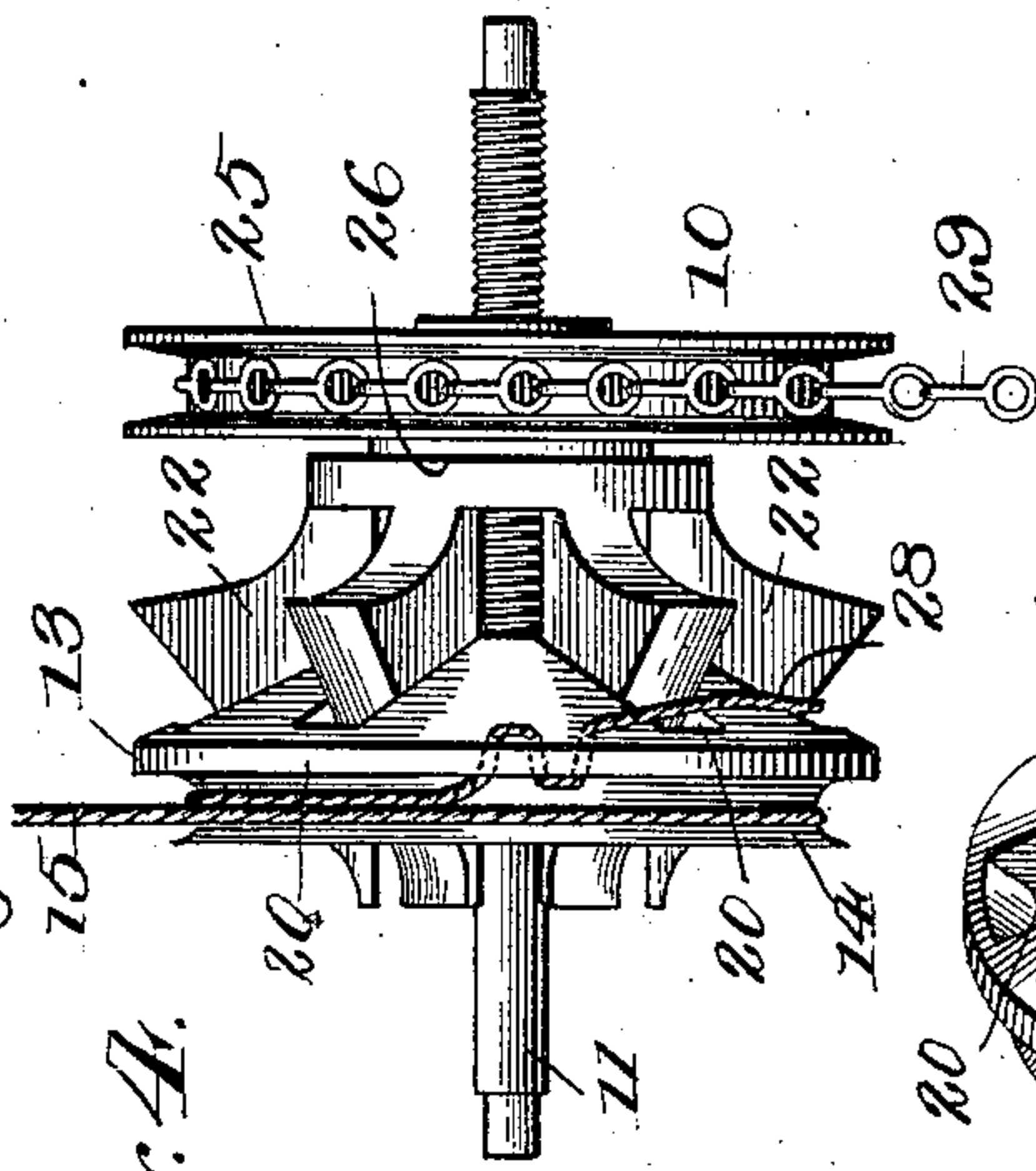
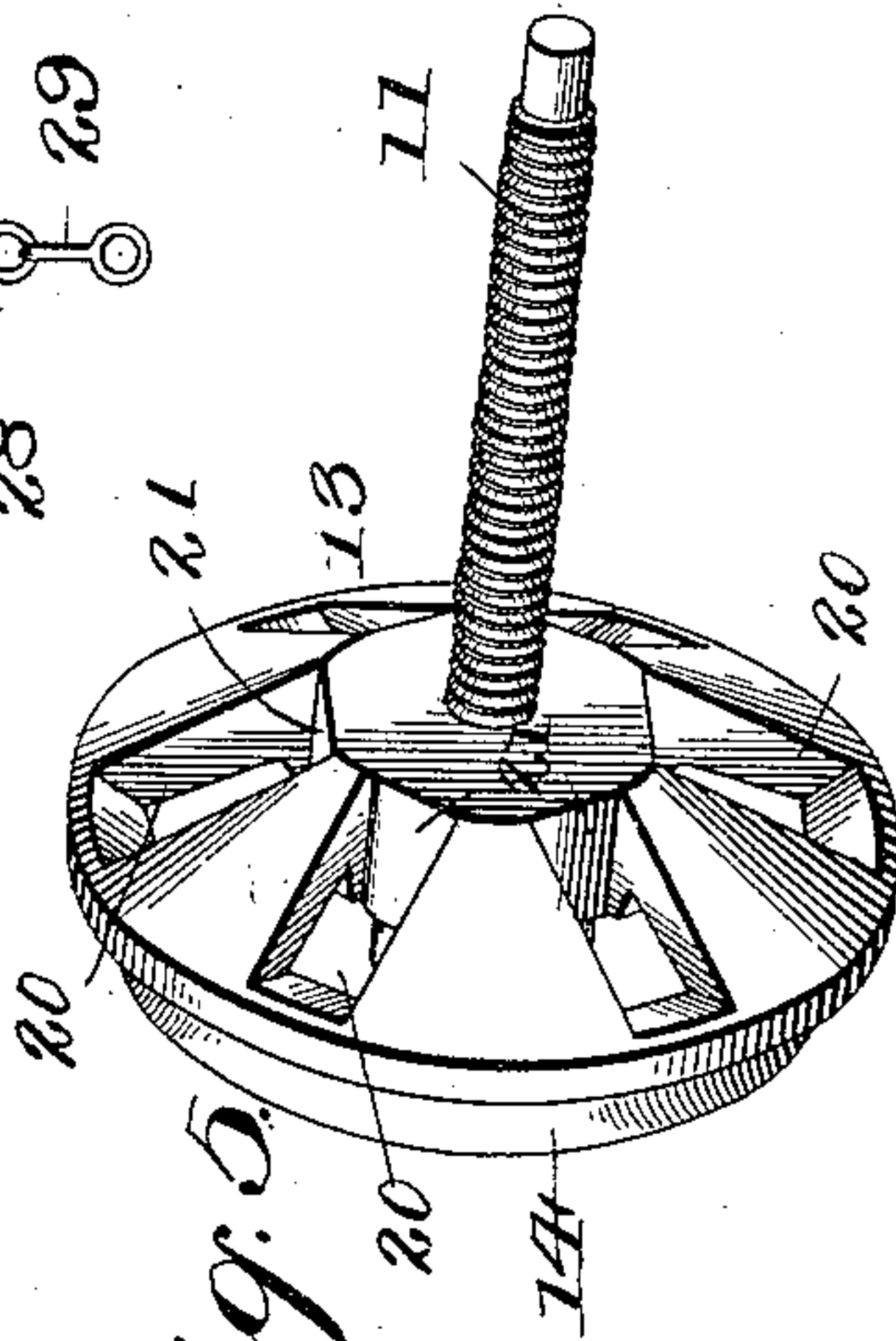


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM O. WHITNEY, OF GLENS FALLS, NEW YORK.

ADJUSTABLE SHELVING.

SPECIFICATION forming part of Letters Patent No. 575,747, dated January 26, 1897.

Application filed November 25, 1895. Serial No. 570,103. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM O. WHITNEY, a citizen of the United States, residing at Glens Falls, in the county of Warren and State of New York, have invented a new and useful Adjustable Shelving, of which the following is a specification.

This invention relates to an improvement in adjustable shelving for stores, libraries, &c., and has for its object to provide simple and efficient means for counterbalancing a vertically-sliding and adjustable tier of shelves, and also to provide novel and superior means for adjusting the power or tension of the counterbalancing device and to furnish, in connection with the above-mentioned device, means within the easy reach and control of an attendant for operating the adjusting mechanism and changing the counterbalance to correspond with the weight upon the shelves.

To the above end the invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and finally embodied in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a double section of store-shelving constructed in accordance with the present invention. Fig. 2 is a vertical transverse section through the same. Fig. 3 is a plan view thereof. Fig. 4 is an enlarged plan view of one of the expansible pulleys. Fig. 5 is a detail perspective view of one of the pulley-sections and the screw-shaft upon which it is mounted. Fig. 6 is a similar view of the other pulley-section. Fig. 7 is a longitudinal section through the pulley.

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

Referring to the accompanying drawings, 1 designates a case, the lower or base portion of which is preferably made of sufficient height and depth to constitute a counter upon which goods may be handled and also to provide room for a number of drawers 2, of the same or different sizes.

3 designates a pair of end boards or standards, and 4 one or more intermediate standards, which receive and support the opposite ends of a plurality of shelves 5, which are

stationary with the case. These shelves extend in separate tiers from the base portion of the case to any desired height, being covered or not by a suitable top and finished off in any preferred manner. The front edges of the standards 3 and 4 project a sufficient distance in advance of the front edges of the shelves 5 to have formed in their inner adjacent faces vertical grooves 6, in which run vertically-disposed guide-cleats upon the outer opposite surfaces of the side boards or uprights 7 of adjustable tiers of shelves 8, this construction serving to effectively guide the adjustable shelves in their up-and-down movements. Each of these adjustable tiers of shelves moves up and down in front of the stationary shelves without interfering with the goods stored thereon, and is provided with a hand-grip 9 for assisting in the proper manipulation thereof.

10 designates an expansible pulley which in its construction comprises two separate and independent members or sections. The shaft 11 of this pulley is journaled at its ends in transverse bars 12 at the top of the case and has secured fixedly thereon one of the members or sections 13 of the pulley proper. This pulley-section may be of any desired diameter and is provided in its periphery with a groove 14, around which runs a cable 15, which extends downward in rear of the case and has secured to its lower end a sliding weight 16, moving in engagement with a grooved guide-strip 17.

The weight 16 is provided with oppositely-disposed longitudinal flanges 18, having inward extremities or edges which enter grooves 19 in the opposite side edges of the guide-strip 17, thus establishing a positive sliding engagement between the weight and guide-strip and preventing any possibility of the displacement of the weight therefrom while the latter is traveling up and down in the operation of the adjustable shelving.

The web of the pulley-section 13 is provided with a series of radially-disposed slots 20, which extend partially into the hub of such pulley-section and form seats 21, upon which a corresponding series of rim-segments 22 of the other or remaining section 23 of the pulley slide. The rim-segments of the pulley-section are connected to a common hub, and this

hub is concentrically apertured to receive the inwardly-projecting hub 24 of a chain-pulley 25, the bore of which is screw-threaded to engage the pulley-shaft 11, which is also threaded throughout the major portion of its length, as shown.

The chain-pulley has an annular shoulder 26, which bears against the exterior face of the pulley-section 23, and is also formed with a supplemental annular shoulder 27, which engages the inner surface of the hub of the pulley-section 23. By this construction the chain-pulley may be rotated independently of the pulley-section 23, and by reason of the threaded engagement of the chain-pulley with the shaft the pulley may be fed either toward or away from the pulley-section 13, in which movement the rim-segments of the adjustable section of the pulley will move within and through the radial slots in the stationary pulley-section 13.

The inner adjacent faces of the pulley-section 13 and the segments of the pulley-section 23 are reversely inclined, as shown, to form a synclinal groove, in and around which may extend a cable 28, one end of which is secured to the adjustable tier of shelves and the other end to the pulley.

29 indicates an endless chain which extends around the chain-pulley above described and through openings in the top of the case and thence downward, where it hangs pendent and within the reach of an attendant, who, by and with the aid of said chain, may rotate the chain-pulley and thereby move the adjustable section of the pulley toward or away from the stationary section for the purpose of increasing and diminishing the diameter of the pulley proper.

By means of the construction above described it will be seen that while the counterbalance-weight unwinds its cable from the pulley the cable of the adjustable tier of shelves will be wound upon the pulley, and by making said weight approximately equal to the weight of the adjustable shelves one will counterbalance the other, so that the shelves may be adjusted up or down with the least possible exertion. Should the amount of goods upon the shelves be materially changed and the consequent load upon said shelves be varied, the attendant may by manipulating the endless adjusting-chain referred to increase or diminish the diameter of the pulley and simultaneously vary the leverage exerted by said pulley in the operation of lifting the shelves and the goods placed thereon. The adjustment of the diameter of the pulley is more easily effected when the shelving is in its lowermost position and the shelf-supporting cable unwound from the pulley. In lieu of the adjustable shelves a series of horizontal poles may be used, or, if desired, the tier of shelves may be covered by a glass front, thus forming an adjustable show-case.

In the event of shelves being placed in the center of a store or the floor-space thereof, adjustable shelving, such as that hereinabove described, may be used upon either or both sides of the stationary shelving. It is also possible to use the adjustable shelving in the center of a store without the use in connection therewith of the stationary shelving, so that said adjustable shelving may be suspended at a sufficient height from the floor to leave a clear floor-space and not occupy valuable room.

The pulley above described is not limited to the particular use referred to; but it will be apparent that the same may be employed wherever an expansible pulley may be found desirable.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. The combination with a vertically-adjustable tier of shelves, of a counterbalance-weight, an expansible pulley, a cable passing around said pulley and connected with the weight, a cable extending around said pulley and connected with the tier of shelves, and means within reach of the attendant whereby the diameter of the pulley may be varied, substantially in the manner and for the purpose described.

2. The combination with a vertically-adjustable tier of shelves, of a counterbalance-weight, an expansible pulley, a cable passing around said pulley and connected with the weight, a cable extending around said pulley and connected with the shelves, an adjusting-pulley mounted on the same shaft with the expansible pulley and adapted by its rotation to expand or contract the expansible pulley, and an endless chain or its equivalent passing around said adjusting-pulley and arranged within reach of an attendant, substantially as and for the purpose described.

3. The combination with a vertically-adjustable tier of shelves, of a counterbalance-weight, an expansible pulley, a cable connecting the tier of shelves and the weight and running over said pulley, a grooved adjusting-pulley having a swiveled connection with one of the expansible pulley-sections and a threaded engagement with the shaft of the main pulley, and a cable running over the adjusting-pulley, whereby the diameter of the main pulley may be increased or diminished at a point remote therefrom, substantially as described.

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

WILLIAM O. WHITNEY.

Witnesses:

GEORGE S. BISSELL,
CASS C. LAPOINT.