

G. A. CLARK.
MULTIPLE SPOOLER.

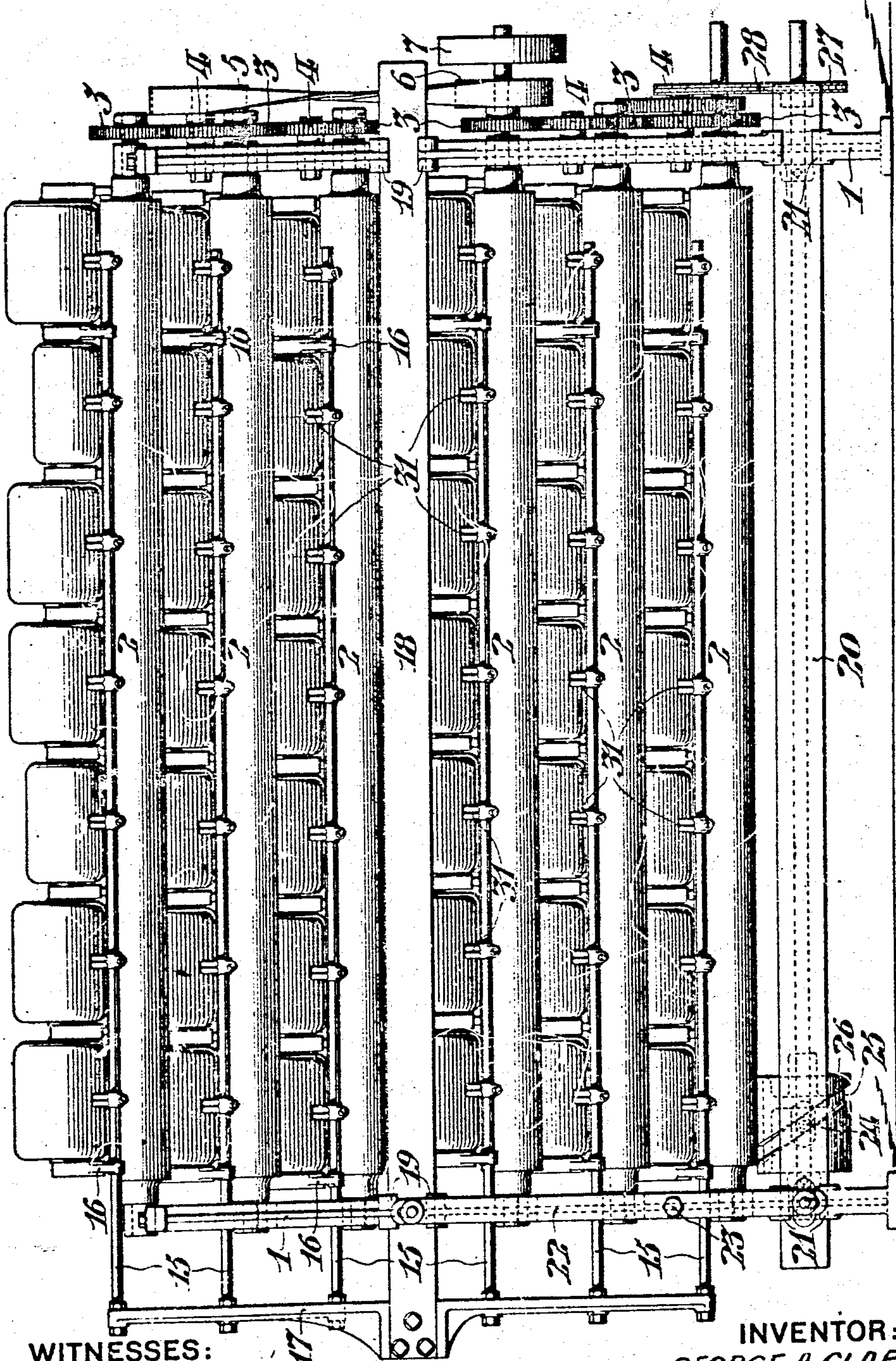
APPLICATION FILED MAR. 3, 1906.

916,388.

Patented Mar. 23, 1909.

3 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

Clifton C. Halliwell
John C. Berghner

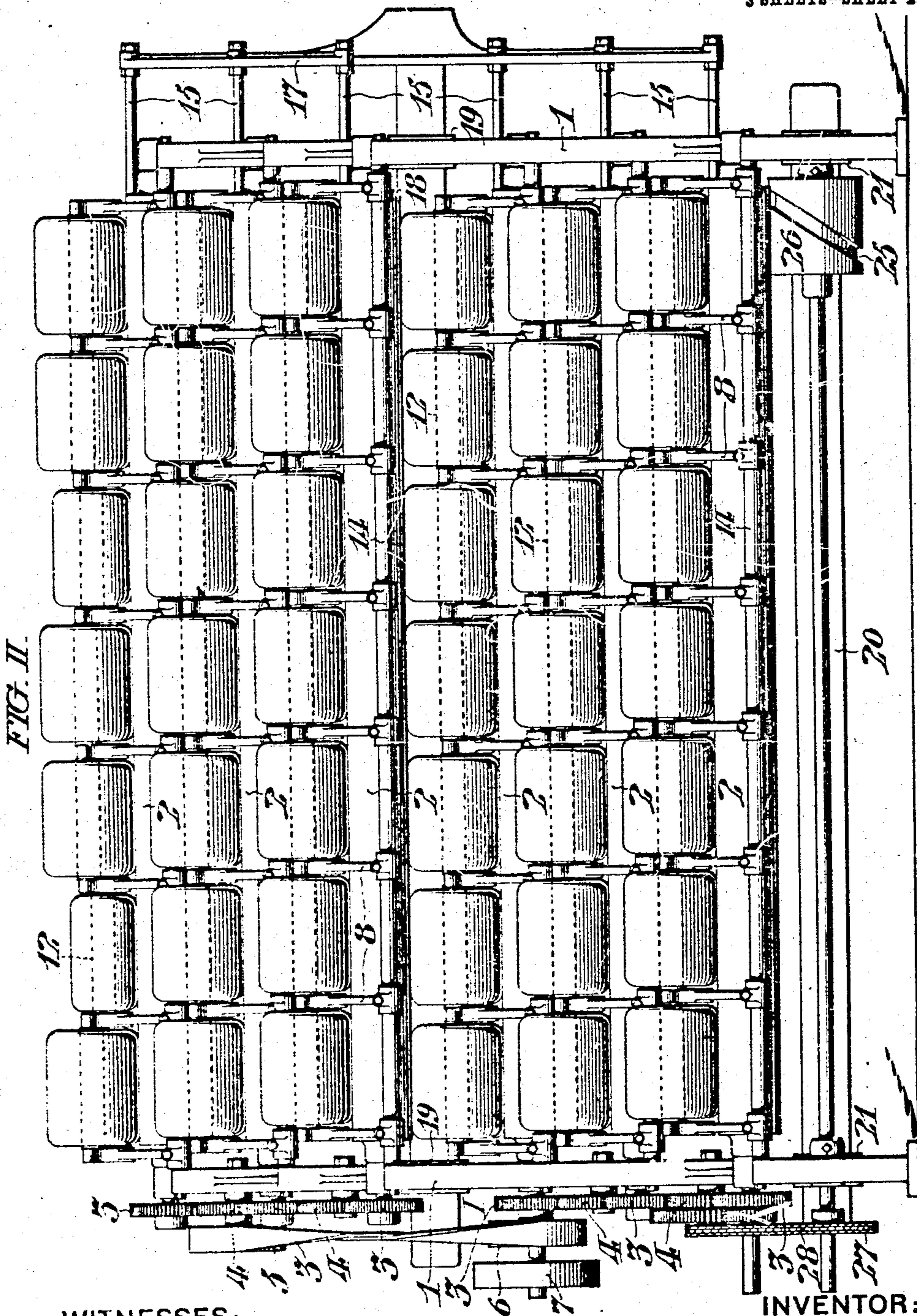
INVENTOR:

GEORGE A. CLARK,
by his Attorneys
Paige Paul & Tracy

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3 SHEETS—SHEET 2.



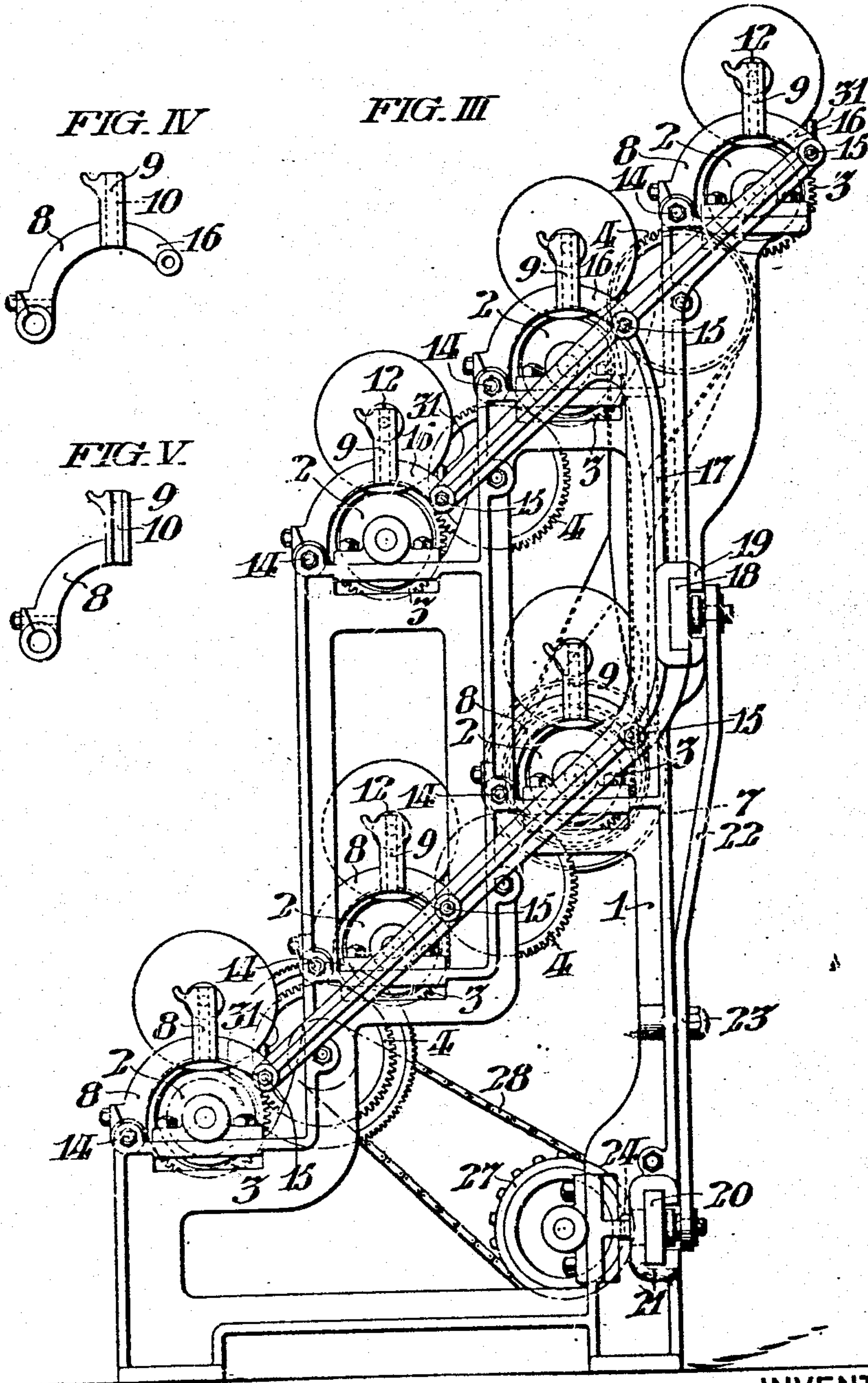
WITNESSES:
Clifton C. Hollowell
John C. Berger

INVENTOR:
GEORGE A. CLARK,
by his attorneys
Riggs, Reed & Juley

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INVENTOR:

GEORGE A. CLARK,
 by his Attorneys
Raige, Rose & Freney

UNITED STATES PATENT OFFICE.

GEORGE A. CLARK, OF AMBLER, PENNSYLVANIA, ASSIGNOR TO KEASBEY & MATTISON COMPANY, OF AMBLER, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

MULTIPLE SPOOLER.

No. 916,388.

Specification of Letters Patent.

Patented March 23, 1909.

Application filed March 3, 1906. Serial No. 303,967.

To all whom it may concern:

Be it known that I, GEORGE A. CLARK, of Ambler, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Multiple Spoolers, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to a multiple spooler which I have invented and which I employ especially in the process of spinning asbestos fibers. But it will be understood that my invention may be employed in spinning other fibers to which it is adapted.

In the spinning of asbestos it has heretofore been customary to card the asbestos fibers in a carding engine producing an asbestos fleece. The fleece is then divided into ribbons or slivers which, after passing through rub-rolls, are wound simultaneously upon a single large spool capable of usually carrying some 20 or 30 slivers. This spool is then transferred to an ordinary mule and the slivers drawn therefrom are spun into asbestos yarn. Owing to the breakage and consequent waste which is inevitable to the spinning of so fragile a sliver as one of asbestos, I have discovered that it is much more advantageous, and entirely practicable, to spin asbestos upon a spinning frame. Certain other advantages also result from this process which need not be here described. But in order to make use of the spinning frame, it is essential that each sliver be individually spooled upon its own separate spool; and for this purpose I have invented the multiple spooler which I will now describe, by which I find that it is possible to successfully take up and separately spool the slivers as they proceed from the carding engine and rub-rolls.

In the accompanying drawings, Figure I, is an elevation of a multiple spooler constructed in accordance with my invention, the view being taken from the direction in which the slivers enter the spooler. I will term this the rear of the machine, because of the fact that it is in immediate proximity to the rub-rolls so that it is most remote from the operator. Fig. II, is a front elevation of the same. Fig. III, is a side elevation of the same, showing the left hand end of Fig. I. Figs. IV, and V, are details of small parts to be hereinafter referred to.

The machine is constructed with two

standards 1, 1, between which are journaled six feed rolls 2, 2, each similar to the other, and running from one side of the machine to the other. For the sake of convenience of grouping the spools, and in order to accommodate the machine to the ordinary intervals at which the slivers issue from the rub-rolls, these feed rolls are arranged in two superimposed banks or tiers standing at an angle of about 45 degrees, with three rolls in each bank. At one side of the machine the projecting axle of each feed roll carries a pinion 3, and between the pinions 3, of each bank intermediate gears 4, 4, are interposed, all meeting so as to cause all of the feed rollers of each bank to rotate in the same direction. For the purpose of coordinating the rotation of the rollers of the upper and lower banks, one of the gears 4, of the upper bank carries upon its shaft a pulley 5, connected by a crossed belt with a pulley 6, on the shaft of one of the feed rolls of the lower bank, thereby insuring the simultaneous driving of all six of the feed rolls in the same direction. The entire series of rolls may conveniently be driven from the pulley 7, mounted upon the same shaft which carries the pulley 6.

The standards of the machine are united at intervals by cross-bars 14, corresponding in number to the feed rolls upon which are supported at appropriate intervals sets of curved brackets 8, and projecting up from each of these brackets are uprights 9, having grooves 10, in the opposite sides thereof, which provide a series of open bearings for the spools 12. These spools 12, are provided with short projecting axles fitted to enter the grooves of the uprights 9, and are also non-flanged so that when placed in the open bearings, they rest freely upon the surface of the feed roll beneath; and it will be understood that as they are spooled with sliver, and thus increased in size, they are still driven peripherally by the feed roll at a constant rate of speed so that even though the spools be of different sizes on account of different quantities of sliver carried by them, as seen in the top row of Fig. I, the rate at which they take up the sliver will remain constant. For the purpose of more effectually driving the spools, the surfaces of the feed rolls 2, may be clothed with rubber, chamois, sand paper, or other appropriate clothing.

My machine is additionally provided with

a multiple guiding device which will now be described. This consists of a series of six transverse guide rods 15, one supported in near proximity to the rear of each one of the feed rolls by slide ways provided in extensions 16, of the two terminal brackets which overhang that roll. At one end all of the six slide rods 15, are united by the frame 17, which is irregularly shaped as seen in Fig. III, in order to accommodate itself to the banked arrangement of the feed rolls. Attached to this frame 17, is a slide bar 18, resting in appropriate slide ways 19, in the standards of the machine. The standards also carry a companion slide bar 20, resting in slide ways 21, the two being connected by the lever 22, which is intermediately pivoted at 23. For the purpose of imparting to the six rods 15, a simultaneous motion of reciprocation, the bar 20, carries a projecting pin 24, which is engaged by the cam groove 25, on the roller 26, which is driven by a sprocket wheel 27, and a sprocket chain 28, from the shaft of the lowermost pinion 4.

In the rear of the spools there are adjustably mounted upon the guide rods 15, thread guides 31, one such guide corresponding to each spool and occupying a similar position in relation thereto. Between these thread guides 31, the slivers from the rub-rolls pass and by the simultaneous reciprocatory motion imparted to them feed the thread between the spool and its supporting feed roll with the motion of reciprocation usual in all spooling processes.

As a result of the construction above set forth the sheets of slivers as they come from the rub rolls, spread out and are fed simultaneously to the spools in a substantially horizontal direction without any appreciable bending.

The operation of the machine will be readily understood from the description which has been given. It is substantially continuous for as each spool becomes filled with sliver it is removed separately from the machine and replaced with an empty spool without waste of material. From the spools the sliver is spun upon the spinning frame, but with this part of the operation my present invention is not concerned.

Having thus described my invention, I claim:

1. In a multiple spooler, the combination of a plurality of vertically disposed upwardly inclined tiers of horizontal feed rolls journaled in side standards; means for driving said feed rolls simultaneously in the same direction and at the same rate of speed; cross bars uniting the side frames and extending paral-

lel with the feed rolls; a series of brackets mounted on each of the cross bars providing bearings and some of said brackets having extensions; a series of spools having axles held in said bearings; guide rods passing through said extensions; a series of thread guides on each guide rod; and means for reciprocating said guide rods.

2. In a multiple spooler, the combination of a frame comprising a pair of side standards; a plurality of vertically disposed upwardly inclined tiers of parallel horizontal feed rolls journaled in said side standards; an irregular frame having portions inclined to correspond to the inclined tiers of feed rolls; guide rods in proximity to each of the feed rolls secured to the inclined portions of said irregular frame; thread guides carried by said guide rods; a series of cross bars uniting the standards and located parallel to the feed rolls; a series of brackets mounted on each cross bar, and provided with open bearings, some of said brackets having extensions through which the guide rods slide; a series of spools with their peripheries resting upon the feed rolls, and their axles held in said bearings; a slide bar secured to said irregular frame and mounted in said standards; and mechanism operatively connected with said bar to reciprocate said rods and thread guides, the arrangement being such that the material to be spooled is spread out and fed simultaneously to the spools in a substantially horizontal direction without any appreciable bending.

3. In a multiple spooler, the combination of a frame comprising a pair of side standards each having a series of steps for the reception of journal bearings; a plurality of upwardly inclined vertically disposed tiers of horizontal feed rolls; said rolls being journaled at each end in said bearings; means for driving said feed rolls simultaneously in the same direction and at the same rate of speed; a series of spools with their peripheries resting upon said feed rolls; a reciprocatory guide rod in proximity to each feed roll; thread guides carried by said guide rods; and means for reciprocating said guide rods, the arrangement being such that the material to be spooled is fed simultaneously to the spools in a substantially horizontal direction without any appreciable bending.

In testimony whereof, I have hereunto signed my name, at Philadelphia in the State of Pennsylvania this first day of March 1906.

GEORGE A. CLARK.

Witnesses:

JAMES H. BELL,
E. L. FULLERTON.