No. 876,761. PATENTED JAN. 14, 1908.

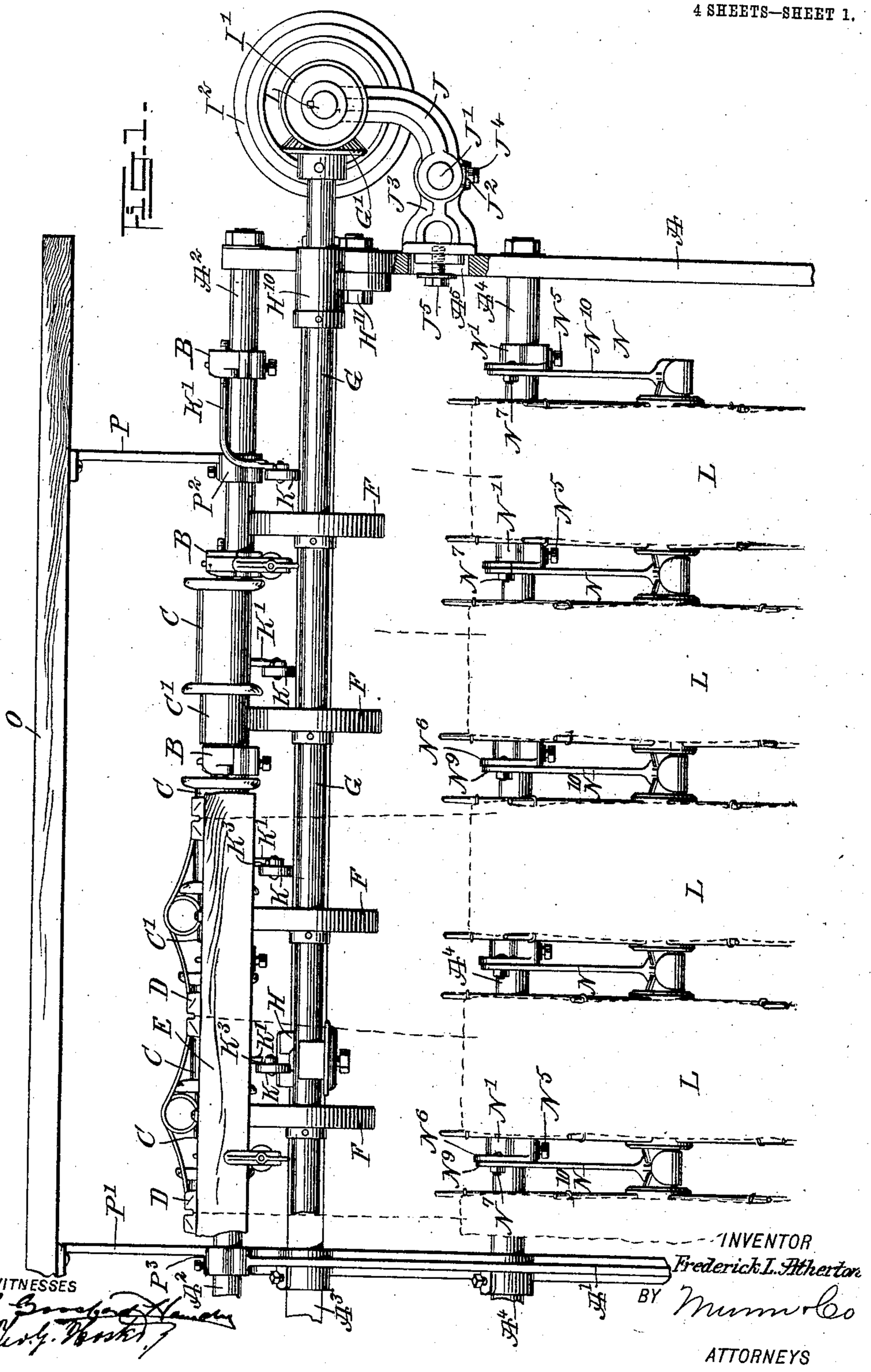
F. L. ATHERTON.

SPOOLING MACHINE.

APPLICATION FILED APR. 24, 1906.

4 SHEETS—SHEET 1.

FIG. 1.



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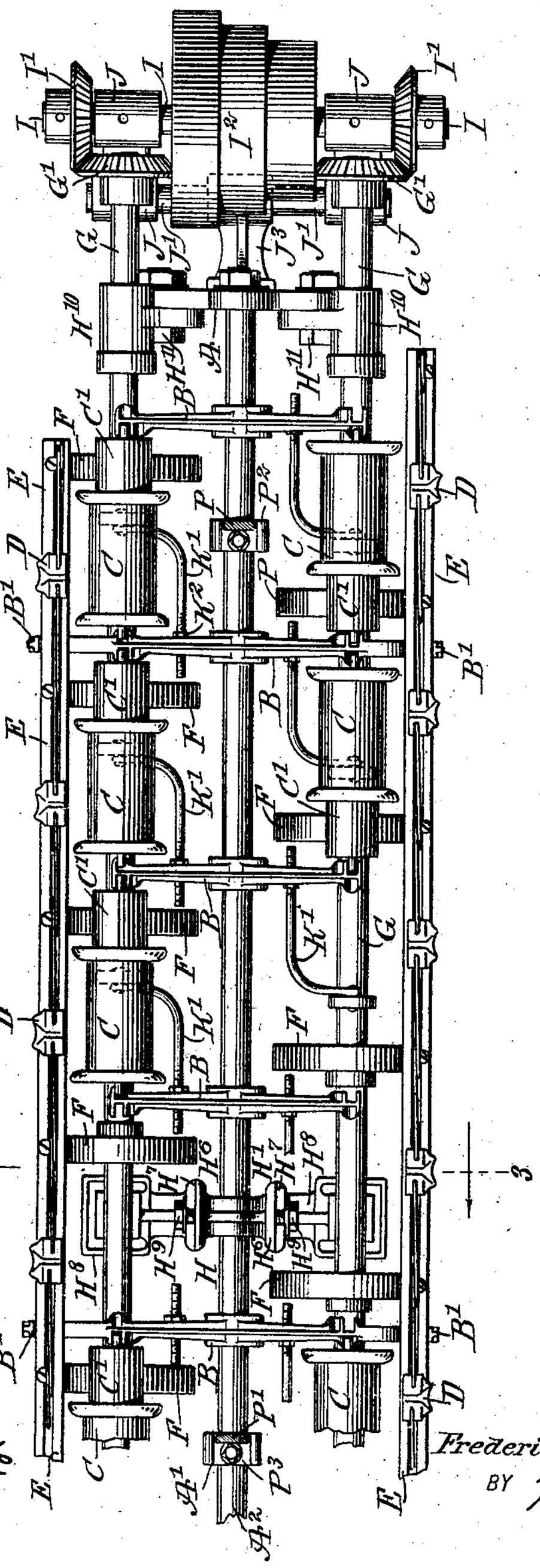
4 SHEETS—SHEET 2.

FIG. 2.



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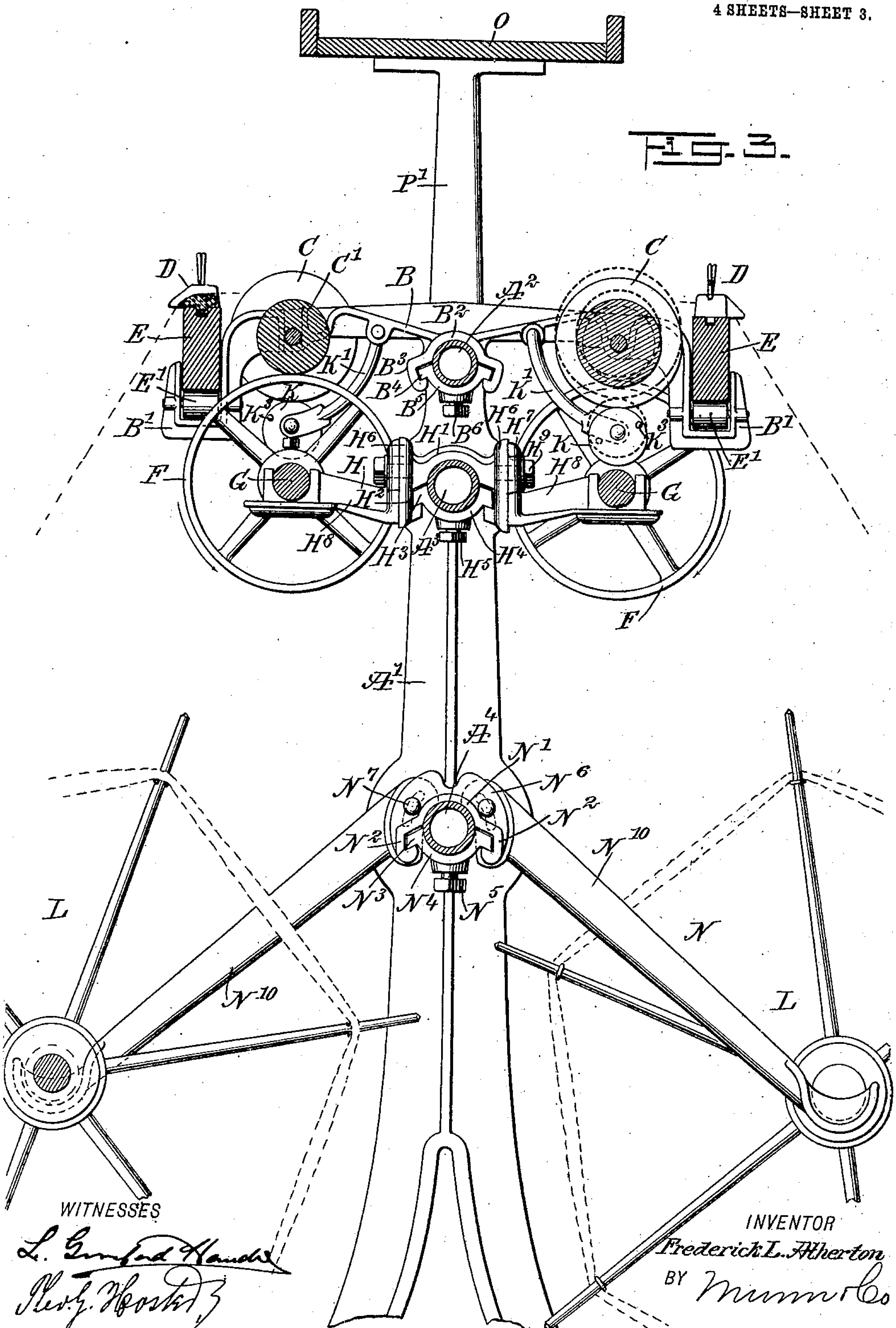
4 SHEETS—SHEET 3.

FIG. 3.



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4 SHEETS—SHEET 4.

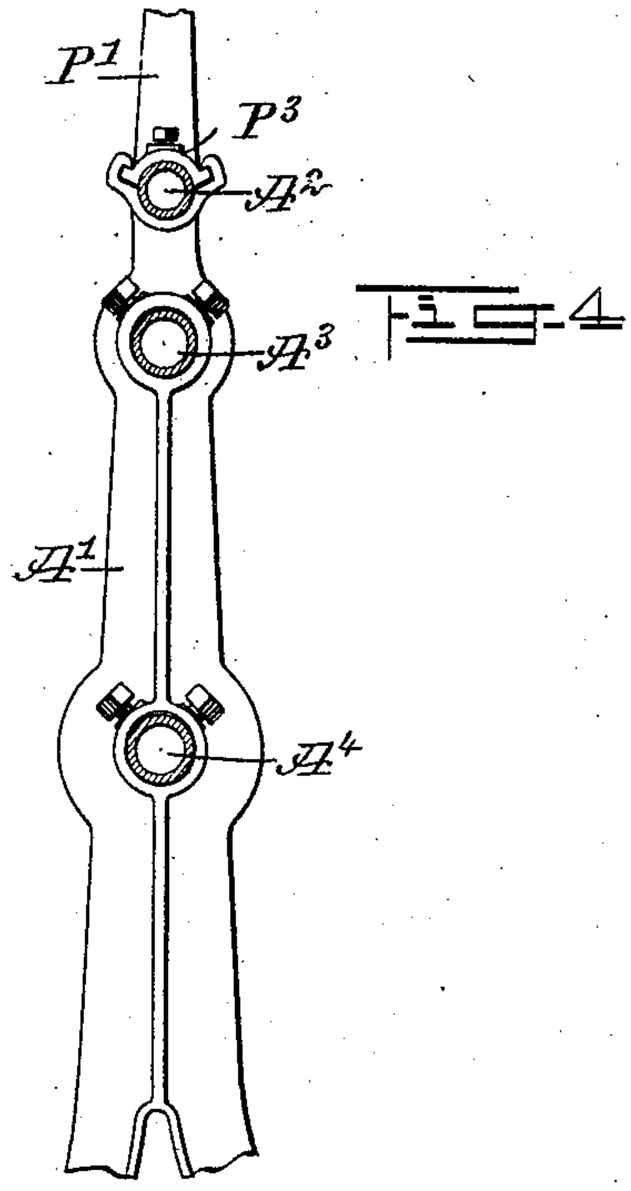

FIG. 4.

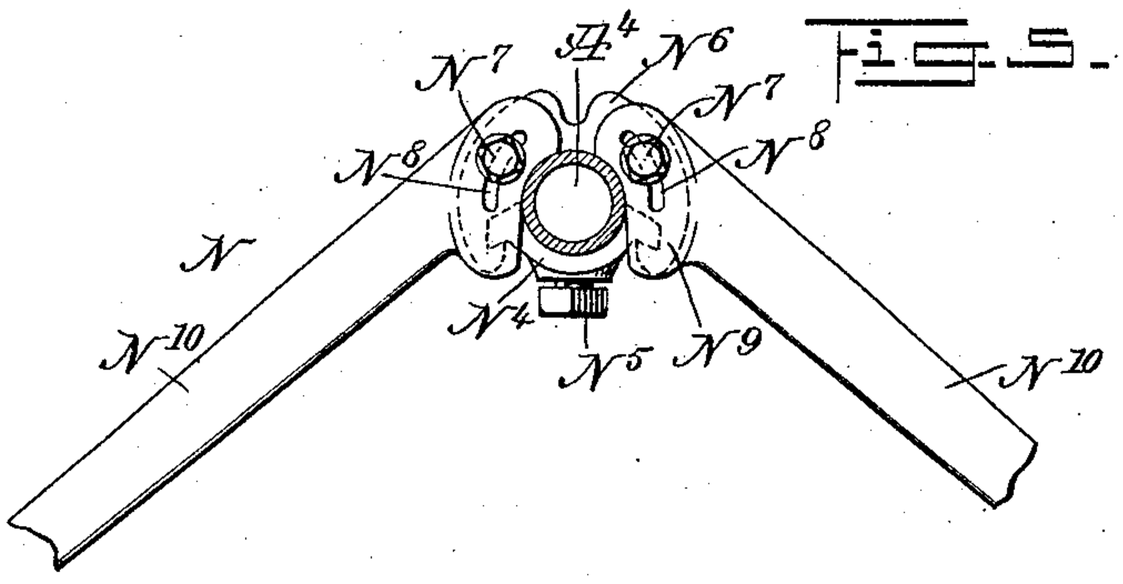

FIG. 5.

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UNITED STATES PATENT OFFICE.

FREDERICK L. ATHERTON, OF PATERSON, NEW JERSEY.

SPOOLING-MACHINE.

No. 876,761. Specification of Letters Patent. Patented Jan. 14, 1908.

Application filed April 24, 1906. Serial No. 313,461.

To all whom it may concern:

Be it known that I, FREDERICK L. ATHERTON, a citizen of the United States, and a resident of Paterson, in the county of Passaic and State of New Jersey, have invented a new and Improved Spooling-Machine, of which the following is a full, clear, and exact description.

The invention relates to spinning machinery, and its object is to provide a new and improved spooling machine, arranged to automatically stop each spool when filled, independent of the other spools, and to permit the convenient and quick adjustment of the bearings to insure proper alinement and to accommodate spools and reels of various length.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement, parts being broken out; Fig. 2 is a plan view of the same; Fig. 3 is an enlarged cross section of the same on the line 3—3 of Fig. 2; Fig. 4 is a cross section of the frame and showing one of the intermediate standards and connecting tubes, and Fig. 5 is a cross section of the lowermost connecting tube and a reel bearing secured thereon.

The frame of the spooling machine consists of end standards A, of which only one is shown, and a number of intermediate standards A′, of which also but one is shown. The standards A and A′ are rigidly connected with each other by tubes A^2, A^3 and A^4, located one above the other, as plainly indicated in Figs. 3 and 4, and on the uppermost tube A^2 are adjustably secured bearings B for the spools C, on which the yarn is to be wound, the yarn being guided to the spools by suitable yarn guides D held on longitudinally extending rails E mounted to reciprocate on friction rollers E′ journaled in extensions B′ forming part of the bearings B.

By reference to Fig. 3, it will be seen that the spools are arranged on both sides of the machine, that is, each side of the machine is alike. The mechanism for imparting a reciprocating motion to the rails E is of the usual construction, so that illustration and description of the same is not deemed necessary. Each of the spools C is provided with a friction pinion C′ in peripheral contact with a friction pulley F secured on a shaft G journaled in suitable bearings H and H^{10}, of which the bearings H are secured to the middle connecting tube A^3, and the bearings H^{10} are adjustably secured to the end standards A. The ends of the shafts G are provided with bevel gear wheels G′ meshing with bevel gear wheels I′ secured on a transversely extending main driving shaft I, provided with a cone pulley I^2 connected by a belt with other machinery for imparting a rotary motion to the main driving shaft I, which by the bevel gear wheels I′, G′, rotates the spool shafts G.

The main driving shaft I is journaled in arms J mounted to swing on a transversely extending rod or shaft J′ and adapted to be secured thereto by set screws J^2, and the said rod J′ is mounted to turn in a bracket J^3, and is adapted to be secured thereto by a set screw J^4. The bracket J^3 is heldvertically adjustable on one of the end standards A, as plainly shown in Figs. 1 and 2, and for this purpose the bracket J^3 is provided with a bolt J^5 extending through a vertically disposed slot A^5 formed in the standard A. Now, by loosening the bolt J^5 the bracket J^3 can be raised or lowered, and when the desired position is reached then the bolt K^5 is screwed up to securely fasten the bracket J^3 in place. On loosening the set screw J^4 the rod J′ can be turned in the bracket J^3, and by loosening the set screws J^2 the arms J can be swung on the rod J′ so as to bring the main driving shaft I into proper position, that is, to properly aline the same relative to the spool shaft G. When the desired alinement is obtained the set screws J^2, J^4 are screwed up to secure the parts in position.

In order to stop the rotation of a spool C when the latter is filled to the desired extent, the following arrangement is made. Below each spool C is located an eccentric K journaled on an arm K′ mounted to swing in the adjacent bearing B and adapted to be secured thereto by a suitable fastening device, such as a nut K^2, as indicated in Fig. 2. Normally the eccentric K is in a lowermost position so that the top thereof is a distance from the peripheral face of the spool, and when the spool is filled with yarn to a predetermined depth corresponding to the dis-

tance between the peripheral face of the spool and the top of the eccentric K, then the yarn comes in contact with the peripheral face of the eccentric K, and as the spool rotates it is evident that a rotary motion is given to the eccentric K, and as the latter is turned it lifts the spool C bodily and in doing so moves the friction pinion C′ out of frictional engagement with its driving pulley F. Thus, the rotation of the filled spool ceases as the spool is filled with yarn to the desired depth.

In order to hold the spool C in a raised position by the eccentric K, the latter is provided with a stop pin K^3 projecting from one face and abutting against the arm K′ at the time the eccentric moves into an uppermost position, as indicated in dotted lines in Fig. 3. Thus, as long as the eccentric K is in this uppermost position the spool C is held raised, and its pinion C′ is held out of contact with its driven pulley F. When the filled spool C has been removed and an empty one placed in position then the operator returns the eccentric K to its normal lowermost position, after which the yarn is again guided onto the spool and the latter fills as it is driven from its pulley F.

The yarn unwinds from reels L removably journaled in bearings N adjustably secured to the lowermost tube A^4. The several bearings B, H and N are adjustably secured on the corresponding tubes A^2, A^3 and A^4 to permit of moving the bearings towards or from each other according to the length of the spool C and the reels L to be used on the machine. For the purpose mentioned the bearing B is provided with a head section B^2 provided on its sides with longitudinally extending guideways B^3, into which fit flanges B^4 formed on clamping section B^5, each carrying a set screw B^6 adapted to engage the tube A^2. By reference to Fig. 3, it will be seen that the head section B^2 and the clamping section B^5 snugly encircle the tube A^2, and by screwing up the set screw B^6 the two sections B^2 and B^5 are securely clamped to the tube A^2 to securely hold the bearing B in place after the same has been adjusted along the tube A^2 to the desired position. The bearing H is provided with a head section H′ having longitudinal guideways H^2 engaged by flanges H^3 on a clamping section H^4, carrying a set screw H^5 screwing against the tube A^3 in the same manner as above described relative to the bearing B.

The head section H′ is provided with vertically disposed faces H^6 against which fit similar faces H^7 on brackets H^8 in which the shafts G are journaled, the faces H^7 and H^6 being fastened together by bolts H^9 carried by the faces H^6 and engaging vertical slots in the faces H^7. Thus, by the arrangement described the brackets H^8 can be raised or lowered on the head section H′, and by loosening the set screw H^5 the whole bearing H can be shifted lengthwise on the tube A^3. Each bearing H^{10} is adjustably secured by a bolt H^{11} on the corresponding end standard A, as will be readily understood by reference to Figs. 1 and 2.

Each of the bearings N is provided with a head section N′ having longitudinal guideways N^2 at the sides for engagement by flanges N^3 formed on a clamping section N^4 engaged by a set screw N^5 screwing against the tube A^4, it being understood that the said sections N′ and N^4 are similar to the sections of the bearings B and H, so that further description of the same is not deemed necessary. The head section N′ is provided with flanges N^6 carrying bolts N^7 engaging slots N^8 (see Fig. 5) formed on the inner ends N^9 of arms N^{10}, in which the reels L are removably journaled. The inner edges of the ends N^9 are segmental and fit the peripheral face of the tube A^4, so that on loosening the bolt N^7 the corresponding arm N^{10} can be swung up or down to bring the reel L into the desired position, and when this has been done the bolt N^7 is screwed up to securely clamp the arm N^{10} to the corresponding flange N^6. By giving the end N^9 of each arm N^{10} a bearing on the tube A^4 besides fastening the same to the flange N^6, an exceedingly firm support is had for the arm N^{10}.

A shelf O is supported from the frame of the machine by brackets P, P′, of which the brackets P are adjustably secured by clamping heads P^2 to the uppermost tube A^2, while the brackets P′ are connected by clamping heads P^3 with the upper ends of the intermediate standards A′, but as the said clamping heads P^2 and P^3 are similar to the clamping heads for the bearings B, H and N further description of the same is not deemed necessary.

Each of the bearings B and N is arranged to accommodate the adjacent ends of the spindles for two adjacent spools C or reels L, and by having the said bearings B and N longitudinally adjustable on the tubes A^2, A^4 it is evident that a minute adjustment can be had to insure a proper free turning of the spools C and reels L.

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

1. A machine of the class described provided with a frame having standards, and tubes connecting the standards with each other, a reel bearing attached to the said tube and comprising a head clamped to the said tube, an arm having a segmental slot and a segmental bearing face fitting the said tube, and a bolt held on the said head and engaging the said segmental slot.

2. A machine of the class described provided with a frame having standards, and tubes connecting the standards with each

other, a reel bearing attached to the said tube and comprising a head made in sections, clamped to the said tube, an arm having a segmental slot, and a segmental bearing face fitting the said tube, and a bolt held on the said head and engaging the said segmental slot.

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

FREDERICK L. ATHERTON.

Witnesses:

IRA DUMONT,

RALPH GARLICK.