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MOTIVE FORCE CONTROL FOR APPARATUS.

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1,226,587. Patented May 15, 1917.

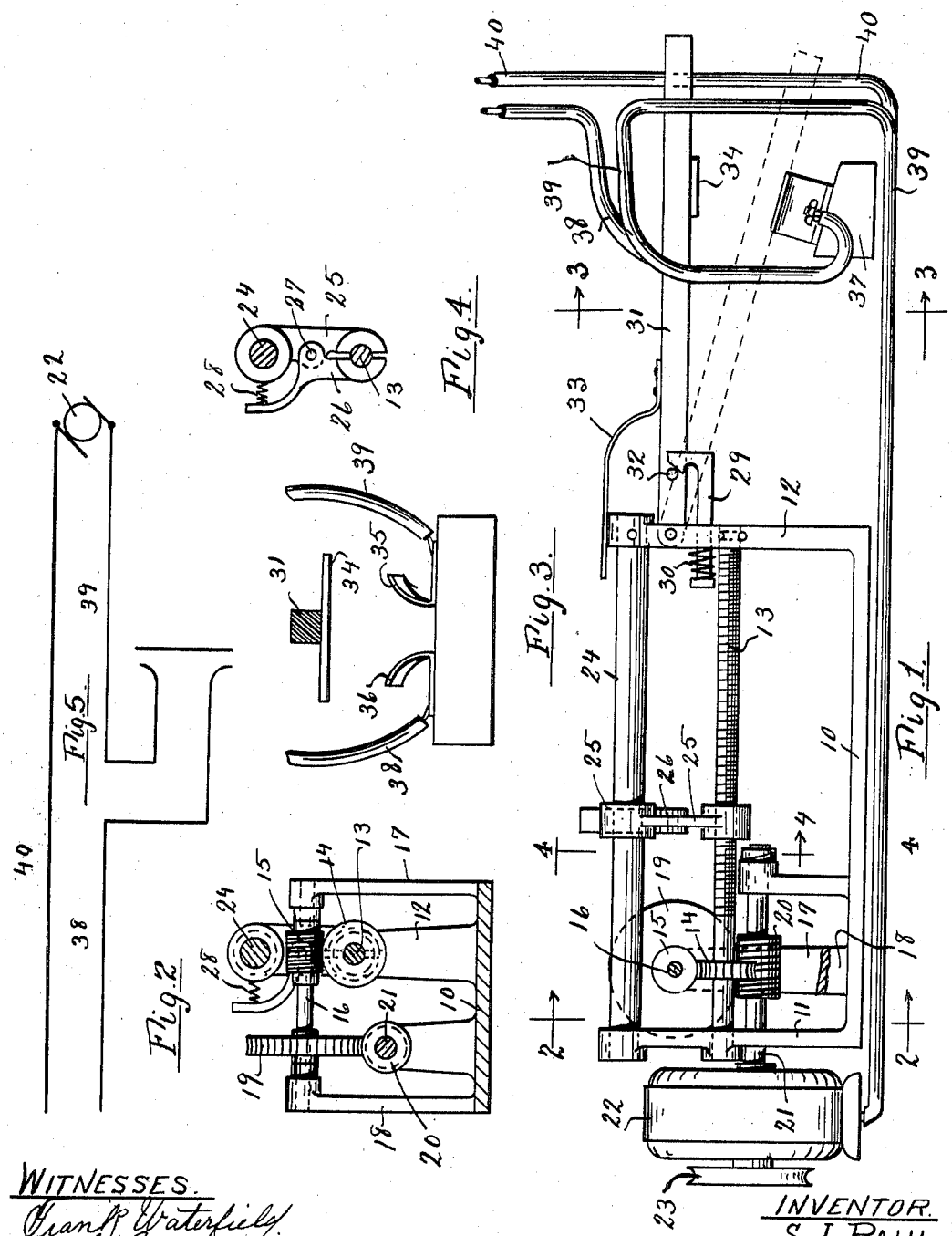


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

WITNESSES.

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MOTIVE-FORCE CONTROL FOR APPARATUS.

1,226,587. Specification of Letters Patent. Patented May 15, 1917.

Application filed October 31, 1914. Serial No. 869,536.

To all whom it may concern:

Be it known that I, SAMUEL J. PAUL, a citizen of the United States, residing at the city of Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Motive-Force Control for Apparatus, of which the following is a specification.

My invention relates to means to control the motive force which operates any apparatus and the object thereof is to produce a simple and efficient device which will cause the suspension of such motive force when a predetermined result has been obtained.

In the drawings forming a part of this application:

Figure 1 is a side elevation of mechanism controlling electrically operated machinery with parts broken away for clearness of illustration.

Fig. 2 is a vertical section on the line 2—2 of Fig. 1.

Fig. 3 is a vertical section on the line 3—3 of Fig. 1.

Fig. 4 is a section on the line 4—4 of Fig. 1.

Fig. 5 is a diagram of the wiring.

In the drawings 10 is a base plate on which at the ends thereof are standards 11 and 12 in which is revolubly mounted a propelling screw 13. Near standard 11 on screw 13 is mounted a worm gear 14 that engages a worm 15 mounted on shaft 16, which last shaft is revolubly mounted in standards 17 and 18 on the base plate 10. Shaft 16 has mounted thereon a worm gear 19 which engages a worm 20 on shaft 21 of motor 22. Shaft 21 carries a pulley 23 for the reception of a belt to drive the operated machinery, (not shown).

The motor could be placed elsewhere and shaft 21 operatively connected with it. Instead of a motor, other motive power such as a steam engine or water wheel or other operating power could be used to drive shaft 21. A guide rod 24 is mounted in standards 11 and 12 above screw 13. On this guide rod is slidably mounted the trigger releaser which consists of jaw 25 which is slidably mounted on rod 24 and jaw 26 which is pivotally connected to jaw 25 by pivot pin 27. The lower ends of these jaws surround screw 13 when positioned for use and the interior surfaces of the jaws surrounding screw 13 are screw threaded for their proper engagement with screw 13. A spring 28 holds the threaded surfaces of these jaws in operative engagement with screw 13 and permits them to be disengaged therefrom when it is desired to shift the trigger releaser. Slidably mounted in standard 12 is the trigger 29 which is held in its normal position by spring 30 which is coiled around the inner end thereof as shown in Fig. 1. The outer end of trigger 29 is bifurcated and straddles contact bar 31 which is pivotally mounted in standard 12. Bar 31 has mounted therein a pin 32 which, when the contact bar is in its inoperative position as shown in Fig. 1, rests on the head of the trigger. A spring 33 is secured to bar 31 and has its free end resting on the top of standard 12 to hold bar 31 in its inoperative position. Bar 31 carries a metallic bridge piece 34 which, when bar 31 is in its operative position as shown in dotted lines in Fig. 1, engages contacts 35 and 36 and bridges the gap between them. Contacts 35 and 36 are secured to block 37 of insulating material secured to the same support (not shown) that base plate 10 is secured to. Feed wire 38 is secured to contact 36. Wire 39 connects contact 35 with one side of the motor. Return wire 40 is connected to the other side of the motor.

In the drawings I have shown two worms and worm gears used in reducing the speed of the motor to properly operate screw 13 as I have found in practice that such an arrangement of gears produces satisfactory results.

Any other suitable reducing mechanism may be used to give the screw that operates the trigger releaser the desired motion.

When the machinery is started contact bar 31 is brought to a position in which bridge piece 34 engages contacts 35 and 36 and pin 32 is engaged and held by the trigger 29. These positions are shown in dotted lines in Fig. 1.

The screw threaded ends of the trigger releaser jaws are disengaged from screw 13 and the releaser is slid along bar 24 to the desired point which will be indicated by a scale (not shown) on bar 24 when the jaws are permitted to engage screw 13. By bridging the gap between contacts 35 and 36 the circuit of the motor is closed and the machinery operated thereby begins to move. When the trigger releaser has been moved by screw 13 to cause the trigger to release the contact bar, spring 33 throws the contact bar to its inoperative position thereby

opening the gap between contacts 35 and 36 which breaks the motor circuit and the machinery operated thereby stops.

It will thus be seen that I have provided simple and efficient means for cutting off the supply of motive force whenever the desired amount of work has been done and that such mechanism is operated by the motive force itself through proper connections, or the same may be operated by some independent power.

Having described my invention what I claim is:

1. In a power actuated mechanism an electric motor; a circuit for operating said motor, said circuit having a gap therein; a pivoted lever of insulating material; a contact bar secured to said lever and adapted to close the gap in said motor circuit; a spring secured to said lever and adapted to normally hold the contact bar away from said gap; a trigger adapted to engage said lever when said lever is depressed and hold the same with the contact bar closing said gap; and means operable by the motor to release said trigger when a predetermined amount of work has been done.

2. In an actuated mechanism; a driving force; means actuated by spring force to cut off said driving force; a trigger adapted to hold the cut off means inoperative; a screw driven by the motive force; and a releaser on said screw, said releaser being adapted to be driven by said screw into engagement with the trigger to cause the trigger to release the cut off means when a predetermined amount of work has been done by the actuated mechanism.

In witness that I claim the foregoing I have hereunto subscribed my name this 15th day of October 1914.

SAMUEL J. PAUL.

Witnesses:
ELMER HARPHAM,
FRANK WATERFIELD.