

(No Model.)

2 Sheets—Sheet 1.

J. S. YOUNG.
WASHING MACHINE.

No. 438,216.

Patented Oct. 14, 1890.

FIG. 1. -

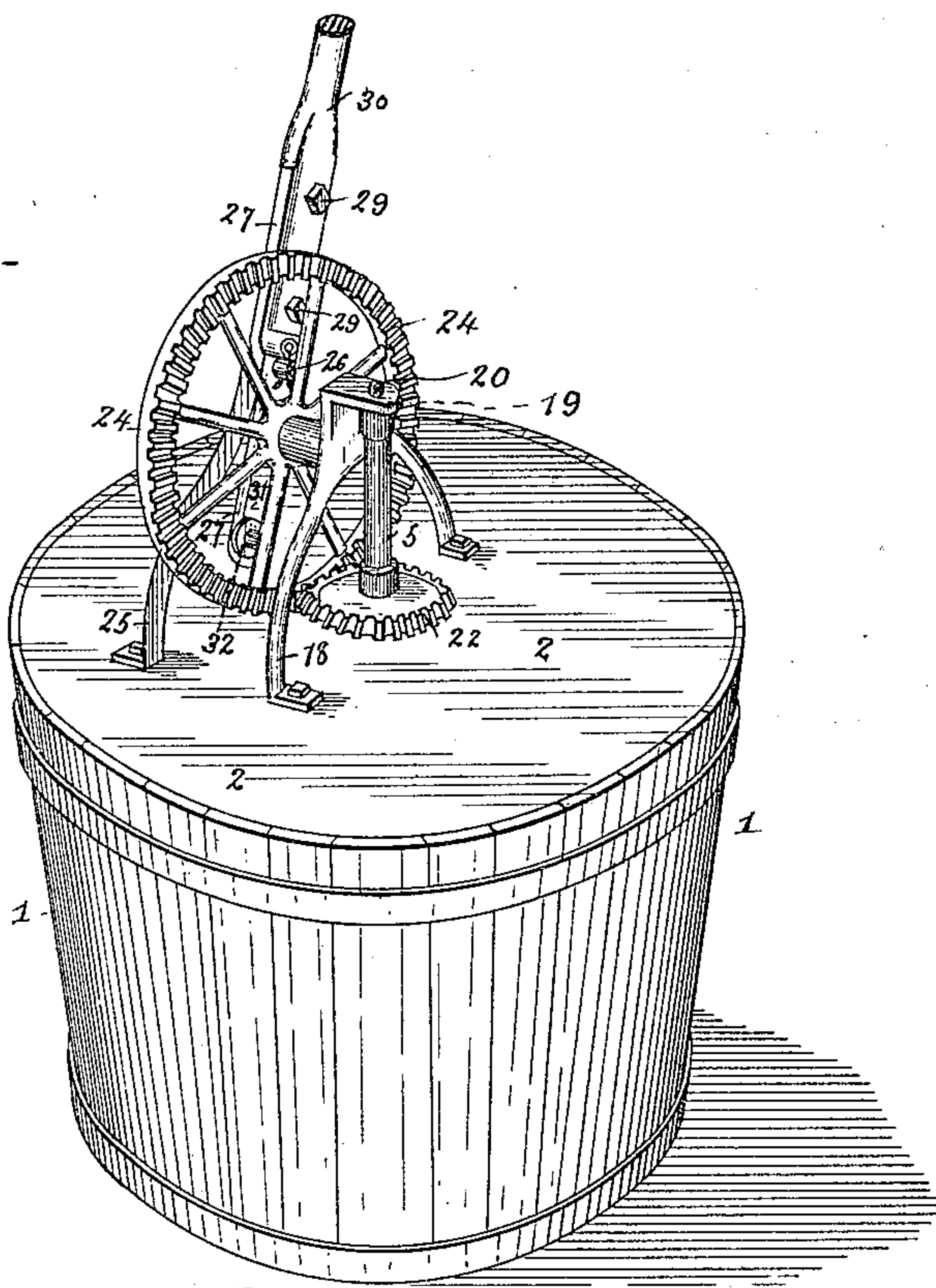


FIG. 6.

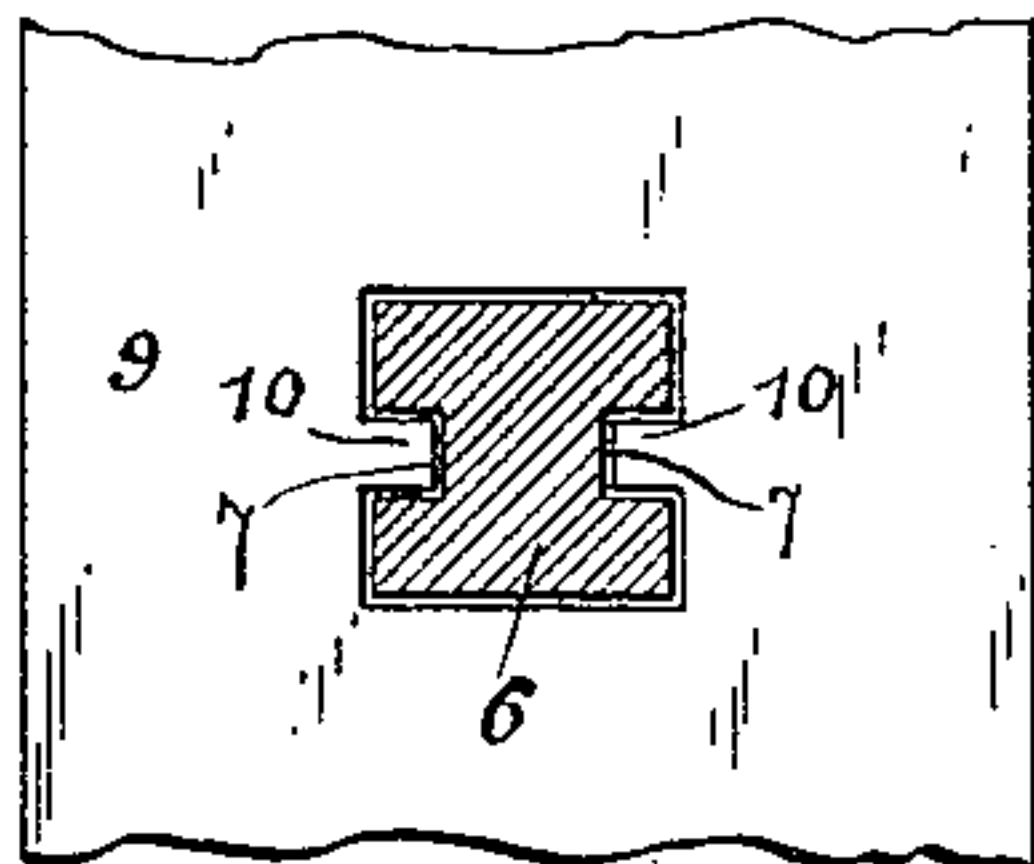


FIG. 2.

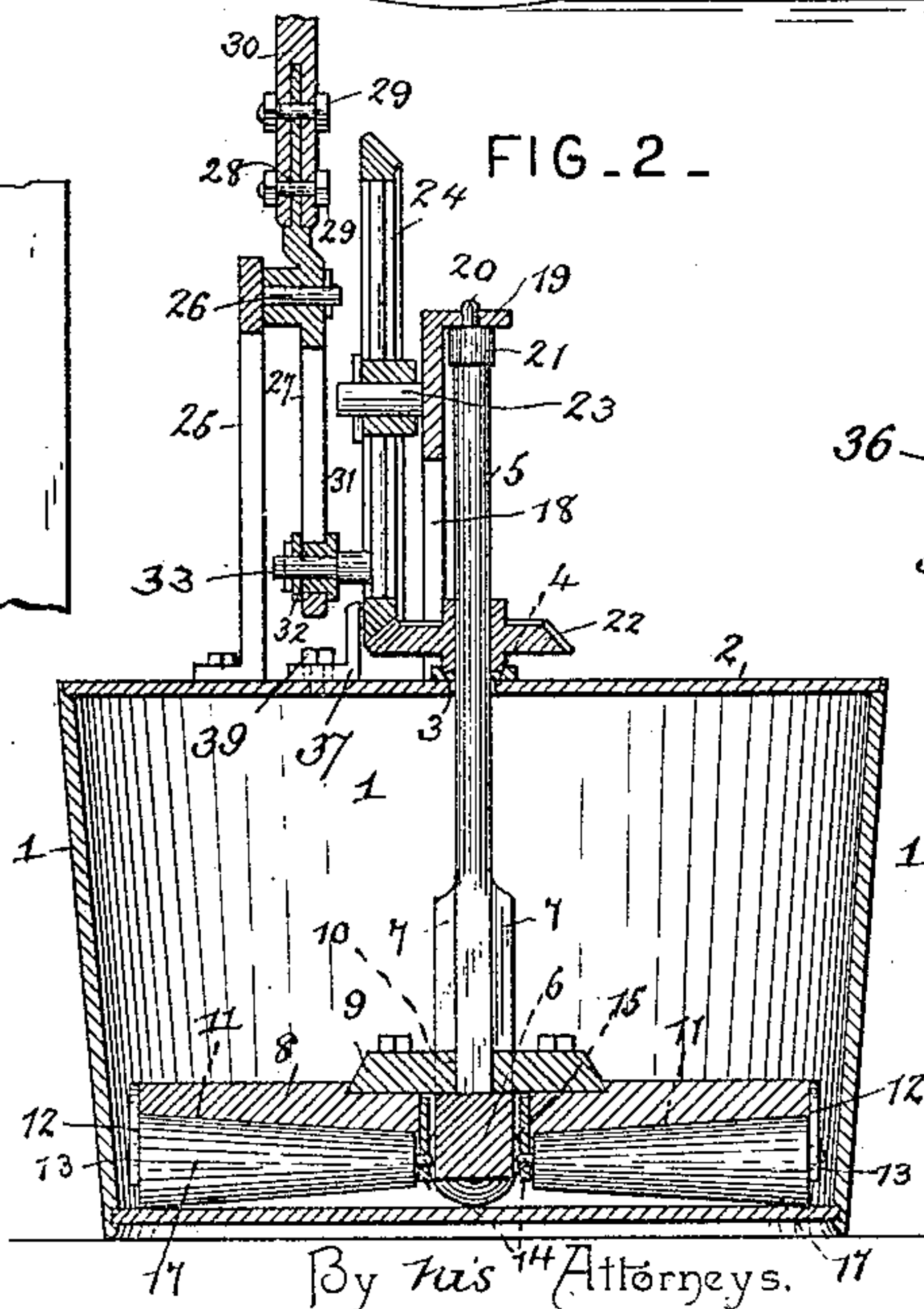
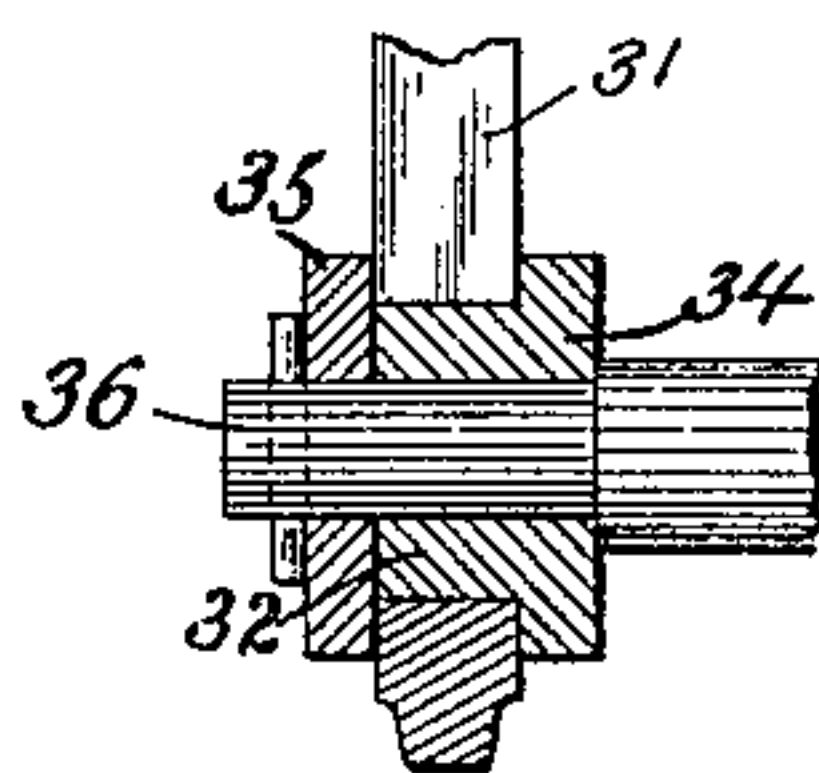


FIG-7-



Witnesses

Jas. K. McLathran

W. S. Duval

Inventor

John S. Young

By this ⁴Attorneys.

Chas. Snow & Co.

(No Model.)

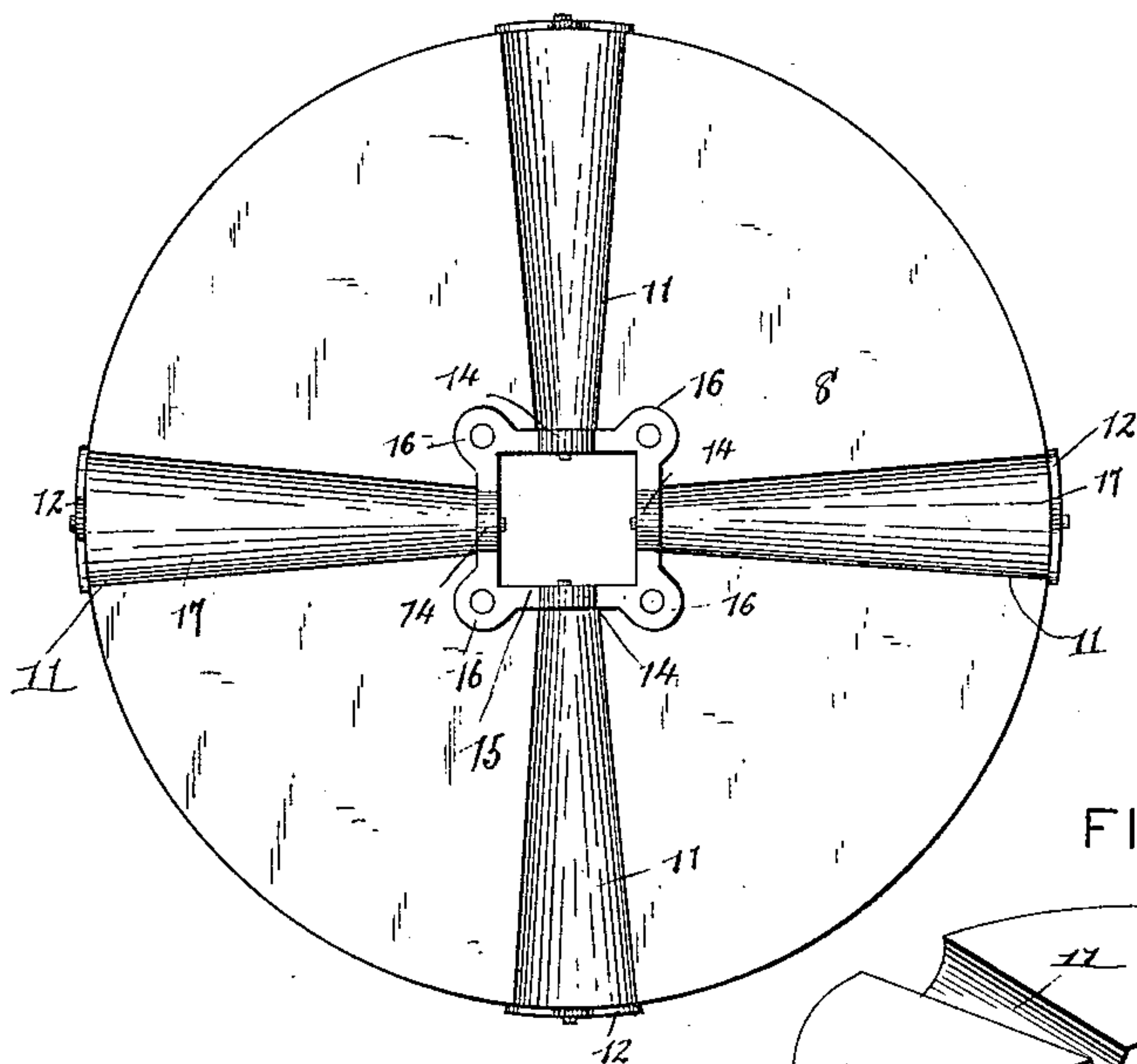
2 Sheets—Sheet 2.

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FIG. 3.



FIG_10_
8

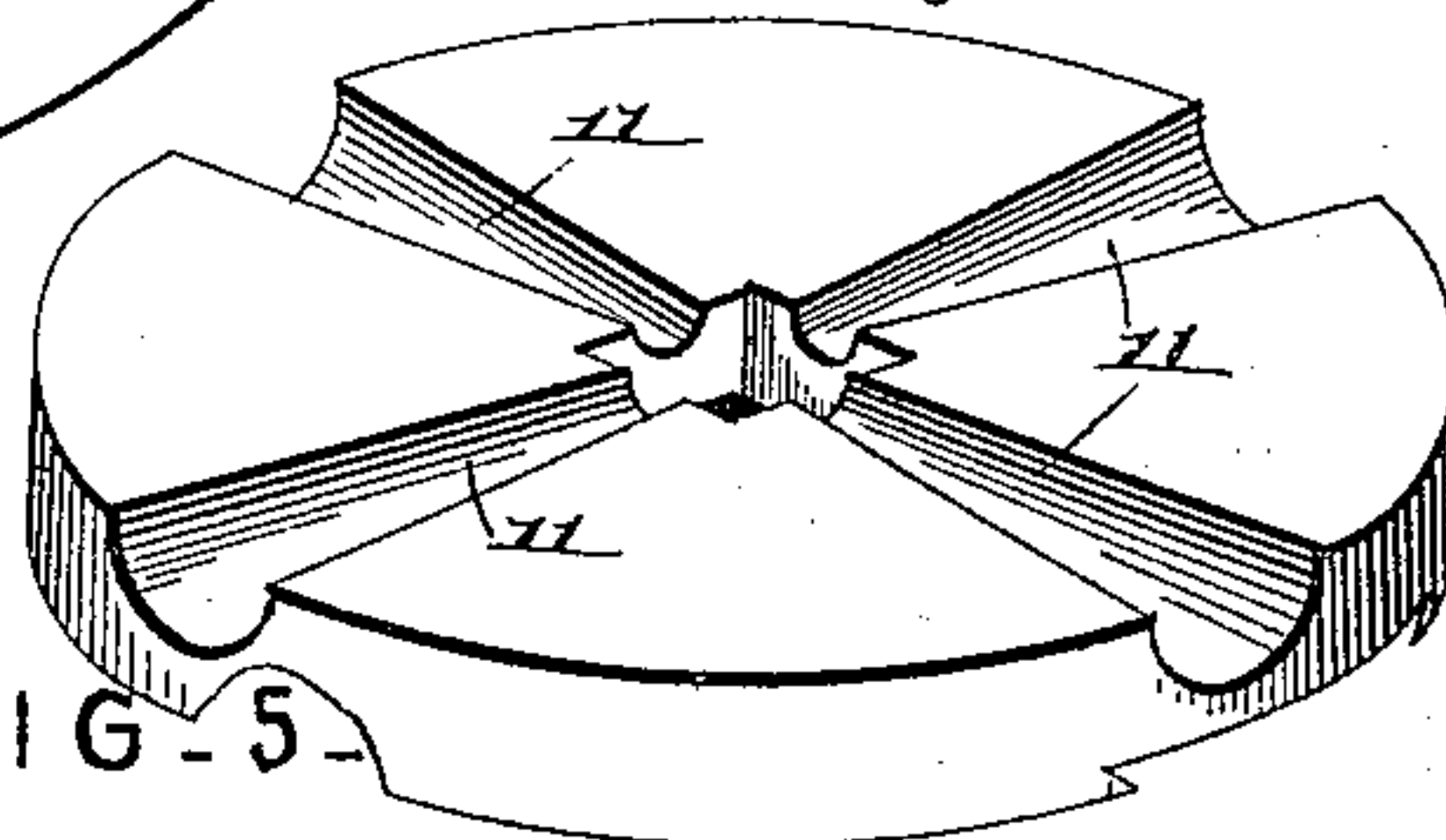


FIG. 4.

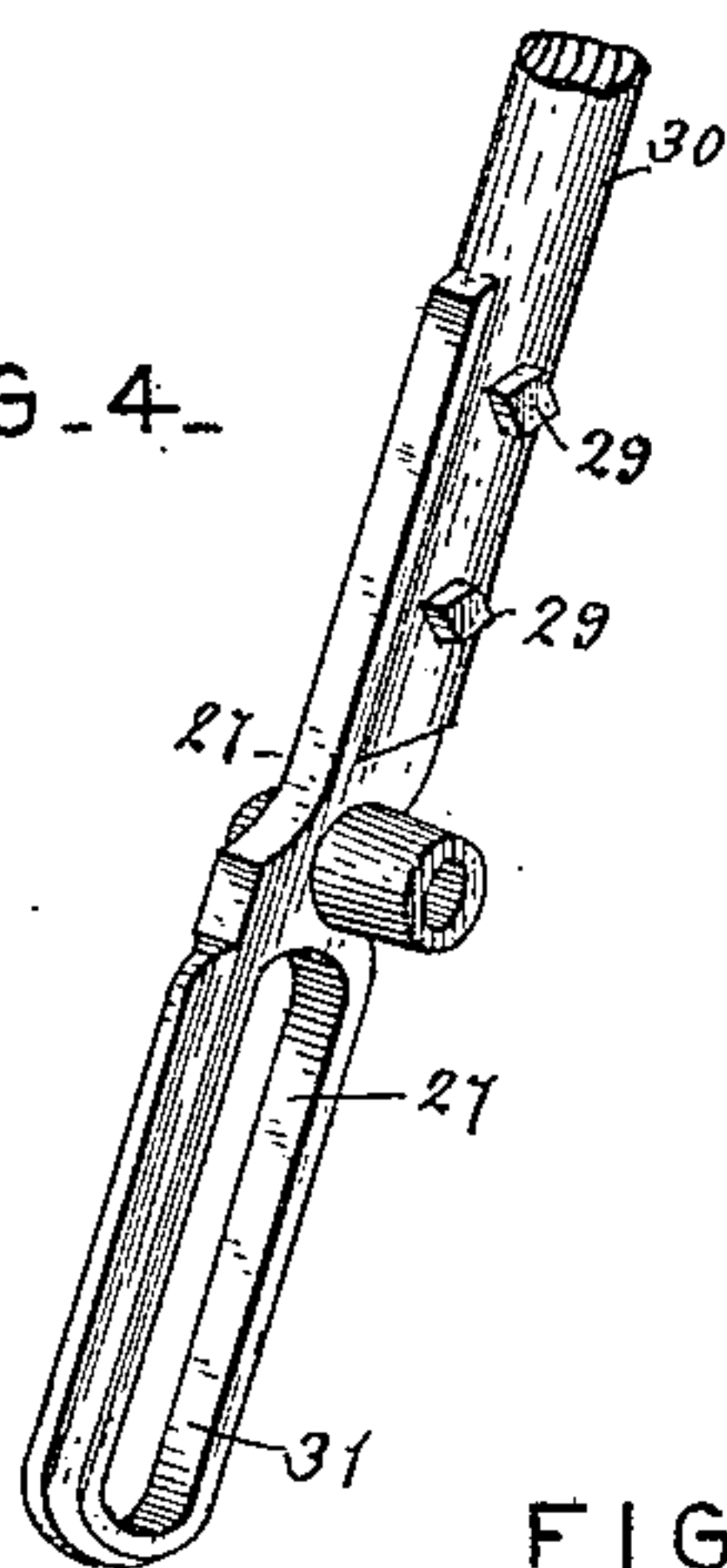


FIG - 5 -

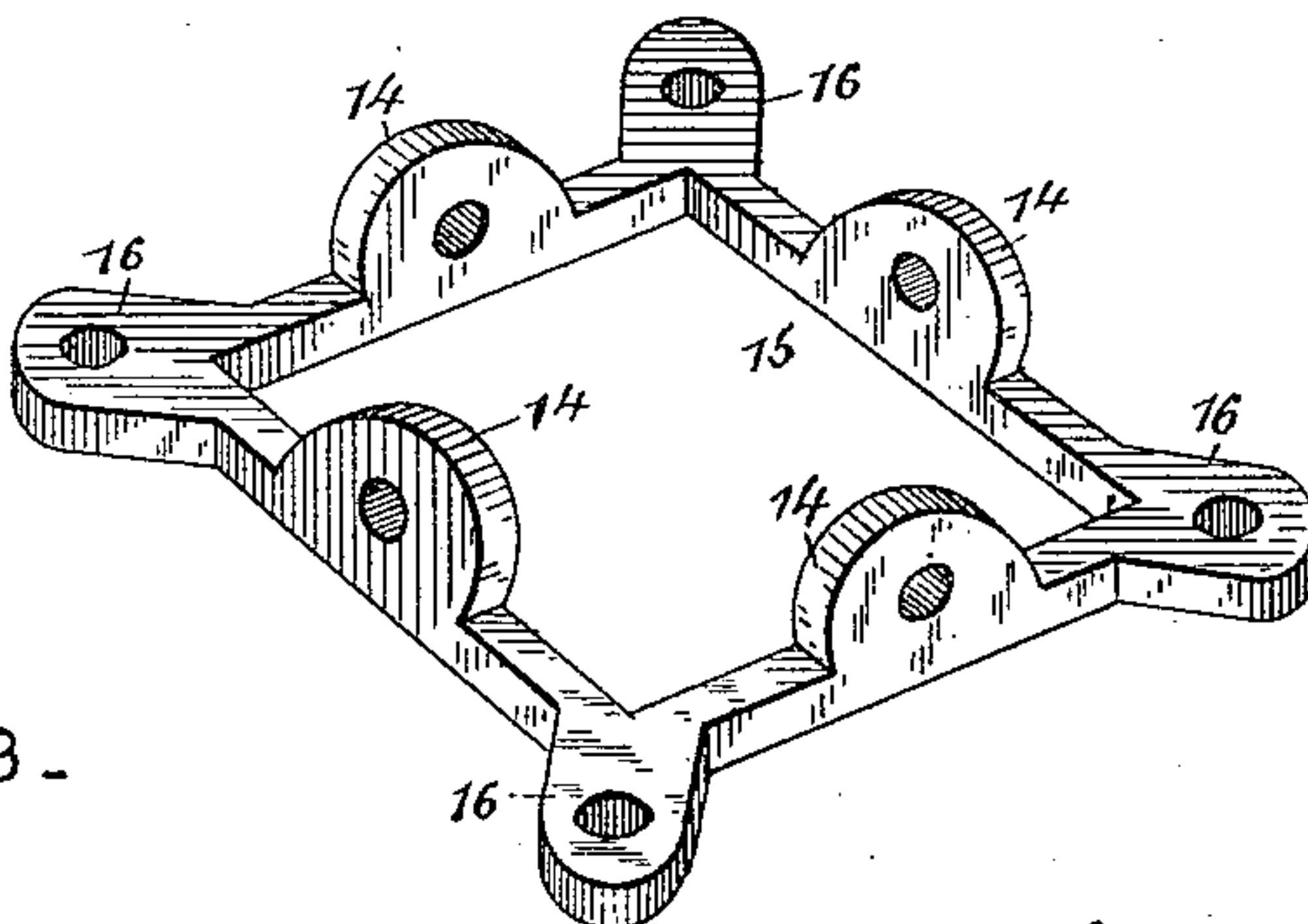


FIG. 8.

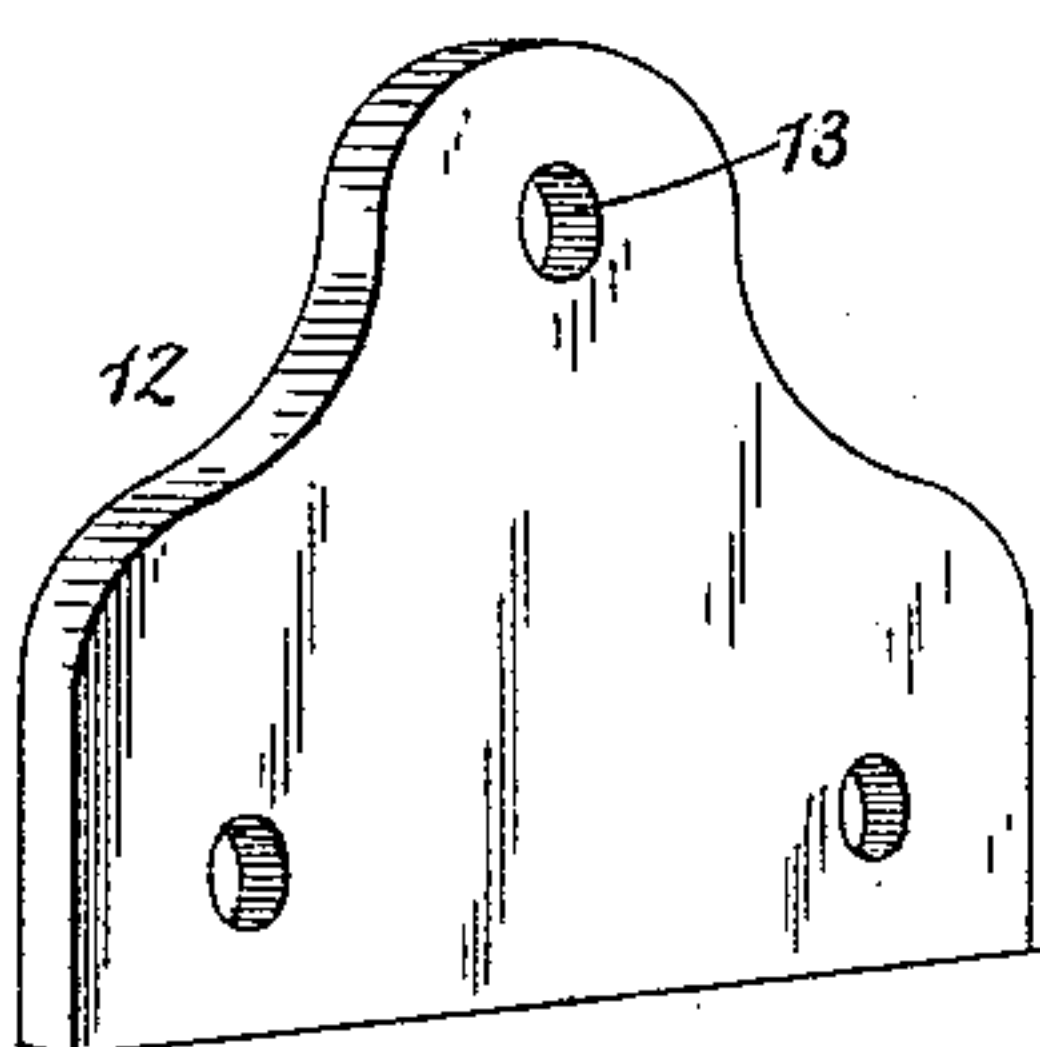
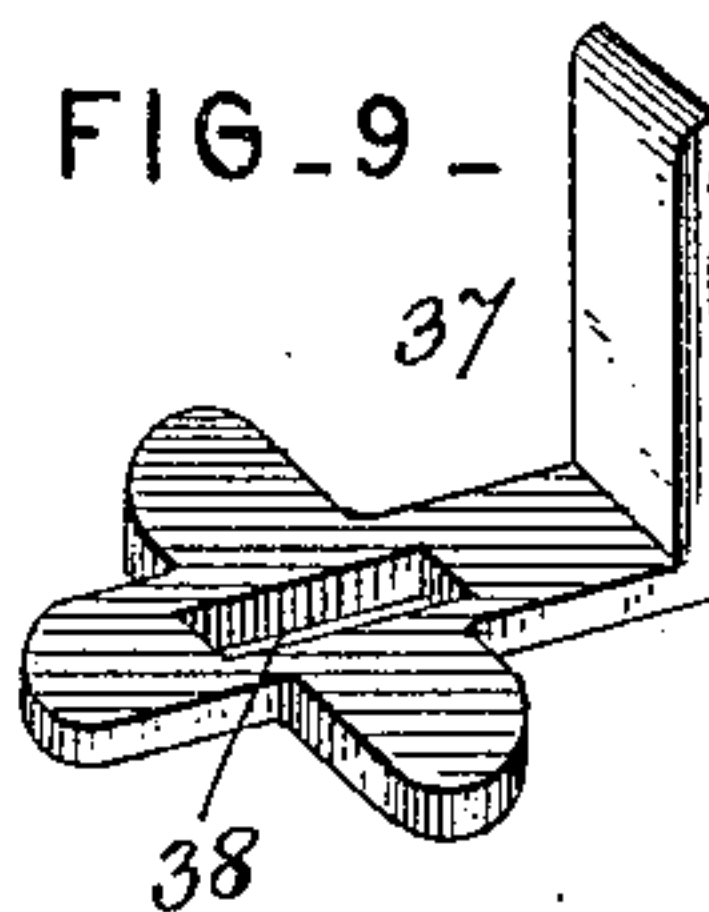


FIG. 9. —



Witnesses:

Jas H. McLathran

By h
W. S. Duwall.

By *his* Attorneys,

Inventor

John S. Young

Chas. W. Snow & Co.

UNITED STATES PATENT OFFICE.

JOHN S. YOUNG, OF DEFIANCE, OHIO.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 438,216, dated October 14, 1890.

Application filed April 24, 1890. Serial No. 349,324. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. YOUNG, a citizen of the United States, residing at Defiance, in the county of Defiance and State of Ohio, have invented a new and useful Washing-Machine, of which the following is a specification.

This invention has relation to washing-machines of that class adapted to be used in connection with an ordinary wash-tub or suds-box and employing in its make-up a head having a series of loose rollers for squeezing and pressing upon the clothing within the tub during the process of washing the same.

The objects of the invention are to provide a machine of cheap and simple construction and adapted to be operated with a minimum amount of power, and which in its operation will be capable of thoroughly eradicating the dirt from the clothes without the necessity of any extreme rubbing or other violent agitation calculated to tear or otherwise injure the garments.

Various other minor objects of the invention will hereinafter appear in the following description, and the novel features of the invention will be particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a perspective of a washing-machine constructed in accordance with my invention. Fig. 2 is a vertical transverse section taken through the axle of the drive-wheel. Fig. 3 is a bottom plan of the revolving head. Fig. 4 is a detail in perspective of the operating-lever. Fig. 5 is a detail in perspective of the head-casting. Fig. 6 is a detail in transverse section of the agitator-shaft. Fig. 7 is a detail in longitudinal section of the lower end of the slotted arm. Fig. 8 is a detail in perspective of one of the outer bearing-plates. Fig. 9 is a detail in perspective of the L-shaped guide. Fig. 10 is a detail in bottom perspective of the rubbing-head, the bearing-castings and rubbing-rolls removed.

Like numerals of reference indicate like parts in all the figures of the drawings.

The tub 1 may be of any ordinary construction, as a wash-tub, or be especially constructed for the washing mechanism hereinafter described. Upon the tub or suds-box 1 is mounted the circular cover 2, which may

be secured in position upon the tub in any ordinary manner. The center of the cover is provided with a circular opening 3, which is surrounded by a metallic bushing 4, through which is passed the vertical agitator-shaft 5, the lower portion of which is squared in cross-section, as at 6, and provided at two of its opposite faces with vertical recesses 7, extending to near the lower end of the staff.

8 represents a circular head of considerable thickness, so as to lend weight to the same to a proper degree to bear upon the clothing. The upper face of the head is crossed at an angle to the grain thereof by a cleat or cross-piece 9, let into the head, which cross-piece, like the head, has a square opening to receive the lower end of the staff 5, and is provided with inwardly-disposed lugs 10, which take into the grooves 7 of the staff and serve to guide the head when being raised or lowered in accordance with the quantity of clothing under the same. By reason of the cleat crossing the head at an angle to the grain of the wood of which said head is formed the strength and durability of the head are greatly increased and are also prevented from warping.

The head 8 is provided with a series of radiating conical-shaped and, in cross-section, curved recesses 11, which extend to the outer periphery of the head, and the ends of the recesses are covered by metallic plates 12, having bearing-openings 13. The opposite ends of the recesses are covered by bearing-lugs 14, formed upon and extending from a cast-metal frame 15, which surrounds the post or staff 5, and is provided with perforated corner lugs or ears 16, through which are passed screws into the head. In the bearings 14 and 13 are mounted the trunnions of rollers 17, the rollers being partially inclosed by the recesses, and, like said recesses, being conical or tapered toward their inner ends. At one side of the opening 3 of the cover is located a standard 18, the upper end of which is laterally bent and perforated to form a bearing 19, which receives a bearing-lug 20, formed upon the upper end of a ferrule 21, fitted over the upper end of the staff 5.

22 represents a small beveled pinion, which encircles the staff 5 and rides upon the metallic bushing 4, said pinion being fast upon the staff and rotating therewith. The rear

face of the standard 18 is provided with a stub-shaft 23, upon which is mounted a beveled master-gear 24, the teeth of which engage the teeth of the beveled pinion 22. In rear of the standard 18 there is located a second standard 25, in the upper end of which is located a bearing-pin 26, upon which is pivoted an arm 27, preferably formed of cast metal, and above its pivot perforated, as at 28, for the passage of bolts 29, by which it may be securely bolted to a bifurcated handle 30. Below its bearing the arm is provided with a longitudinal slot 31, which receives a roller 32, located upon a wrist-pin 33, extending from one of the spokes of the master-gear 24.

This completes the construction of the machine, and the operation of the same, which will be readily understood therefrom, may be briefly stated as follows: A suitable quantity of water is introduced into the tub, and in the water are immersed the clothes and the head 8 permitted to settle thereupon, the weight of the head being sufficient to compress the clothes. The handle or operating lever is now oscillated back and forth, and through the medium of the wrist-pin and the slotted arm the main gear is similarly oscillated upon its bearing. The oscillations of the master-gear impart a similar movement upon the part of the pinion 22 and the agitator-staff, though the movements of the latter are a complete revolution in alternate directions, which is secured by the relative size of the master-gear and the pinion. The oscillations or revolutions of the head cause the rollers to press upon and squeeze the dirt from the clothing, forcing the water through the same and agitating the clothing sufficiently to present the different surfaces of the clothing to the action of the rotary rubbers or rolls. By reason of the conical shape given the rolls the clothing has a constant tendency to travel toward the center of the head in contradistinction to tendencies usual in this class of rubbing-heads, wherein the tendency is in the opposite direction. By reason of the rolls being let into the head a short distance the clothing is prevented from being engaged by the rolls or pushed along, so as to accumulate in piles, and by the invention described said clothing is assembled in a comparatively even manner over the bottom of the tub or suds-box, and the latter is free from all rubbing-ribs, as such are wholly unnecessary with the head arranged as described.

The roller 32 is of a diameter adapting it

to loosely fit within the slot of the casting 27, and is provided upon its inner side with an annular flange 34, and at the opposite side of the roller is located a washer 35, the opposite sides of the arm therefore being loosely embraced by the flange and washer, which latter is held in place by a linchpin 36.

37 represents an L-shaped guide-bracket, the upper end of which is located adjacent to the outer face of the gear 24. The brace is slotted longitudinally, as at 38, and inserted through the same is a set-bolt 39.

Having thus described my invention, what I claim is—

1. In a washing-machine, the rubber-head provided with a series of radiating conical recesses tapered toward their inner ends and provided at the ends of the recesses with bearings, and a series of conical rollers corresponding in shape to the recesses and partially inclosed by the latter and mounted for rotation in the bearings of the recesses, substantially as specified.

2. In a washing-machine, the rubber-head provided with a series of radiating conical recesses tapered toward their inner ends and provided at one end of the recesses with the bearing-plates 12 and at the other end with the casting 15, having bearing-lugs 14 for all the rollers, and a series of conical rollers corresponding in shape to the recesses and partially inclosed by the latter and mounted for rotation in the bearings of the recesses, substantially as specified.

3. In a washing-machine, the rubber-head provided with a series of radiating conical recesses tapered toward their inner ends and provided at one end of the recesses with the bearing-plates 12 and at the other end with the casting 15, having bearing-lugs 14 for all the rollers, and a series of conical rollers corresponding in shape to the recesses and partially inclosed by the latter and mounted for rotation in the bearings of the recesses, the cross-piece 9, let into the head and having lugs 10, and the square shaft 6, having grooves 7 to receive the lugs and passing through the head and received within the hollow casting 15, substantially as specified.

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

JOHN S. YOUNG.

Witnesses:

A. VIERS,

ADAM THIEROFF.