

Jan. 22, 1935.

P. E. HARRISON

1,988,490

BUCKET MOTOR

Filed Oct. 26, 1933

3 Sheets-Sheet 1

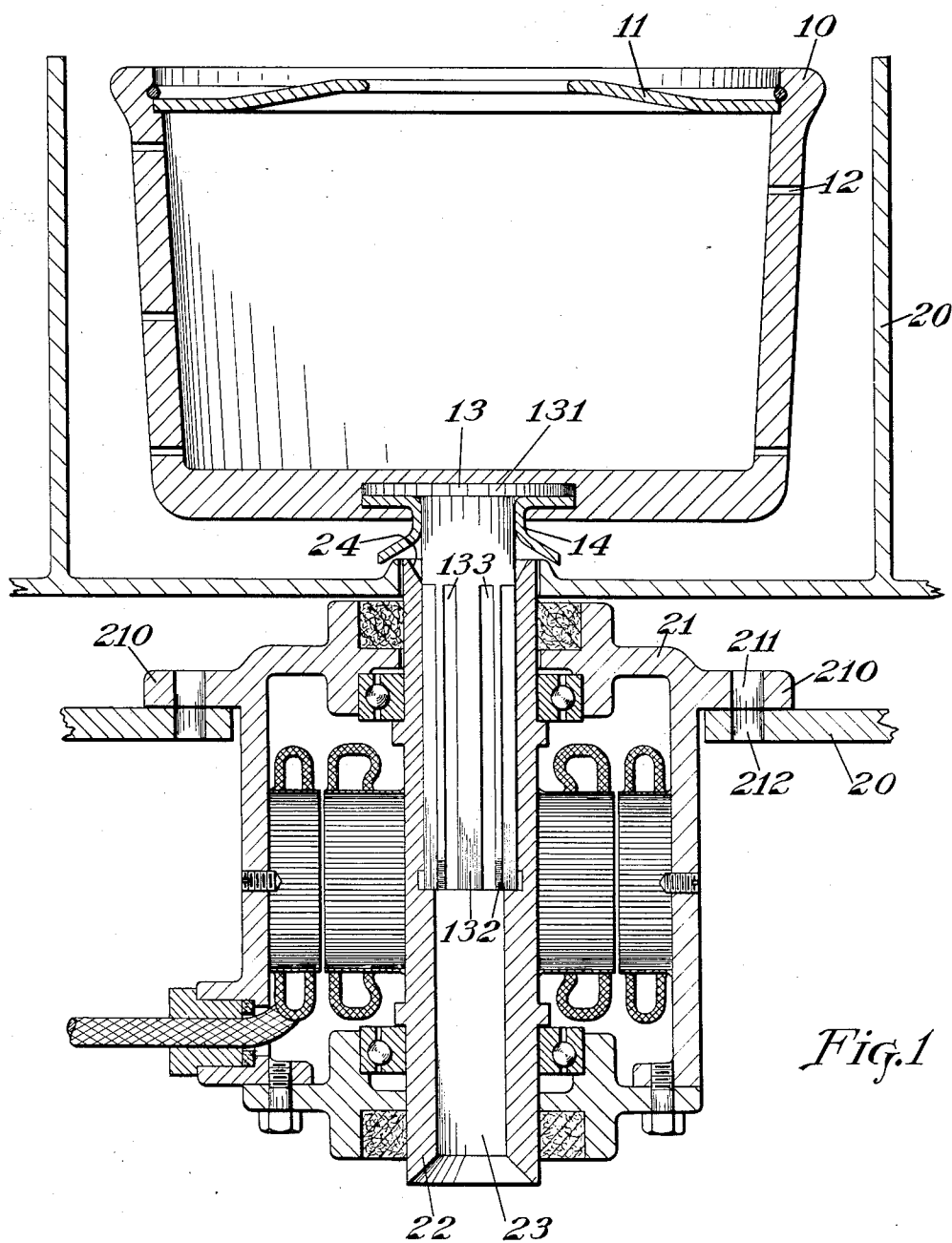


Fig. 1

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3 Sheets-Sheet 2

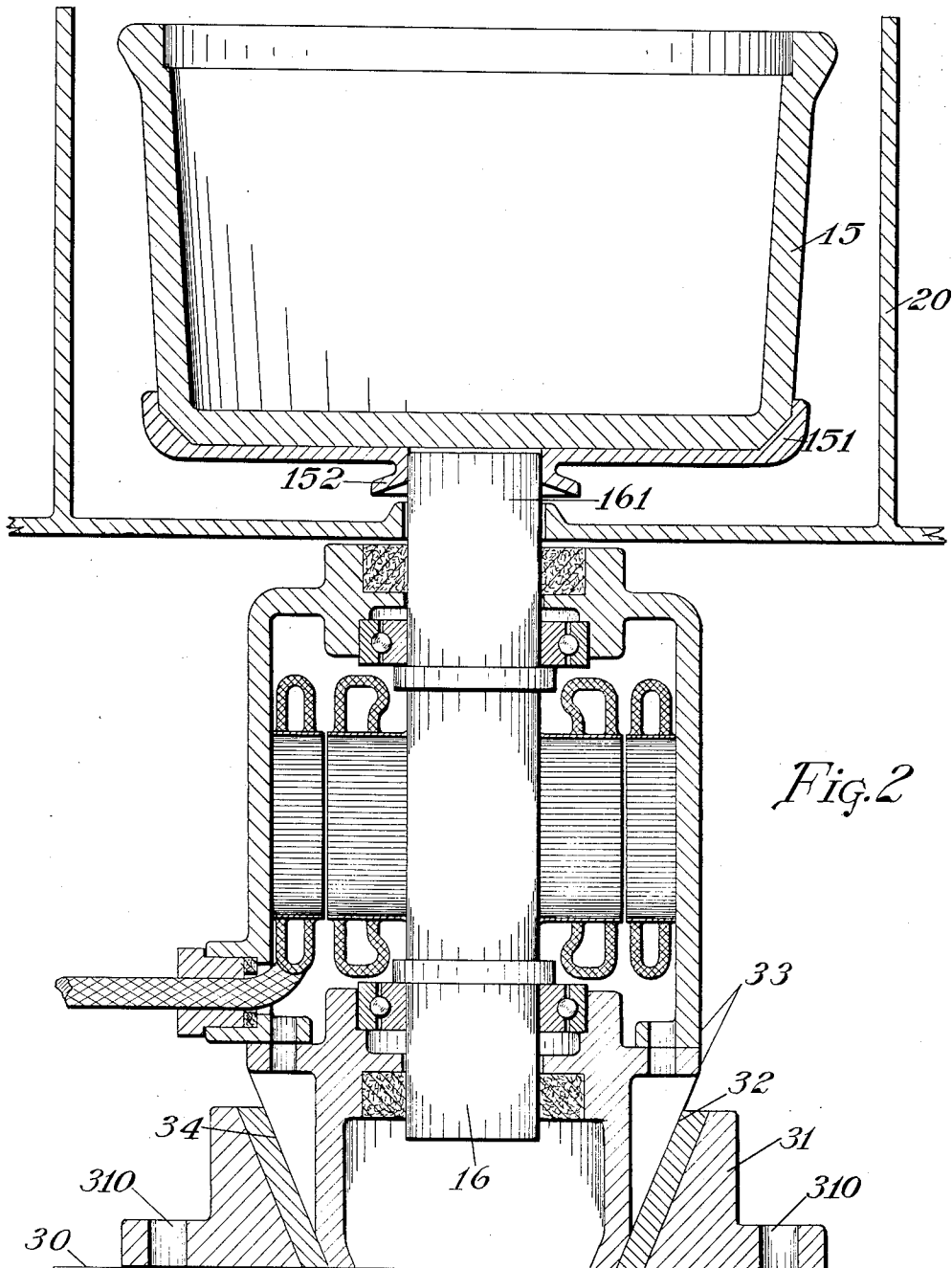


Fig. 2

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3 Sheets-Sheet 3

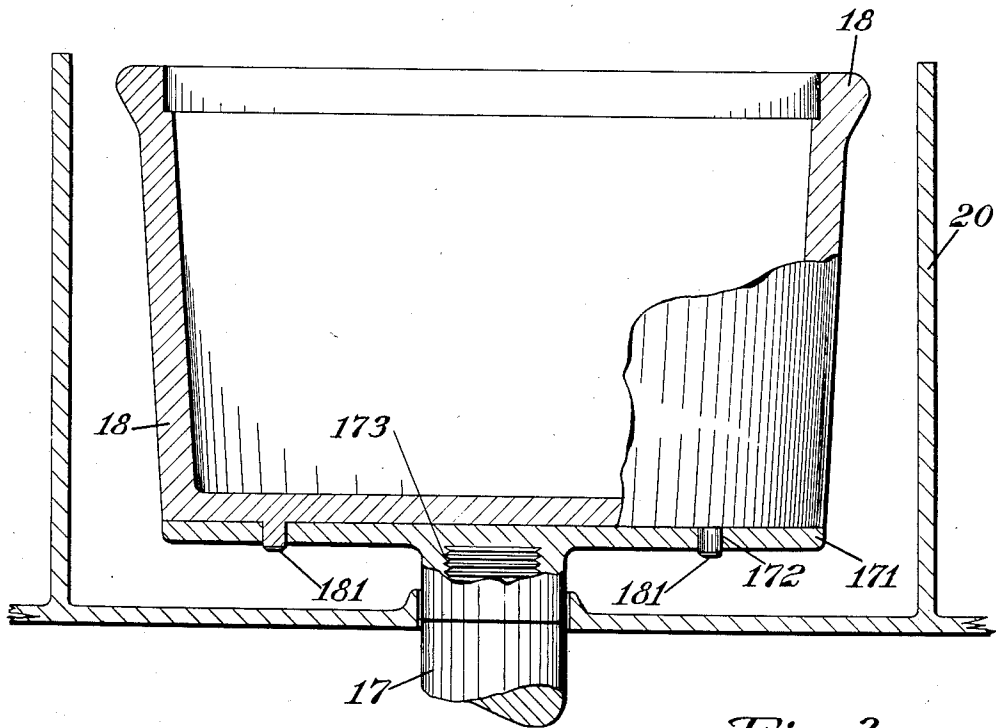


Fig. 3

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UNITED STATES PATENT OFFICE

1,988,490

BUCKET MOTOR

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Application October 26, 1933, Serial No. 695,247

2 Claims. (Cl. 118—43)

This invention relates to the manufacture of rayon by the bucket process. More specifically the invention relates to an improved bucket and motor assembly. More generally the invention relates to the construction of a motor driven centrifugal.

In the ordinary mounting of the bucket used in one process of manufacturing rayon, a spindle which is usually an extension of the bucket motor shaft is fitted with an adapter, or seat. The seat has a cylindrical portion with a slight internal taper corresponding to the taper of the spindle, and at the base of the cylindrical portion a circular ledge on which the hub of the bucket rests. The bucket is provided with a hollow hub in which hollow a bronze sleeve is fitted of such diameter as to provide a sliding fit with the cylindrical portion of the seat. The frictional resistance between the sleeve and the cylindrical portion of the seat, and between the bottom face of the bucket hub and the ledge of the seat furnishes the required force for driving the bucket. This type of connection requires that the base of the bucket be a considerable distance above the top of the motor. This distance, usually in the neighborhood of six or eight inches, is sufficient to permit the building up of serious strains on the motor and mountings whenever a bucket slightly out of balance is used. It is desirable, consequently, that a method of mounting a bucket on a motor shall be devised which will bring the base of the bucket in close proximity to the top of the motor.

It is an object of this invention to improve the bucket assembly used in the manufacture of rayon by the bucket process. Another object of the invention is to provide a connection between a centrifugal bucket and its driving mechanism. Other objects of the invention will be in part apparent and in part hereinafter described.

The objects of the invention are accomplished, in the preferred form of the invention, by the use of a motor having a rotor, hollow at its upper end, in which may be seated a stud projecting from the bottom of the bucket. The objects of the invention are accomplished in their respective degrees by the means, method, and details of construction hereinafter set forth.

In the drawings Figure 1 is a vertical section through a spinning bucket used in the manufacture of rayon showing the preferred form of the invention. Figure 2 and Figure 3 are sim-

ilar views illustrating modifications of the invention.

In the drawings 10 is a spinning bucket; 11 is a spinning bucket cover; 12 are holes through the sides of the spinning bucket providing for the escape of fluids during the manufacture of rayon; 13 is a circular stud mounted in and projecting from the base of the bucket; 131 is a head on the stud moulded (in this instance) into the base of the bucket serving to give improved lateral support to the bucket; 132 are lands on the stud and 133 are grooves on the stud; 14 is an annular guard moulded (in this instance) into the base of the bucket. It will be understood that it is not necessary to mould the stud and guard into the bucket but that they could be attached to the exterior of the bucket or could be affixed to it in any other suitable way. 20 is a motor support; 21 is a motor frame; 210 are lugs toward the upper end of the motor frame; 211—212 are holes in the lugs and support, respectively, through which bolts or other attaching means may be passed; 22 is a rotor of the motor which is mounted to turn in a manner which will be understood by persons skilled in the manufacture of motors; 23 is a circular hole extending, in this instance, the entire length of the rotor but which need be only long enough to receive the stud of the bucket. The hole in the rotor is provided with lands and grooves of width equal to the width of the grooves and lands, respectively, of the stud; 24 is a bevelled end on the rotor designed to make it easy to fit the stud and rotor together.

When the bucket is assembled in operating position on the motor, the lands and grooves of the stud fit into the grooves and lands of the rotor. The guard 14 serves to prevent liquid thrown off by the bucket from getting inside the rotor or the motor.

In the modification of the invention shown in Figure 2, 30 is a support; 31 is a motor mounting having an annular conical seat 32; 310 are holes in the mounting 31 through which bolts or other fastening means may be passed; 33 is a motor housing having a conical base 34 which by fitting into conical seat 32, furnishes a very firm and stable support for the motor and bucket; 15 is a bucket; 16 is the armature of the motor which may be of any desired type; 161 is a projecting end of the armature; 151 is a seat, affixed to the shaft 161, furnishing a broad support for the bucket; 152 is a guard, preferably integral with seat 151, to prevent drip from seeping into the motor.

Although the form of the invention described in the preceding paragraph does not have some of the advantages inherent in the preferred form of the invention, it does have the advantage of providing a means of bringing the bucket close to the top of the motor.

In Figure 3, 17 is the rotor of a motor; 171 is a head on the rotor preferably detachable therefrom, as by screw thread mounting 173; 172 are holes in the head; 18 is a bucket; 181 are studs projecting from the bottom of the bucket. The studs on the bottom of the bucket and the holes in the head are of equal size and equally spaced so that the one will fit the other when the bucket is in operating position. Alternatively, the holes could be sunk part way through the base of the bucket and the studs be on the head.

In all the figures of the drawings 20 represents a bucket compartment of ordinary construction.

An advantage of the invention is that the base of the bucket is brought closer to the top of the motor than previous constructions of this general classification permitted. Another advantage of the invention is the provision of a positive drive which can be easily assembled and dismantled. Another advantage of the invention is that the center of gravity of the apparatus is considerably lower and that a minimum of vibration results. A particular advantage of the form of the invention shown in Figure 1 is the provision of a bucket and motor assembly having great strength and the center of gravity so close to the top of the motor that vibration imposing strain on the motors is

greatly reduced. Another advantage of this form of the invention is the elimination of the adapter used on standard assemblies. Another advantage is the elimination of the bronze lined hub found on standard assemblies. Other advantages of the invention will be apparent.

As many apparently widely different embodiments of this invention may be made without departing from the spirit and scope thereof, it is to be understood that I do not limit myself to the specific embodiments thereof except as defined in the appended claims.

I claim:

1. In a mechanism for the manufacture of artificial thread, a motor, a casing therefor, a bearing in the top of the casing, an armature core mounted in the bearing and projecting through the casing, a bucket having a stud, the stud and core being interfitted whereby the bucket may be mounted on and driven by the motor, the length of the stud and the projection of the core being such that the bucket is mounted with minimum lateral flexibility.

2. In a mechanism for the manufacture of artificial thread, a motor, a casing therefor, bearings in opposite sides of the casing, an armature core mounted in the bearings and projecting at one end through the casing, a bucket having a stud, the stud and core being interfitted whereby the bucket may be mounted on and driven by the motor, the length of the stud and the projection of the core being such that the bucket is rigidly mounted in close proximity to the bearing in the casing.

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