

No. 771,280.

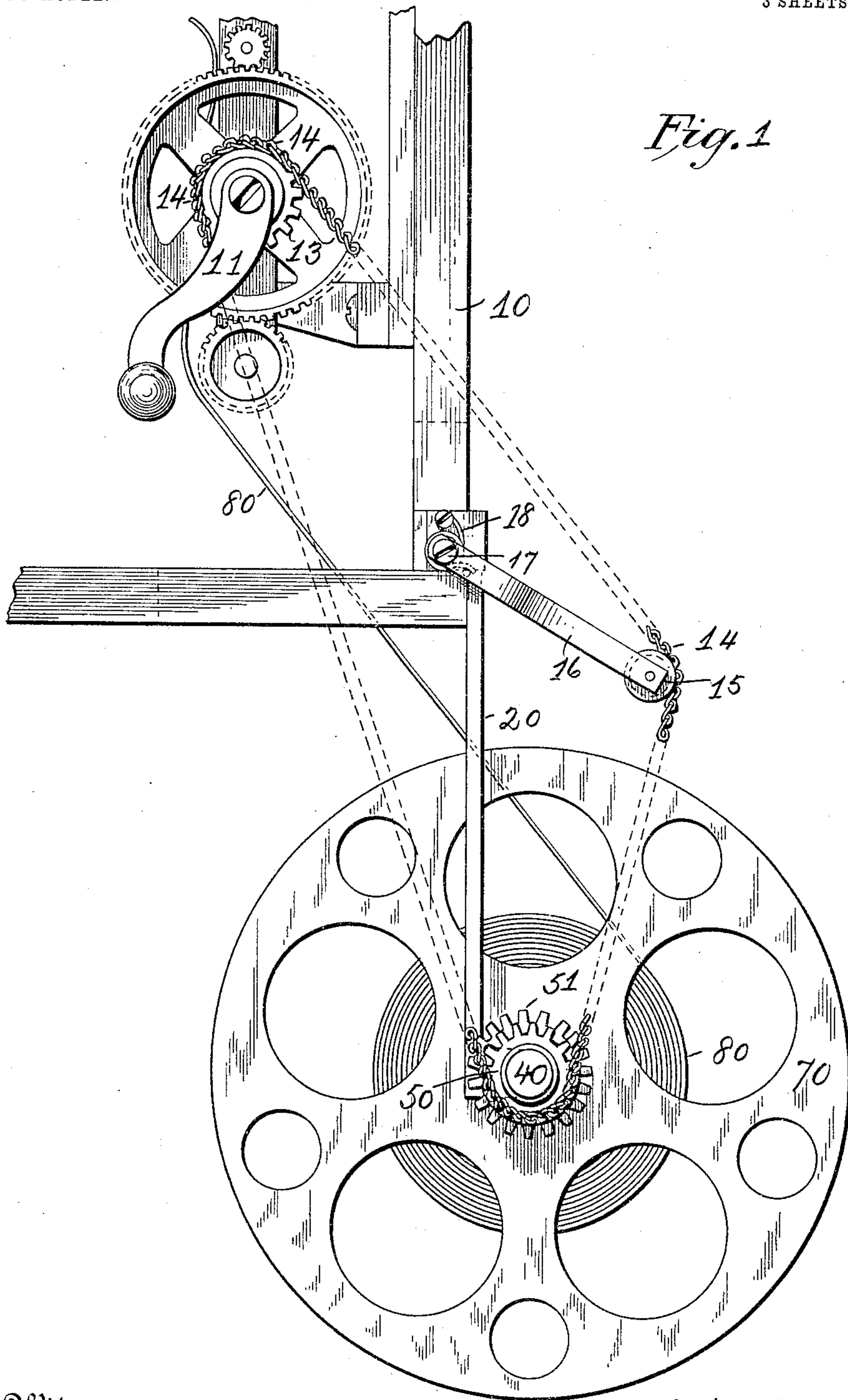
PATENTED OCT. 4, 1904.

A. E. SMITH.
WINDING REEL.

APPLICATION FILED FEB. 1, 1904.

NO MODEL..

3 SHEETS—SHEET 1.



Witnesses.

Estelle M. Titus.
Barthol J. Smith

Albert E. Smith, Inventor

By His Attorney *William R. Paul*

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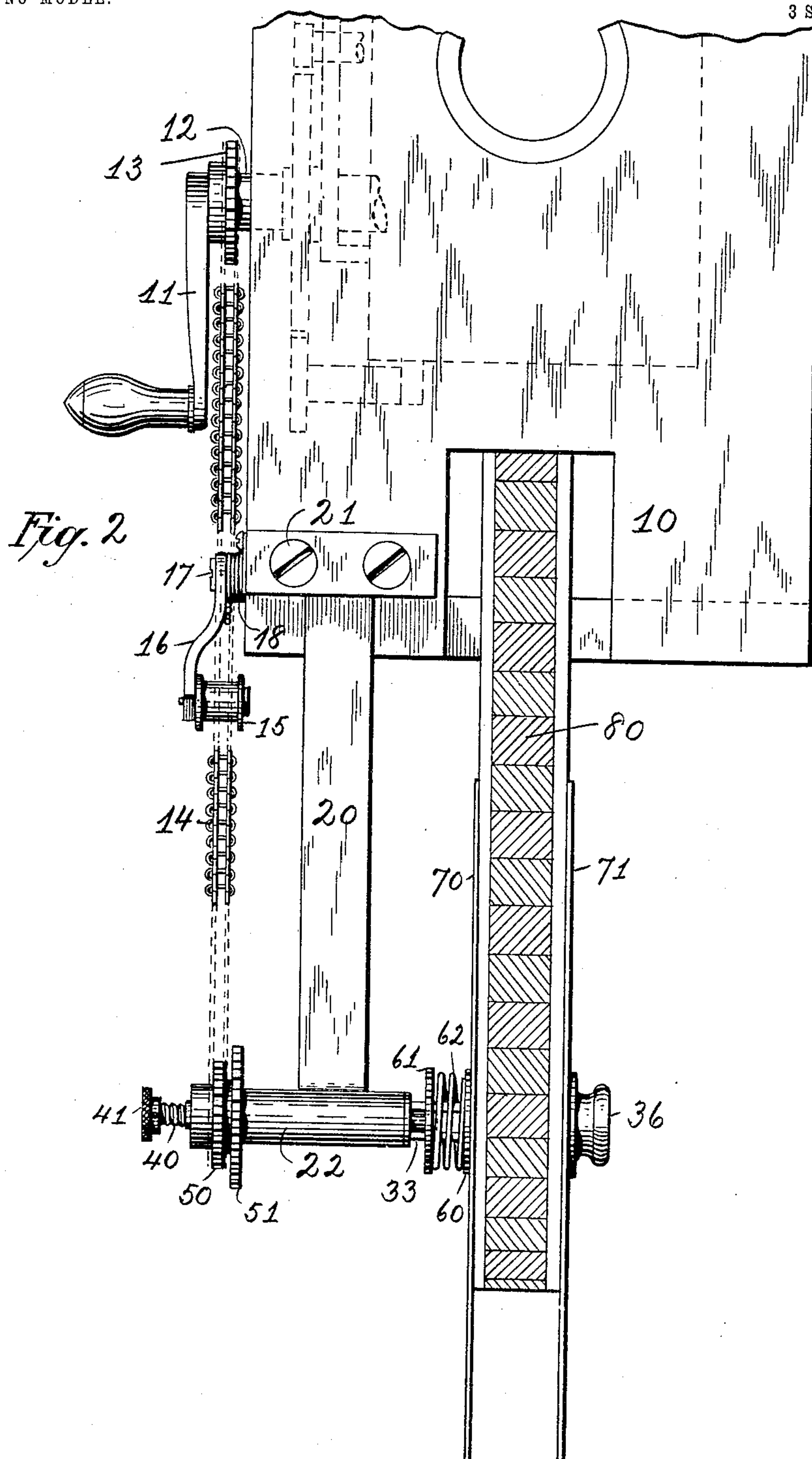
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Witnesses
Estelle M. Titus
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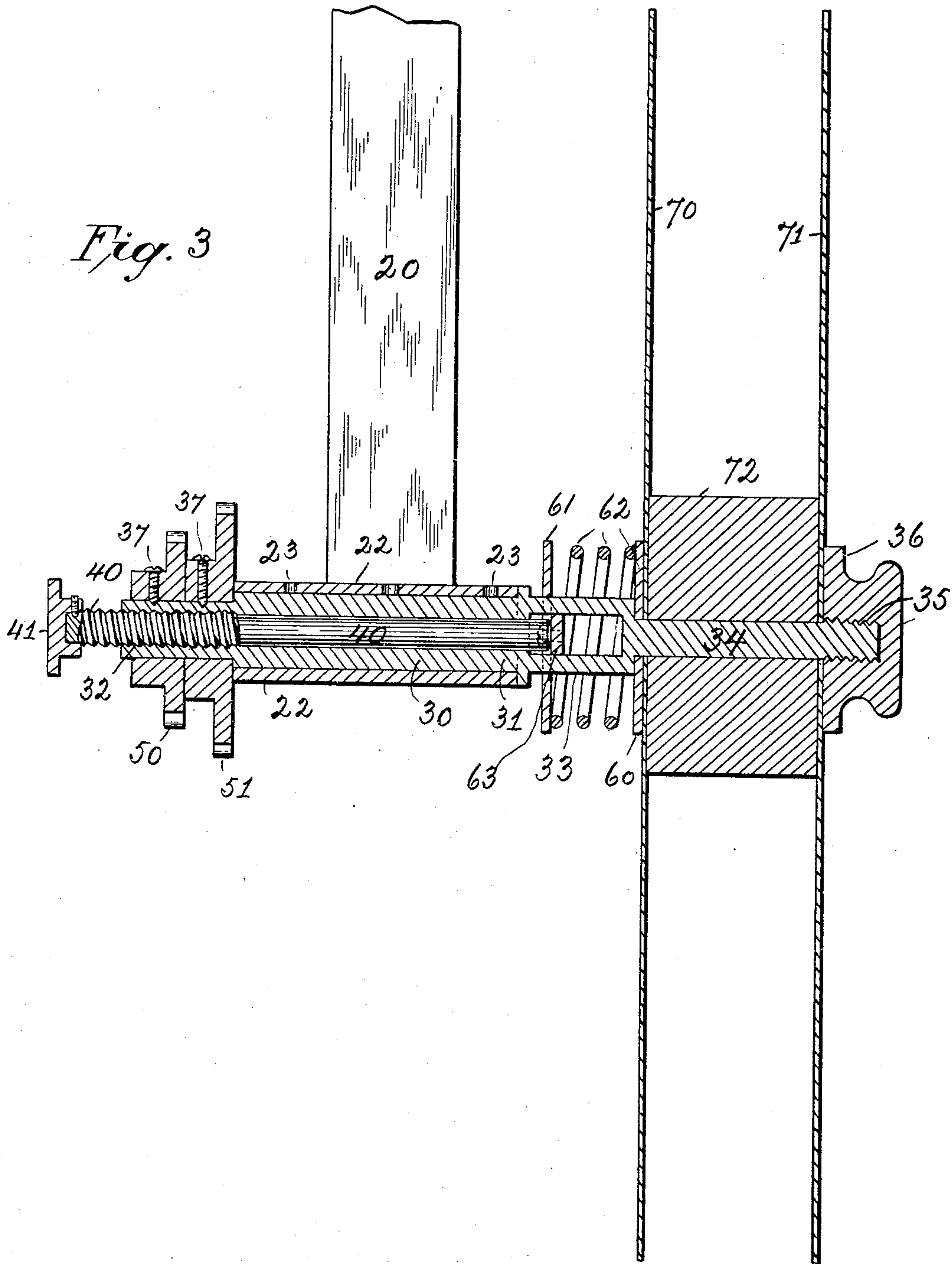
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3 SHEETS—SHEET 3.



Witnesses
Estelle M. Titus.
Garrett J. Smith

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UNITED STATES PATENT OFFICE.

ALBERT E. SMITH, OF BROOKLYN, NEW YORK.

WINDING-REEL.

SPECIFICATION forming part of Letters Patent No. 771,280, dated October 4, 1904.

Application filed February 1, 1904. Serial No. 191,445. (No model.)

To all whom it may concern:

Be it known that I, ALBERT E. SMITH, a citizen of the United States, and a resident of the borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Winding-Reels, of which the following is a specification.

This invention has reference to reels for kinetoscopes, and more particularly to certain improvements in the means for taking care of the film after the same has passed the light-orifice of the machine.

The invention consists in certain peculiarities in the construction of parts and in certain novel combinations of elements, substantially as hereinafter described, and particularly pointed out in the subjoined claims.

The purpose of my invention is to provide means for winding the film upon a proper reel as it is discharged from the machine, so that it can be at once made ready for future use, and at the same time to provide means for varying the tension upon the reel-shaft and to make the parts efficient, simple, and cheap.

In the drawings, Figure 1 is a side elevation of the lower portion of a kinetoscope provided with my improved device. Fig. 2 is a front elevation of the same, and Fig. 3 is an enlarged vertical section of the reel and its connections.

In the drawings, 10 is the lower part of the frame of a kinetoscope.

11 is the main actuating-handle adapted to turn the shaft 12, suitably connected to move the usual mechanism for propelling the film and moving the shutters, and which it is not necessary for our present purpose to describe.

13 is a sprocket-wheel rigidly secured to the shaft 12 and adapted to propel the sprocket-chain 14 traveling over the same.

Depending from any part of the frame 10 is a bracket 20, suitably secured by any proper means, as the screws 21. Hanging from the lower part of this bracket 20 is a horizontally-placed substantially cylindrical bearing 22, provided with apertures 23 23 for the introduction of lubricating-oil. Within this bearing is placed the reel-shaft proper, 30. It comprises a hollow cylindrical portion 31,

threaded at 32 to receive a rod 40, a slotted cylindrical portion 33, and a solid round portion 34. This latter, passing through the core or hub of the reel and having a threaded extremity 35, is adapted to engage with a tension-bearing knob 36.

Rigidly secured to the shaft 30 by any suitable means, as the screws 37 37, are a number of sprocket-wheels 50 51 having different radii. Loosely mounted on the end 34 of the shaft is an annular disk 60, and mounted on the part 33 of the shaft is another annular disk 61. The latter is secured to the shaft and rotates with it. Between these two disks and secured to both is a coiled spring 62 encircling the part 33 of the shaft 30. The rod 40, provided with a head 41, reciprocates within the shaft, its inner extremity impinging against a plate 63, secured to the disk 61, so that when the rod is rotated the disks are brought closer together and the spring 62 between them is compressed.

The reel comprises two flat plates 70 and 71, apertured centrally to receive the part 34 of shaft 30 and provided with a hub or drum 72, on which the film is to be wound.

15 is a tension-roller rotatably mounted on the end of an arm 16, hinged at 17 and provided with a coiled spring 18, which is secured both to the frame 10 and the arm 17 to cause the latter always to swing outwardly and upwardly and toward the chain 14. Its function is to press yieldingly against the chain to keep it stretched and taut, although it may vary in length, as it does when the main shaft is, with the rest of the mechanism, adjusted up and down in the operation of the machine.

The operation of the device is as follows: The parts being placed in the position shown in the figures, the chain 14 is coupled to the wheel 50, the film being first led over the drum 72, and the machine is ready to be actuated. The rotation of the handle 11, which turns the whole mechanism, then turns the shaft 30 through the chain 14. This in turn rotates the disk 61. The spring 62, being connected with this disk and with the disk 60, causes the latter to rotate. This presses against the plate 70, and thereby causes the rotation of the reel. At first the pressure upon

the disk 60 and against the plate 70 is slight, and is sufficient to cause the reel to rotate readily and to wind up the film. After a number of yards of film have been unwound on the reel, however, the force necessary to turn it will be greater. If, then, the chain 14 is disconnected from the sprocket-wheel 50 and placed upon the larger wheel 51, the increased leverage adjusts the relative tensions of the parts, and again the reel rotates readily. As more film continues to be wound upon the reel its effective diameter becomes greater, and again the pull on the film becomes too great. In fact, at times it would be sufficient to break it, especially if it contains a weak spot, except for the device for relieving it which is provided. Then the rod 40 is brought into play. Being rotated, it moves inwardly the plate 63 and disk 61. This compresses the spring 62 and presses the disk 60 more tightly against the plate 70 and of course increases the speed of rotation of the reel. If necessary, the rod 40 can be pushed in to compress the spring 62 until the friction between the disk 60 and the plate 70 produces almost a rigid connection between them. It will be observed, however, that no matter what the speed of rotation of the reel or of the main shaft, yet the connection between the rotating parts and the reel is a frictional one, and if the tension or downward pull on the film becomes too great the reel slips and prevents its continuing to a breaking-point. In other words, a practically uniform tension is maintained upon the film and one at the same time which is safe.

If it is desired to rotate the reel without operating the handle 11 or turning the shaft 30 by means of the chain 14, the threaded rod is turned to move the disk 61 toward the left when in the position shown in Fig. 3. This loosens the tension of the spring 62 and allows the reel to be turned without any difficulty. If it is desired to remove the reel altogether from the shaft, the knob 36 is unscrewed from the threaded end 34 and the reel then readily slips off of the shaft.

I claim—

1. In a machine of the class described, a winding-reel adapted to receive the film at its discharge, and means for rotating said reel comprising a shaft upon which the reel is mounted, said shaft having a projection contiguous to said reel, a plate loosely mounted on said shaft between said projection and reel and engaged with the latter, a plate mounted on said shaft to rotate therewith, means for adjusting the latter plate toward the loose plate, and a spring interposed between said plates.

2. In a machine of the class described, a winding-reel adapted to receive the film at its discharge, and means for rotating said reel, comprising a shaft upon which the reel is mounted, a fixed and a loose plate on said shaft,

one of said plates being engaged with said reel, a spring interposed between said plates, and adjusted means for varying the distance between the plates, comprising an adjustable rod carried by the shaft and connected with one of said plates.

3. In a machine of the class described, a winding-reel adapted to receive the film at its discharge, and means for rotating said reel comprising a shaft upon which the reel is mounted, said shaft being hollow, a pair of plates one of which is loosely mounted on said shaft and is frictionally engaged with said reel, and the other of which plates is mounted to turn with said shaft, a plate mounted in the hollow portion of said shaft and connected with the last-mentioned plate, an adjustable rod extending into said shaft and engaged with the plate therein, and a spring interposed between said pair of plates.

4. In a machine of the class described, a winding-reel adapted to receive the film at its discharge, and means for rotating said reel comprising a shaft upon which the reel is mounted, said shaft being hollow, a pair of plates one of which is loosely mounted on said shaft and is frictionally engaged with said reel, and the other of which plates is mounted to turn with said shaft, a plate mounted in the hollow portion of said shaft and connected with the last-mentioned plate, an adjustable rod extending into said shaft and engaged with the plate therein said rod having a threaded connection with said shaft and provided outside the same with a head, and a spring interposed between said pair of plates.

5. In a machine of the class described, a winding-reel adapted to receive the film at its discharge, its shaft, and means for rotating said reel operated from the main shaft of the machine and comprising wheels of different radii mounted on the reel-shaft and means adapted to engage either of said wheels for connecting the same with said main shaft.

6. In a machine of the class described, the combination with a main shaft, of a reel and its shaft, a plurality of wheels of different radii mounted on said reel-shaft, flexible means adapted to engage either of said wheels for operating the reel-shaft from the main shaft, a tension-wheel engaged with said flexible connecting means, and a spring-pressed pivoted arm carrying said tension-wheel.

7. In a machine of the class described, the combination with a main shaft, a winding-reel adapted to receive the film at its discharge and means for rotating said reel from said main shaft, comprising a shaft upon which said reel is mounted, a plurality of wheels of different radii mounted on said shaft, flexible means connecting either of said wheels with said main shaft, and spring-pressed means for transmitting movement from said reel-shaft to said reel.

8. In a machine of the class described, the

combination with a main shaft, a winding-reel adapted to receive the film at its discharge and means for rotating said reel from said main shaft, comprising a shaft upon which said reel is mounted, a plurality of wheels of different radii mounted on said shaft, flexible means connecting either of said wheels with said main shaft, and means for transmitting movement from the reel-shaft to said reel, comprising a fixed and a loose plate on said shaft, one of said plates being engaged with said reel, a spring interposed between said plates, and adjusting means for varying the distance between said plates.

9. In a machine of the class described a winding-reel adapted to receive the film at its discharge, means for rotating the reel operated from the main shaft of the machine comprising a reel-shaft provided with a plurality of sprocket-wheels of different radii, whereby the speed of rotation of the shaft may be varied independently of the speed of rotation of the main shaft.

10. In a machine of the class described, a winding-reel adapted to receive the film at its discharge, means for rotating the reel operated from the main shaft of the machine comprising a reel-shaft provided with a plurality of sprocket-wheels of different radii, whereby the speed of rotation of the shaft may be varied independently of the speed of rotation of the main shaft and also comprising means for keeping the chain taut when its effective length is varied.

11. In a machine of the class described, a winding-reel adapted to receive the film at its discharge, means for rotating the reel operated

from the main shaft of the machine comprising a reel-shaft provided with a plurality of sprocket-wheels of different radii, whereby the speed of rotation of the shaft may be varied independently of the speed of rotation of the main shaft and also comprising means for keeping the chain taut when its effective length is varied, consisting of a tension-roller yieldingly held against the chain.

12. In a machine of the class described, a winding-reel adapted to receive the film at its discharge, and means for rotating said reel, comprising a shaft upon which the reel is mounted, a plate loosely mounted on said shaft and engaged with said reel, a second plate carried by said shaft and partaking of the rotative movement thereof, said second plate being slidably mounted on said shaft, substantially as described, and for the purposes specified.

13. In a machine of the class described, a winding-reel adapted to receive the film at its discharge, and means for rotating said reel, comprising a shaft upon which the reel is mounted, a pair of plates each slidably mounted on said shaft and one of which engages said reel, means for causing the other of said plates to rotate with said shaft, means for adjusting the latter plate slidably on the shaft toward the other plate, and a spring interposed between said plates.

Witness my hand this 29th day of January, 1904, at the city of New York, in the county and State of New York.

ALBERT E. SMITH.

Witnesses:

HERMAN MEYER,
B. J. SMITH.