

J. D. WALSH.
MERRY-GO-ROUND.

APPLICATION FILED JULY 8, 1908. RENEWED JAN. 7, 1910.

953,808.

Patented Apr. 5, 1910.

4 SHEETS—SHEET 1.

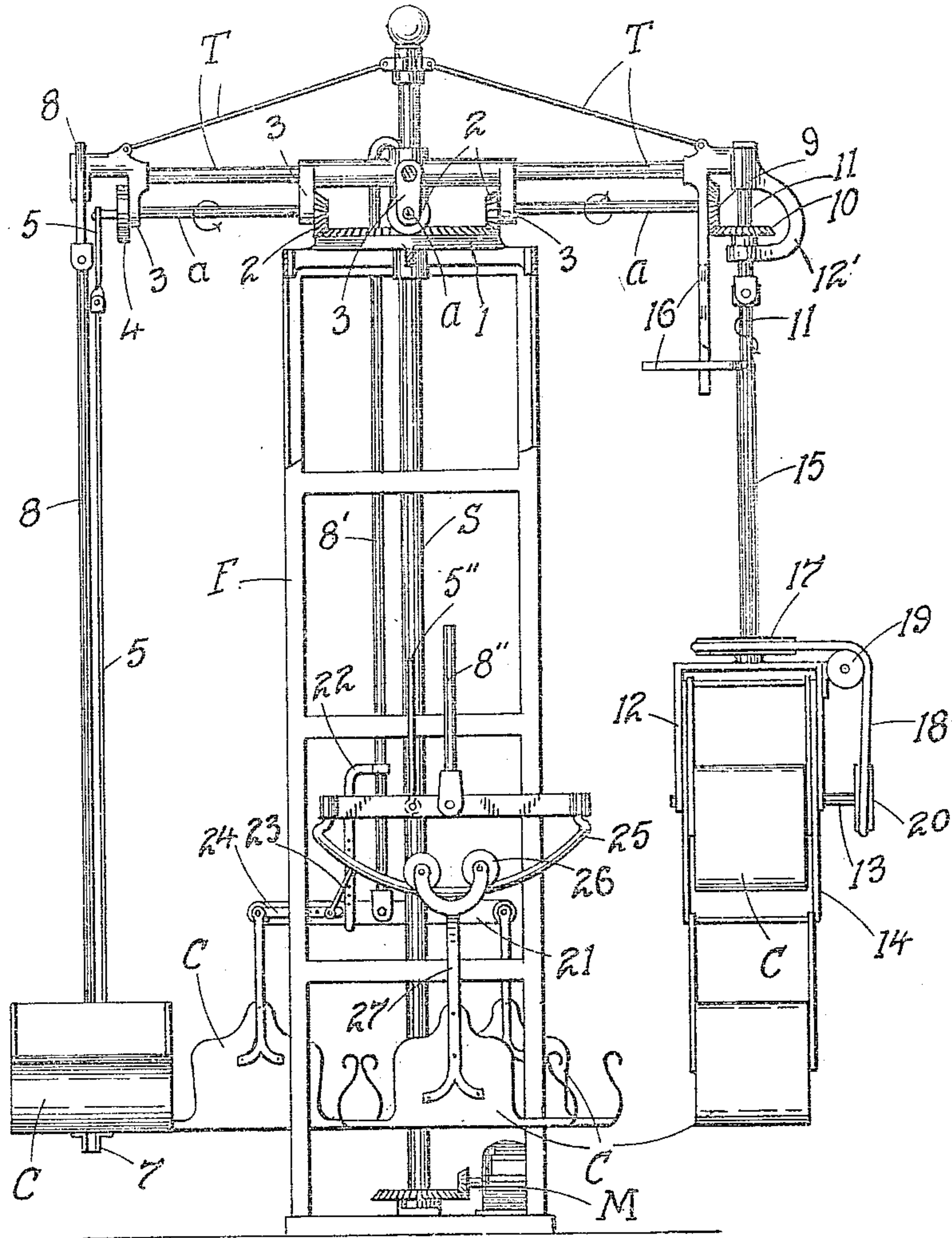


FIG. 1.

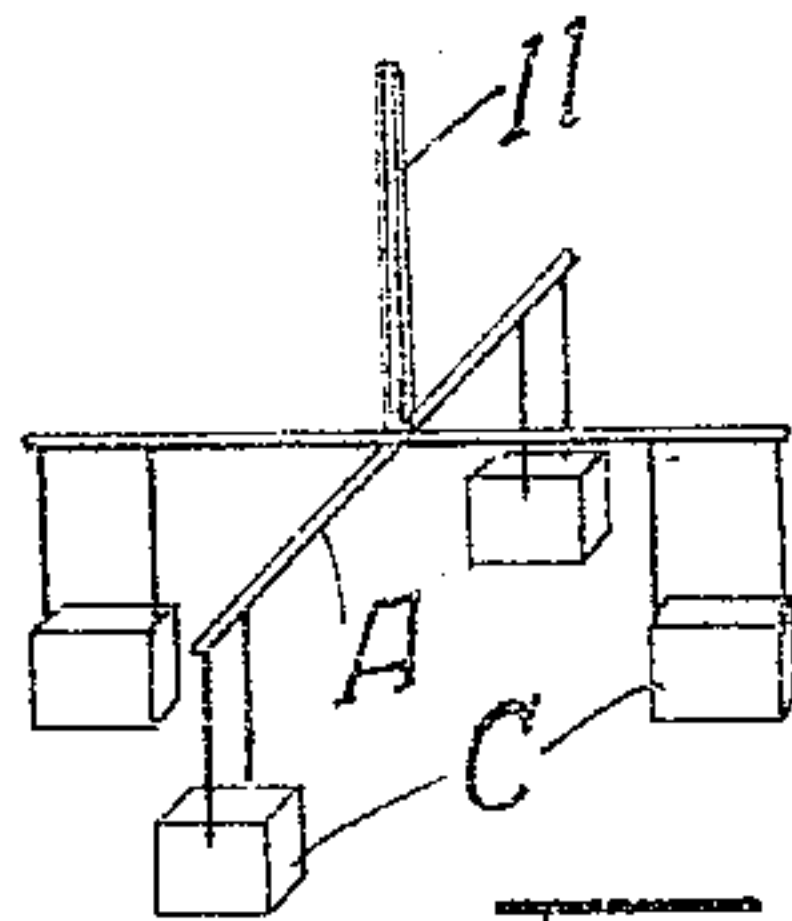


FIG. 2.

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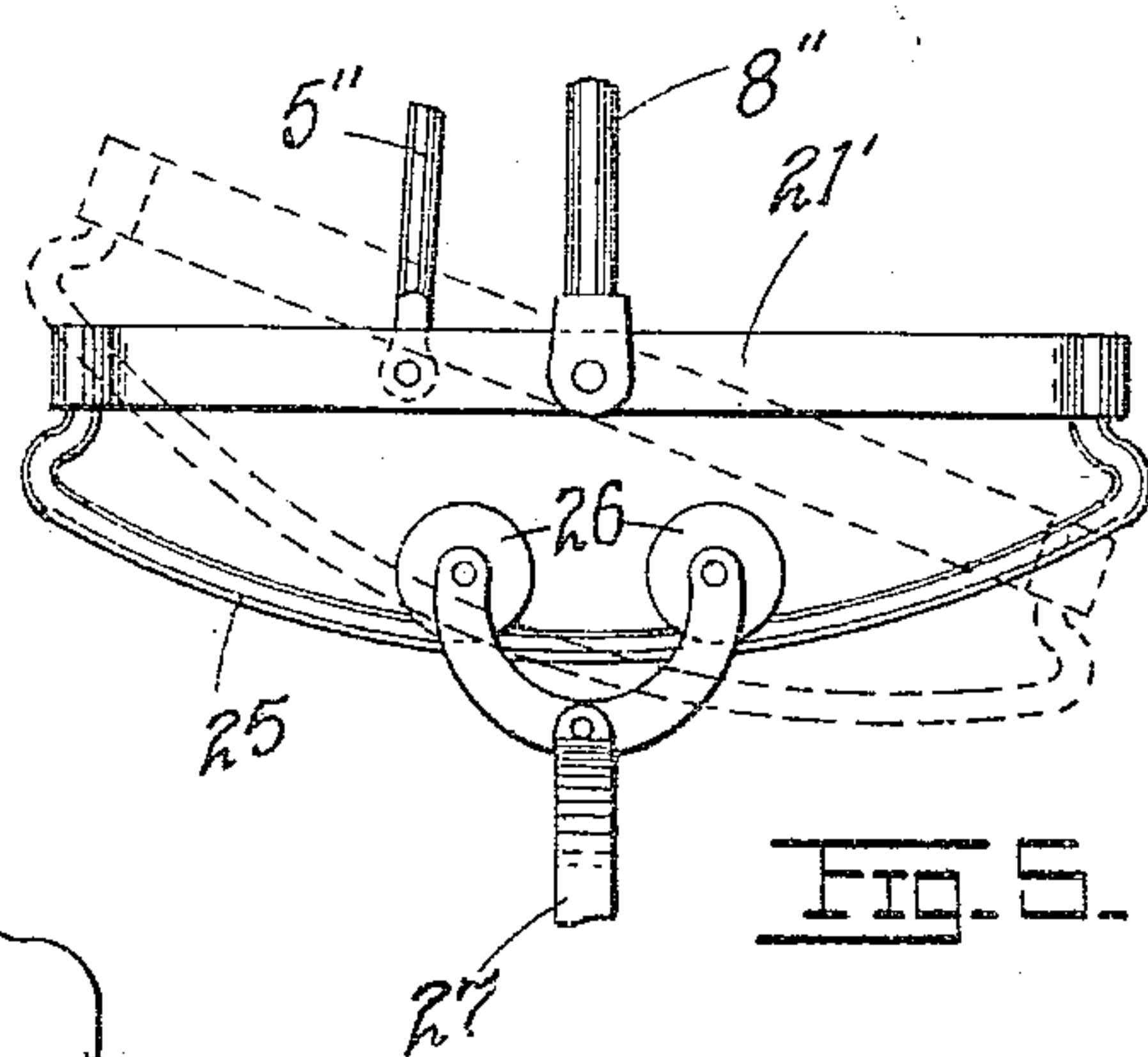
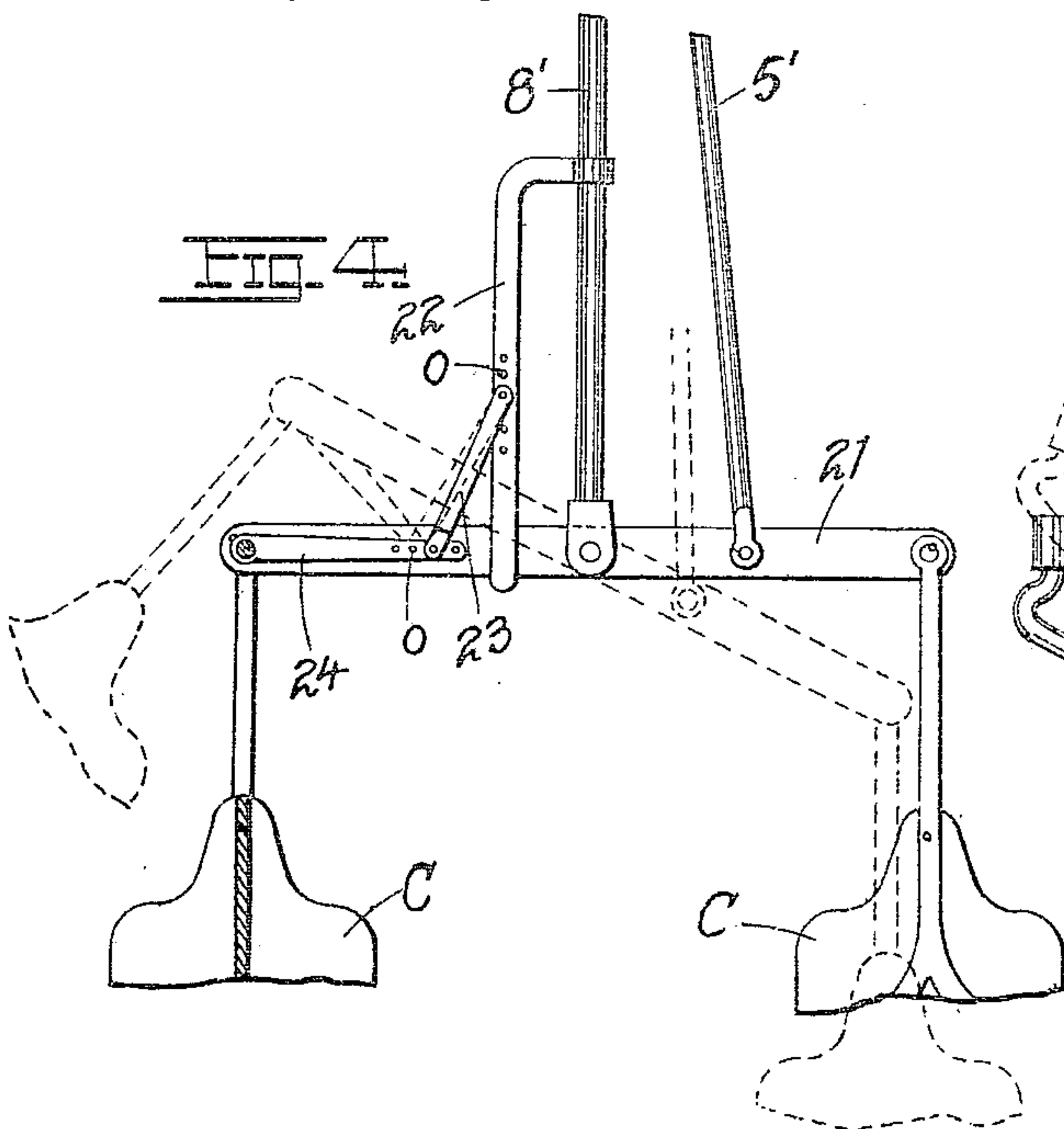
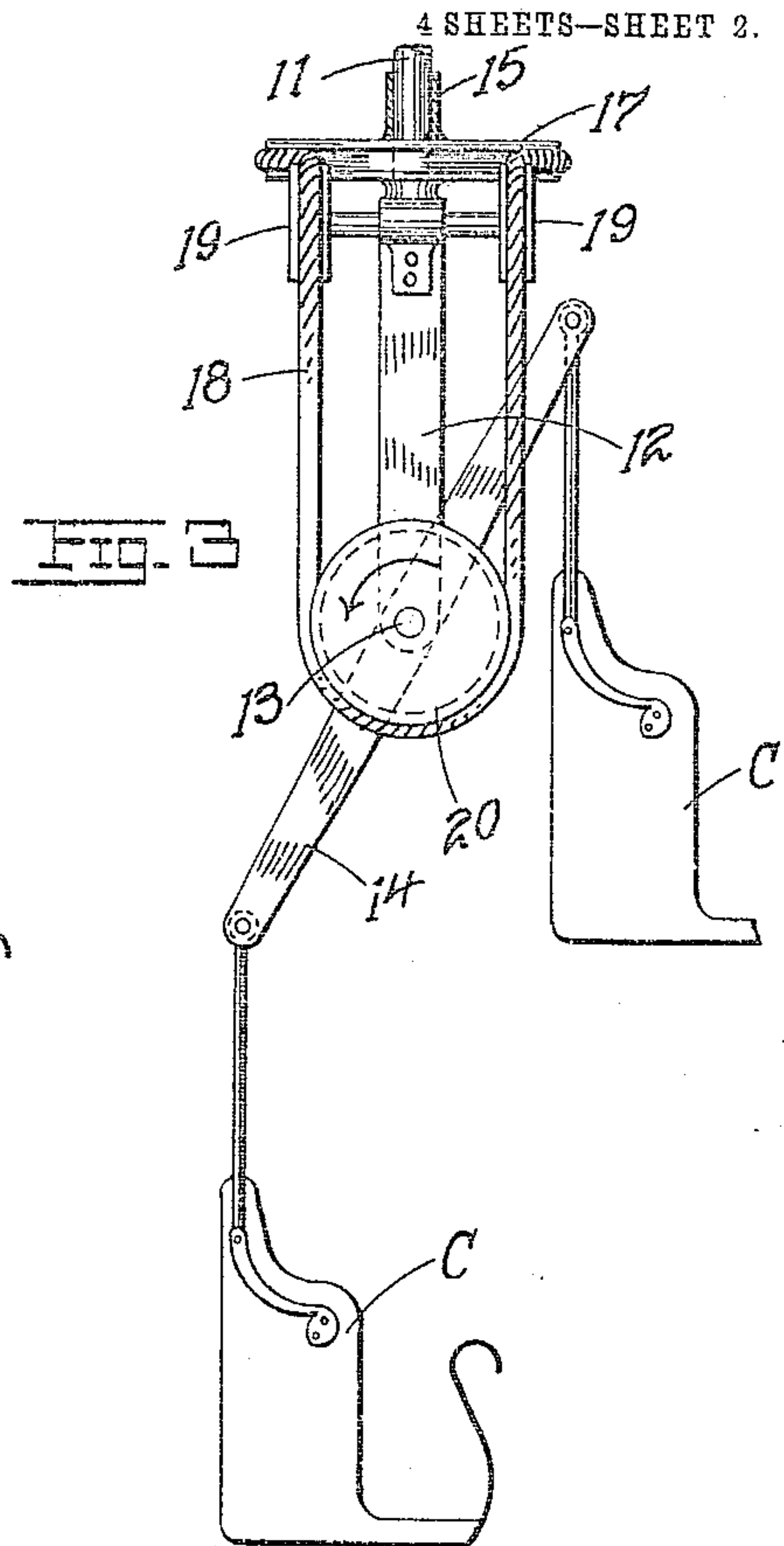
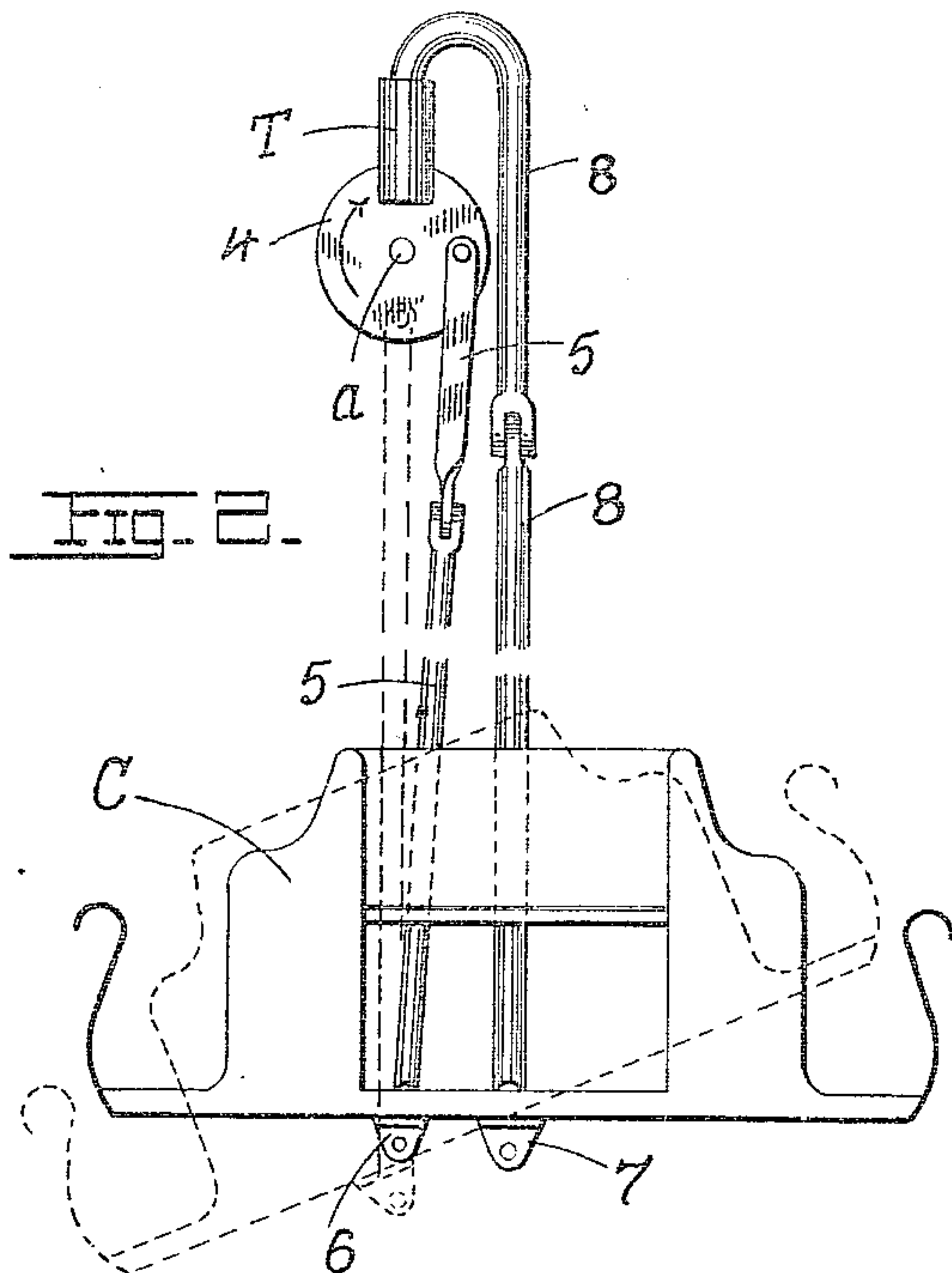
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4 SHEETS—SHEET 3.

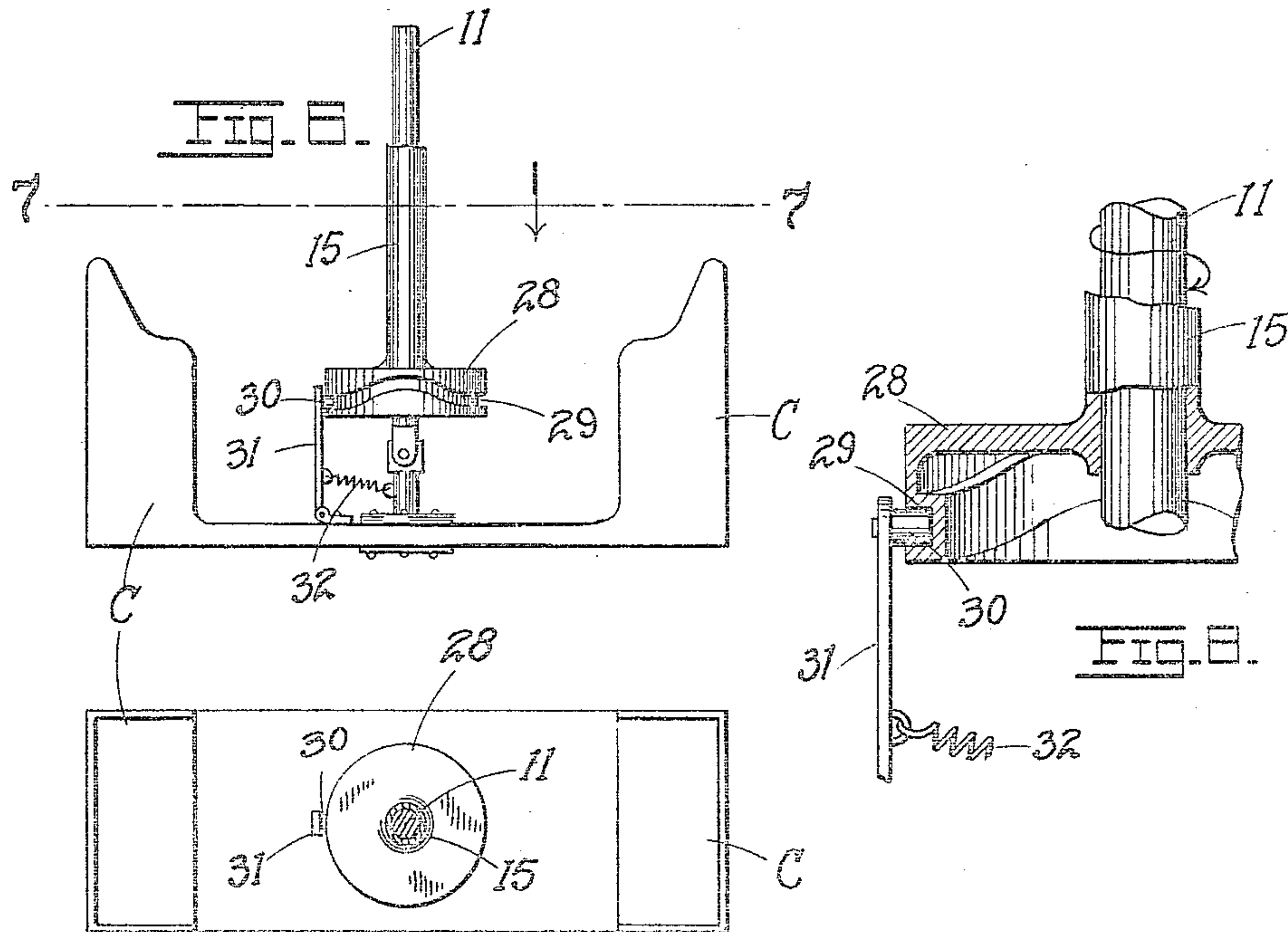


FIG. 7.

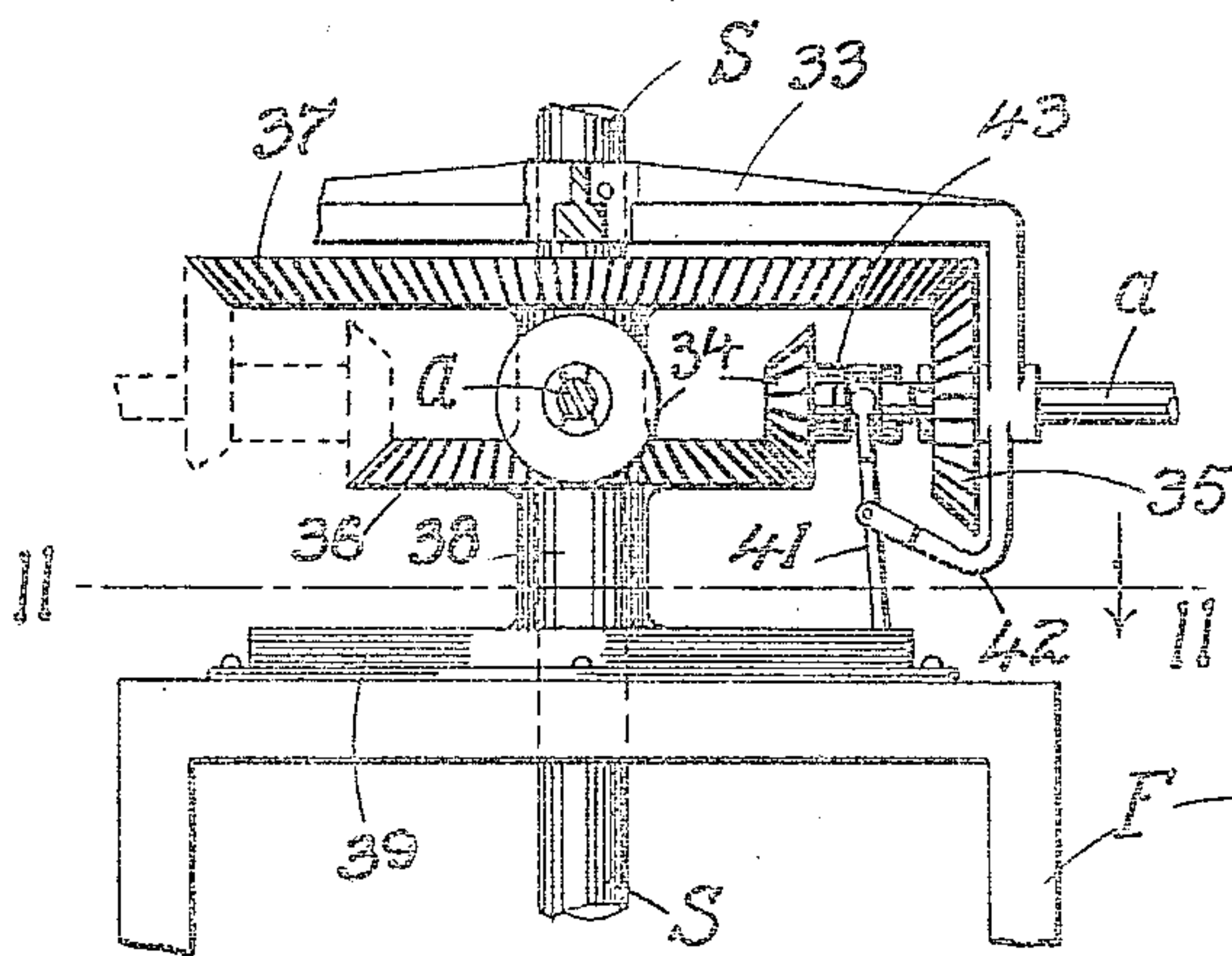


FIG. 10.

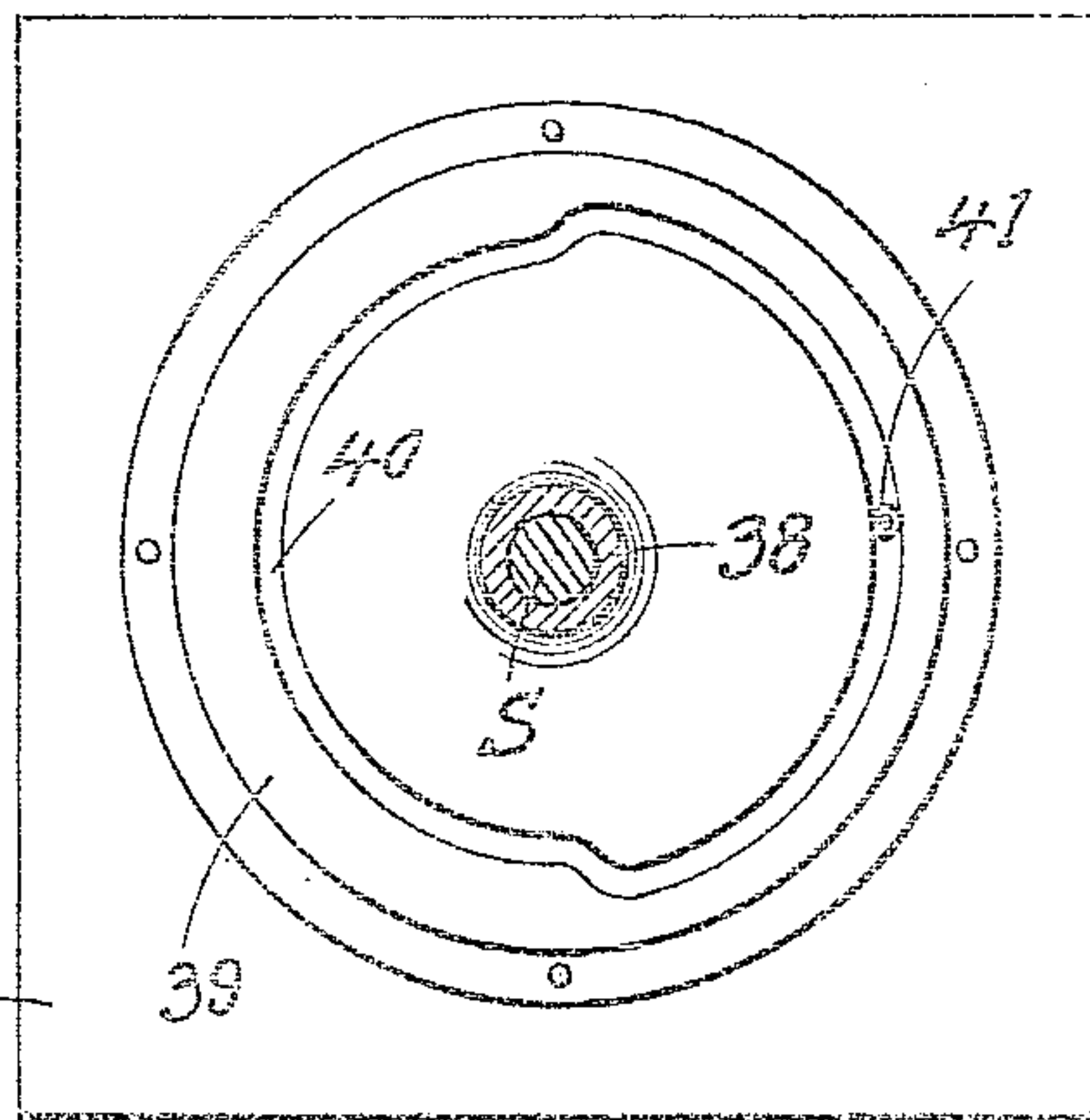


FIG. 11.

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4 SHEETS—SHEET 4.

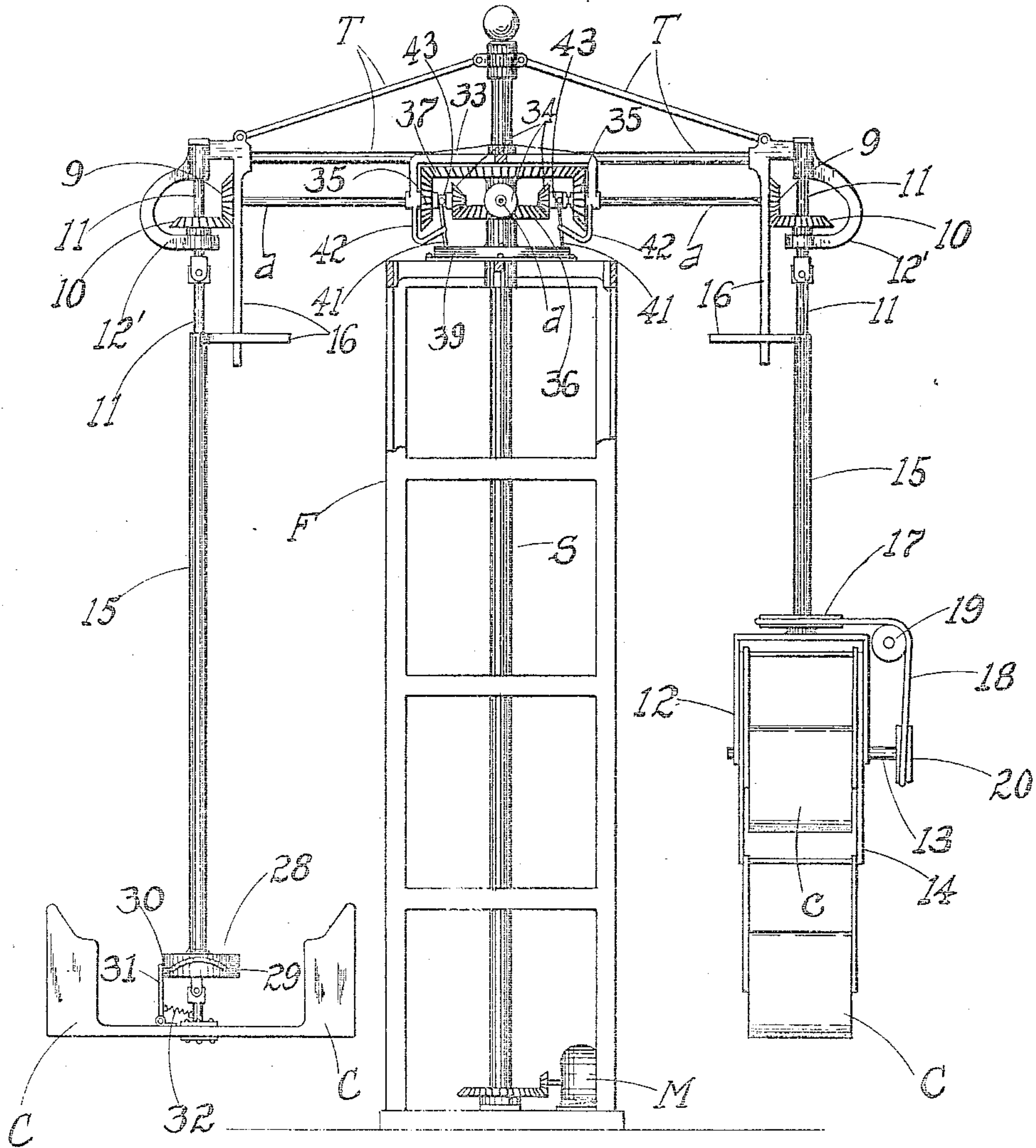


FIG. 12.

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UNITED STATES PATENT OFFICE.

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MERRY-GO-ROUND.

953,808.

Specification of Letters Patent.

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Application filed July 8, 1908, Serial No. 442,562. Renewed January 7, 1910. Serial No. 536,925.

To all whom it may concern:

Be it known that I, JAMES D. WALSH, a subject of the King of Great Britain, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Merry-Go-Rounds, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in roundabouts or merry-go-rounds; and it consists in the novel construction and arrangement of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is an elevation of my improved merry-go-round; Fig. 2 is an elevation of the driving mechanism for imparting a special rocking movement to one of the series of cars; Fig. 3 is an elevation of the driving mechanism for imparting a vertical rotation to an independent pair of cars; Fig. 4 is an elevation of the driving mechanism for imparting a combined rocking and swinging motion to another pair of cars; Fig. 5 is an elevation of the driving mechanism for imparting an oscillating movement to another car; Fig. 6 is an elevation of a modification imparting a combined revolving and rocking or oscillating movement to the cars; Fig. 7 is a horizontal section on line 7-7 of Fig. 6; Fig. 8 is an enlarged vertical section of the grooved disk shown in Figs. 6 and 7; Fig. 9 is a diagrammatic view showing a series of swinging cars revolving about a common axis, such axis in turn revolving about the main drive-shaft of the merry-go-round; Fig. 10 is an elevation of a modification for reversing the rotation of the truss-shaft by which any series of cars is directly actuated; Fig. 11 is a horizontal section on line 11-11 of Fig. 10; and Fig. 12 is an elevation of a merry-go-round showing specific forms of cars and driving means.

The object of my invention is to construct a merry-go-round provided with a series of swinging cars or baskets, each car having an individual movement of its own not participated in by the other cars of the series, so that the occupants of one car experience distinct sensations during the revolution of the cars about their common axis. This makes a ride on the merry-go-round highly enjoyable as well as interesting, as will be

clearly apparent from a detailed description of the invention which is as follows:—

Referring to the drawings, and for the present to Figs. 1 to 5 inclusive, S, represents a center shaft rotated by a motor M through the medium of suitable gearing as shown, the shaft passing centrally through a frame or tower F of any approved or ornamental design to suit the taste of the builder, and running in bearings supported by the frame. The top of the frame F carries a stationary bevel gear wheel or rack 1 over which travel a series of pinions 2, carried at the inner ends of a series of radiating shafts *a*, *a*, mounted in lugs or ears 3, depending from the lower or compression members of the truss formation T, secured to, and rotatable with the shaft S. Each shaft *a* (of which there may be any number, though only four are here availed of) serves to actuate a car C, or pair of cars as the case may be, each shaft imparting to its car a motion distinct from that of the other cars (or pair of cars) of the series, these motions being of course distinct from the general revolution of all the cars about the shaft S as an axis.

Each of Figs. 2, 3, 4, and 5, represents distinct means for imparting correspondingly distinct motions to the respective cars identified with any shaft *a*. Thus, in Fig. 2, (shown also on the left in Fig. 1), the shaft *a* terminates in a crank-disk 4 to which is coupled one end of a universally-jointed connecting-rod 5, the opposite end passing through the bottom of the car C, and being pivotally coupled to a pair of ears or lugs 6 secured to said bottom to one side of the transverse center of the car. At the center of the car bottom are located ears 7 to which is pivotally secured the lower end of the jointed support 8 from which the car is suspended. The top of the hanger is secured to the truss T as shown. With the rotation of the shaft *a*, (which rotation is imparted thereto by the pinion 2 traveling over the rack 1 as the shaft S and its truss T are rotated by the motor M) the crank-disk 4 will actuate the connecting-rod 5, the latter in turn imparting an oscillating movement to its car C about the axis of suspension from the hanger 8, (Fig. 2).

Another of the truss-shafts *a* (Figs. 1, 3) terminates at its outer end in a bevel pinion 9 meshing with a bevel pinion 10 at the up-

per end of a vertical jointed shaft 11 mounted in the bracket 12' forming a part of the truss T, the lower end of said shaft carrying the yoke 12 in which is mounted the horizontal shaft 13 carrying the frame 14 from the ends of which are suspended the cars C, C, (Fig. 3). The shaft 11 passes loosely through a sleeve 15 secured to an angle-bracket 16 depending from the truss T, the base of the sleeve carrying a grooved sheave 17 over which is free to wrap and unwrap a cable 18 passing over idlers 19 which are mounted on the yoke 12, the bottom of the cable passing over a grooved pulley 20 at the end of the shaft 13. It will be seen that as the shaft *a* rotates with the rotation of the shaft S and the truss T, rotation will be imparted to the shaft 11 about its own axis, and hence to the yoke 12 from which the pair of cars C, C, are suspended. In such independent rotation, the cable 18 will have its laps wrapped and correspondingly unwrapped from the relatively stationary sheave 17, such wrappings and unwrappings compelling a corresponding rotation in the pulley 20, which in turn rotates the horizontal shaft 13, thus compelling the cars to rotate about such axis. These cars (Fig. 3) therefore not only jointly revolve about the axis of the main drive-shaft S, but revolve about the axis of the vertical shaft 11, and at the same time revolve about the horizontal shaft 13.

A third shaft *a* (Figs. 1, 4) actuates a connecting rod 5' whose lower end is pivotally coupled to an oscillating lever 21 from the ends of which a pair of cars C are suspended. The oscillating lever is secured centrally to the lower end of the support 8'. Secured rigidly to the hanger 8' is an angle-arm or bracket 22 whose vertical arm is provided with a series of openings *o* for adjustably securing one end of a link 23 whose opposite end is pivotally coupled through any one of a series of openings *o* to a lever 24 having one end fixed to the axis of suspension of the car adjacent thereto. The members 23, 24 act as a pair of toggles, and as the lever 21 oscillates about its axis (the lower end of hanger 8') to swing its suspended cars, it imparts a special and independent oscillation to the car to which the members 23, 24 are immediately coupled; for it is obvious that a tilting of the lever (see dotted position Fig. 4) will fold the toggles 23, 24 which has the effect of throwing the car coupled thereto a distance considerably in excess of the arc through which the car at the opposite end swings as a result of the oscillation of the lever.

A fourth shaft *a* (Figs. 1, 5) actuates a connecting-rod 5'' whose lower end is coupled to an oscillating lever 21' pivotally secured to a support 8''. This lever has secured to it a bowed rail or rocker 25 over

which are free to reciprocate the trolley-wheels 26 at the upper forked end of a hanger 27 from which a car C is suspended. It is obvious that as the lever 21' oscillates, the trolley 26 will first run in one direction and then the other over the rocker-rail 25, and thus again we have a distinct sensation to be experienced by the occupants of this particular car.

The foregoing examples are a few of the possible ones showing the movements that may be imparted to the cars as they revolve about the main drive-shaft S; but it is apparent that any additional examples may be incorporated in a single structure or merry-go-round. Such additional examples are illustrated in Figs. 6, 7, 8, and 10, 11. In Figs. 6, 7, 8, the stationary sleeve 15 carries a disk 28 with a sinuous track or groove 29, the cars C, being universally jointed to the shaft 11. In the groove 29 rides a finger 30 carried at the free end of an arm 31 whose lower end is pivoted to the car-bottom, a spring 32 holding said finger in engagement with the groove. As the cars C, C, revolve about the axis of the shaft 11, the finger traversing the groove 29 at the same time imparts to them a rocking motion like a boat riding on the waves.

In Fig. 9 I show diagrammatically a series of cars C suspended from a corresponding series of radiating arms A, at the bottom of the rotating shaft 11.

In Figs. 10, 11 and 12 I show means for reversing the rotation of two of the shafts *a* periodically. This I accomplish by keying or securing to the shaft S a casting or bracket 33 which supports the inner end of the shaft *a*, the latter terminating in bevel pinions 34, 35 respectively meshing with rack-disks 36, 37 secured to the hub 38 rising from a plate 39 bolted to the top of the frame or tower F. This plate 39 is provided with a cam-track or groove 40 in which travels the lower end of a clutch-lever 41 pivoted at an intermediate point to an arm 42 of the casting 33. The free end of the lever shifts a clutch section 43 slidably feathered to the shaft *a* and coupling alternately with the pinions 34, 35 according to the inclination imparted to the lever 41 in its traverse along the cam-track 40. Since the pinions 34, 35 mesh from opposite surfaces with the racks 36, 37, it follows that they (the pinions 34, 35) will rotate permanently in opposite directions. These pinions are loose on the shaft *a* and when coupled thereto by the clutch 43, it follows that they will impart rotation to the shaft *a* first in one direction and then the other. The frequency of these reversals in the rotation of the shaft *a* may be adjusted by the character of the track 40 as obvious. So that in the last modification, the shaft *a* has still another motion which is not possessed

by any of the shafts *a* in Figs. 1 to 5 inclusive. Other and further movements may be devised, so that the occupants of the several cars though participating in the common revolution about the axis of the drive-shaft S, each experience a distinct sensation according to the specific movements imparted to the several cars.

Having described my invention, what I claim is:—

1. In a merry-go-round, a main vertical rotatable drive-shaft, a frame or tower through which the shaft passes, a rotatable frame mounted on the shaft, a circular rack on the tower, a series of radiating horizontal shafts carried by the rotatable frame and having pinions engaging said rack, passenger carriers, one for each shaft, each of different type, suspended from the outer portion of said rotatable frame beyond the radiating horizontal shafts aforesaid, and correspondingly different operative connections between each horizontal shaft and its carrier whereby each carrier has a different movement from that of the other as the main shaft rotates.

2. In a merry-go-round, a main vertical rotatable drive-shaft, a frame or tower through which the shaft passes, a rotatable frame mounted on the shaft, a circular rack on the tower, a series of radiating horizontal shafts carried by the rotatable frame and having pinions engaging said rack, passenger carriers, one for each shaft, each of different type, suspended from the outer portion of said rotatable frame beyond the radiating horizontal shafts aforesaid, and correspondingly different operative connections between each horizontal shaft and its carrier whereby the several carriers have simultaneously different movements imparted thereto as the main shaft rotates.

3. In a merry-go-round, a main vertical rotatable drive-shaft, a frame or tower through which said shaft passes, a rotatable frame mounted on the shaft a circular rack on the tower, a series of horizontal shafts

carried by said rotatable frame radiating from the main shaft and having pinions engaging said rack, a complement of cars suspended from said rotatable frame, intermediate gearing between each radiating shaft and cars, and means for periodically reversing the rotation of the radiating shafts.

4. In a merry-go-round, a central vertical rotatable shaft, a frame for supporting the same, a circular rack on top of the frame, horizontal shafts above the frame having inner terminal pinions engaging the rack, a vertical shaft depending from and actuated by the outer end of one of the horizontal shafts, a bearing for the lower portion of such vertical shaft, a disk having a sinuous peripheral groove or way, a car suspended from the bottom of the vertical shaft, and a spring-controlled lever pivoted at one end to the car and having its free end traversing the groove whereby the car is revolved about the main central shaft, and rotated about the axis of the vertical depending shaft, and at the same time, rocked in a vertical plane from its axis of suspension.

5. In a merry-go-round, a central shaft, a frame or tower supporting the same, a double circular rack on top of the tower, a plate having a cam-track encircling the shaft, horizontal shafts radiating from the main shaft above the frame, pinions loosely mounted on the last named shafts, and meshing with the respective sections of the double rack, a clutch on the horizontal shaft between the pinions, and a shifting lever having one end traversing the cam-track and the other end coupled to the clutch, whereby first one pinion and then the other is coupled to the shaft and the rotation of the latter reversed.

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

JAMES D. WALSH.

Witnesses:

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JOS. A. MICHEL.