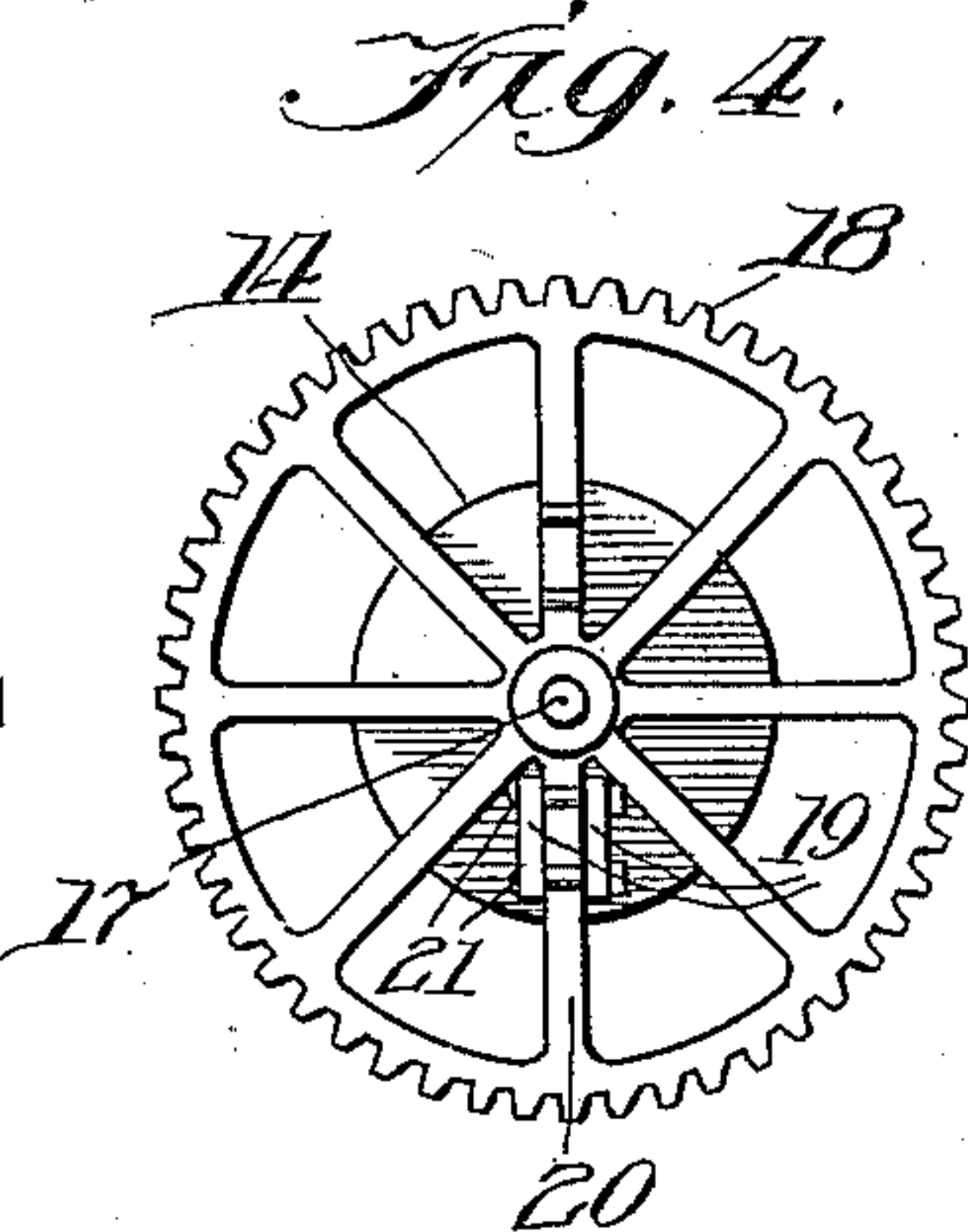
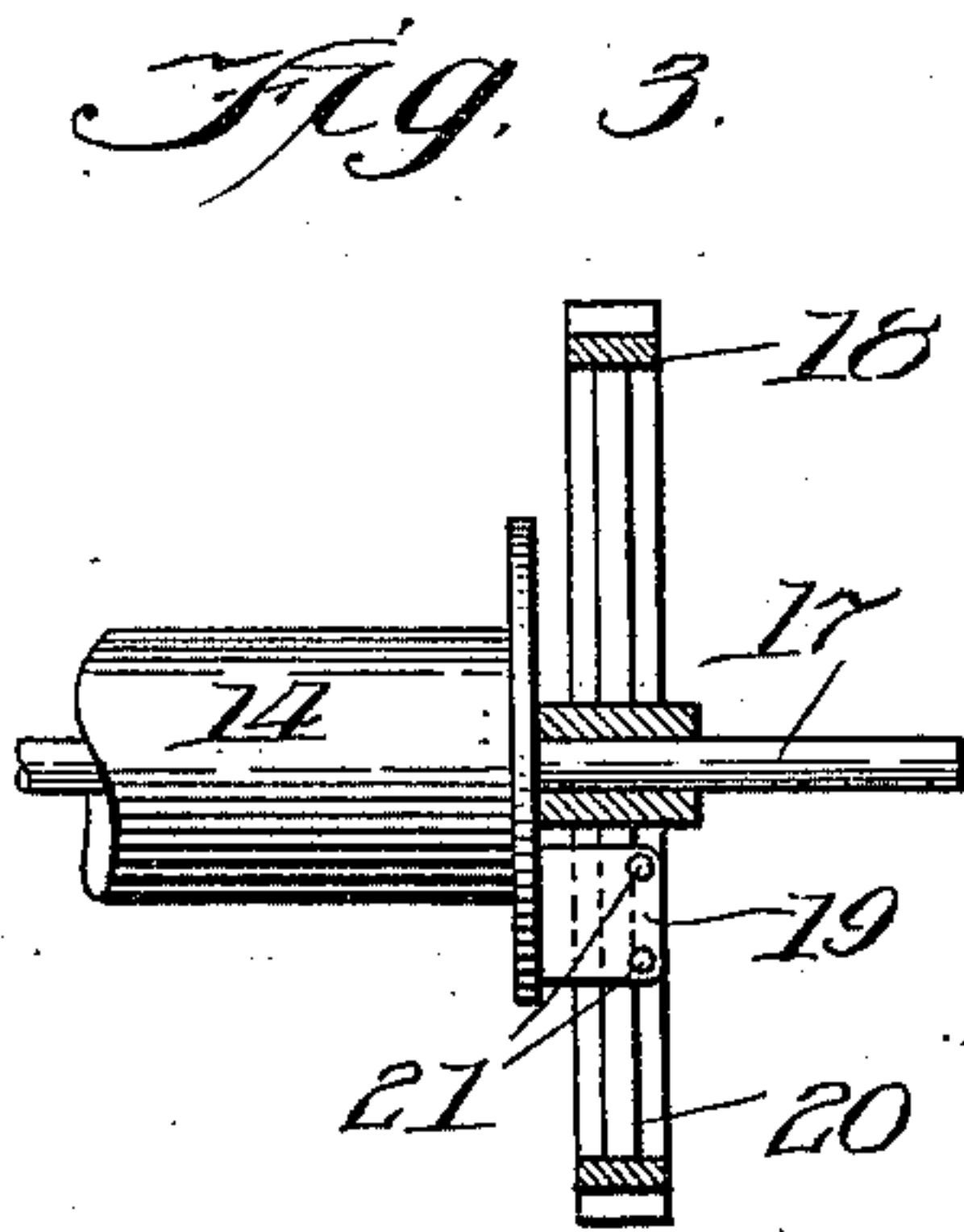
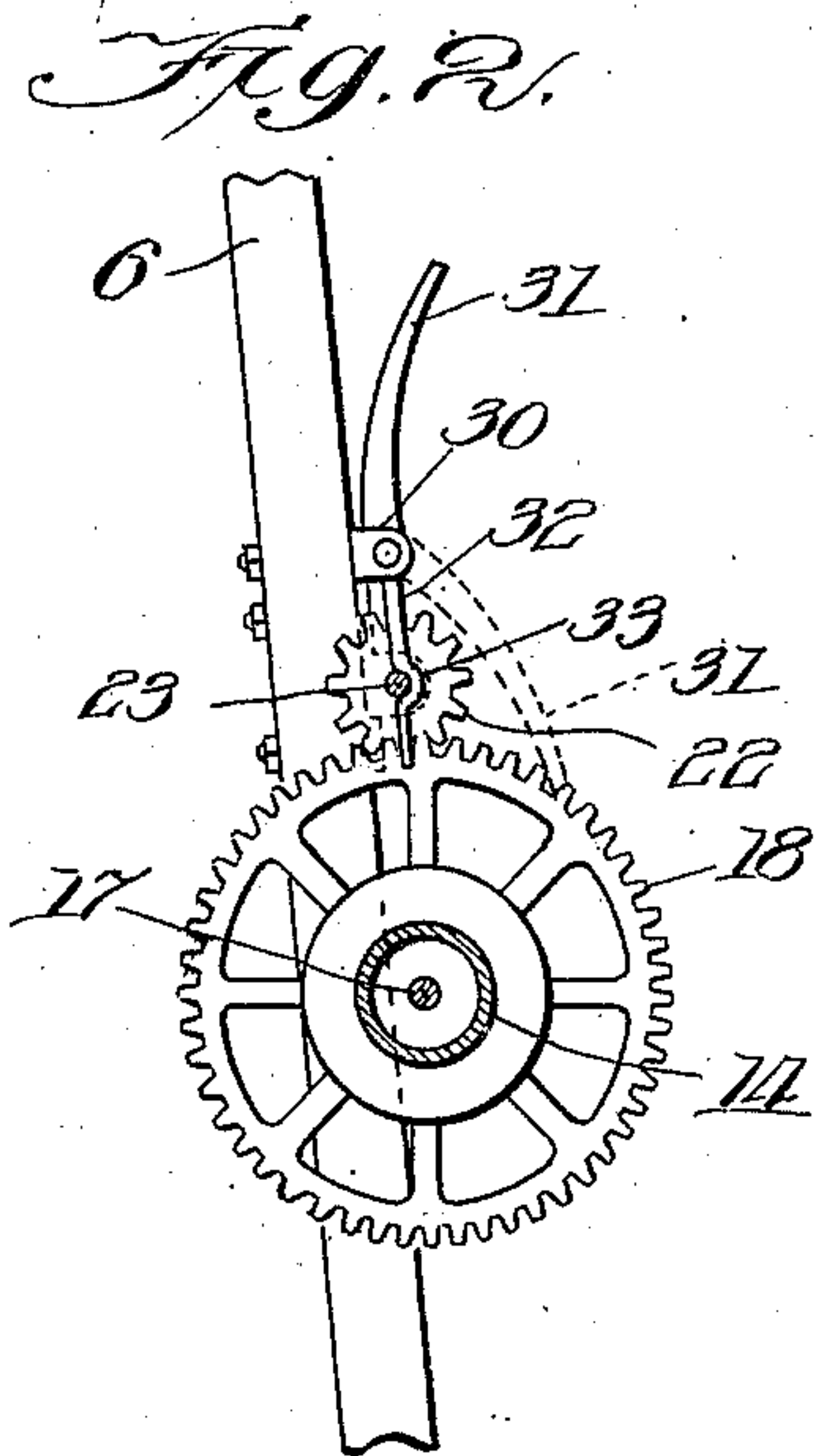
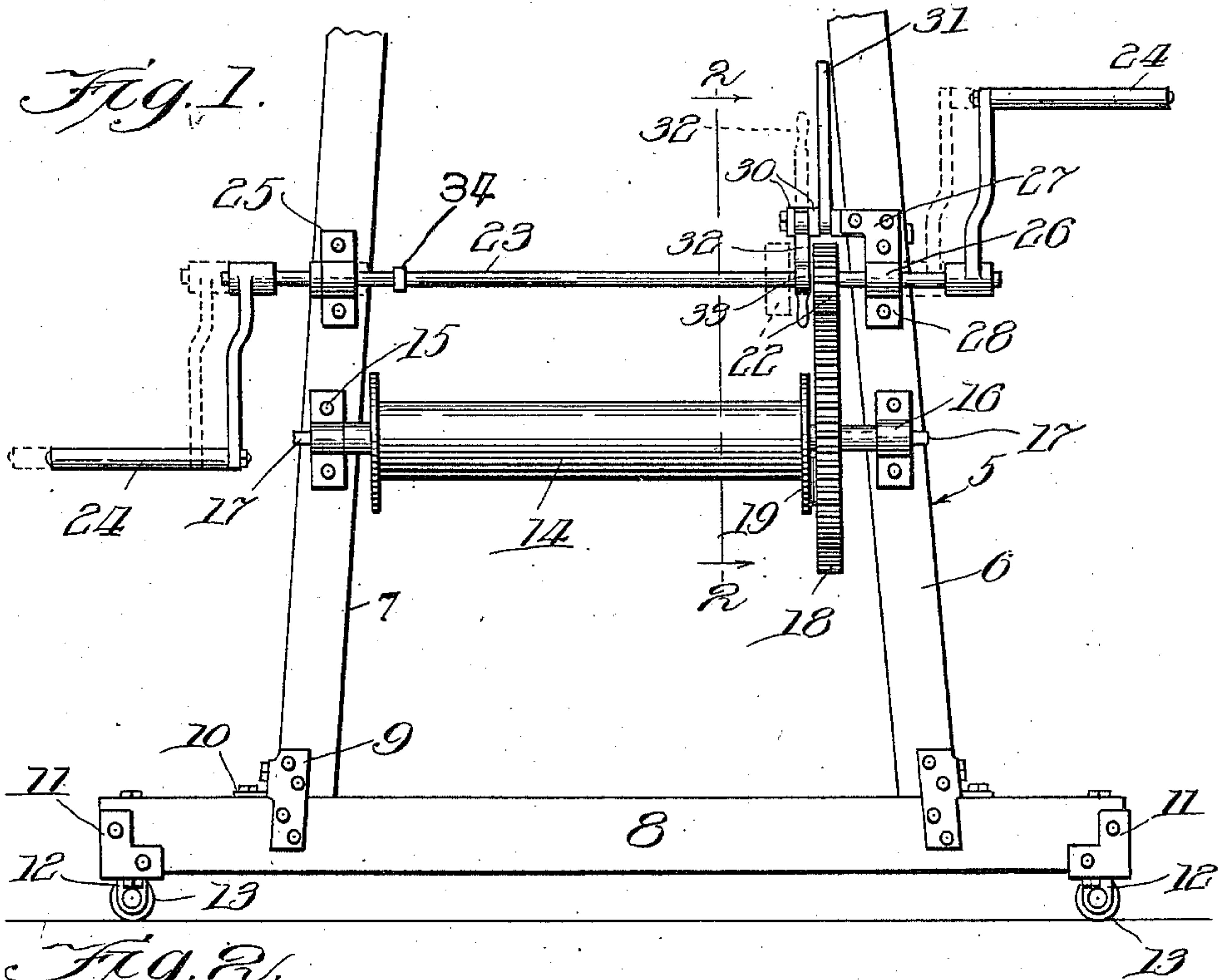


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DERRICK.

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To all whom it may concern:

Be it known that I, MICHAEL J. SASGEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Derricks, of which the following is a specification.

The present invention relates more particularly to the arrangement of a dog for controlling the escapement of the drum in one direction and to the latch for maintaining the gear connection between the power driven shaft and drum whereby said latch and dog are positioned upon one side of the derrick structure and hence easily manipulated by the operator during the operations of raising and lowering the load.

The invention further relates to the utilizing of a single plate which serves as a mounting for the dog and latch and also serves as a journal bearing for one end of the power driven shaft.

The invention further relates to a method of securing the gear to the drum whereby the use of keys and other similar appliances for securing the gear in place are eliminated.

The invention further relates to a stirrup-like plate which is positioned upon the ends of the bottom sill of the derrick structure and serves as a shield to prevent splintering of the ends and also serves as a mounting for rollers upon which the derrick structure travels when it becomes necessary to shift its position during operation.

Further objects of the invention will appear from a detailed construction of parts hereinafter described and claimed.

In the drawings Figure 1 is a front elevation of the lower portion of the derrick structure showing the devices of the present invention in operative position thereon; Fig. 2 a section on line 2—2 of Fig. 1 looking in the direction of the arrow; Fig. 3 a detail showing the connection between the drum and the gear; and Fig. 4 a face view of the parts shown in Fig. 3.

The devices are applied to a derrick structure 5 of any ordinary and well known type which comprises side sills 6 and 7 and a bottom sill 8. The side sills are connected to the bottom sill through the medium of a stirrup-shaped plate 9 which rests against three sides of the side sills and two sides of the bottom sill. That is to say it straddles the bottom sill so as to rest upon the front and

rear faces thereof and the plate 9 is further provided with a lug 10 which is secured to the upper face of the bottom sill 8 as shown more clearly in Fig. 1. Secured upon the ends of the bottom sill 8 is a plate 11 of stirrup formation which substantially incloses and surrounds the end faces of the bottom sill. This plate 11 is provided with downwardly projecting ears 12 between which is pivotally mounted rollers 13. The plate 11 serves two functions, viz, it acts as a shield or guard to prevent the splintering of the ends of the lower sill should the sill be brought into violent contact with stone or similar substance as frequently happens during the operation of a derrick in building constructions, and it also serves the function of providing a mounting for the rollers 13 which rollers are considered to be an important feature, in that they enable the structure to be readily and easily moved from point to point during the operation of the derrick.

The hoisting mechanism comprises a reel or drum 14 which is journaled in bearings 15 and 16 secured to the side sills 7 and 6 respectively. The drum has fixedly secured thereto a shaft 17 which finds its bearings within the journals 15 and 16 and surrounding said shaft but loosely mounted thereon is a gear wheel 18 which is connected to the drum by means of companion plates or ears 19 which lie either side of one of the spokes 20 of the gear wheel 18 and are secured in place with respect thereto by means of suitable bolts 21 as shown in Figs. 3 and 4. By utilizing this form of connection the keys, splines and other devices commonly employed for maintaining the connection between the shaft of the drum and the gear wheel have been eliminated. This is considered to be one of the salient features of the present invention in as much as it has been found that owing to the great strain placed upon the gear wheel during the hoisting operation that a spline or key or similar device would in time become worn and a slip connection produced between the gear and drum. This of course is undesirable in that if such a slip connection were present the rotation of the gear wheel would produce no rotative action on the part of the drum and hence the hoisting of the load would not be accomplished. By the use of the connection employed it is evident that a firm and sub-

stantial connection is produced between the gear wheel and drum and one which will not become worn and rendered ineffective by reason of the continuous strain placed thereon; moreover it will be readily seen that it is a far simpler matter to loosen the bolts used for connecting the plates 19 to the spoke and so disconnect the drum from the gear than it would be to drive out a key or spline especially as in derrick structures the key must be rigidly and firmly inserted in position in order to withstand for any length of time the strain placed thereon. The gear 18 meshes with a pinion 22 which is mounted upon a transversely extending power driven shaft 23. This shaft may be driven by any suitable and well-known mechanical contrivance or may be equipped as shown with handles 24 so that it is manually driven during its operation. The shaft 23 is mounted at one end in a journal 25 secured to the side sill 7 and is mounted at its other end in a journal 26 which is formed in an L-shaped plate 27, the vertical portion 28 of which is secured to the side sill 6 and the horizontal portion 29 of which is provided with outer, inner and intermediate ears or lugs 30. Between the outer and intermediate lugs 30 is pivotally secured a dog 31 which, as shown more clearly in Fig. 2, is adapted to be swung downward and brought into engagement with the teeth of the gear wheel 18 and serves as a brake or detent during the hoisting operation to prevent the unwinding of the cable from the drum should the power for any reason be cut off during the hoisting operation. This feature however is well-known in derrick structures. The inner and intermediate ears 30 serve as a pivotal mounting for a latch member 32 which is provided with an offset or semi-circular depression 33 which is of a size and is positioned so as to overlies the power shaft 23 when it is lying in the position shown in full lines in Fig. 1. When the latch member is lying in this position it serves to lock the shaft 23 against lateral movement, such movement being prevented by reason of the engagement of the pinion 22 with the latch member and since lateral movement of the shaft 23 is thus prevented it follows that while the latch member is in its lowered position disengagement of the pinion 22 with the gear wheel 18 is prevented, thus maintaining an operative connection between the power shaft 23 and the drum 14. It is desirable however in devices of this nature to permit the drum to rotate independent of the power shaft while the block and tackle or other device is being lowered to receive the load, hence during the lowering operation the latch member 32 is thrown back into the dotted position shown in Fig. 1 and the shaft 23 moves laterally until a stop member 34 is brought

into engagement with the bearing 25 as shown by dotted lines in Fig. 1 and when this position is reached the pinion 22 will be moved into the position indicated in dotted lines in Fig. 1, in which position it will be out of mesh with the gear 18, whereby the revolution of the drum 14 to unwind the cable and lower the block will not affect the shaft 23, hence the handles 24 will remain stationary and the operator may direct his attention to the governing of the escapement of the cable from the drum by releasing and engaging the dog 31 from the gear 18 when desired, whereby the lowering operation is permitted or halted as is necessary.

By mounting the latch 32 and the dog 31 in close relation to one another and on the same side of the derrick structure the operator can more easily govern the movement of these two members than as though they were separated and positioned upon different sides of the structure as is the case ordinarily in devices of this nature and furthermore by this arrangement it is possible to utilize the L-shaped plate 26 as a journal-bearing for the shaft 23 and as a mounting for the dog 31 and the latch 32.

I claim:

1. In a derrick, the combination of a derrick structure, a drum, a power driven shaft, a gear connection between the drum and power driven shaft, a dog for governing the rotation of the drum in one direction, a latch for maintaining the gear connection in operative position and a plate secured to one of the side sills of the structure, said plate serving as a journal for one end of the power driven shaft and also serving as a mounting for the dog and latch, substantially as described.

2. In a derrick, the combination of a derrick structure, a drum, a power driven shaft, a gear connection between the drum and power driven shaft, a dog for governing the rotation of the drum in one direction, a latch for maintaining the gear connection in operative position, an L-shaped plate secured to one of the side sills of the structure, the vertical portion of the plate serving as a journal for one end of the power driven shaft, the horizontal portion of the plate serving as a mounting for the dog and latch, substantially as described.

3. In a derrick, the combination of a derrick structure, a drum, a power driven shaft, a gear connection between the drum and power driven shaft, a dog for governing the rotation of the drum in one direction, a latch for maintaining the gear connection in operative position, an L-shaped plate secured to one of the side sills of the structure, the vertical portion of the plate serving as a journal for one end of the power driven shaft, the horizontal portion of the plate being

provided with outer, inner and intermediate ears between which the dog and latch are mounted, substantially as described.

4. In a derrick, the combination of a derrick structure, a drum mounted on said structure, a gear, attaching members, secured to the drum, comprising companion ears, adapted to lie either side of a spoke of the gear, members carried by the ears to prevent

disengagement of the spoke and ears, a power 10 driven shaft and an operative connection between the power driven shaft and the gear, substantially as described.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
