

No. 756,783.

PATENTED APR. 5, 1904.

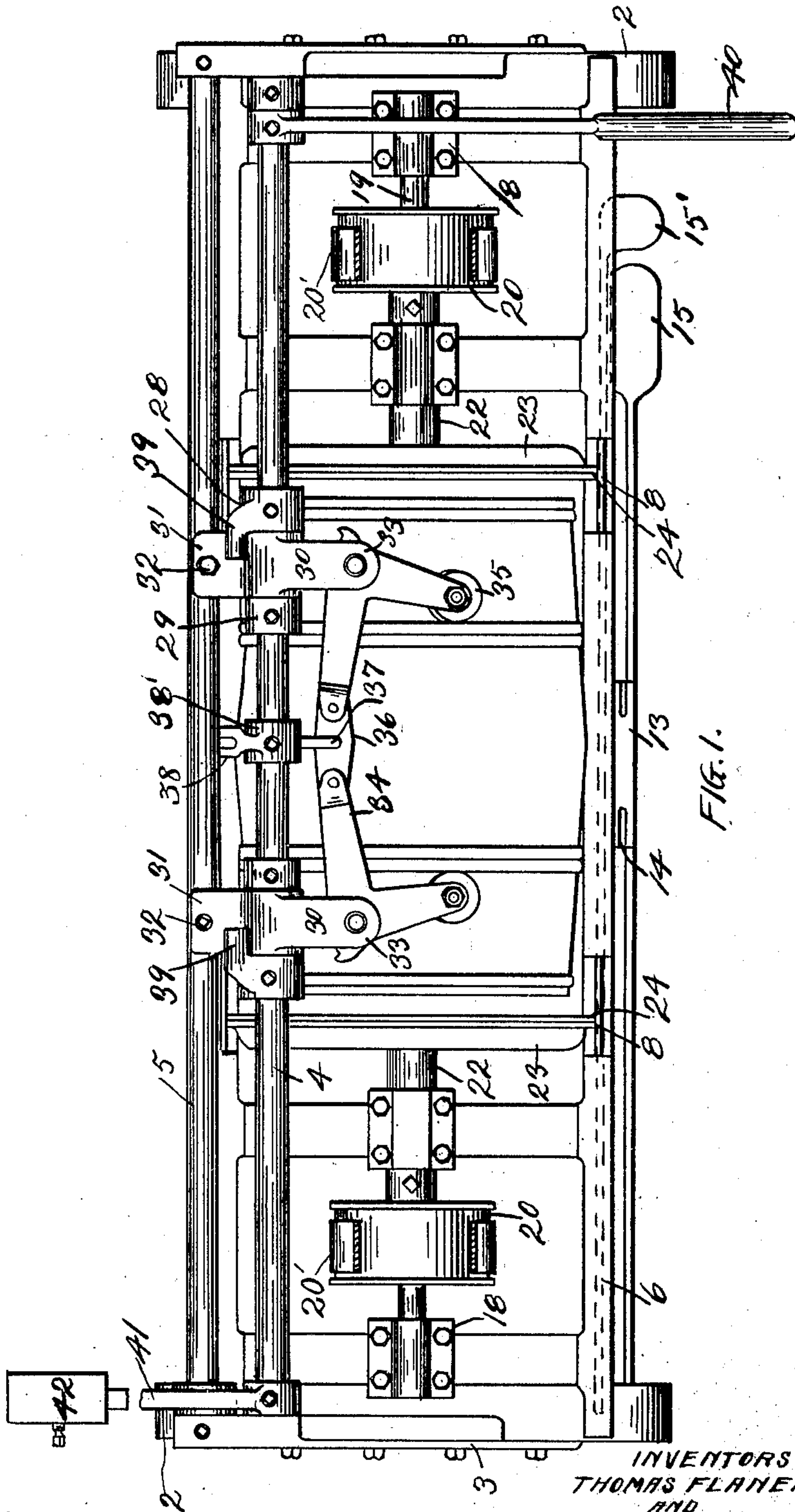
T. FLANERY & N. WHITEHILL.

MACHINE FOR TIGHTENING THE BILGE HOOPS UPON BARRELS.

APPLICATION FILED AUG. 31, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



WITNESSES

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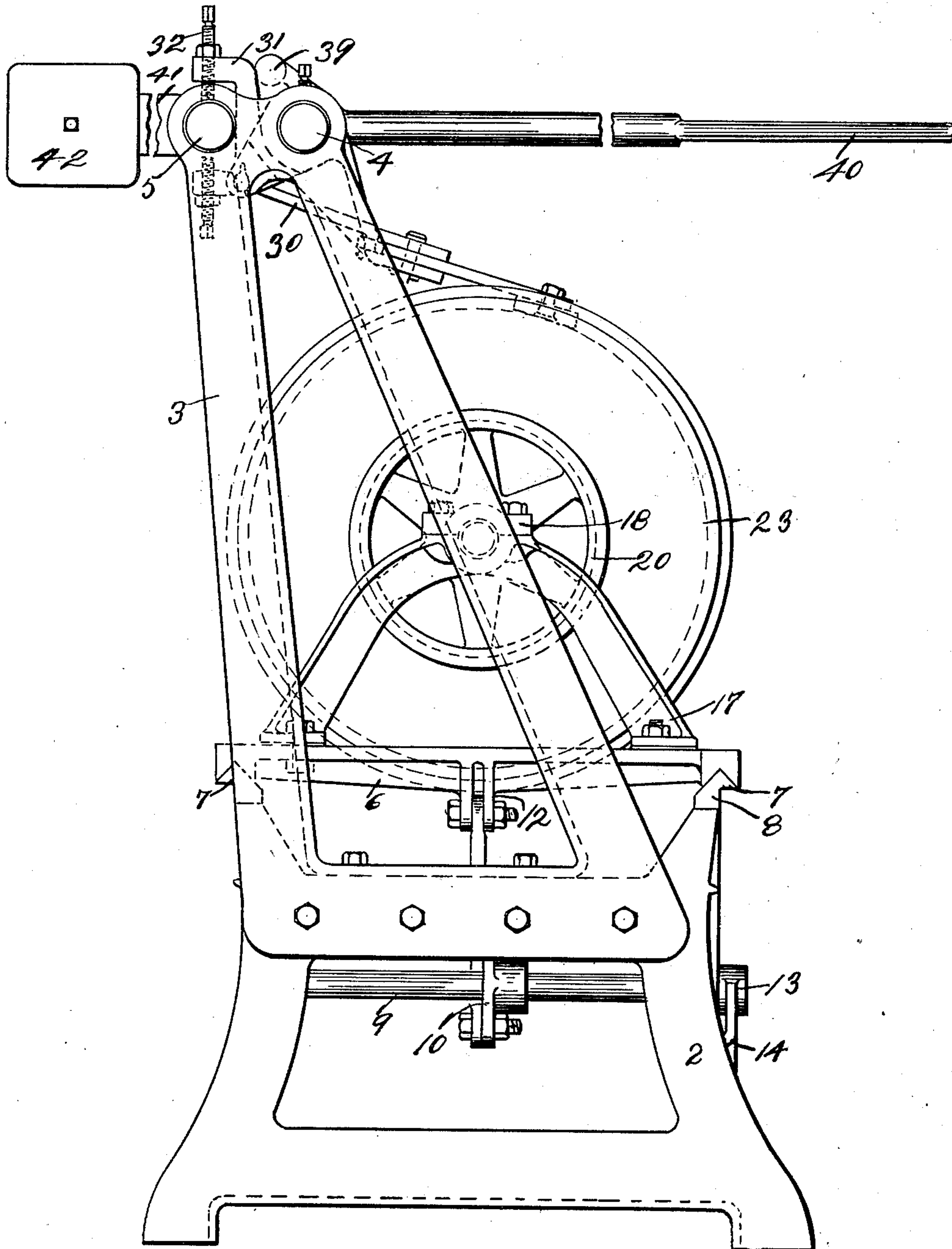


FIG. 2.

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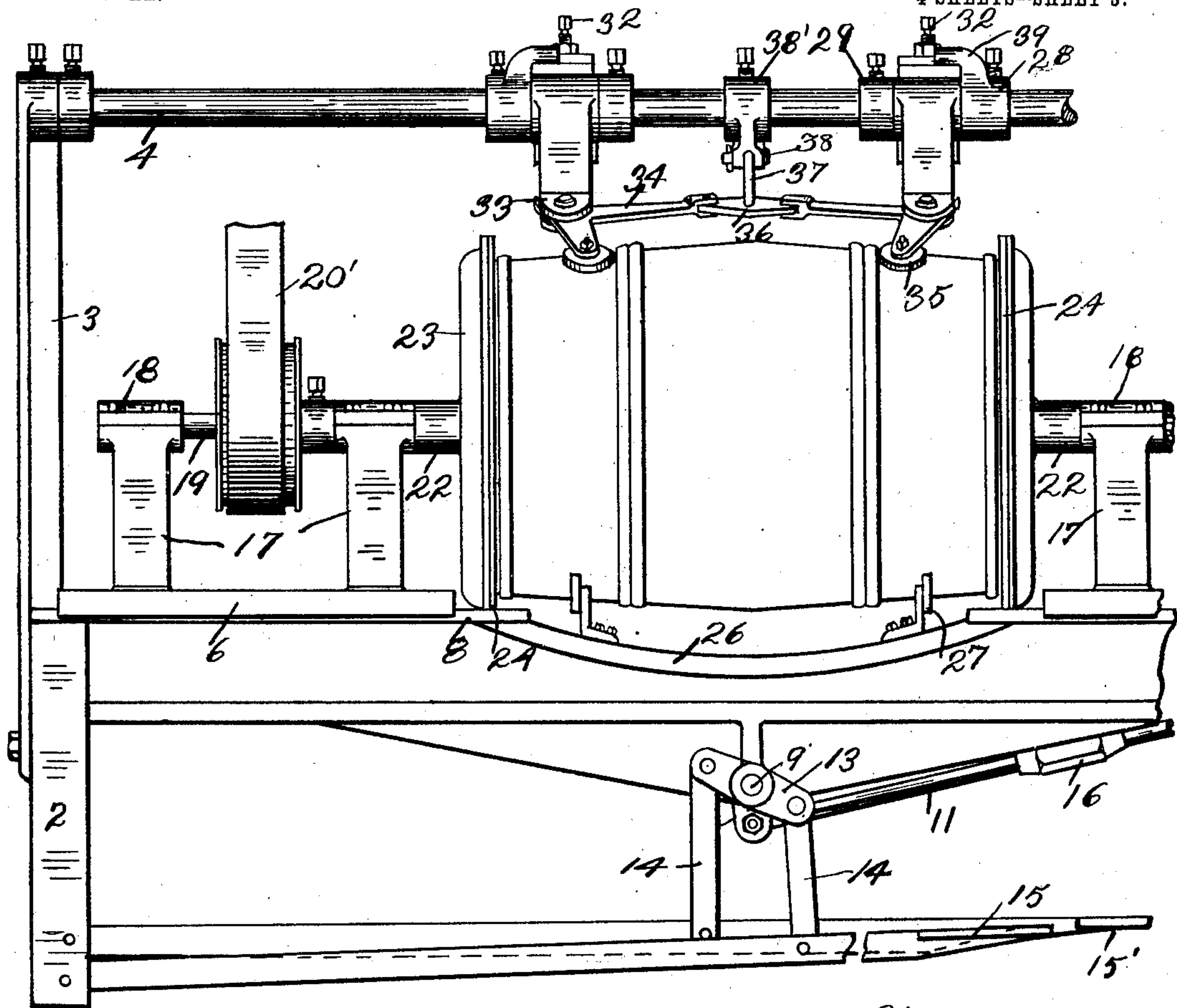


FIG. 3

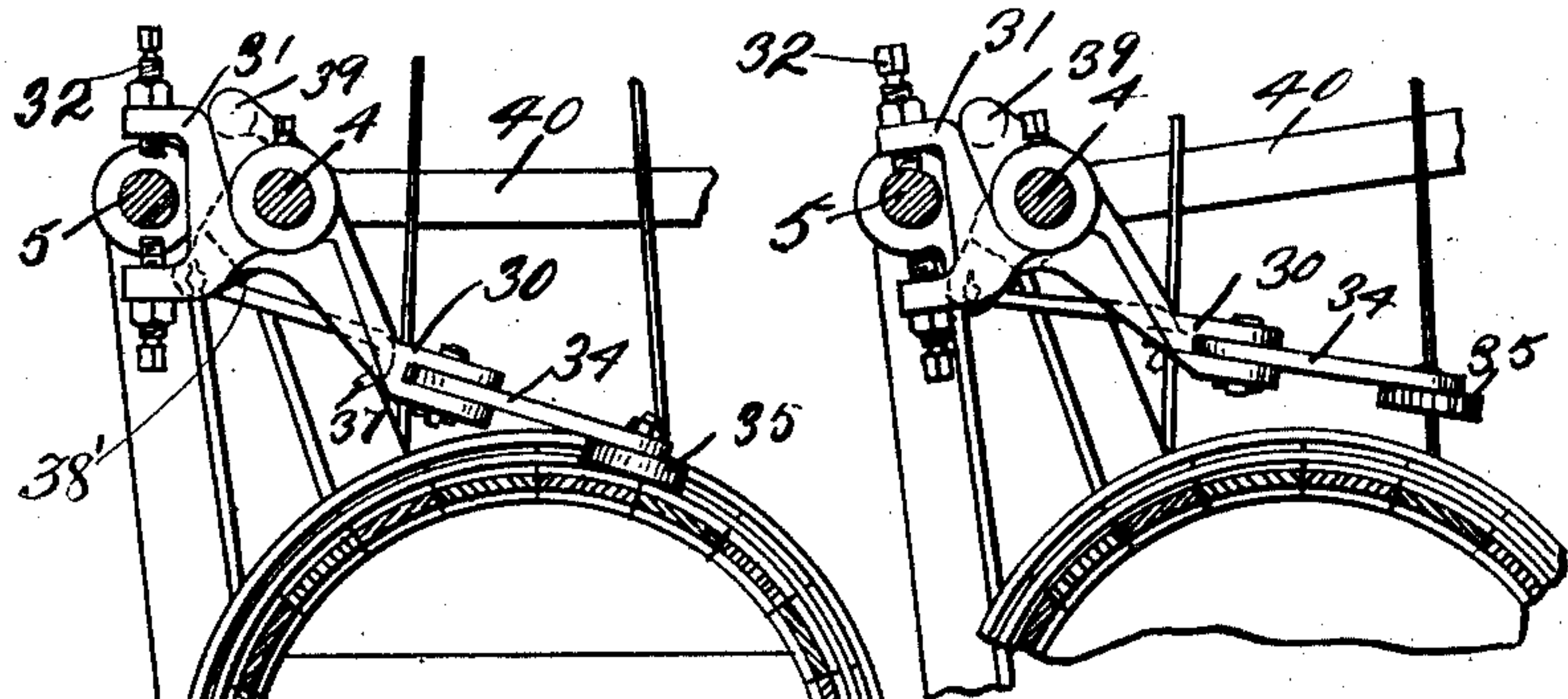


FIG. 5.

FIG. 6.

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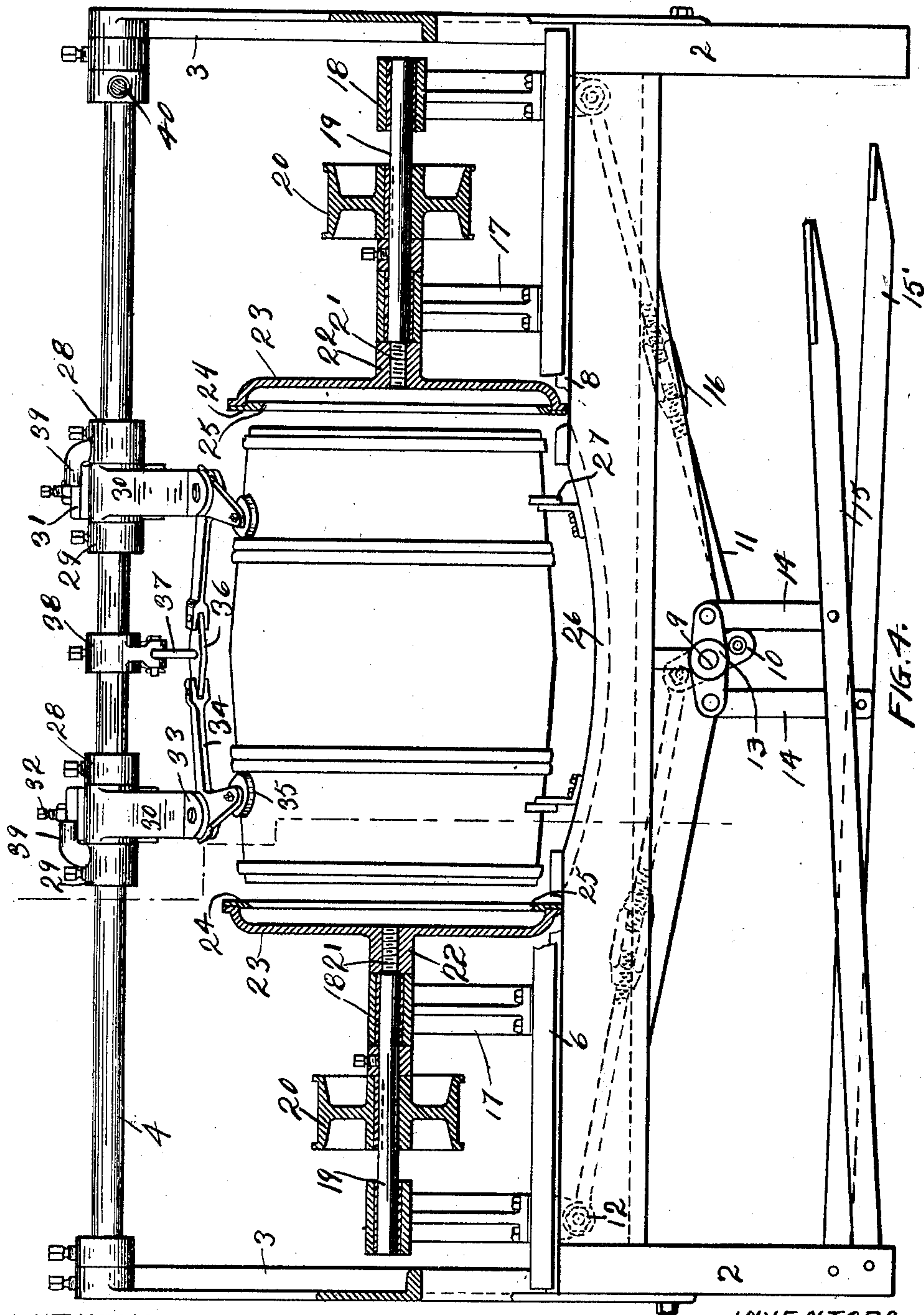
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UNITED STATES PATENT OFFICE.

THOMAS FLANERY AND NELS WHITEHILL, OF MINNEAPOLIS, MINNESOTA,
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MACHINE FOR TIGHTENING THE BILGE-HOOPS UPON BARRELS.

SPECIFICATION forming part of Letters Patent No. 756,783, dated April 5, 1904.

Application filed August 31, 1903. Serial No. 171,351. (No model.)

To all whom it may concern:

Be it known that we, THOMAS FLANERY and NELS WHITEHILL, both of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Machines for Tightening the Bilge-Hoops upon Barrels, of which the following is a specification.

Our invention relates to barrel-making machinery, and particularly to that class employed in tightening bilge-hoops upon barrels; and the object of the invention is to provide a mechanism by means of which an attendant can by the manipulation of a single lever easily apply uniform pressure simultaneously to the bilge-hoops and quickly force them into their proper position upon the barrel.

A further object is to provide improved means for holding the barrel and revolving the same during the operation of forcing the hoops thereon.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as herein-after described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of a bilge-hoop-tightening machine embodying our invention. Fig. 2 is an end elevation of the same. Fig. 3 is a front elevation of a portion of the machine. Fig. 4 is a longitudinal vertical section. Fig. 5 is a section of Fig. 4, showing the tightening rollers or sheaves in their operative position; and Fig. 6 is a similar view showing the sheaves raised away from the work.

In the drawings, 2 represents a suitable frame having at each end a bracket 3, provided with bearings for a rock-shaft 4 and a fixed shaft or rod 5, that extends substantially parallel with said rock-shaft and in the rear of the same.

6 represents frames or beds provided with longitudinal grooves 7, V-shaped in cross-section, adapted to receive track-rails 8 and slide horizontally thereon. A shaft 9 is mounted

transversely in the frame of the machine, preferably near the middle thereof, and provided with cranks 10, that are pivotally connected, respectively, by rods 11 with lugs 12, that depend from the under side of said frame 6. The rocking of the shaft 9 will impart, therefore, a sliding movement to said frames either toward or from each other, according to the direction in which said shaft is moved. A crank 13 is provided on the end of said shaft, connected by links 14 with treadles 15 and 15', by means of which the said frames may be reciprocated. We prefer to provide turnbuckles 16 in the rods 11, by means of which the distance between the cranks 10 and the pivotal connection of the rods 11 with the frames 6 can be increased or diminished and the stroke of the frames regulated.

Mounted upon the frame 6 are brackets 17, having bearings 18 for shafts 19, whereon pulleys 20, connected by belts 20' with a suitable source of power, are secured. The shafts 19 have inner threaded ends 21 to enter the threaded hubs 22 of heads or chucks 23, that are dished or saucer-shaped and adapted to engage the ends of a barrel and hold the same firmly during the operation of forcing the hoops thereon. We prefer to provide rings 24 on the heads 23, having inner beveled edges 25, that engage the barrel-chimes and hold the ends of the barrel firmly and aid in centering it between the chucks. A bed 26 is provided between the heads 23 and curved to conform to the shape of a barrel and provided with supports 27, that receive and support the barrel in position to be engaged by the gripping heads or chucks.

Loosely mounted upon the shaft 4 between collars 28 and 29 are yokes 30, having forked ends 31, that straddle the shaft 5 and are provided with set-screws 32, that are adjustable toward and from said shaft 5 and by means of which the vertical movement of said yoke is regulated. The forward ends 33 of said yokes overhang the middle of the machine and are pivotally connected to bell-cranks 34. Sheaves or pressure-wheels 35 are mounted on one arm of each bell-crank and revolve in

planes substantially at right angles to the plane of said revolving heads and engage the outer edge of the bilge-hoops and roll over the same as the barrel is revolved. The other arms of the bell-cranks 34 extend inwardly toward each other and are pivotally connected to the ends of a plate 36, which in turn is connected at a point intermediate to its ends by a link 37 with a lug 38, depending from a collar 38', secured on the shaft 4 between the yokes 30. When the lug 38 is moved backward, the bell-cranks will be swung toward each other to press the sheaves against the bilge-hoops. The collars 28 are each provided with arms 39, which overhang the forked ends 31 of the yokes 30 and serve to raise said yokes when the shaft 4 is rocked in one direction. An operating-lever 40 is secured on the shaft 4, preferably near one end above the treadle 15, and an arm 41 is provided at the opposite end of said shaft 4, and a weight 42 is adjustably secured on said arm and tends to hold the lever 40 and the yokes 30 in their elevated position.

25 The operation of the machine is as follows: A barrel having been placed upon the supports 27, the treadle 15 is depressed and the chucks or heads moved toward each other to grip the ends of the barrel and rapidly revolve it. The operator then grasping the lever 40 rocks the shaft 4 and draws down the forward ends of the yokes 30 to depress the bell-cranks sufficiently to allow the sheaves 35 to engage the bilge-hoops and press on the edges thereof and force them toward the center of the barrel. As the hoops move in on the barrel the operator will continue to press down on the lever 40 and rock the shaft 4, causing the bell-cranks to be oscillated and swinging the arms bearing the pressure-sheaves toward each other, so that each bell-crank and its sheave will accommodate itself to the different positions of the bilge-hoops. The pressure on the hoops will be uniform and simultaneous, and each bilge-hoop will as the barrel is revolved be pressed or forced into its proper position in very short space of time and with comparatively little effort on the part of the operator. Upon releasing the treadle 15 and depressing treadle 15' the chucks will be withdrawn from the barrel to allow its removal and the substitution of another, when the operation described will be repeated.

55 We claim as our invention—

1. The combination, with a suitable frame, of chucks or heads between which the barrel is held and revolved, bell-cranks pivotally supported between said chucks, sheaves mounted on one arm of said cranks and arranged to engage the edges of the bilge-hoops and roll thereon, a single operating-lever and a mechanism connecting said lever and the other arm of said bell-cranks and arranged to oscillate said cranks and move said sheaves toward or

from the bilge-hoops when said lever is manipulated.

2. The combination, with a frame, of revolving barrel-engaging chucks mounted therein, a rock-shaft, yokes loosely mounted thereon, bell-cranks provided on said yokes and connected with said shaft, sheaves carried by said bell-cranks and arranged to engage the outer edges of the bilge-hoops, and means for oscillating said shaft and bell-cranks to press said sheaves against said hoops, substantially as described.

3. The combination, with a frame, of revolving barrel-head-engaging chucks mounted thereon, sheaves arranged to engage the edges of the bilge-hoops and roll in a plane substantially at right angles to the plane of said heads, oscillating members whereon said sheaves are mounted, a rock-shaft, a mechanism connecting said shaft and said oscillating members and arranged to move them toward or from the bilge-hoops when said shaft is rocked, and an operating-lever provided on said shaft.

4. The combination, with a frame, of revolving clamping-chucks mounted therein, bell-cranks pivotally supported between said chucks, sheaves carried by one arm of each bell-crank and revolving in a plane substantially at right angles to the plane of said chucks, and means connected with the other arms of said cranks for oscillating them to move said sheaves simultaneously and with uniform pressure into engagement with the bilge-hoops, substantially as described.

5. The combination, with a frame, of revolving barrel-clamping chucks mounted therein, bell-cranks pivotally supported between said chucks, sheaves carried by one arm of each bell-crank and revolving in a plane substantially at right angles to the plane of said chucks, means connected with the other arms of said cranks for oscillating them to move said sheaves simultaneously and with uniform pressure into engagement with the bilge-hoops, and means for lifting said bell-cranks, substantially as described.

6. In a machine of the class described, the combination, with a rock-shaft, of yokes loosely mounted thereon, bell-cranks pivoted on said yokes, sheaves provided on one arm of each crank and adapted to engage the bilge-hoops, means pivotally connecting the other arms of said cranks with said shaft, and means for rocking said shaft.

7. In a machine of the class described, the combination, with a rock-shaft, of yokes loosely mounted thereon and having forked rear ends, a fixed shaft straddled by said forked ends, adjustable stops provided on said forked ends and adapted to engage said fixed shaft, oscillating bell-cranks mounted on the forward ends of said yokes, sheaves carried thereby and arranged to engage the bilge-hoops, means for drawing said sheaves toward each other when said shaft is rocked, and

arms secured on said rock-shaft and overhanging the forked ends of said yokes.

8. In a machine of the class described, the combination, with the oscillating yokes, of bell-cranks mounted thereon, a sheave carried by one arm of each bell-crank and arranged to engage the bilge-hoops, means pivotally connected with the other arms of said cranks for drawing said sheaves toward each other and tightening the said hoops, and means for oscillating said yokes, substantially as described.

9. The combination, with a rock-shaft, of yokes loosely mounted thereon, bell-cranks pivoted on said yokes, sheaves carried by said cranks and adapted to engage the outer edges of the bilge-hoops, means mounted on said rock-shaft and connected with said cranks for drawing said sheaves toward each other when said shaft is rocked in one direction, and means secured on said rock-shaft and engaging said yokes to tilt the same and raise said sheaves when said shaft is rocked in the other direction, substantially as described.

10. The combination, with a movable support, of bell-cranks pivoted thereon, sheaves carried by one arm of said cranks and adapted to engage the outer edges of the bilge-hoops, means connected with said cranks for drawing said sheaves toward each other when their support is moved in one direction, and means for tilting said cranks to raise said sheaves when their support is moved in the other direction.

11. The combination, with a rock-shaft, of pivoted bell-cranks supported by said shaft, sheaves carried by one arm of said cranks and adapted to engage the outer edges of the bilge-hoops, means connected with said cranks for drawing said sheaves toward each other when said shaft is rocked in one direction, and means for tilting said cranks on their support to raise said sheaves when said shaft is rocked in the other direction.

12. In a machine of the class described, the combination, with a rock-shaft, of yokes loosely mounted thereon, oscillating members pivoted on said yokes, sheaves provided on said members and adapted to engage the bilge-hoops, means pivotally connecting said mem-

bers with said shaft, and means for rocking said shaft.

13. In a machine of the class described, the combination, with a rock-shaft, of yokes loosely mounted thereon and having forked rear ends, a fixed shaft straddled by said forked ends and arranged to limit the movement of said ends, oscillating members mounted on the forward ends of said yokes, sheaves carried thereby and arranged to engage the bilge-hoops, and means for oscillating said members to draw said sheaves toward each other when said shaft is rocked.

14. In a machine of the class described, the combination, with a suitable frame having a barrel-support, of chucks or heads between which the barrel is held and revolved, a movable support, bell-cranks pivoted thereon, sheaves carried by one arm of said cranks and adapted to engage the outer edges of the bilge-hoops, means connected with said cranks for drawing said sheaves toward each other when said support is moved in one direction and means for tilting said cranks to raise said sheaves when said support is moved in the other direction and said support being a sufficient distance above the barrel-rest to allow the barrels to be inserted on one side of the machine and removed on the other, substantially as described.

15. The combination, with a suitable frame, of chucks or heads between which the barrel is held and revolved, oscillating members pivotally supported between said chucks, sheaves mounted on said members and arranged to engage the edges of the bilge-hoops thereon and press said hoops simultaneously toward the center of the barrel, an operating-lever, and a mechanism connecting said lever and said members and arranged to oscillate said members and move said sheaves toward or from the bilge-hoops when said lever is manipulated.

In witness whereof we have hereunto set our hands this 18th day of August, 1903.

THOMAS FLANERY.
NELS WHITEHILL.

In presence of—

RICHARD PAUL,
S. V. GRIFFIN.