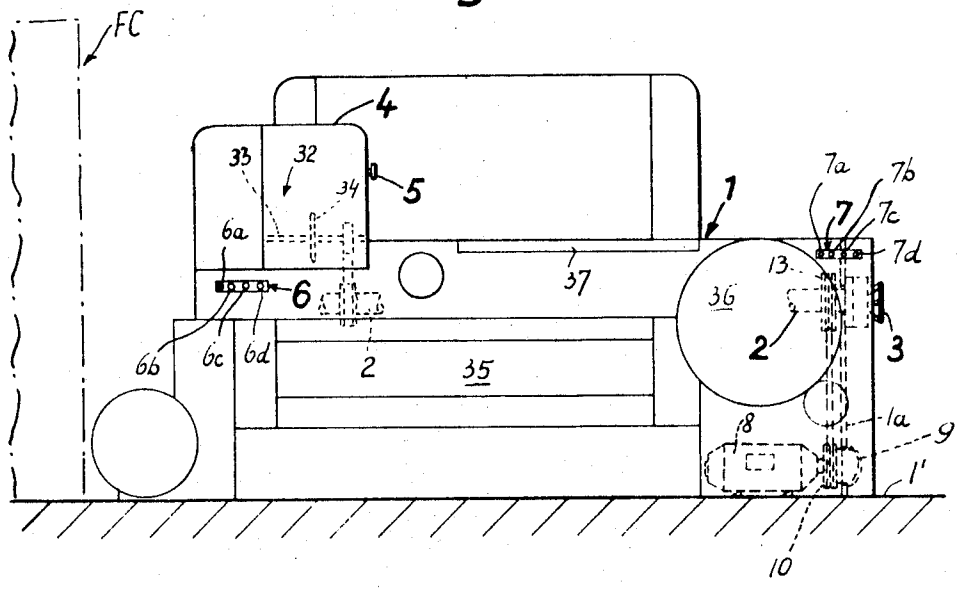
Sept. 23, 1969 K. KÖRBER 3,468,205

DRIVING ARRANGEMENT FOR TOBACCO PROCESSING MACHINES

Filed Nov. 25, 1963 5 Sheets-Sheet 1

Fig. 1



Sept. 23, 1969 K. KÖRBER 3,468,205

DRIVING ARRANGEMENT FOR TOBACCO PROCESSING MACHINES

Filed Nov. 25, 1963 5 Sheets-Sheet 2

Fig. 3

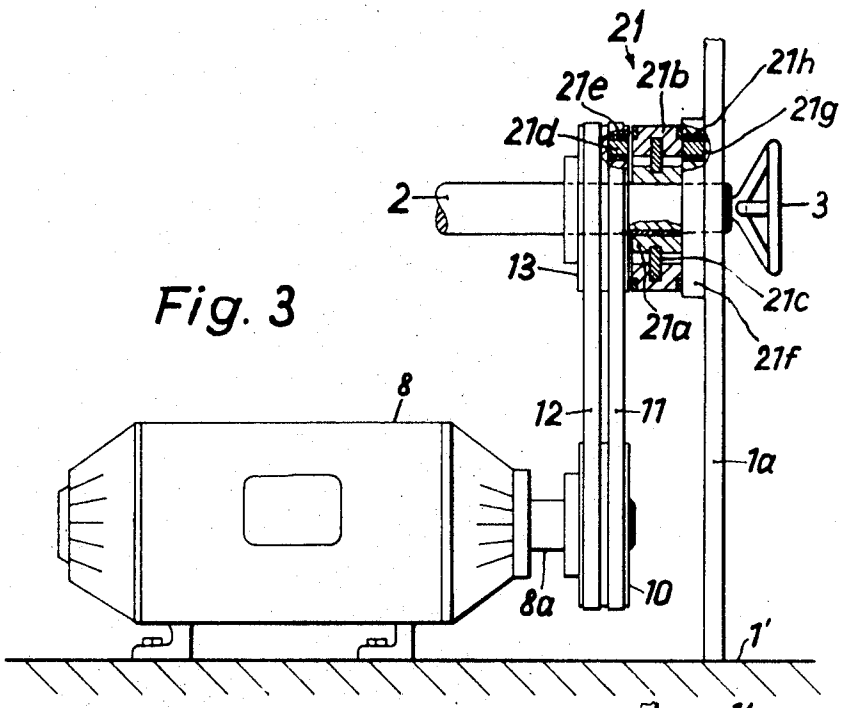
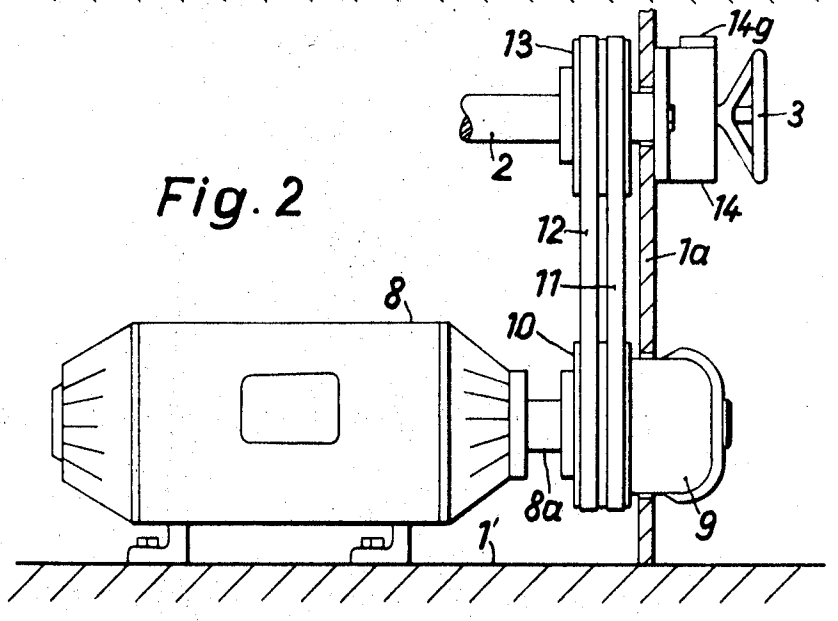


Fig. 2



DRIVING ARRANGEMENT FOR TOBACCO PROCESSING MACHINES

Filed Nov. 25, 1963 5 Sheets-Sheet 3

Fig. 5

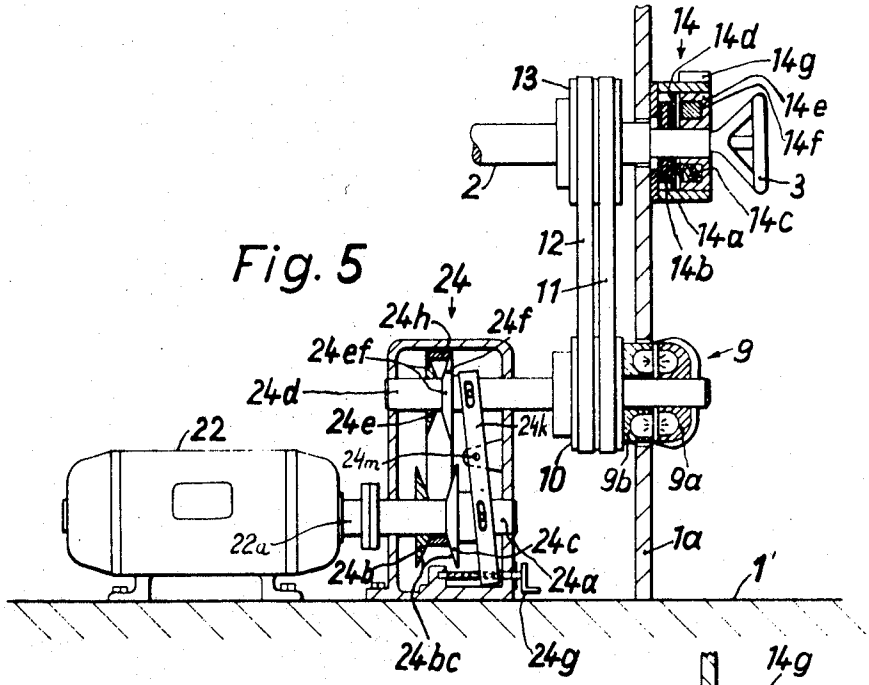
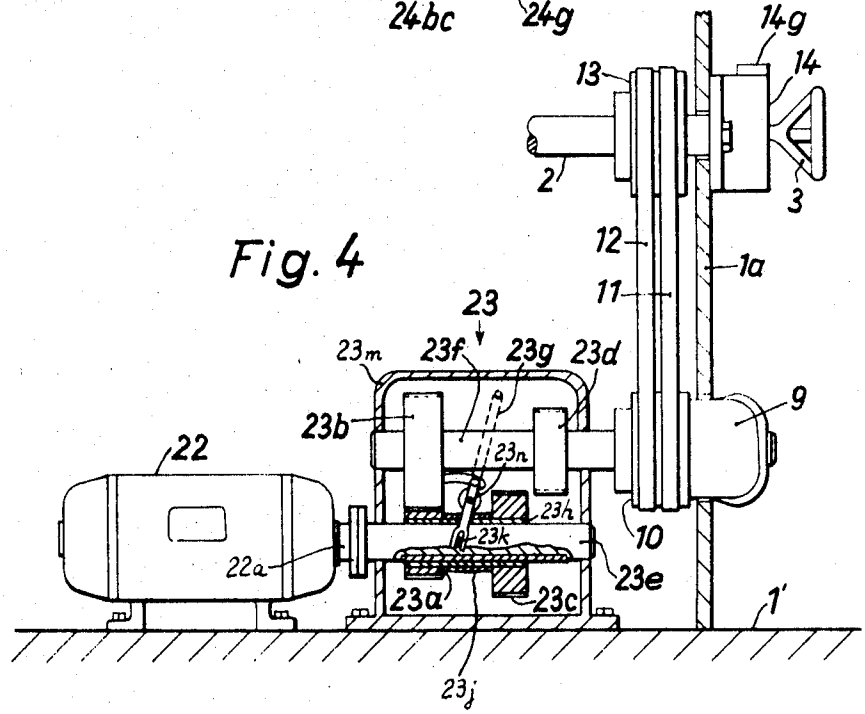


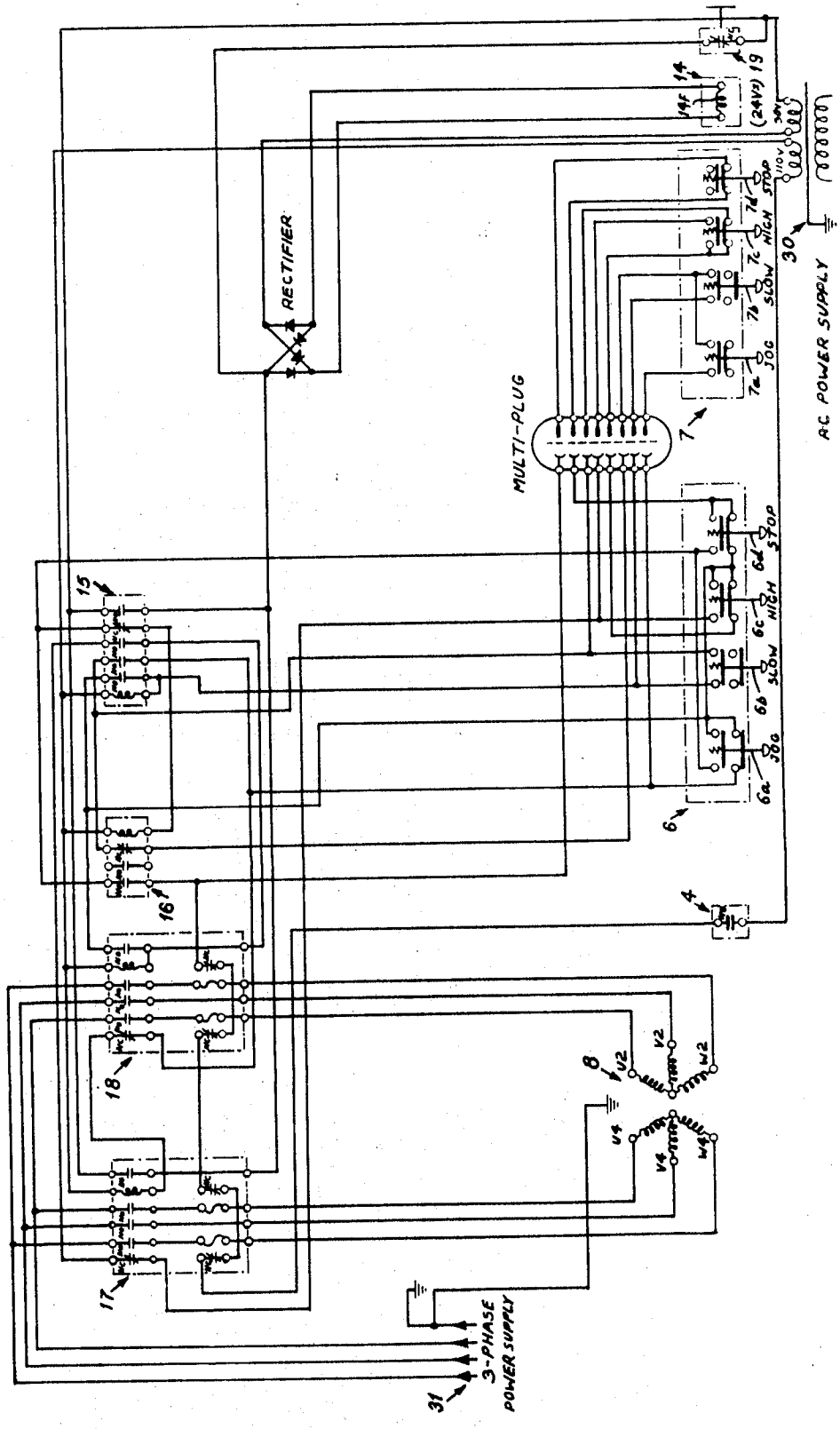
Fig. 4



DRIVING ARRANGEMENT FOR TOBACCO PROCESSING MACHINES

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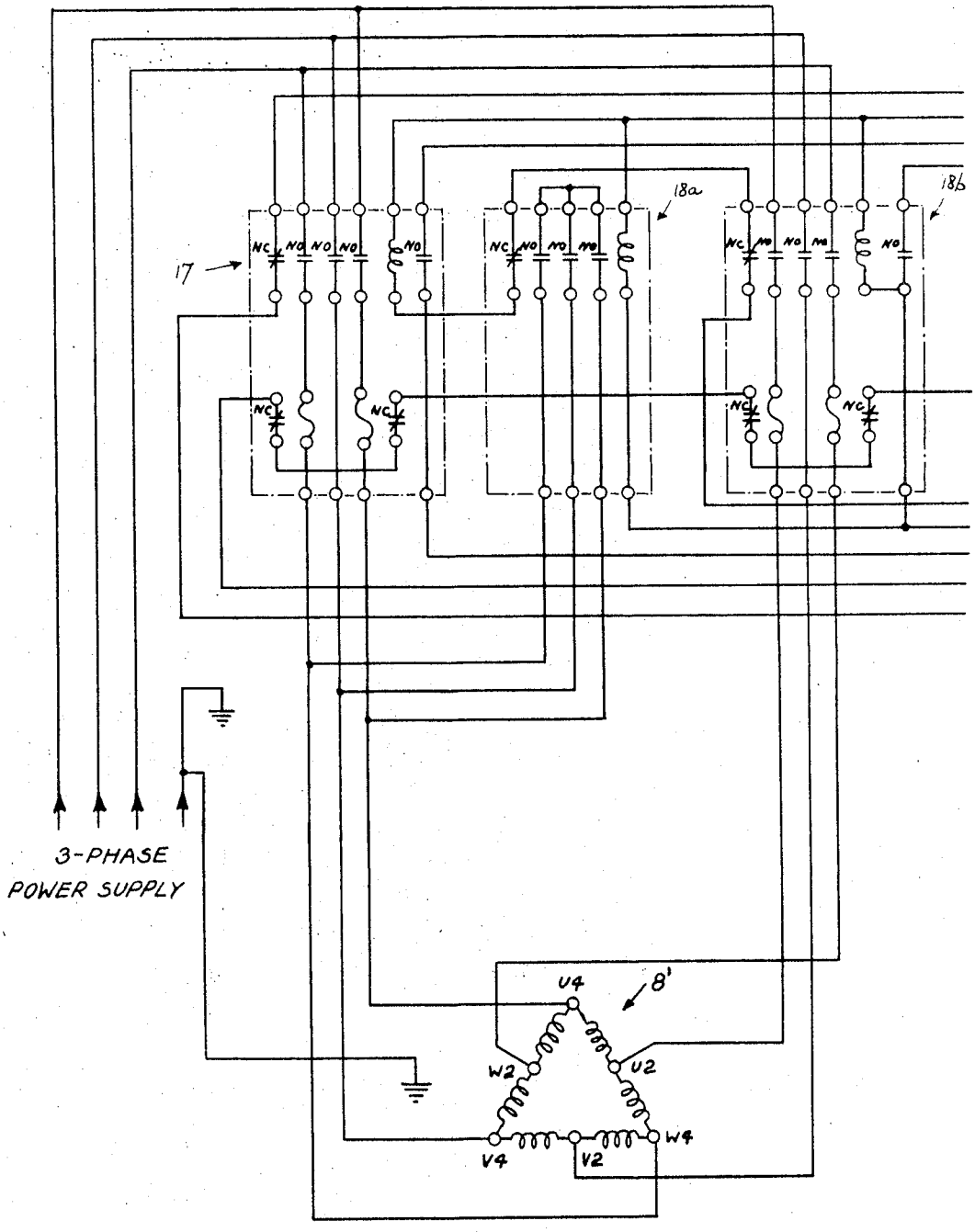
FIG. 6



DRIVING ARRANGEMENT FOR TOBACCO PROCESSING MACHINES

Filed Nov. 25, 1963 5 Sheets-Sheet 5

FIG. 7



United States Patent Office 3,468,205
Patented Sept. 23, 1969

3,468,205

DRIVING ARRANGEMENT FOR TOBACCO PROCESSING MACHINES

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Filed Nov. 25, 1963, Ser. No. 326,290
Claims priority, application Great Britain, Nov. 26, 1962, 44,587/62
Int. Cl. B26d 5/08; F16d 67/00, 23/00
U.S. Cl. 83—543 13 Claims

The present invention relates to tobacco processing machines, particularly to cigarette making machines. More specifically, the invention relates to a driving arrangement for the main shaft or another driven element of a tobacco processing machine.

In modern cigarette making machines, a main shaft is normally driven at two speeds so that the numerous components of the machine may be driven at low speed immediately after starting and at high speed when the machine operates at normal rate of output. Such operation is desirable and necessary because the tobacco distributing, conveying, rod forming, wrapping, adhesive applying, printing, cutting and many other units of the machine must be watched closely when the machine is started in order to avoid waste or damage to moving parts.

Many cigarette making machines known to us at this time are driven by a constant-speed electric motor whose speed corresponds to the average speed of the machine, and the driving arrangement of such conventional machines further comprises a friction brake which is actuated whenever the machine must be operated at lesser speed. Since it is often necessary that the machine be operated at reduced speed for extended periods of time (for example, when the operator must adjust one or more units while the machine is running), a friction brake is not entirely satisfactory because it wears rapidly and generates too much heat.

It is an object of this invention to provide a driving arrangement for the main shaft of a cigarette making machine, and to construct the driving arrangement in such a way that the main shaft may be driven at each of a plurality of speeds for any desired periods of time without causing damage to or overheating of the brake or to the power train which connects the power source with the main shaft.

Another object of the invention is to provide a driving arrangement of the just outlined characteristics which insures gradual acceleration or deceleration of the main shaft and which protects the power source from excessive loads during starting and during shifting into different speeds.

An additional object of the invention is to provide a driving arrangement which will automatically rotate the main shaft or another driven element of the machine at requisite speed, which can be controlled by semiskilled operators in a very simple way, and which may be controlled from several points of the machine so that an operator who supervises certain units of the machine need not waste time in walking back and forth to and from the control elements but is in a position to actuate such control elements while continuing to supervise a given unit of the machine.

Still another object of the invention is to provide a driving arrangement wherein the power train between the power source and the driven element need not include a variable speed transmission but which is nevertheless capable of operating the machine at different speeds.

A further object of the instant invention is to provide a driving arrangement which occupies little space, which

can be installed in many types of presently utilized mass-manufacturing cigarette machines without necessitating substantial alterations in the construction of such machines, and which may embody means enabling the person or persons in charge to arrest the machine within exceptionally short periods of time to reduce waste when the machine does not operate in the required manner.

A concomitant object of the invention is to provide a driving arrangement which is constructed and assembled in such a way that it automatically ceases to operate the machine when a careless operator exposes a unit or a component part which is likely to cause injury or damage, to construct the driving arrangement in such a way that the main shaft of the machine is automatically disconnected from the prime mover when a knife or a similar dangerous unit is exposed, and to provide a driving arrangement which will automatically arrest the main shaft when a unit which must be shielded for the sake of safety to operators is exposed by accident or due to negligence of the personnel in charge.

An additional object of the invention is to provide a novel power train between the electric motor or a similar prime mover and the main shaft of a cigarette making machine and to construct the power train in such a way that each of its elements is readily accessible for the purposes of inspection, maintenance, repair and/or replacement.

With the above objects in view, one feature of the invention resides in the provision of a driving arrangement for the main shaft or another driven element of a tobacco processing machine, particularly a continuous rod cigarette making machine. The driving arrangement may comprise an electric motor and a power train including a fluid coupling and serving to connect the output member of the motor with the driven element. If the driving arrangement comprises a constant-speed motor, the power train will include a multi-stage or an infinitely variable speed transmission; on the other hand, if the driving arrangement comprises a multi-speed motor, the transmission may be omitted.

Thus, the invention mainly resides in the provision of a multi-speed motor, in the provision of a fluid coupling, and in the provision of a brake which operates when the driven element is disconnected from the prime mover or when the prime mover is disconnected from a source of energy.

The novel features which are considered as characteristic of the invention are set forth in particular in the appended claims. The improved driving arrangement itself, however, both as to its construction and its mode of operation, together with additional features and advantages thereof, will be best understood from the following detailed description of certain specific embodiments with reference to the accompanying drawings, in which:

FIG. 1 is a front elevational view of a continuous rod cigarette making machine wherein the main shaft is rotated by a driving arrangement embodying one form of the invention;

FIG. 2 is an enlarged detail view of the driving arrangement which is shown in FIG. 1 and which comprises a multi-speed motor and a fluid coupling mounted in the power train between the output shaft of the motor and the main shaft of the machine;

FIG. 3 illustrates a modified driving arrangement wherein the power train between a multi-speed electric motor and the main shaft comprises an electromagnetic friction clutch, a portion of the clutch which also serves as a brake being shown in section;

FIG. 4 illustrates a third embodiment of the invention wherein the driving arrangement comprises a constant-speed motor and a multi-stage transmission which drives the main shaft through a fluid coupling, the transmission being shown in section;

FIG. 5 illustrates a fourth embodiment wherein a constant-speed motor drives the main shaft through an infinitely variable speed transmission and a fluid coupling and wherein the main shaft carries an electromagnetic brake, the transmission and the fluid coupling as well as the brake being shown in section;

FIG. 6 is a diagram illustrating the electric circuit of the driving arrangement which is shown in FIGS. 1 and 2 and wherein the motor comprises a plurality of separate windings; and

FIG. 7 is a similar diagram of a modified multi-speed motor whose windings form a so-called Dahlander connection.

Referring to FIG. 1 there is shown a continuous rod cigarette making machine having a frame **1** whose right-hand portion accommodates a driving arrangement for a driven element here shown as a main shaft **2**. This main shaft may be rotated by a hand wheel **3**, for example, when the operator desires to operate a certain unit in slow motion. A pivotable hood **4** normally conceals the cutting mechanism **32** whose knife **34** rotates with a drive shaft **33** and which serves to sever a continuous cigarette rod into sections of single or double unit length. Such sections are thereupon advanced to a packing machine, to storage or to a filter cigarette machine FC. The reference numeral **5** indicates a locking mechanism which locks the hood **4** in operative position.

At the left-hand end of the frame **1**, there is provided a first control panel **6** with a series of control elements **6***a*–**6***d* in the form of pushbuttons which serve to operate the machine at different speeds or to arrest the main shaft **2**. A similar control panel **7** with control elements **7***a*–**7***d* is provided at the right-hand end of the frame **1**. The filter cigarette machine FC is adjacent to the left-hand end of the frame **1**. A cigarette machine somewhat similar to the one schematically shown in FIG. 1 is disclosed in U.S. Patent No. 2,868,211 to Richter et al., and a cutting device of the type which may be used in the machine of FIG. 1 is disclosed in U.S. Patent No. 3,010,261 to Rudszinat et al.

Referring to FIG. 2, the driving arrangement for the main shaft **2** includes a prime mover here shown as a three-phase electric motor **8** with change of pole connections. The output shaft **8***a* of this motor is the input element of a power train including a fluid coupling **9** and a belt and pulley drive comprising a driver pulley **10** which receives motion from the coupling **9**, a driven pulley **13** which is mounted on and serves to rotate the main shaft **2**, and two endless belts **11**, **12** which are trained around the pulleys **10**, **13**. The construction of the fluid coupling **9** is shown in greater detail in FIG. 5, and it will be noted that this coupling comprises a first torus **9***a* which (in FIG. 2) is driven directly by the output shaft **8***a* and a second torus **9***b* which is driven by the first torus **9***a* and is directly but detachably coupled to the pulley **10**. The motor **8** is mounted on a base **1'** which is an element of the frame **1**, and this frame further comprises an upright frame member **1***a* which supports the coupling **9** and the main shaft **2**.

The machine of FIG. 1 further comprises a friction brake **14**, shown in FIGS. 2, 4 and 5, which serves to rapidly arrest the main shaft **2** and/or to arrest this shaft in a given angular position. The brake **14** comprises a housing **14***a* secured to the frame member **1***a*, a disk **14***b* which is non-rotatably but axially movably supported by the main shaft **2** and whose end faces are coated with suitable friction generating material, springs **14***c* or similar elastic elements which produce the braking force, and an electromagnet including an annular armature **14***d* which is normally rotatable in the housing **14***a* and is adjacent to one end face of the disk **14***b*. This electromagnet further comprises an iron core **14***e* with a coil **14***f* whose terminals extend into a switch box **14***g*. The core **14***d* is secured to the housing **14***a*.

The armature **14***d* is biased by the springs **14***c* to engage the disk **14***b* and to press it against the housing **14***a* so that the brake **14** arrests the shaft **2**. When the coil **14***f* is energized, the core **14***e* attracts the armature **14***d* which releases the disk **14***b*.

The motor **8** comprises two sets of windings (see FIG. 6) so that it may be driven at two speeds including a low speed for starting the machine or for operating the machine at less than normal speed and a high speed for normal operation of the machine. In accordance with a modification of our invention, the motor **8** may be replaced by a motor **8'**, shown in FIG. 7, which comprises a Dahlander connection.

When the machine is started, the operator depresses the pushbutton **6***b* on the control panel **6** or the pushbutton **7***b* on the control panel **7** whereby the motor **8** drives the main shaft through the power train including the fluid coupling **9** and the belt and pulley drive **10**–**13**. If the operator notes that all units of the machine operate in the desired manner, he depresses the pushbutton **6***c* or **7***c* whereby the motor **8** rotates the output shaft at high speed corresponding to the normal operating speed of the machine. The pushbutton **6***d* or **7***d* is depressed when an operator desires to stop the motor **8**, and the pushbuttons **6***a*, **7***a* serve to initiate rotation of the output shaft **8***a* at low speed but only for the period of time during which the pushbutton **6***a* or **7***a* is depressed. This is called jogging.

Since the brake **14** is effective only when the motor **8** is idle and since this brake automatically releases the shaft **2** as soon as the motor **8** is started and operates at low or high speed, any overheating of the brake is clearly impossible. Also, the motor may operate the machine at low or high speed as long as desired without causing any overheating of the brake since this brake is ineffective when the motor drives the main shaft **2**. It is often necessary to operate the machine at low speed for extensive periods of time, and the driving arrangement of my invention provides a very satisfactory solution of this problem because the motor itself constitutes the means for varying the speed of the main shaft.

While it is well known to use fluid couplings in automotive vehicles, the use of such fluid couplings in the driving arrangements of rod cigarette making machines brings about a number of very important and totally unexpected advantages. Thus, the main shaft can be started gradually to avoid overloading of the motor, and such gradual starting is effected in a fully automatic way, i.e., not with the help of brakes as in conventional machines. All that an operator has to do in order to gradually accelerate the main shaft **2** to low speed or to high speed is to depress one of the pushbuttons **6***a*–**6***c* or **7***a*–**7***c* whereby the fluid coupling **9** insures that the acceleration of the shaft **2** is gradual. This is of importance in manufacturing plants where the cigarette machines are handled by persons having little technical skill. Furthermore, and since the gradual acceleration of the main shaft is carried out in a fully automatic way, the operator need not observe the driving arrangement but may immediately devote his attention to other units of the machine which are prone to malfunction when the machine is started or when the operating speed of the machine is changed from high to low or vice versa.

It is equally important that the main shaft **2** should be arrested immediately upon depression of the pushbutton **6***d* or **7***d*. This is made possible by the provision of the brake **14** which becomes effective as soon as the operator depresses the pushbutton **6***d* or **7***d*. As will be noted by an inspection of FIG. 6, the pushbutton **6***d* or **7***d* will open the circuit of the coil **14***f* when the operator arrests the motor **8** so that the braking action of the

brake **14** is effective upon the shaft **2** as soon as the circuit of the motor **8** is open. When the shaft **2** is brought to a standstill, the elements of the fluid coupling **9** also come to a halt which is important because the gradual acceleration of the main shaft in response to next depression of one of the pushbuttons **6***a*–**6***c* or **7***a*–**7***c* will take place only if the torus **9***a* or **9***b* is at a standstill at the time one of these pushbuttons is depressed. In other words, it is necessary that the elements **9***a*, **9***b* of the coupling **9** should always begin to rotate from a position of complete standstill to a low speed or to a high speed, depending on which of the pushbuttons is depressed.

The driving arrangement of FIG. 2 which embodies a multi-speed motor and a fluid coupling constitutes an ideal solution in cigarette making machines. It goes without saying that the arrangement of FIG. 2 may be modified by mounting the fluid coupling in the power train between the driven pulley **13** and the main shaft **2**.

The hand wheel **3** enables an operator to rotate the main shaft **2** at low speed when the operator desires to remove the knife **34** or when the operator must inspect or replace certain other component parts which are accessible only in certain angular positions of the main shaft.

FIG. 3 illustrates a second driving arrangement wherein the main shaft **2** is driven by a two-speed motor **8** corresponding to the one described in connection with FIG. 2. The fluid coupling **9** is replaced by an electromagnetic friction clutch **21** which serves to transmit torque between the driven pulley **13** and the main shaft **2**. The pulley **13** is driven by belts **11**, **12** which are trained around a driver pulley **10** mounted directly on the output shaft **8***a*.

The clutch **21** also serves as a brake and comprises a first annular clutch element **21***a* which is non-rotatably secured to the main shaft **2**, a second annular clutch element **21***b* which surrounds the clutch element **21***a* and whose end faces are provided with annular inserts of friction generating material, and a flexible coupling ring **21***c* which is recessed into the periphery of the clutch element **21***a* and into the internal surface of the clutch element **21***b*. The ring **21***c* serves to rotate the element **21***a* in response to rotation of the element **21***b* and enables the latter to move in the axial direction of the main shaft **2**. The second or outer clutch element **21***b* constitutes the armature of an electromagnet, and this electromagnet includes a first set of iron cores **21***d* secured to the pulley **13** and a second set of iron cores **21***g* mounted on or in a carrier **21***f* fixed to the frame member **1***a*. The coils of the cores **21***d*, **21***g* are respectively shown at **21***e*, **21***h*.

The circuit of the coils **21***e* is completed when the operator starts the motor **8** whereby the cores **21***d* attract the clutch element **21***b* and the elastic ring **21***c* drives the main shaft **2** via clutch element **21***a*. The same situation prevails when the motor **8** drives the pulley **10** at high (normal speed). When the circuit of the motor **8** is open, the coils **21***e* are disconnected from but the coils **21***h* are connected with a source of electrical energy so that the cores **21***g* attract the clutch element **21***b* to arrest the main shaft **2**. Thus, the cores **21***d*, **21***g* are energized alternatively whereby the clutch **21** either serves to drive the main shaft **2** or performs the function of a brake.

The circuit of the coil **21***h* preferably includes a switch (to be described in connection with FIGS. 6 and 7) which serves to deenergize the cores **21***g* when the motor **8** is idle and when the operator desires to rotate the main shaft **2** with the help of a hand wheel **3** without being compelled to overcome the braking action which can be produced by energized cores **21***g*. The circuit of the motor **8** includes a safety switch (to be described in connection with FIGS. 6 and 7) which opens automatically if the hood **4** is not properly locked to the frame **1** so that the motor **8** can be started only if the cutter mechanism **32** is shielded and cannot injure the operator.

In FIG. 4, the main shaft **2** is driven by a constant-speed electric motor **22** through a variable speed transmission **23** which is a multi-stage transmission. The output shaft **22***a* of the motor **22** drives the input shaft **23***e* of the transmission **23**. A sleeve **23***h* carries two spaced pinions **23***a*, **23***c* and is movable axially of but cannot rotate with respect to the shaft **23***e*. A second sleeve **23***j* is rotatable on the sleeve **23***h* and extends between the gears **23***a*, **23***c*. This second sleeve carries a pin **23***k* which is straddled by the bifurcated inner end of a shifting lever **23***g* whose outer end extends from the casing **23***m* and which is pivotable on a pin **23***n*. The pinion **23***a* is shown in mesh with a pinion **23***b* on an output shaft **23***f* which drives a fluid coupling **9**. The driving connection between the coupling **9** and the main shaft **2** is the same as described in connection with FIG. 2. The output shaft **23***f* carries a second pinion **23***d* which is driven by the pinion **23***c* if the lever **23***g* is pivoted in a counterclockwise direction whereby the pinion **23***a* is disengaged from the pinion **23***b*. In the position of FIG. 4, the main shaft **2** is driven at low speed. The construction of the transmission **23** is well known and by itself forms no part of the present invention. The shaft **2** is controlled by a brake **14** whose construction is the same as described in connection with FIG. 2.

Referring to FIG. 5, the main shaft **2** is driven by a constant-speed motor **22** whose output shaft **22***a* drives the fluid coupling **9** through an infinitely variable speed transmission **24**. The input shaft **24***a* of the transmission **24** carries a first pulley **24***bc* having a fixed flange **24***b* and an axially movable flange **24***c*. The output shaft **24***d* of this transmission carries a second pulley **24***ef* including a fixed flange **24***e* and an axially movable flange **24***f*. A V belt **24***h* is trained around the two pulleys and the speed of the output shaft **24***d* may be varied by a lever **24***k* which is pivotable about a fixed pin **24***m* in response to rotation of a spindle **24***g* whereby the flange **24***f* moves away from the flange **24***e* and the flange **24***c* moves toward the flange **24***b* if the lever **24***k* is pivoted in a clockwise direction so that the r.p.m. of the output shaft **24***d* and main shaft **2** increases. The construction of the fluid coupling **9** and of the brake **14** was described in connection with FIG. 2. The first torus **9***a* of the coupling **9** is driven by the output shaft **24***d* and the second torus **9***b* drives the pulley **10** which in turn drives the pulley **13** through a pair of V belts **11**, **12**.

FIG. 6 illustrates the electric circuit of the driving arrangement which is shown in FIG. 2. The motor **8** is a three-phase A-C multi-speed motor and is connected in circuit with two auxiliary relays **16** and with two control relays including a low-speed relay **17** and a high-speed relay **18**. The auxiliary relays **15**, **16** may complete the circuit of the coil **14***f* in the brake **14**. Each of the control panels **6**, **7** comprises a group of control elements including a first pushbutton **6***a*, **7***a* which initiates jogging of the machine (i.e., low-speed operation which is terminated when the pushbutton **6***a* or **7***a* is released), a second pushbutton **6***b*, **7***b* which initiates low-speed operation, a third pushbutton **6***c*, **7***c* which initiates high-speed operation, and a stop button **6***d*, **7***d* which opens the circuit and stops the motor **8**. The auxiliary relays **15**, **16** are connected in circuit with a control transformer **30**. The control relays **17**, **18** are connected directly in the circuit of the three-phase power supply **31**.

The connections between the groups of pushbuttons on the control panels **6**, **7** are such that a given pushbutton on the panel **6** is inactivated if the operator has depressed the corresponding pushbutton on the panel **7**, or vice versa.

The locking mechanism **5** of the hood **4** serves as a switching means to close a normally open safety switch **20** which is in the circuit of the A-C power supply **30** so that the auxiliary relay **15** or **16** and the control relays

17 and 18 can be energized only when the hood is locked in operative position. The hood 4 constitutes a switching member which also controls a normally closed brake releasing switch 19 which closes automatically when the hood is moved away from its operative (shielding) position. Thus, and since the drive shaft 32 which carries the rotary knife 33 of the cutter mechanism 32 is driven by the main shaft 2, see FIG. 1, the cutter mechanism 32 is released in a fully automatic way and the braking member 14*d* of the brake 14 will set free the main shaft 2 when the hood 4 is lifted. In other words, the brake 14 is not effective in response to movement of the hood 4 away from its operative position and the motor 8 can be started only when the hood 4 is locked in operative position. As a rule, the hood 4 is pivotable about a horizontal axis to expose the cutter mechanism 32 when it is pivoted upwardly. When an operator must inspect or carry out repairs on the cutter mechanism 32, the shaft 33 of this mechanism (with the knife 34) is released and remains released even though the operator depresses one of the pushbuttons 6*a*–6*c* or 7*a*–7*c*. This is due to the fact that, in order to gain access to the cutter mechanism 32, the operator not only must release the locking mechanism 5 (to open the safety switch 20) but must lift the hood 4 (to close the switch 19) whereby the knife 34 may be touched without any danger because the motor 8 is disconnected from the source 31.

The manner in which the pushbuttons 6*a*–6*c* or 7*a*–7*c* will cause the main shaft 2 to be driven at low speed or high speed, and the manner in which the pushbuttons 6*d*, 7*d* will stop the motor can be determined by reading the diagram of FIG. 6.

FIG. 7 is a diagrammatic view of a multi-speed motor 8' with windings in Dahlander connection. This motor may replace the motor 8 of FIGS. 1, 2, 3 or 6. The sole difference between the circuits of FIGS. 6 and 7 is that the circuit of FIG. 7 comprises two high-speed relays 18*a*, 18*b*.

The advantages of a cigarette making machine with two control panels 6, 7 will be readily understood if one considers that such a machine comprises a large number of units which are mounted at different points of the frame 1. Thus, the distributor 35 which delivers tobacco to the rod forming mechanism is normally located in the median portion of the frame 1, the rod forming mechanism 36 is adjacent to the control panel 7, the wrapping mechanism 37 is located above the distributor 35, the cutter mechanism 32 is nearer to the control panel 6, and the filter cigarette machine FC is adjacent to the left-hand end of the frame 1, as viewed in FIG. 1, so that it is nearer to the control panel 6. Consequently, an operator who has detected an inaccuracy in the operation of the filter cigarette machine FC and stands near to the hood 4 is in a position to immediately arrest the cigarette making machine by depressing the pushbutton 6*d* on the control panel 6. On the other hand, an operator watching the rod forming mechanism 36 will be able to reach the pushbuttons of the control panel 7. There are many other units which are driven by the main shaft 2, such as the feeding mechanism which delivers a web of cigarette paper to the rod forming mechanism 37, the adhesive applying mechanism for the web, the splicing mechanism, the mechanism which returns excess tobacco to the distributor 35, the equalizing device which removes excess tobacco from the tobacco rod, and others.

It is often necessary to arrest the machine or to change the operating speed of the main shaft 2 without any delay. If the machine is provided with a single group of control elements, i.e., with one control panel, great damage might be done to one or more units before the operator standing near the filter cigarette machine FC would be able to reach the control panel 7 or before an operator inspecting the rod forming mechanism would be able to reach the control panel 6. Therefore, the provision of two (or even more) groups of control elements constitutes a very important improvement in machines of the type to which this invention pertains.

In all embodiments of the driving arrangement which is shown in FIGS. 1 to 7, the electric motor and the power train together constitute an assembly which is arranged to drive the main shaft 2 or another driven element at two or more speeds.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic and specific aspects of this invention.

What is claimed as new and desired to be secured by Letters Patent is:

1. In a tobacco processing machine, particularly in a rod cigarette machine, a combination comprising a driven element; a multispeed driving arrangement for rotating said driven element, said arrangement comprising a rotary output member and a power train connecting said output member with said driven element, said power train comprising an automatic coupling arranged to rotate said driven element at a plurality of speeds; and a plurality of groups of control elements operatively connected with and arranged to control the operation of said driving arrangement, said groups of control elements being located at spaced points of said machine and each of said groups including a first control element arranged to initiate rotation of said driven element at a first speed, a second control element arranged to initiate rotation of said driven element at a second speed, and a third element arranged to initiate stoppage of said driven element.

2. In a rod cigarette machine. in combination, a driven element; a driving arrangement comprising a variable-speed electric motor having an output shaft and a power train including a fluid coupling and connecting said output shaft with said driven element, said motor and said power train together forming an electrical assembly which is arranged to drive said element at different speeds; a brake comprising a braking member normally operative to engage said driven element when said motor is idle, electromagnetic means connected with said motor and arranged to disengage said braking member from said driven element when said motor is started so that said driven element is automatically released and may be driven when said motor is started, a normally closed switch connected with said electromagnetic means, and a switching member movable between a first position in which it opens said switch and a second position in which said switch is free to complete the circuit of said electromagnetic means so that said braking member engages said driven element in response to movement of said switching member to said second position in response to starting of said motor.

3. A combination as set forth in claim 2, wherein said machine further comprises a cutter mechanism and wherein said switching member is a hood which shields said cutter mechanism in said first position thereof.

4. A combination as defined in claim 1, wherein said automatic coupling is a fluid coupling.

5. A combination as defined in claim 1, wherein said power train further comprises a variable speed transmission and wherein said output member forms part of an electric motor.

6. A combination as defined in claim 1, wherein said power train further comprises a variable speed transmission and wherein said coupling is interposed between said transmission and said driven element.

7. A combination as defined in claim 1, wherein said output member forms part of a variable-speed electric motor.

8. A combination as defined in claim 1, further comprising a brake for said driven element.

9. A combination as defined in claim 8, wherein said brake is a spring-biased electromagnetic barke.

10. A combination as defined in claim 1, wherein said output member forms part of an electric motor and further comprising a normally open safety switch connected with said motor and switching means movable between a first position in which said safety switch is closed and a second position in which said safety switch is free to open the circuit of said motor so that the motor may be started only in the first position of said switching means.

11. A combination as defined in claim 10, wherein said electric motor is a variable-speed motor.

12. In a tobacco processing machine, particularly in a rod cigarette machine, in combination, a driven element; and a driving arrangement comprising a variable-speed electric motor, a power train including a fluid coupling and connecting said motor with said driven element and forming with said motor an assembly which is arranged to drive said element at a plurality of speeds, and a plurality of groups of control elements connected in circuit with and arranged to control the operation of said assembly, said groups of control elements being located at spaced points of said machine and each of said groups including a first control element arranged to initiate operation of said assembly at a first speed, a second control element arranged to initiate operation of said assembly at a second speed, a third control element arranged to initiate stoppage of said assembly, and a fourth control element

arranged to initiate operation of said assembly at one of said speeds in response to and for the duration of manual actuation of the respective fourth control element.

13. A combination as set forth in claim 12, wherein the circuit of said control elements comprises means for inactivating at least one control element in one of said groups in response to manual actuation of a control element in another group.

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U.S. Cl. X.R.

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