Sept. 16, 1947. R. W. STANLEY 2,427,373

ARTIFICIAL FIBER SPINNING MACHINE

Filed March 31, 1945 2 Sheets-Sheet 1

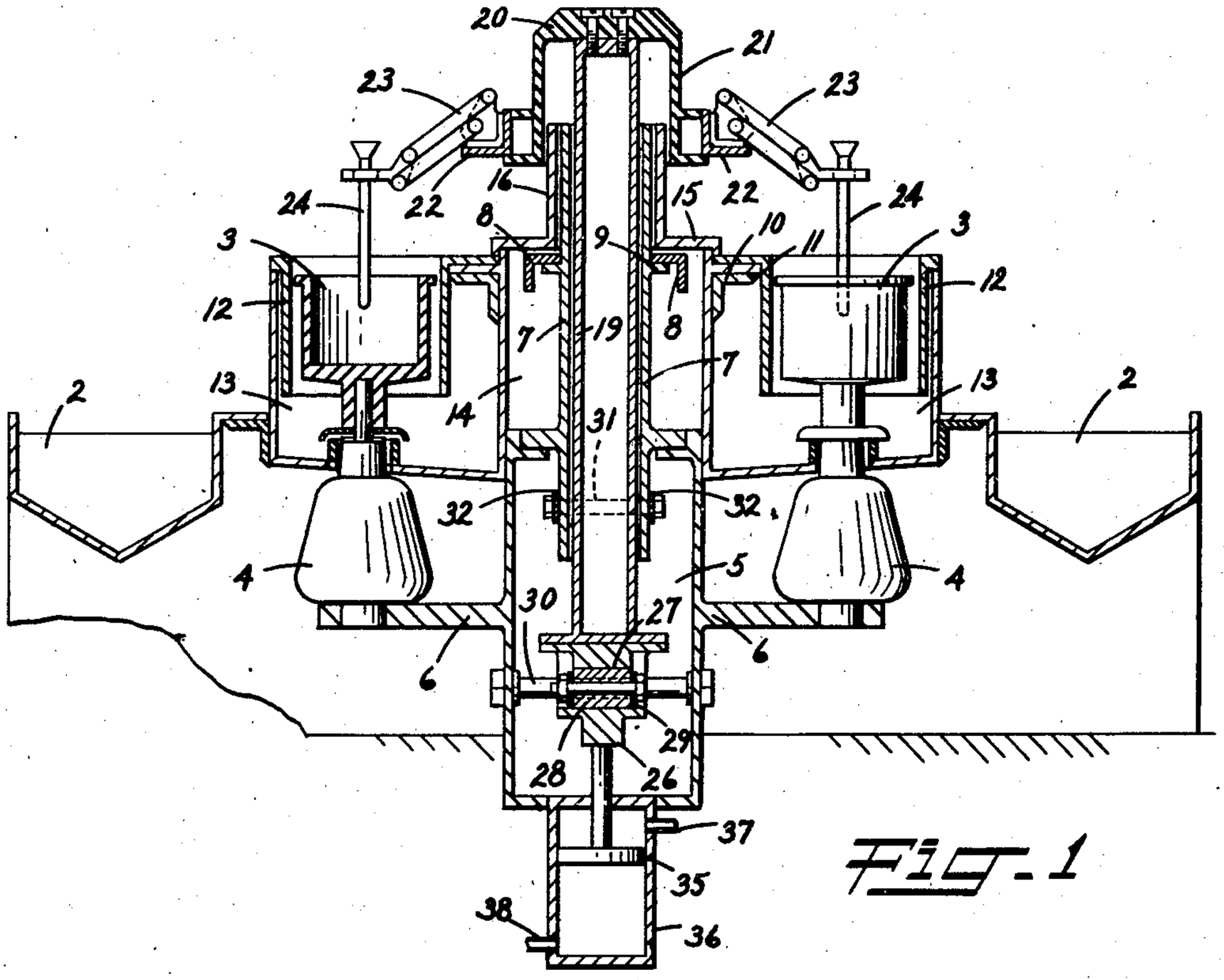

Fig. 1

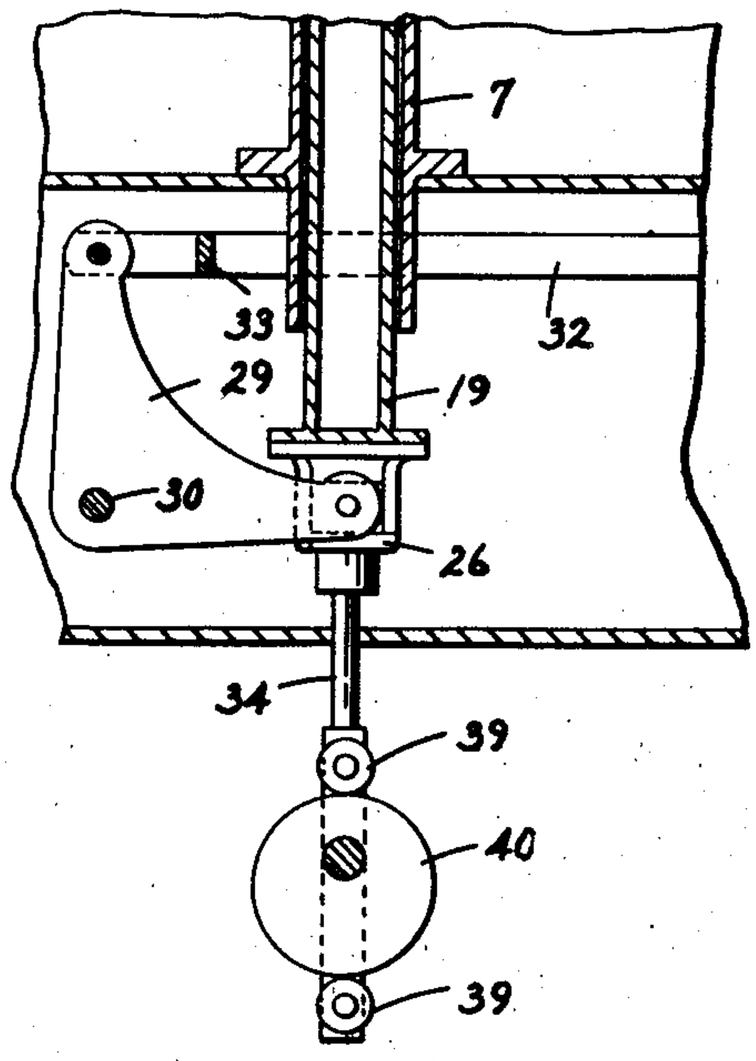

Fig. 3

INVENTOR.
Richard W. Stanley
BY
Carl A. Cattelan
atty.

Sept. 16, 1947. R. W. STANLEY 2,427,373

ARTIFICIAL FIBER SPINNING MACHINE

Filed March 31, 1945 2 Sheets-Sheet 2

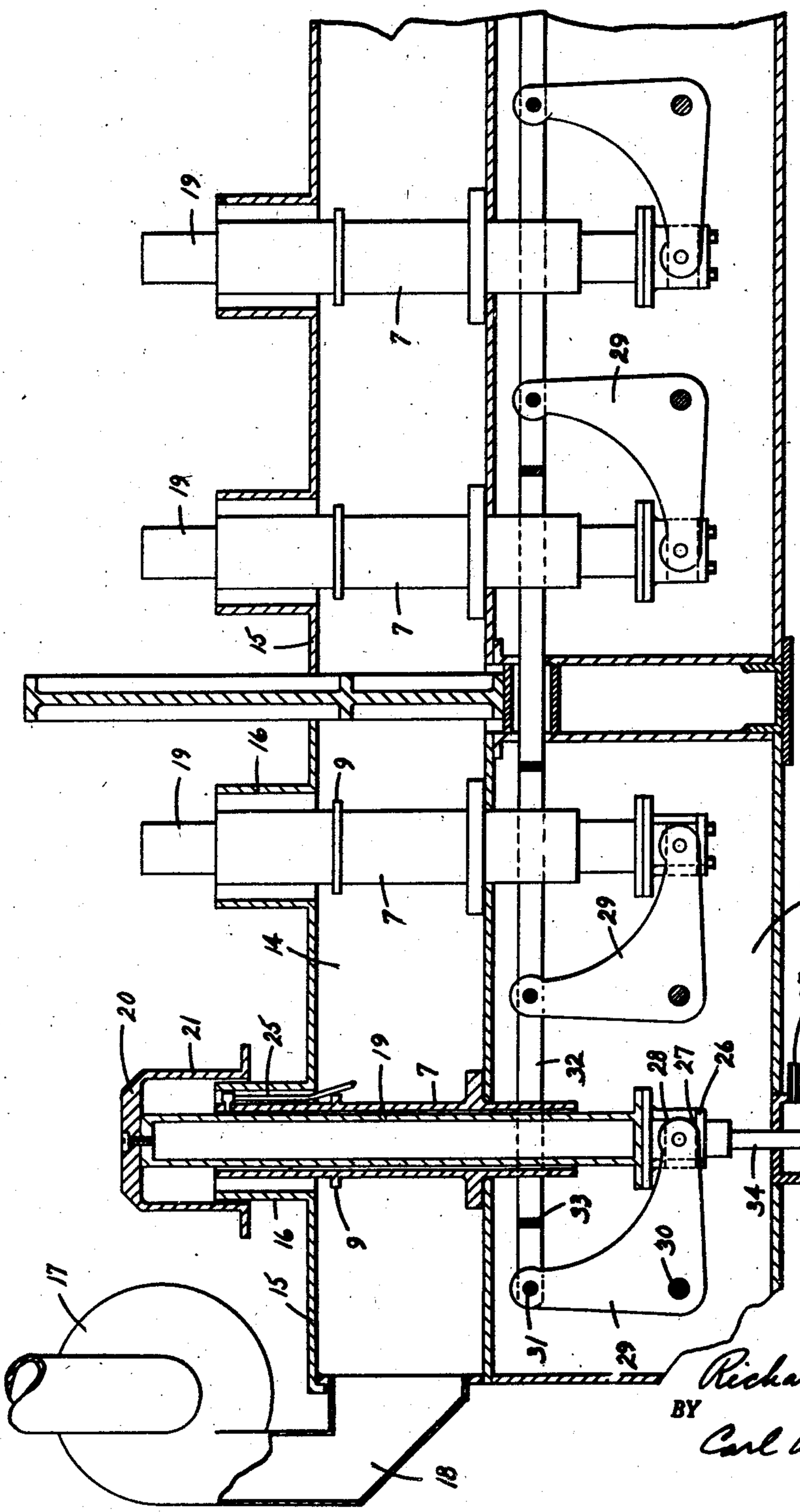

FIG. 2

INVENTOR.
Richard W. Stanley
BY
Carl A. Castellan
Atty

Patented Sept. 16, 1947 2,427,373

UNITED STATES PATENT OFFICE

2,427,373

ARTIFICIAL FIBER SPINNING MACHINE

Richard W. Stanley, Drexel Hill, Pa., assignor to American Viscose Corporation, Wilmington, Del., a corporation of Delaware

Application March 31, 1945, Serial No. 585,846

4 Claims. (Cl. 57—34)

1

This invention relates to a spinning machine for the production of artificial fibers, particularly of the type in which the filaments are collected within a centrifugal bucket. The invention particularly relates to an improved traverse mechanism for reciprocating the funnels which serve to guide the filaments and control the winding thereof within the buckets.

It is an object of the present invention to provide a traverse mechanism which is of simple construction and requires a minimum of space in the spinning machine. A further object is to provide the form of traverse mechanism which avoids transfer of power by means of torsion and utilizes instead a linkage system in which compressive and tensile stresses are utilized and developed. A further object of the invention is to arrange the mechanism in a housing extending longitudinally of the machine at the same level as the spinning buckets, between the rows of buckets disposed on opposite sides of the machine so that all of the mechanism except for a projecting portion of the supporting posts which actually carry the funnel-supporting rails, is positioned below the upper level of the spinning bucket chambers. This arrangement provides compactness and facile protection from corrosion.

The traverse mechanism of the present invention is capable of operation at high speeds with a minimum of shock and vibration, at the ends of the traverse stroke where reversal of direction must occur. This characteristic is the direct result of the particular construction, especially because of the elimination of torsion and the virtual elimination of cam surfaces. Other advantages, objects and features of the invention will be apparent from the drawing and the description thereof hereinafter.

As shown in the drawing—

Figure 1 is an end view in cross-section of the lower central portion of a spinning machine incorporating the present invention;

Figure 2 is a longitudinal cross-section in elevation; and

Figure 3 is a fragmentary view similar to Figure 2, showing a modification.

As shown in the drawing, the lower central portion of the spinning machine comprises an essentially symmetrical arrangement of two longitudinal spinning baths 2, two rows of spinning buckets 3 extending longitudinally of the machine and arranged to be driven by motors 4. The machine is divided into longitudinal sections and in each section there is provided an intermediate

2

brackets 6 for supporting the motors. Two vertical sleeves 7 are secured to the top of each casing and extend a short distance into it, as well as upwardly from it. Longitudinal angle irons 8 are provided above the casing and bear against a shoulder 9 on each of the sleeves to give additional support thereto. Longitudinal angle irons are provided on each side of the sleeves and support the framework 11 which may be leaded and provided with cylindrical nestings 12, one for each spinning bucket within the spinning bucket chambers 13 which extend longitudinally of the machine. A channel or duct 14 extends above the casings 5 the full length of the machine and has a cover 15 provided with upwardly extending pipes or tubes 16 concentric with the sleeves 7. A blower 17 is provided to conduct fresh air or other inert gas through a suitable connection 18 into the duct 14 for reasons which will be hereinafter explained.

A cylindrical post 19 is reciprocably mounted within each sleeve 7 and carries a corrosion-resistant cap or hood 20 having a skirt 21 of a length approximately equal to the height of the piping 16 and approximately equal to the traverse stroke which depends upon the depth of the spinning bucket. A rail 22 is supported on each side of the two caps 20 for carrying the funnel brackets 23 which may be of conventional construction for a given section of the machine. Funnel guides 24 are shown carried by the brackets 23. Means 25 may be provided for conducting oil to the upper regions of the bearings between cylinder 19 and sleeve 7. The lower end of each post 19 carries a yoke 26 having a transverse guideway 27 which receives a cooperating block 28 pivotally connected between the ends of one arm of a pair of parallel bell crank levers 29. A pin 30 extending across the casing acts as a fulcrum for the bell crank levers and a pin 31 connects the other ends thereof to a reciprocable rail comprising two parallel straps or rods 32 connected by transverse reinforcing ribs 33. The post 19 in each section of the machine is similarly connected through bell crank levers to the rail 32 except that in every other section the bell crank levers are connected to the rail on opposite sides of the post 19, so that the posts in half of the sections will be traveling upwardly, while those in the other half will be traveling downwardly, thereby balancing weights.

A reciprocating motion may be imparted to one of the posts 19 by means of a connecting rod 34, which may be reciprocated in any suitable man-

cally represented by means of the piston 35 connected to the rod 34 and operating within a cylinder 36 to the opposite ends of which the fluid medium (such as in any suitable liquid) may be alternately supplied by means of channels 37 and 38, respectively. If desired, the rod 34 may be provided with roller followers 39 at its foot for co-operation with a suitable cam 40. Instead of having the connecting rod 34 pushing up directly on one of the posts 19, it may be arranged to push longitudinally on the rail comprising the rods 32. Regardless of how the driving force is imparted to any one of the bell crank levers, such as that at the extreme left of Figure 2, the same motion is applied to corresponding posts in alternate sections of the machine, the opposite direction of motion being imparted to the posts in the intervening sections of the machine. This transfer of motion does not involve any torsion, being entirely transmitted by compressive and tensile stresses exerted upon the rail 32 as in the bell crank lever 29.

The hoods 20 and the associated pipes 16 cooperate with the forcing of air through the duct 14 to prevent the admission of foul air such as acid fumes from the vicinity of the spinning bath into the bearings for the reciprocable posts and into the other working parts housed below the upper level of the spinning compartments.

Thus, the invention provides a compact, simple corrosion-protected, substantially vibrationless, high speed traverse mechanism.

It is to be understood that changes and variations may be made without departing from the spirit and scope of the appended claims.

I claim:

1. A machine for spinning artificial filaments comprising a row of spinning buckets for collecting the filaments, a supporting rail, guide means carried by the rail for feeding filaments into the buckets, a plurality of vertically reciprocable posts for carrying the rail, a second rail extending longitudinally of the machine at a level intermediate the ends of the posts, and a plurality of bell crank levers spaced along the machine each having one arm pivotally connected to the lower ends of a post and the other arm pivotally connected to the second rail, and means directly connected to one of said bell crank levers for imparting oscillatory motion thereto.

2. A machine for spinning artificial filaments comprising two rows of spinning buckets on opposite sides of the machine for collecting the filaments, guides for feeding the filaments into the buckets and means for traversing the guides with respect to the buckets in which the traversing means comprises reciprocable posts for supporting the guides arranged between the rows of buckets in alignment substantially along the longitudinal center of the machine, a rail extending longitudinally of the machine at a level intermediate the ends of the posts, and a plurality of bell crank levers spaced along the machine each having one arm pivotally connected to the lower ends of a post and the other arm pivotally connected to the rail.

3. A machine for spinning artificial filaments comprising a framework having two compartments extending longitudinally of the machine each along an opposite side thereof, a row of spinning buckets in each compartment, a plurality of vertically reciprocable posts arranged between the bucket compartments in alignment substantially along the longitudinal center of the machine, a cover over the region between the adjacent walls of the two compartments, upwardly extending tubes on the cover, said posts extending above the level of the compartments through the tubes, hoods secured to the upper ends of the posts and having a larger diameter than the tubes, means for forcing an inert gaseous medium through the region below the cover between the compartments, and means below the cover connected to the lower ends of the posts for imparting vertical reciprocatory motion thereto.

4. A machine for spinning artificial filaments comprising a framework having two compartments extending longitudinally of the machine each along an opposite side thereof, a row of spinning buckets in each compartment, a plurality of vertically reciprocable posts arranged between the bucket compartments in alignment substantially along the longitudinal center of the machine, a cover over the region between the adjacent walls of the two compartments, upwardly extending tubes on the cover, said posts extending above the level of the compartments through the tubes, hoods secured to the upper ends of the posts and having a larger diameter than the tubes, means for forcing an inert gaseous medium through the region below the cover between the compartments, a rail extending longitudinally of the machine below the cover and above the lower ends of the posts, and a plurality of bell crank levers spaced along the machine each having one arm pivotally connected to the lower ends of the posts and the other arm pivotally connected to the rail.

RICHARD W. STANLEY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,072,023	Butterworth et al.	Feb. 23, 1937
2,182,745	Ferris	Dec. 5, 1939
2,216,648	McHugh	Oct. 1, 1940
1,974,482	Bochmann	Sept. 25, 1934
2,064,920	Kinsella et al.	Dec. 22, 1936
2,064,924	Kinsella et al.	Dec. 22, 1936