

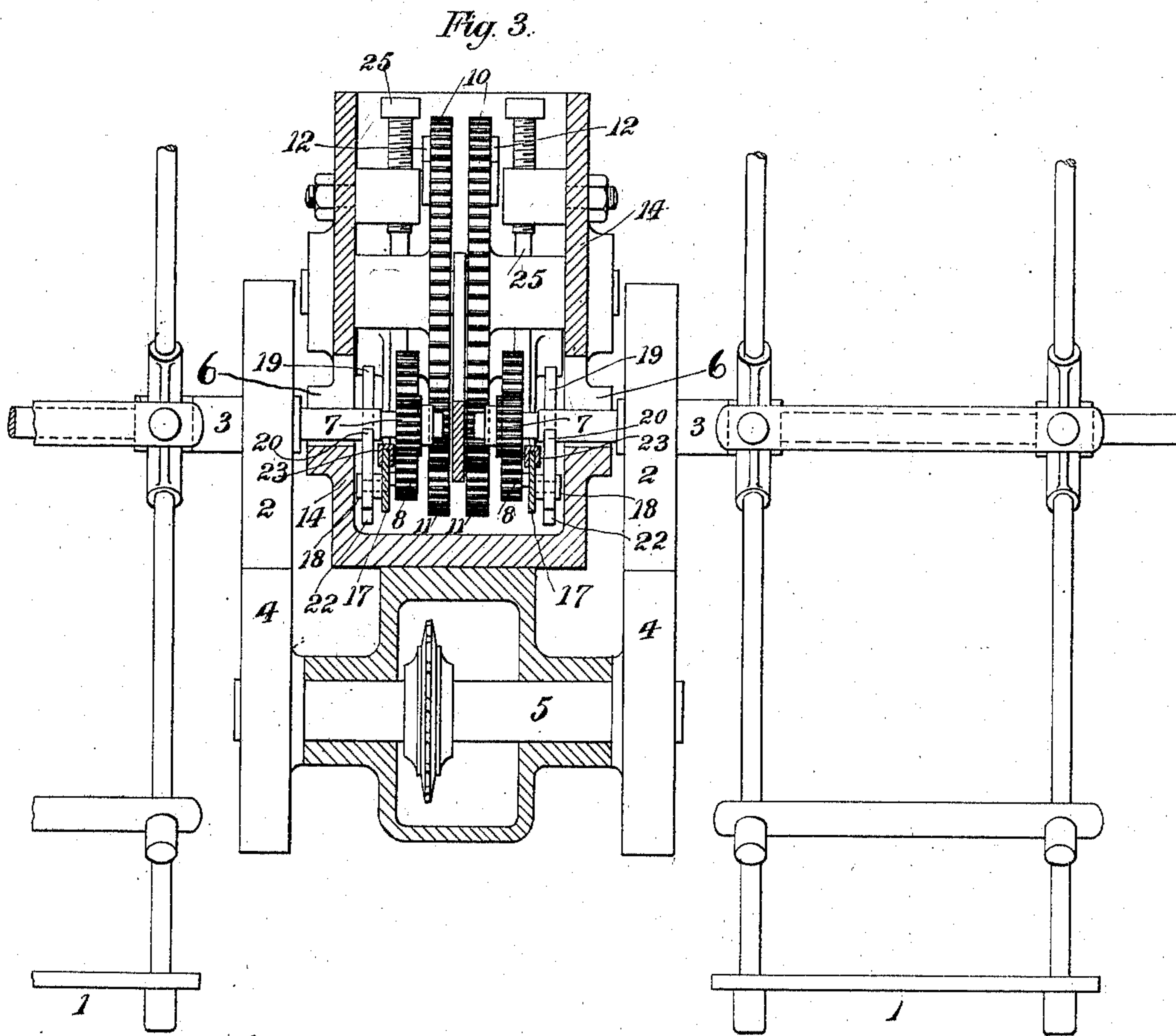
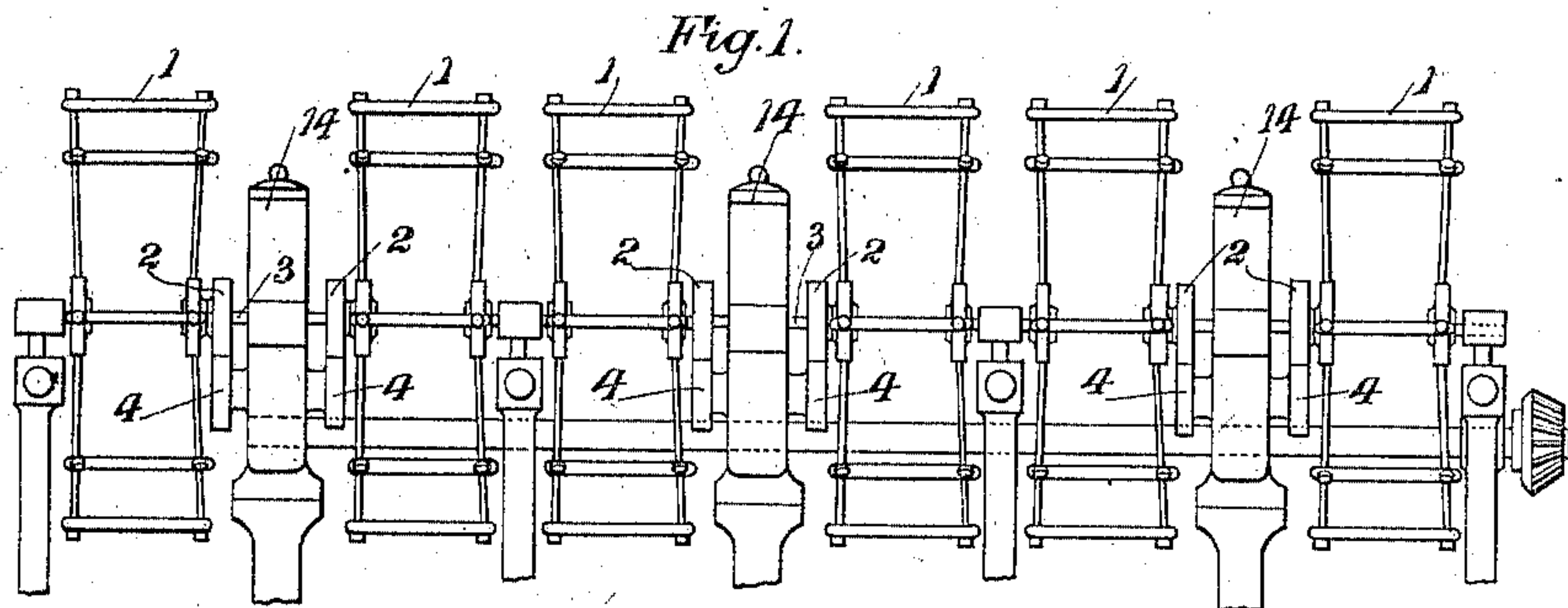
J. CLAYTON.
 APPARATUS FOR STOPPING WINDING REELS, &c., WHEN A PREDETERMINED LENGTH OF
 MATERIAL HAS BEEN WOUND THEREON.

APPLICATION FILED JULY 31, 1909.

967,730.

Patented Aug. 16, 1910.

3 SHEETS—SHEET 1.



WITNESSES
 Charles C. Abbe
 M. E. Kline

INVENTOR
 James Clayton
 by his Attorneys
 Howson and Howson

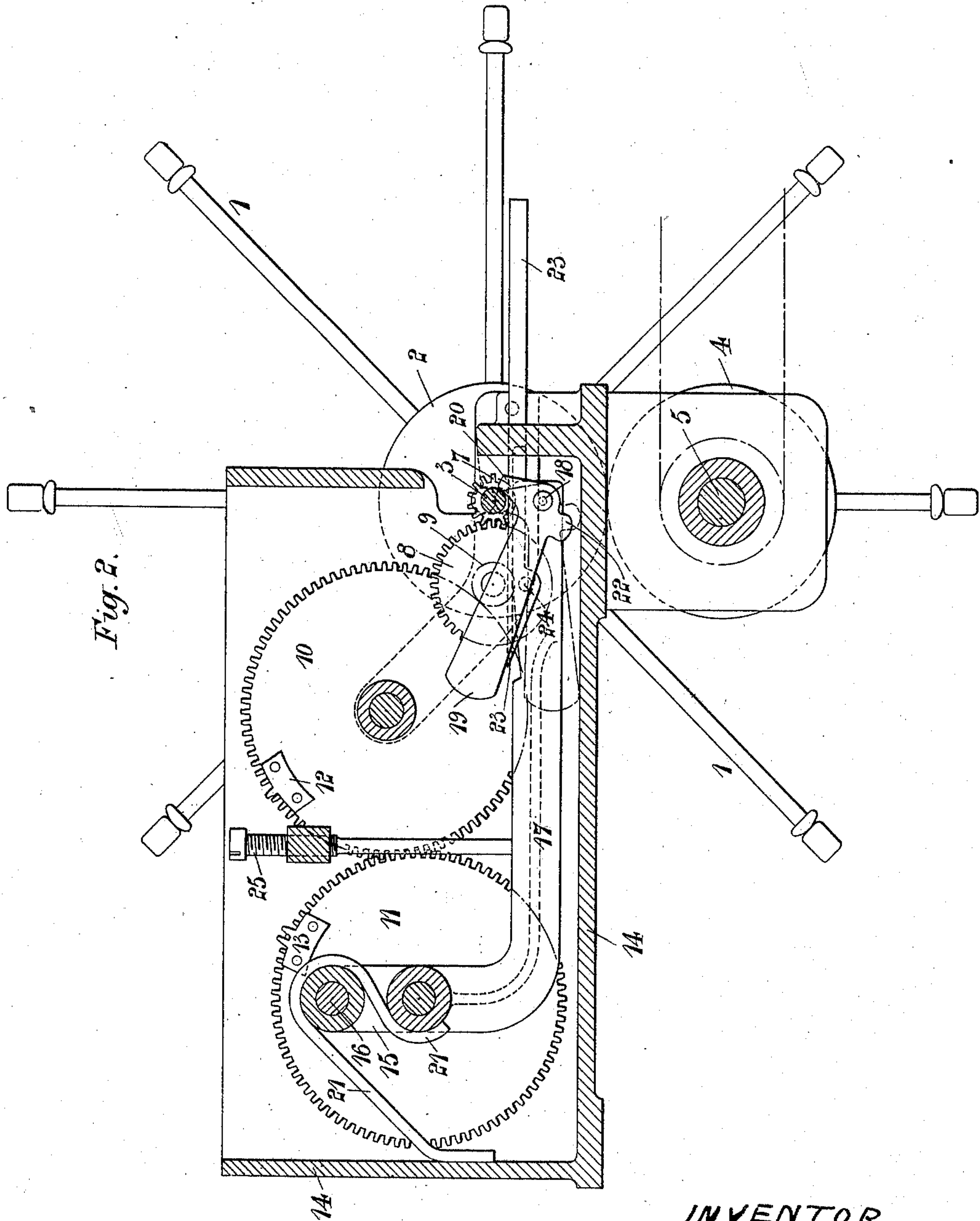
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3 SHEETS—SHEET 2.



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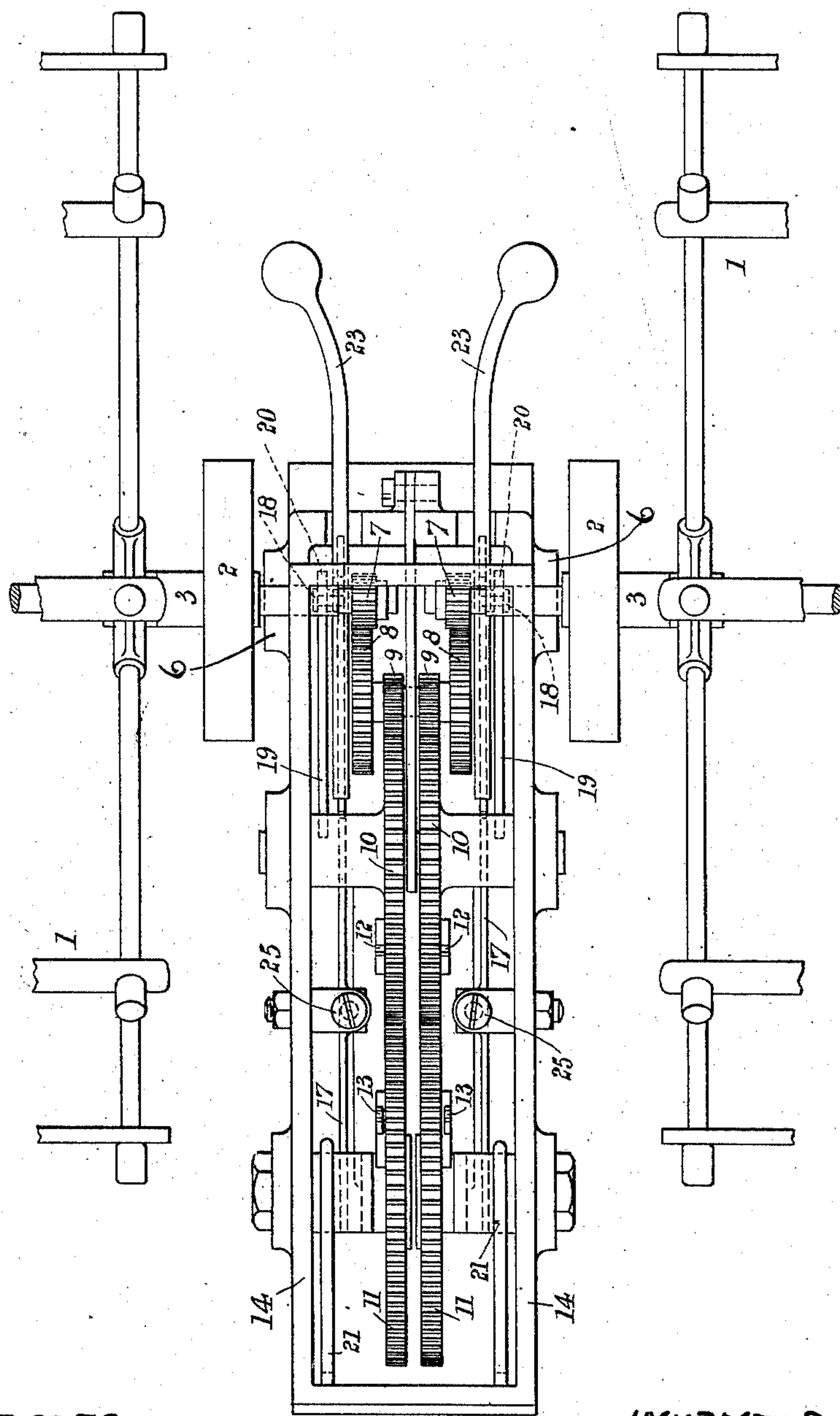
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3 SHEETS—SHEET 3.

Fig. 4



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UNITED STATES PATENT OFFICE.

JAMES CLAYTON, OF COVENTRY, ENGLAND, ASSIGNOR TO SAMUEL COURTAULD AND CO., LIMITED, OF LONDON, ENGLAND.

APPARATUS FOR STOPPING WINDING-REELS, &c., WHEN A PREDETERMINED LENGTH OF MATERIAL HAS BEEN WOUND THEREON.

967,730.

Specification of Letters Patent.

Patented Aug. 16, 1910.

Application filed July 31, 1909. Serial No. 510,684.

To all whom it may concern:

Be it known that I, JAMES CLAYTON, a subject of the King of Great Britain and Ireland, of 12 Middleborough road, Coventry, in the county of Warwick, England, have invented new and useful improvements in apparatus for stopping winding-reels, &c., when a predetermined length of material has been wound thereon, of which the following is a specification.

This invention relates to apparatus whereby, when any predetermined length of material, such, for instance, as filament, or thread, has been wound upon a rotated reel, bobbin, or the like, (which we will refer to as a reel) the rotation of the reel is automatically stopped, and the reel can then be removed and replaced by an empty reel, the rotation of which is then started. Means may also be provided whereby the rotation of the reel can be stopped by hand when required.

This invention can be applied to various kinds of winding apparatus, but has been designated more especially for use with apparatus such as is described in the specifications of British Letters Patent Nos. 19157 and 19158 A. D. 1908 and the invention will be presumed to be in such apparatus a duplication of the mechanism being arranged in one casing situated between two reels the mechanism on one side controlling one reel and that on the other side controlling the other reel.

Figure 1 shows a line of reels with the casings of the mechanisms in place between them. Figs. 2 and 3 are vertical sections, at right angles to each other, and Fig. 4 is a plan of a pair of mechanisms in accordance with this invention.

In describing the invention only one of the pair of mechanisms is referred to, it being understood that the other of the pair is a duplication of it.

Each reel is driven by a frictional, or other, gear-wheel 2, secured to its axis, 3 and bearing on a wheel 4 secured to a shaft, 5 driven as described in the aforesaid specifications, the axis of each reel being capable of being raised, or tilted in its bearing 6, when the rotation of the reel is to be stopped so as to remove the wheel 2, thereon from contact with the driving wheel 4, the reel being held in its raised position as long as

required and being lowered in its bearing so that the wheels 2 and 4 are in contact when the reel is to be driven.

Referring now to Figs. 2, 3 and 4. On the axis of each reel 1 is a pinion 7 which, when the reel is rotating in winding, drives, through suitable transmission gear 8, 9, a wheel 10, which engages with another wheel 11 of somewhat larger diameter. These two wheels 10 and 11 are provided with, or actuate, engaging means, which as shown, consist of the toothed and recessed attachments 12 and 13 affixed to the wheels 10 and 11 respectively, in such positions that when a predetermined number of revolutions of the reel has been made, and consequently a predetermined length of material has been wound, the said attachments engage and prevent further rotation of the said gear with the result that the said pinion 7 on the axis 3 of the reel then runs up on the now stationary wheel 8 and the wheel 2, is thereby removed from contact with the driving gear wheel 4. A support 20 is simultaneously released as described below and serves to hold the reel in this disengaged position.

The mechanism is inclosed in, and carried by, a casing 14 which is formed with bearings for the axis of the wheel 10, the axis of the wheel 11, being carried by one arm of a cranked lever 15, this arm being centered to the casing at 16 above the bearing of the axle of the said wheel 11 which is carried by the said arm. When the reel 1, has completed a predetermined number of rotations, in accordance with the length of material wound, the rotation of the said gear is stopped by the aforesaid engaging means 12 and 13, becoming engaged and then the pinion 7, on the reel shaft 3 rides up the wheel 8, until the wheel 2 on the axis 3 of the reel 1 is clear of the rotating wheel 4 of the driving gear, and consequently the rotation of the reel is stopped. To the other arm 17 of the cranked lever is pivoted at a tumbler-lever 19, with a projection 20, thereon, normally bearing against the side of the axis 3 of the reel 1 which keeps the lever 19 elevated, but when the axis 3 of the reel 1 is raised, or tilted, this projection 20 is released and the lever 19 turns on its center 18 and the said projection 20, comes into position beneath the axis 3 of the reel 1 and

supports it in its raised position out of engagement with the driving gear.

The non-rotation of the reel 1, indicates that the required length of material has been wound thereon and the reel is then removed and replaced by an empty reel.

By depressing the arm of the cranked lever 17 against the action of a spring 21 the wheel 11 is moved so as to disengage the engaging means 12 and 13, and bring the projection 20, on the tumbler lever 19 away from the position in which it supports the axis 3 of the reel 1, and then the reel axis 3 descends in its bearings so that contact of the wheels 2 and 4 is effected and rotary motion is transmitted to the reel and the aforesaid train of wheels is again set in motion, which motion is continued until, when the requisite length of material has been wound on the reel, the said gear is again stopped. The freeing of the train of wheels, and the removal of the projection 20, of the tumbler-lever 19 from its supporting position are effected, and the said lever is brought to its raised position so that the projection thereon is brought from beneath the axis of the reel shaft, by an extension 22, on the underside of the said tumbler lever, 19 bearing upon a stop, or upon the bottom of the casing so that on the depression of the arm 17, the lever 19 is partially rotated on its pivot 18, to remove the projection 20 from the shaft 3 and to bring the driving gears 2 and 4 into operative contact.

In order that the rotation of the reel 1 may be temporarily stopped by hand when required the hand lever 23 may be pivoted at 24 to the arm 17 of the cranked lever and normally bear upon, the upper side of the arm 17 of the said lever, the said hand-lever 23, coming beneath the axis 3 of the reel 1 and extending from the casing 14 so that the reel 1 can, by raising this hand-lever, be raised or tilted, in its bearings until the tumbler lever 19, falls and the wheel 2 of the reel is moved out of contact with the wheel 4. To again drive the reel 1, the hand lever 23, is pressed downward, which operates the cranked lever 15, 17, so as to cause the tumbler lever 19 to be turned on its pivot 18, into its raised position and the projection 20, to be removed from beneath the axle 3. The upward movement of the arm 17 is limited by an adjustable stop 25. Although as illustrated the axes 3 of a series of reels 1 are in line and are adjacent to each other endwise and two devices like that described are situated in one casing to operate in conjunction with two adjacent reels, it is to be understood that the invention is not limited to this placement of the mechanism.

What I claim as my invention is:

1. A stop device of the character described, comprising the axis of a driven reel or the like, a pinion thereon, gearing driven there-

from, means for stopping the revolution of the latter after a predetermined rotation and an automatic supporting catch to hold said axis in the position to which it is lifted by the pinion running up on said stopped gearing, for the purpose described.

2. A stop device of the character described, comprising the axis of a driven reel or the like, a pinion thereon, a train of gearing driven by said pinion and comprising a pair of pinions provided with means for stopping the revolving of said gearing after a predetermined rotation, and an automatic catch to hold said axis in the position to which it is lifted by the pinion running up on said stopped gearing, for the purpose described.

3. In a stop device of the character described, the axis of a reel or the like, a pair of meshing pinions driven therefrom and provided with engaging members adapted to interlock and stop the revolution of said pinions after a predetermined rotation, for the purpose described, one of said pinions being carried by a lever pivoted eccentric to it, whereby said stop members may be disengaged and the pinions freed to rotate again, by swinging said lever on its pivot, substantially as described.

4. In a stop device of the character described, the axis of a reel or the like, a pair of meshing pinions driven therefrom and provided with engaging members adapted to interlock and stop the revolution of said pinions after a predetermined rotation, for the purpose described, one of said pinions being carried by a lever pivoted eccentric to it, whereby said stop members may be disengaged and the pinions freed to rotate again, by swinging said lever on its pivot, in combination with a spring constantly tending to keep said pinions in mesh, substantially as described.

5. In a stop device of the character described, the axis of a reel or the like, a pair of meshing pinions driven therefrom, and provided with engaging members adapted to interlock and stop the revolution of said pinions after a predetermined rotation, for the purpose described, one of said pinions being carried by a lever pivoted eccentric to it, whereby said stop members may be disengaged and the pinions freed to rotate again, by swinging said lever on its pivot, in combination with an automatic supporting catch pivoted on said lever and adapted to support said axis in its disengaged position, substantially as described.

6. In a stop device of the character described, the axis of a reel or the like, a pair of meshing pinions driven therefrom, and provided with engaging members adapted to interlock and stop the revolution of said pinions after a predetermined rotation, for the purpose described, one of said pinions being carried by a lever pivoted eccentric to

it, whereby said stop members may be disengaged and the pinions freed to rotate again, by swinging said lever on its pivot, in combination with an automatic supporting catch pivoted on said lever and adapted to support said axis in its disengaged position, and means for freeing said catch upon the movement of said lever to free the pinions, substantially as described.

10 7. In a stop device of the character described, the axis of a reel or the like, a pair of meshing pinions driven therefrom, and provided with engaging members adapted to interlock and stop the revolution of said
15 pinions after a predetermined rotation, for the purpose described, one of said pinions being carried by a lever pivoted eccentric to

it, whereby said stop members may be disengaged and the pinions freed to rotate again, by swinging said lever on its pivot, in combination with a casing inclosing said pinions and lever, a handle pivoted to the latter and passing beneath the reel axis to the exterior of the casing, whereby said axis may be manually lifted to interrupt its rotation, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES CLAYTON.

Witnesses:

FREDERICK THOMAS LOOD,
GEORGE KELMAN.