

No. 818,572.

PATENTED APR. 24, 1906.

A. STEARNS & P. H. MACCORQUODALE.
WRAPPING MACHINE.

APPLICATION FILED SEPT. 3, 1904.

5 SHEETS—SHEET 1.

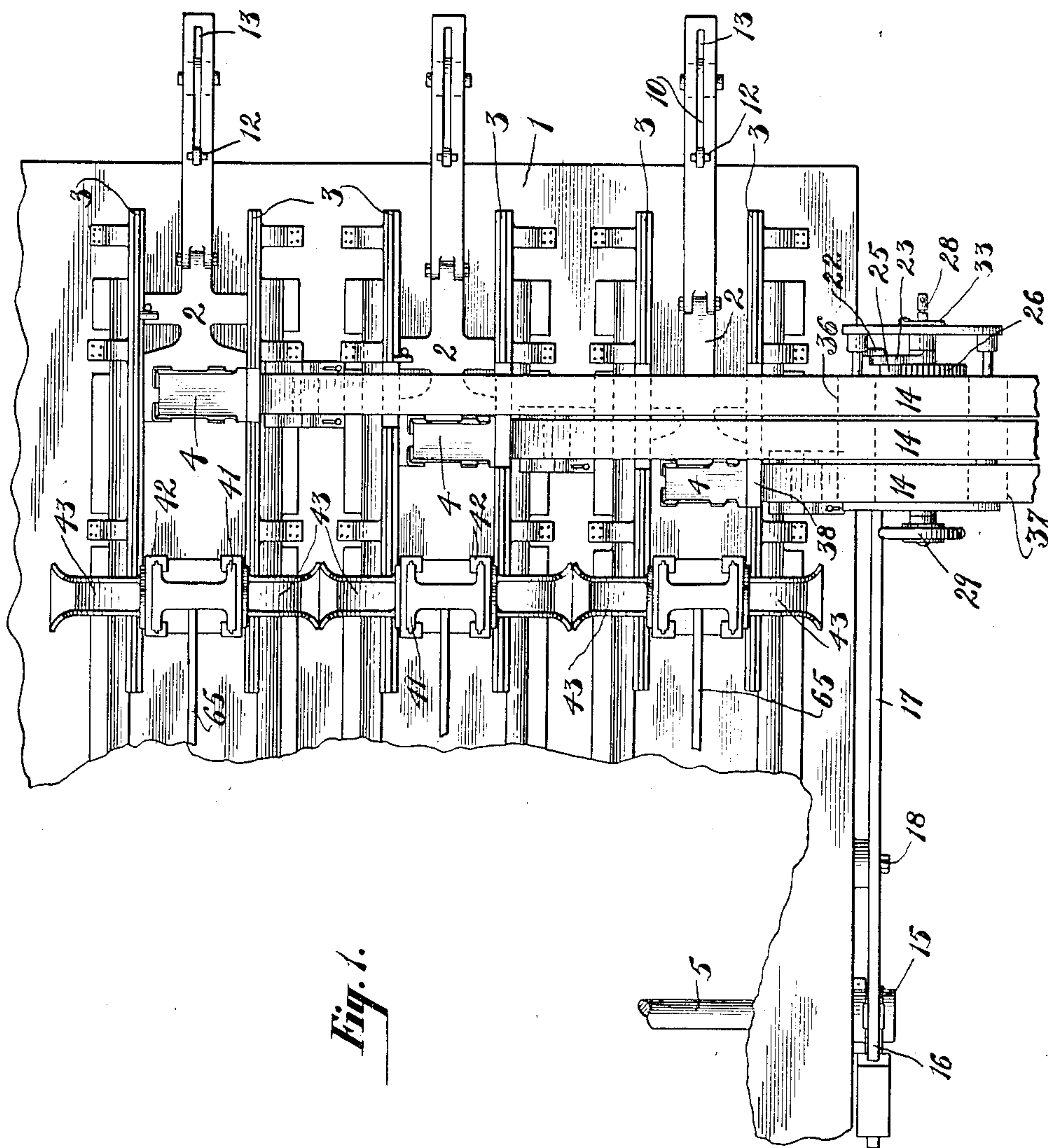


Fig. 1.

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5 SHEETS—SHEET 2

Fig. 10.

Fig. 11.

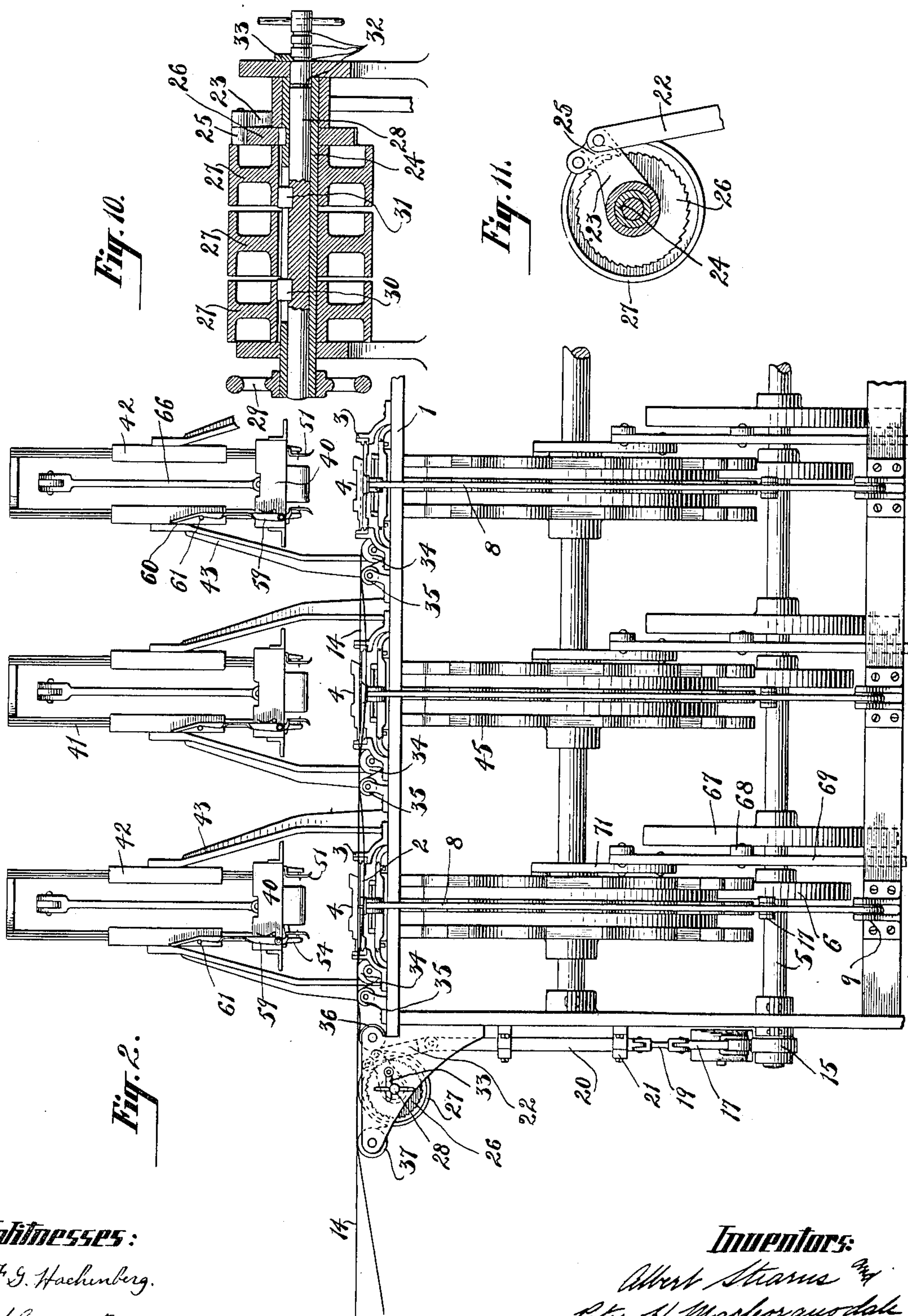


Fig. 12.

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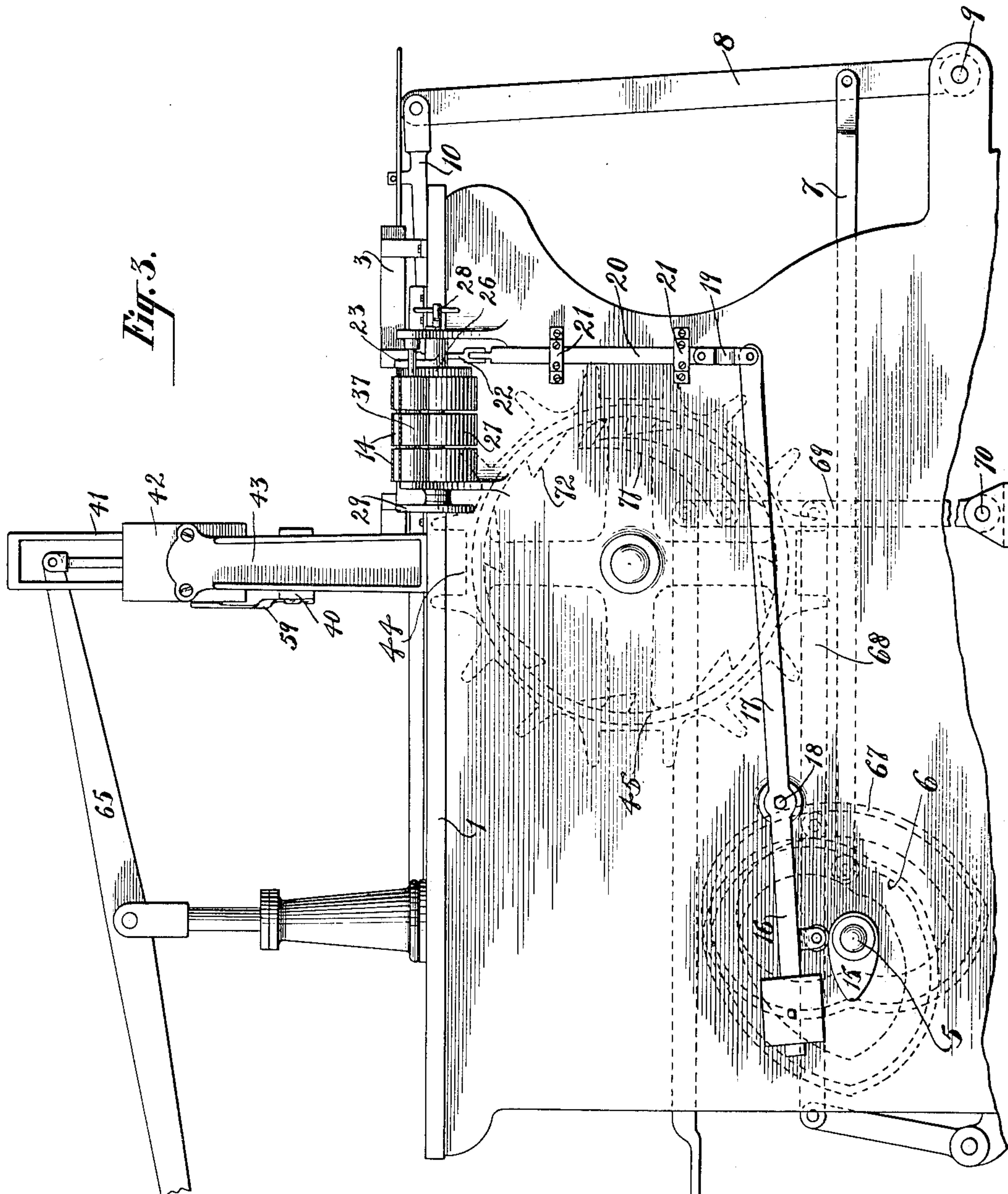
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5 SHEETS—SHEET 3.



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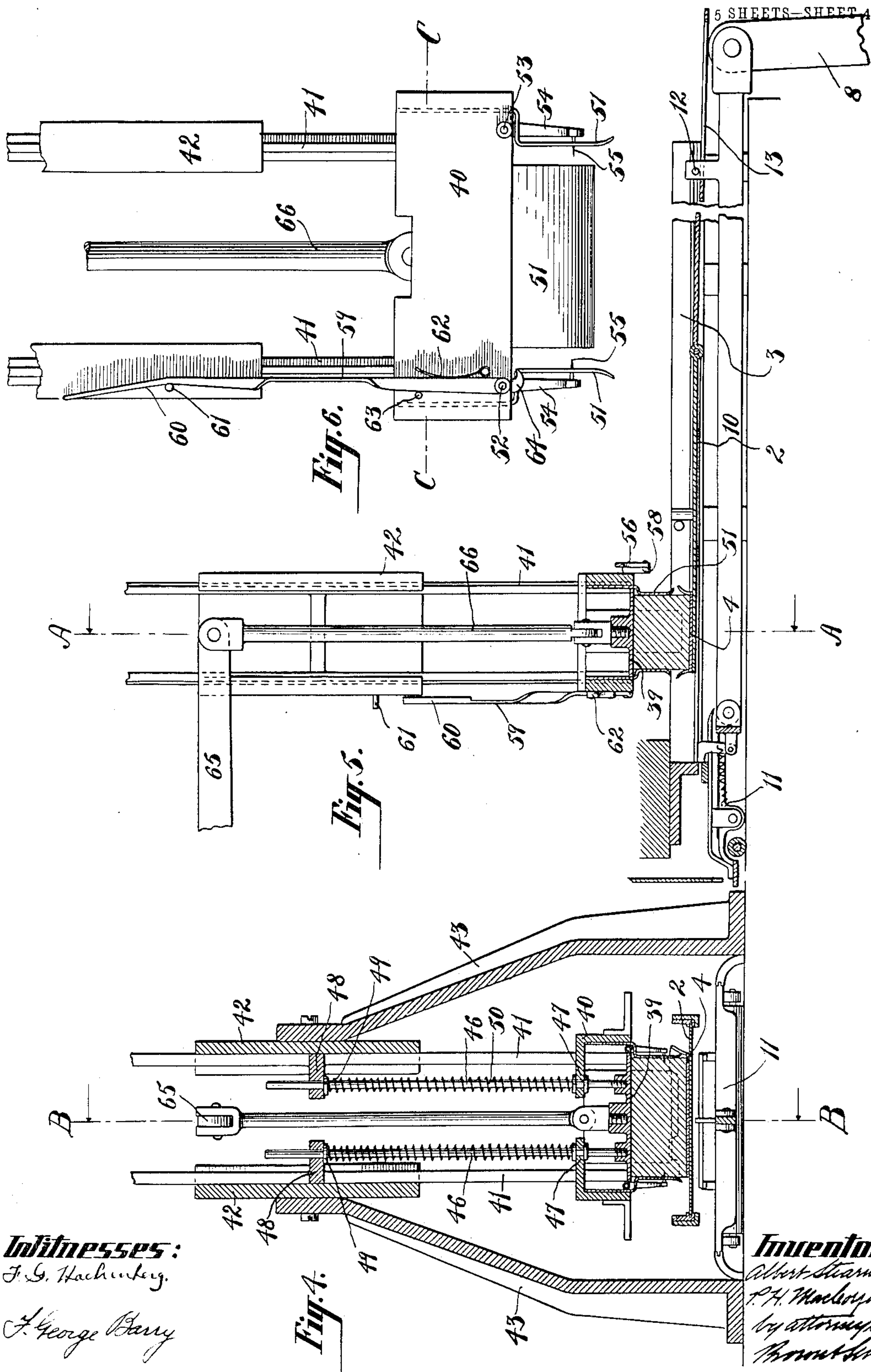
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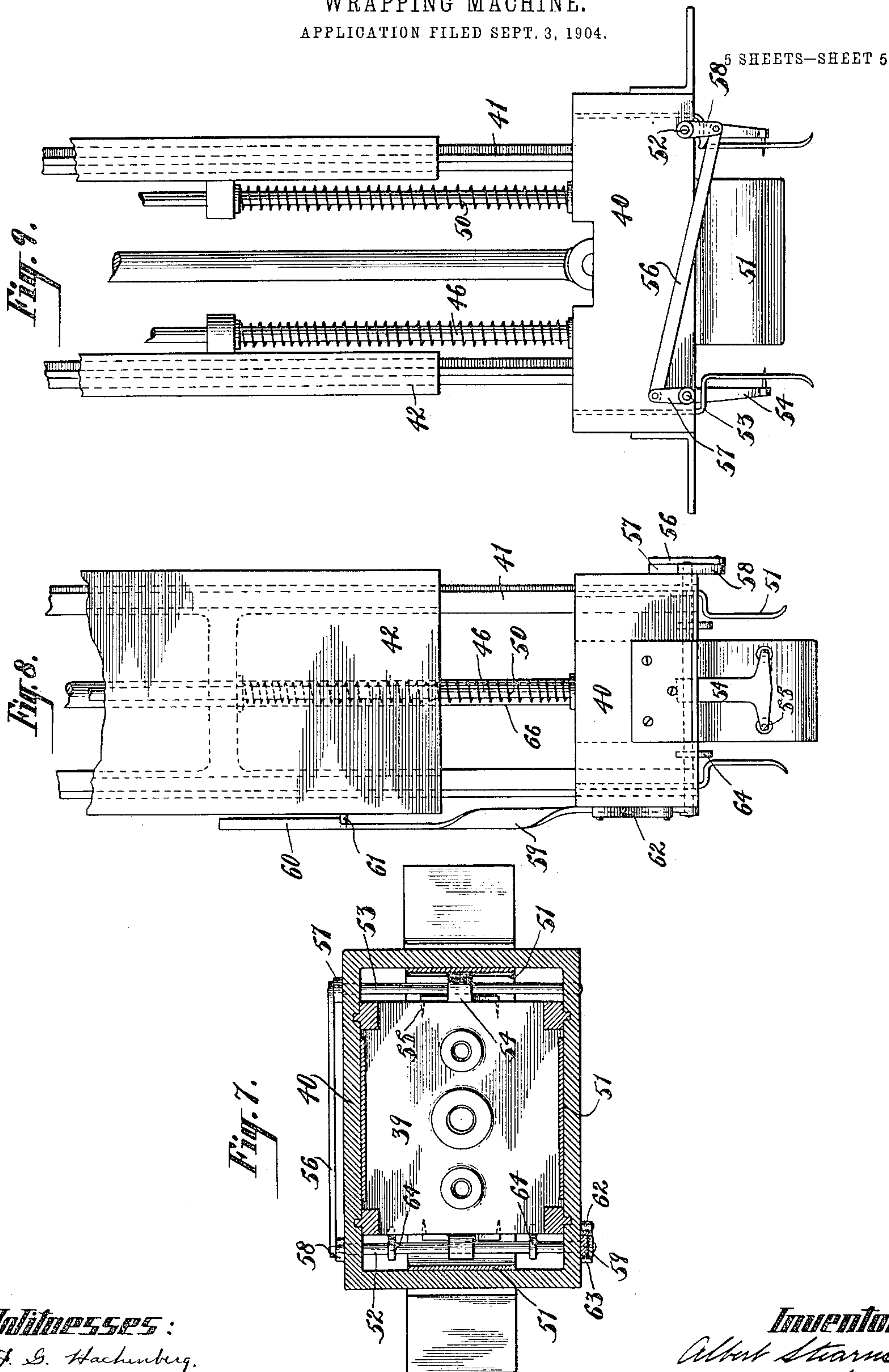
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No. 818,572.

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WRAPPING MACHINE.

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UNITED STATES PATENT OFFICE.

ALBERT STEARNS AND PETER H. MACCORQUODALE, OF SYRACUSE, NEW YORK; SAID MACCORQUODALE ASSIGNOR TO SAID STEARNS.

WRAPPING-MACHINE.

No. 818,572.

Specification of Letters Patent.

Patented April 24, 1906.

Application filed September 3, 1904. Serial No. 223,210.

To all whom it may concern:

Be it known that we, ALBERT STEARNS and PETER H. MACCORQUODALE, citizens of the United States, and residents of Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Wrapping-Machines, of which the following is a specification.

This invention relates to certain improvements in the class of wrapping-machines such as are shown, described, and claimed in United States Letters Patent No. 522,723, dated July 10, 1894, and No. 696,112, dated March 25, 1902, granted to Albert Stearns.

The objects of the present invention are, first, to provide means for automatically conveying packages to a plurality of package-feeders, from thence feeding the packages simultaneously to their respective package-placers, where they may be removed from the package-feeders and deposited with their wrappers on the receiving-wheel; secondly, to provide certain improvements in the construction of the package-placers whereby any liability of the packages slipping therefrom is obviated, and, thirdly, to provide certain improvements in the construction, form, and arrangement of the several parts of the machine whereby the operation of the machine is readily controlled.

In the accompanying drawings, Figure 1 is a plan view of a portion of the machine, showing the conveyers and package-feeders and their operating mechanisms. Fig. 2 is a partial front view of the machine, showing the same parts. Fig. 3 is a partial end view of the same. Fig. 4 is a detail view, in vertical transverse section, through one of the package-placers and package-feeders, taken in the plane of the line A A of Fig. 5 looking in the direction of the arrows. Fig. 5 is a detail view, in longitudinal vertical section, taken in the plane of the line B B of Fig. 4 looking in the direction of the arrows. Fig. 6 is a detail front view of the package-feeders. Fig. 7 is a horizontal section taken in the plane of the line C C of Fig. 6. Fig. 8 is a detail end view of one of the package-placers. Fig. 9 is a detail rear view of the same. Fig. 10 is a detail longitudinal section through the conveyer-shaft and its driving-pulleys, and Fig. 11 is a detail face view of the pawl-and-ratchet connection for driving the conveyer-shaft.

In the patents hereinabove referred to the packages were fed upon the package-feeder by hand one at a time. We will now describe the mechanism which we employ for feeding the packages automatically to each one of a plurality of package-feeders herein shown.

The receiving-table is denoted by 1, upon which table are mounted a plurality of package-feeders 2. Each package-feeder is fitted to slide longitudinally in suitable guides 3 and is provided with the usual pocket 4 for receiving the package or other article from its conveyer. The pockets 4 of the several feeders are arranged in different transverse planes, so as to permit the several conveyers, to be hereinafter described, to convey the packages to the pockets. The movement of each package-feeder is controlled by a cam-shaft 5 for the purpose of moving the pocket 4 from a position in alinement with its conveyer to a position beneath the package-placer, to be hereinafter described, and then back again to its position in alinement with the said conveyer. The cam-shaft 5 is provided with a cam 6, which controls the movement of a connecting-rod 7, hinged to a lever 8, one end of which is pivoted at 9 to the machine-frame and the other end to the connecting-rod 10 of the wrapper-carrier 11, which wrapper-carrier is provided with a lost-motion connection 12 13 with the package-feeder plate.

Each of the conveyers is denoted by 14. In the present instance three of these conveyers are shown. A cam 15 is fixed to the cam-shaft 5, which cam is engaged by the weighted arm 16 of a lever 16 17, pivoted at 18, the arm 17 of which has a link connection 19 with a vertically-sliding bar 20, guided in bearings 21. This bar 20 has a link connection 22 with a pawl-arm 23, loosely mounted on a hollow conveyer-pulley shaft 24. A pawl 25 is carried by the arm 23 in position to impart an intermittent rotary movement to the shaft 24 through a ratchet 26, fixed thereto. Three conveyer-pulleys 27 are loosely mounted on the shaft 24. Within this hollow shaft is a cotter-shaft 28, having a handle 29 and two cotters 30 31, which cotters are so arranged in connection with slide-ways through the hollow shaft and keyways in the hubs of the pulleys 27 that the rotary movement of any one of the pulleys may be

controlled by the movement of the cotter-shaft. The cotters are so spaced that when the cotter-shaft is in the intermediate position the central pulley will be released from the shaft and when at the limit of its movement in either direction either one of the end pulleys will be released from the shaft. Four circumferential notches 32 may be provided, into which a latch 33 may fall for holding the cotter-shaft in its desired position.

Each conveyer 14 passes from an idler-pulley (not shown) around a pulley 34 adjacent to the pocket 4 in the package-feeder, from thence over a tightener-pulley 35 adjacent to the pulley 34, from thence around an idler-pulley 36, then partially around the drive-pulley 27, and finally over an idler-pulley 37. From thence it leads back to the originally-mentioned pulley. (Not shown herein.) These double sets of pulleys serve to keep the conveyer taut and to prevent any slipping of the same, which would cause the conveyer to keep out of register with the package-feeder.

A guide-plate 38 is interposed between each pocket 4 and the end of its conveyer 14 for insuring the delivery of the package from the conveyer into the pocket.

Each of the package-placers is constructed and arranged as follows: The package-placer consists of a plunger or block 39 and a box 40. The box 40 is provided with rods 41, which work in upright guides 42, carried by standards 43 on the table 1. The position of these standards and guides is such that the package-placer is located directly over the position occupied by the uppermost pocket 44 in the receiving-wheel 45. The block 39 has firmly secured to it upright rods 46, which pass through lugs 47, provided on the box 40. The said rods also pass through lugs 48 on the rods 41. The said rods 46 are provided with collars 49, between which and the lugs 47 are placed coil-springs 50. These springs tend to hold up the block within the box. To the outside of the box are attached spring elastic grippers 51, which project below the box for the purpose of taking hold of the package when it has been moved into position beneath the package-placer by the package-feeder. Two rock-shafts 52 53 are mounted in the box 40, upon which shafts are fixed spur-carrying arms 54, which are provided with spurs 55, which are fitted to pass through the spring elastic grippers 51. The two opposite spur-grippers are operated simultaneously to engage and release the package through a connecting-bar 56, engaged at one end with an arm 57, uprising from and fixed to the shaft 53, and an arm 58, depending from and fixed to the shaft 52. A spring-actuated arm 59 uprises from the shaft 52 and is provided with a cam-surface 60, fitted to be engaged by a lug 61 on the upright guide 42, so that as the box and

block are moved downwardly to pick up the package from the package-feeder the spur-grippers will be swung outwardly beyond the plane of the spring elastic grippers to permit the ready insertion of the package between the said spring elastic grippers. As the package-placer reaches the limit of its downward movement toward the package-feeder the end of the cam portion 60 of the arm 59 will snap past the lug 61, thus causing the spur-grippers to positively engage the package. The arm 59 is cut away at the base of the cam portion to permit the arm to resume its normal position when the package-placer is raised. A spring 62, carried by the box 40, is shown for yieldingly holding the arm 59 at the limit of its outward movement against the stop 63, carried by said box. The shaft 52 is further provided with an operating-finger 64, extended to a point beneath the block 39, so that when the block is depressed to deliver the package to the receiving-wheel the spur-grippers will be positively released from their engagement with the package. The use of these spur-grippers permits the package-placer to handle separate packages—such, for instance, as soap—without danger of the package slipping from the placer during its movements. The vertical movements of the package-placer are imparted to it through a lever 65, connected by a rod 66 to the block 39.

The receiving-wheel 45 has imparted thereto an intermittent rotary motion through a cam 67 on the shaft 5, which cam controls the movement of a connecting-rod 68, attached to a rocking lever 69, pivoted at 70 to the machine-frame, the free end of which arm is provided with a pawl 71, fitted to engage ratchet-teeth 72 on the carrier-wheel.

It is to be understood that the several mechanisms of the machine may be correctly timed to produce their operations at the required intervals with respect to each other.

While we have shown three sets of conveyers, package-feeders, package-placers, &c., we do not wish to limit ourselves to this particular number, but contemplate the use of a greater or lesser number of these devices, as may be found desirable. Also the connections between the several package-feeders and the cam-shaft are such that the pocket in each package-feeder will be moved from its place in alinement with the conveyer-belt to its place directly beneath the package-placer.

In operation the package-feeders are moved rearwardly until their pockets are brought into alinement with their respective conveyers. The packages, which are placed in any desired manner upon the conveyers, are then deposited by a one-step movement of the conveyers onto the package-feeders within the said pockets. The package-feeders are then moved forwardly until their pockets and the

packages therein are brought into position beneath the package-placers. The package-placers are then brought down into position to cause the spring elastic grippers and the spur-grippers to engage the packages. The package-placers are then raised and the package-feeders returned into position to receive a new supply of packages from the conveyers. The package-feeders are then moved downwardly for depositing the packages into the uppermost pockets 44 in the receiving-wheels 45. The package-placers are then returned to a position above the plane of the package-feeders, when the operation of the several mechanisms may be repeated. It is to be understood that the spur-grippers are operated as hereinabove set forth at the proper intervals to grasp and release the packages.

What we claim as our invention is—

1. In a wrapping-machine, a package-placer, a reciprocating package-feeder for feeding packages thereto and an endless conveyor for automatically depositing packages directly onto the package-feeder at predetermined intervals.

2. In a wrapping-machine, a package-placer, a longitudinally-reciprocating package-feeder for feeding the packages thereto and an endless conveyor arranged laterally with respect to the feeder for automatically depositing packages directly onto the package-feeder at predetermined intervals.

3. In a wrapping-machine, a plurality of package-placers, a plurality of package-feeders for feeding the packages thereto and endless conveyers for automatically depositing packages directly onto the package-feeders at predetermined intervals.

4. In a wrapping-machine, a plurality of package-placers, a plurality of longitudinally-reciprocating package-feeders for feeding packages thereto and a plurality of laterally-movable endless conveyers for automatically depositing packages directly onto the package-feeders at predetermined intervals.

5. In a wrapping-machine, a plurality of longitudinally-reciprocating package-feeders having pockets thereon, means for moving the package-feeders to bring the pockets into different transverse planes and a plurality of laterally-movable conveyers arranged in different transverse planes for automatically depositing packages into said pockets at predetermined intervals.

6. In a wrapping-machine, a plurality of package-placers arranged in the same transverse plane, a plurality of longitudinally-reciprocating package-feeders having pockets thereon, means for moving the package-feeders forwardly to bring their pockets beneath

the package-placers and rearwardly to bring the pockets to points in different transverse planes and laterally-movable conveyers arranged in different transverse planes for depositing packages into said pockets at predetermined intervals.

7. In a wrapping-machine, a plurality of longitudinally-reciprocating package-feeders, a plurality of laterally-movable conveyer-belts, pulleys therefor, a shaft, means for connecting the shaft to one or more of the pulleys at pleasure and means for imparting an intermittent rotary movement to the shaft.

8. In a wrapping-machine, a vertically-reciprocating package-placer, spring elastic grippers and spur-grippers carried by the package-placer, the spring elastic grippers being arranged to frictionally engage the package and the spur-grippers being arranged to positively engage the package.

9. In a wrapping-machine, a vertically-reciprocating package-placer, spring elastic grippers carried by the package-placer for frictionally engaging the four sides of the package, spur-grippers carried by the package-placer for positively engaging the opposite sides of the package and means for opening and closing the grippers at predetermined points in the movements of the package-placer.

10. In a wrapping-machine, a vertically-reciprocating package-placer comprising a box and a block yieldingly connected, rock-shafts at the opposite sides of the box, a spur-gripper carried by each rock-shaft, a connection between the spur-grippers for causing them to simultaneously open and close, a spring-actuated arm carried by one shaft tending to hold the grippers normally closed and a finger carried by one shaft normally projecting beneath the block and operated thereby at a predetermined point in the movement of the package-placer.

11. In a wrapping-machine, a vertically-reciprocating package-placer, standards with which the placer is fitted to slide, spur-grippers carried by the package-placer and means carried by one of the standards for opening the grippers at a predetermined point in the movement of the package-placer.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 30th day of August, 1904.

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PETER H. MACCORQUODALE.

Witnesses:

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