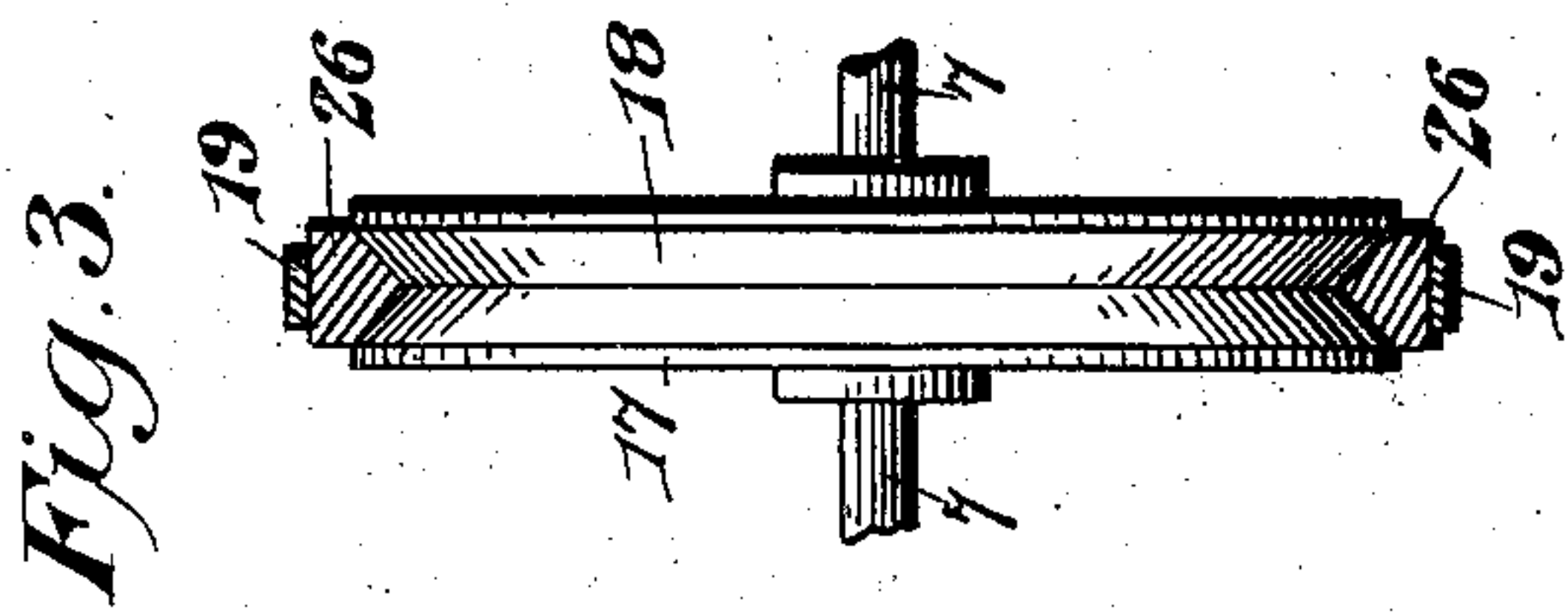
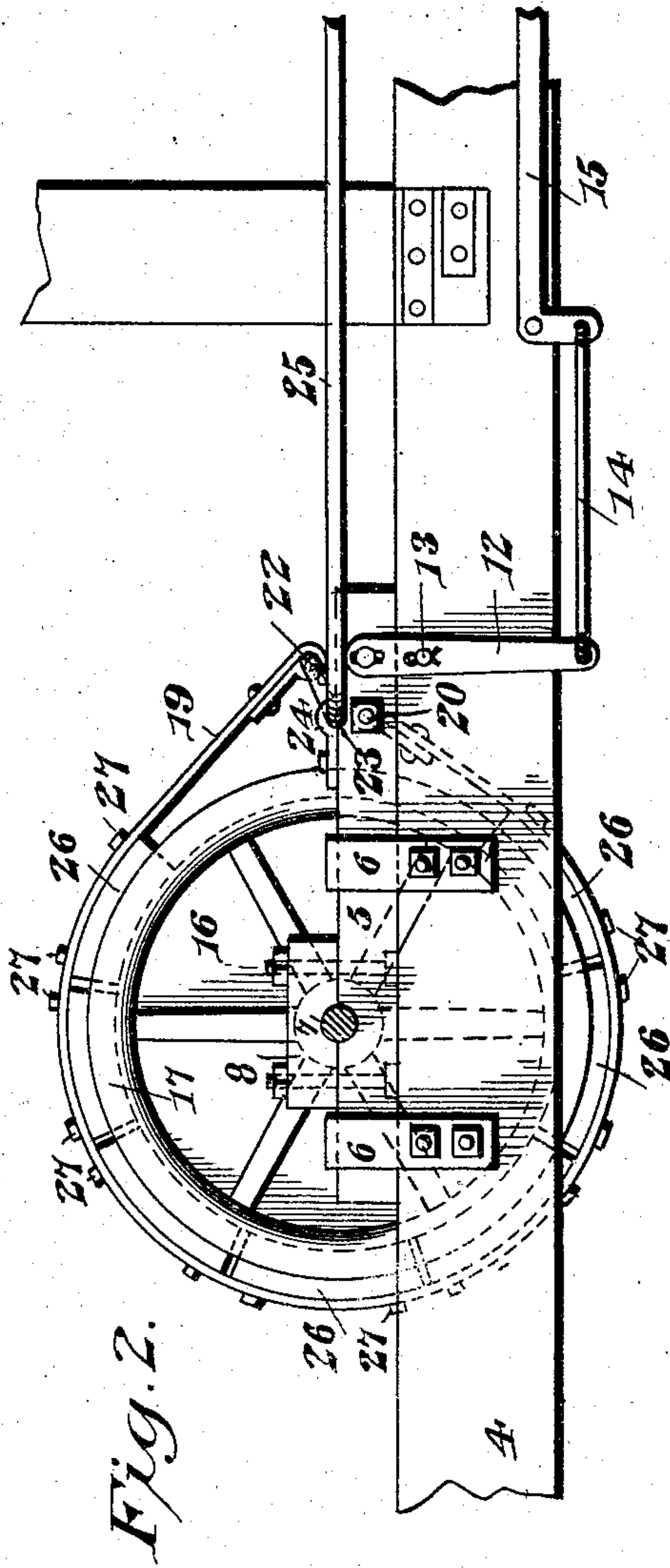
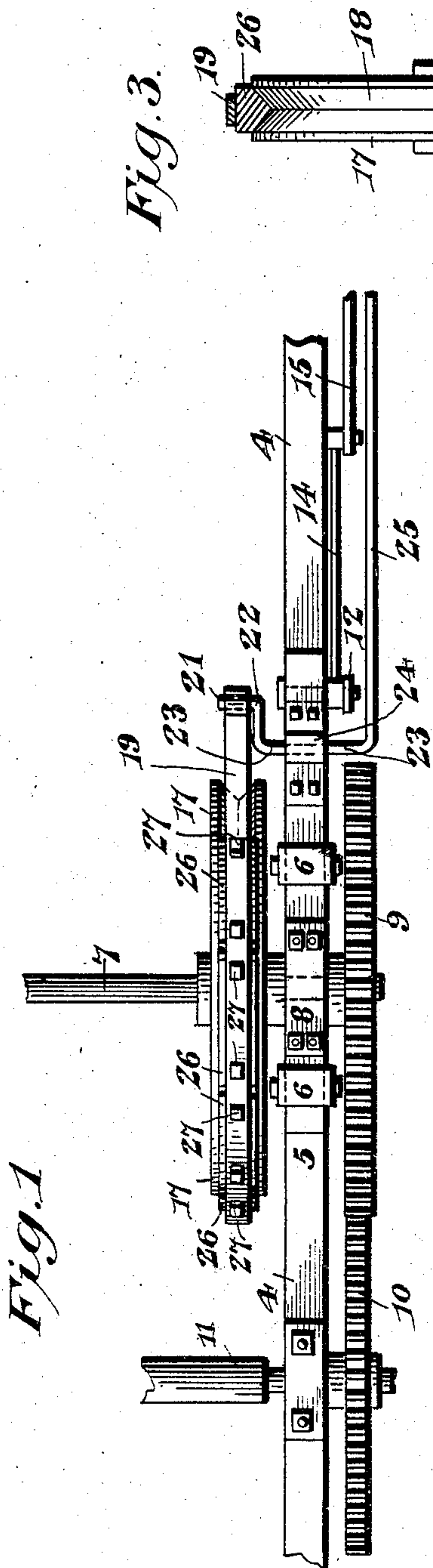


No. 785,295.

PATENTED MAR. 21, 1905.

R. M. DOWNIE.
BRAKE MECHANISM.
APPLICATION FILED JUNE 20, 1904.



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BRAKE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 785,295, dated March 21, 1905.

Original application filed September 17, 1903, Serial No. 173,604. Divided and this application filed June 20, 1904. Serial No. 213,362.

To all whom it may concern:

Be it known that I, ROBERT M. DOWNIE, a citizen of the United States, residing at Beaverfalls, in the county of Beaver and State of Pennsylvania, have invented a new and useful Brake Mechanism, of which the following is a specification.

This invention relates more particularly to brake mechanism for use in connection with well-drilling machines, and the present application is a division of one filed by me September 17, 1903, Serial No. 173,604.

In the brakes employed on the cable-reels of drilling-machines the brake-wheels are ordinarily made very narrow in order to secure the greatest amount of reel room possible. The result has been a greatly-restricted braking-surface, and as the strain and friction upon the brake shoes or blocks is very severe the smaller the surface the greater the heating thereof, necessitating the application of water to prevent ignition of the brake.

The object is to provide brake mechanism whereby the requisite amount of reel room is secured, while the braking-surface is comparatively very great, consequently reducing the friction per square inch, lightening very materially the brake-pressure necessary, obviating the necessity of the application of water, and at the same time maintaining the parts in operative relation.

Another object is to so construct the mechanism that it will always maintain its proper relation without regard to the movement of the reel.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a top plan view of a portion of a reel, showing the brake mechanism and part of the driving means therefor. Fig. 2 is a view in elevation of the brake mechanism. Fig. 3 is a cross-sectional view therethrough.

Similar reference-numerals indicate corresponding parts in all the figures of the drawings.

In the structure illustrated a supporting-beam 4 is employed, which constitutes a part of the frame of the drilling-machine. On the

beam 4 is slidably mounted a carrier-block 5, held in place by stirrups 6, surrounding the same and secured to the beam. A reel-shaft 7 has a bearing 8 on the carrier-block and carries at its outer end a gear-wheel 9, movable into and out of engagement with a drive-wheel 10 when the carrier-block is moved. The wheel 10 is carried by a drive-shaft 11, operated in any suitable manner desired. The movement of the carrier-block 5 to effect the engagement and disengagement of the wheels 9 and 10 is secured through the medium of a lever 12, pivoted, as shown at 13, upon the beam 4, the upper end of the lever having a connection with the carrier-block, while the lower end has a link connection 14 with a bell-crank operating-lever 15.

One of the heads of the reel comprises a brake-wheel member 16, having an annular enlarged rim 17, projecting outwardly from the inner face of the wheel and having a peripheral groove or seat 18, that is substantially V shape in cross-section. A brake for this wheel consists of a flexible metallic band 19, surrounding said wheel and having one end attached, as shown at 20, to the carrier-block. The other end of the band 19 is connected to a crank-pin 21, forming an integral part of a crank-arm 22, that is carried by a pivot 23, journaled in a boxing 24 upon the carrier-block. The other end of the pivot 23 is provided with an operating-lever 25, extending longitudinally of the supporting-beam, as shown in the accompanying drawings. This actuating means which is employed for the brake-band is thus formed from a single rod or bar, and while the crank-arm 22 and lever 25 extend in the same general direction they are located out of alignment. The brake-band 19 carries on its inner face shoe-sections 26, consisting of blocks, preferably made of wood and fastened to said band by means of suitable devices 27. These blocks have their inner portions located in the groove of said seat 18 of the brake-wheel member, and said portions are therefore substantially V-shaped in cross-section, as illustrated in Fig. 3.

While it will be seen that the brake-wheel

member can be made comparatively narrow, so as to secure the full length of the reel, the V-shaped configurations of the shoe-sections and groove afford comparatively great surface. Moreover, by spacing the blocks apart air can find its way to these surfaces, particularly as the outer portions of the blocks, and therefore the spaces between them, are located outside the rim, so that air has free access to said spaces. The result is that relatively light pressure applied to the brake-lever will control the movement of the wheel, and consequently the reel, and as this pressure is distributed over a comparatively great area there is comparatively little danger of the friction being great enough to set the brake afire. A further important advantage residing in this arrangement lies in the fact that there is no danger of lateral displacement of the band and shoes, as their interlocking engagements maintain them at all times in proper relation. The construction of the actuating means for the brake-band is also an advantageous feature, as it may be manufactured at small cost and at the same time is entirely sufficient for the purpose. Another important feature to which attention is invited is the mounting of the entire brake mechanism upon the carrier-block, so that no matter whether the gear-wheel 9 is in or out of engagement with the drive-wheel 10 the braking action will not be interfered with or changed during the movement of the reel.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In brake mechanism, the combination with a support having a bearing, of a brake-wheel, a brake coacting with the wheel, and an actuating device for the brake constructed of a single rod, an intermediate portion of said rod forming a pivot and being journaled in the bearing, one of the terminal portions

of said rod being offset from the pivot and constituting a crank-arm that is connected to the brake, said crank-arm being located at one side of the bearing, the other terminal of the arm being also offset from the pivot and constituting an operating-lever, said lever being located on the opposite side of the bearing to the crank-arm.

2. In brake mechanism, the combination with a support having a boxing located thereon, of a brake-wheel, a brake-band coacting with the wheel, and an actuating device formed from a single rod or bar and comprising a pivot journaled in the boxing, an integral crank-arm carried by one end of the pivot, said arm being located at one side of the boxing and connected to the band, and an integral offset lever carried by the other end of the pivot, said lever being located at the other side of the boxing to the arm.

3. In brake mechanism the combination with a support, of a carrier movably mounted thereon, a brake-wheel having a journal on the carrier and movable therewith, and a brake coacting with the wheel, said brake being attached to and movable with the carrier.

4. In brake mechanism, the combination with a support, of a carrier movably mounted thereon, a brake-wheel having a journal mounted on the carrier and movable therewith, a brake coacting with the wheel, said brake being attached to and movable with the carrier, and operating means for the brake attached to the same, said operating means being also mounted on the carrier and movable therewith.

5. In brake mechanism, the combination with a supporting-beam, of a carrier-block slidably mounted on the supporting-beam, a brake-wheel having a journal-bearing on the carrier-block and movable therewith, a brake-band surrounding and coacting with the wheel, one end of said band being attached to the carrier-block, and an operating device journaled on the carrier-block and having a connection with the other end of the band.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROBERT M. DOWNIE.

Witnesses:

R. G. FORBES,
WILLIAM EHNS.