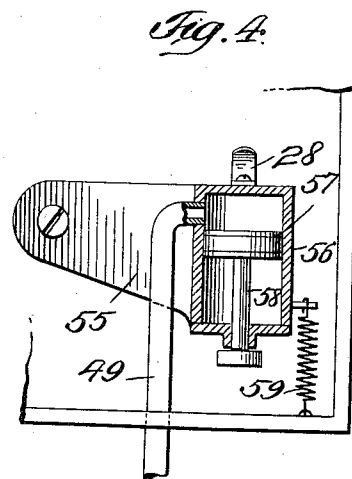
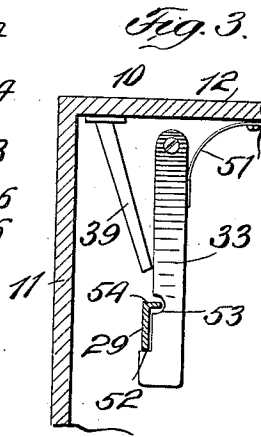
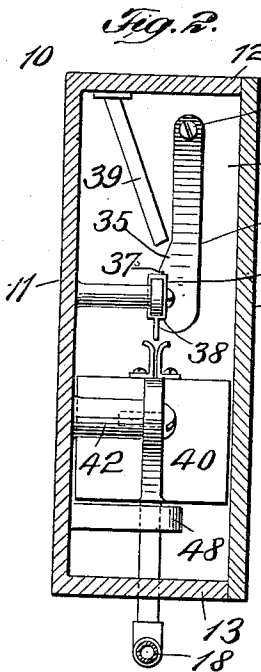
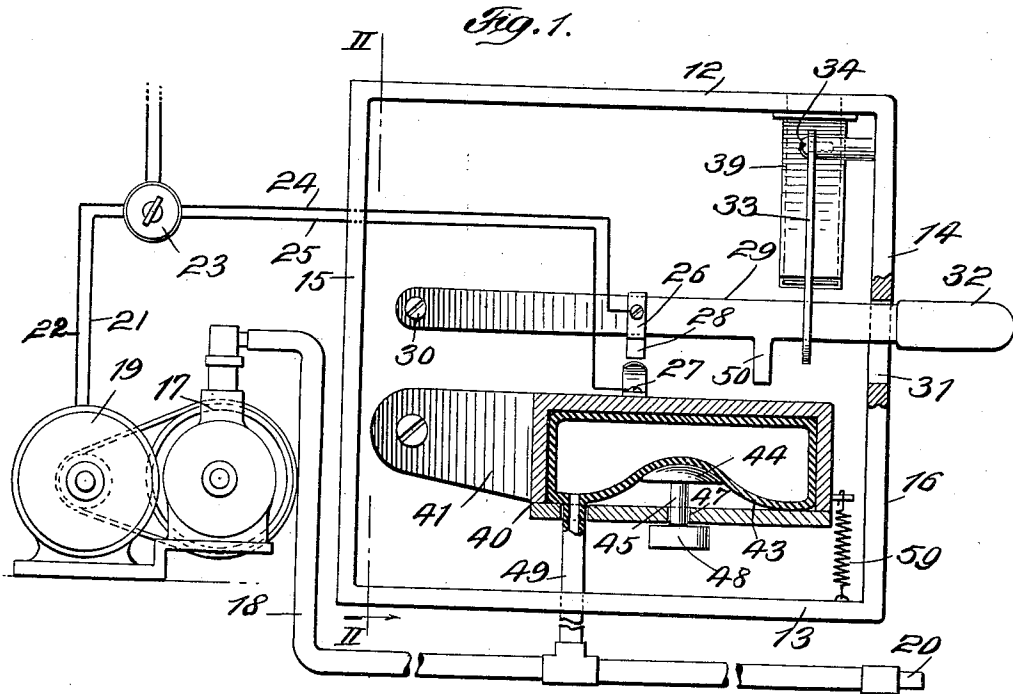


F. A. RUFF.
TIRE INFLATING APPARATUS.
APPLICATION FILED AUG. 26, 1912.

1,098,173.

Patented May 26, 1914.



Witnesses:
Julius A. Ruff
Lillian L. Mayne

Inventor
F. A. Ruff
By his Attorneys
Criswell Criswell

UNITED STATES PATENT OFFICE.

FREDERICK A. RUFF, OF NEWARK, NEW JERSEY.

TIRE-INFLATING APPARATUS.

1,098,173.

Specification of Letters Patent.

Patented May 26, 1914.

Application filed August 26, 1912. Serial No. 717,140.

To all whom it may concern:

Be it known that I, FREDERICK A. RUFF, a citizen of the United States, and a resident of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Tire-Inflating Apparatus, of which the following is a full, clear, and exact description.

This invention relates more particularly to an apparatus in which an electrically operated or controlled pump or source of air supply is adapted to be placed in operation by means adapted to be released by a coin so that air under pressure may be used for inflating the tires of automobiles or for other purposes.

The primary object of the invention is to provide simple and efficient means whereby a source of air supply may be made accessible by electrically controlled means adapted to be released by a coin and said electrically controlled means automatically disconnected so that it shuts off the supply of air when further use of the same is unnecessary.

Another object of the invention is to provide simple and efficient means in which a motor driven pump may be electrically connected to a coin controlled apparatus to adapt the said pump to be placed into operation by dropping a coin into an apparatus independent of the pumping mechanism and thereby permit air from the pump to be utilized for the inflation of automobile tires, and as soon as the tire has become inflated and the connection with the pump detached the electric current will be automatically shut off so that the pump may be stopped or the source of air supply otherwise cut off.

A further object of the invention is to provide simple and efficient pneumatically controlled means by which an electric circuit may be automatically shut off and the said means held against operation except by being released by a coin.

With these and other objects in view, the invention will be hereinafter more particularly described with reference to the accompanying drawings, which form a part of this specification, and will then be pointed out in the claims at the end of the description.

In the drawings, Figure 1 is a front elevation, partly in section and partly diagrammatic of one form of apparatus embodying my invention. Fig. 2 is a vertical section, partly in elevation, of the device, the

section being taken on the line II—II of Fig. 1. Fig. 3 is a fragmentary view of the slightly different form of coin-controlled means; and Fig. 4 shows another form of means for restoring the switch arm to a locked position.

While I show the invention as applied to a particular form or source of air supply, it will be understood that the means for supplying the air for inflating purposes may be of any suitable character, and that such parts, as well as other features of the invention, may be changed without departing from the spirit of the invention.

The casing 10 may be rectangular and of a casting or of any suitable material and may have a rear plate or member 11, a top plate 12, a bottom plate 13 and side members or plates 14 and 15, the open portion being adapted to be closed by a cover plate 16 of any suitable kind and detachably or otherwise held to the casing. A pump 17 of any suitable kind whether reciprocatory or rotary may have a hose connection, as 18, attached thereto and of any desired length, and adapted to drive the pump in an electric motor 19 by which air may be forced through the hose 18 under pressure. The hose may have a pressure gage at any desired point therein to indicate the pressure in the hose and may be provided with a coupling member, as 20, by which the hose may be attached to the usual inflating valve for pneumatic tires so that when the pump is placed in operation as will be presently described air may be forced through the hose and the pneumatic tire inflated instead of by manual means as ordinarily employed. The motor may be connected by the wires 21 and 22 to a suitable socket piece 23 and this socket piece may be electrically connected by the wires 24 and 25 to the terminals 26 and 27, respectively, of an electric switch which forms a part of a normally open electric circuit. The terminal 26 is in the form of a band having a spring contact member or finger 28 and is attached to a switch arm or lever 29. This arm or lever is pivoted at 30 to a part of the casing 10 and has one end extending through a slot 31 in the casing side 14. The outer end of the arm 29 is provided with a handle 32 by which said arm may be forced downward to cause the switch contact 28 to engage the contact or terminal 27 and complete the circuit through the wires 24 and 25, socket 23

and wires 21 and 22 to the electric motor, thereby starting the pump and causing the air to be forced under pressure through the hose 18.

5 A latch or catch 33 is pivotally held at 34 to a lug on the side 14 of the casing. This latch 33 is in the form of a gravity arm and is provided with a cam portion 35 and a slot 36 into which the body of the arm 29 is adapted to pass so as to be partly spanned 10 by the lips 37 and 38 formed in said latch by the slot 36. The cam 35 is in the path of the open end of a coin chute 39 the upper end of which is open for the reception of a 15 coin, as a nickel for example, so that when the coin is dropped into the chute 39 the weight thereof in riding down the cam portion 35 of the latch will force the same to one side thereby releasing the latch from the 20 manually operated arm 29, the coin being sustained in this position to hold the latch temporarily in a released position. As soon as the latch is released, the arm 29 may be forced downward by means of the handle 32 25 to complete the electric circuit through the switch contact members 27 and 28 in which position the arm 29 will be held until released.

To automatically shut off the electric current and to stop the pump, various means 30 may be employed. As shown, a box-like member 40 is provided and this member has an arm 41 extending outwardly therefrom which is pivotally held to a lug 42 arranged 35 on the casing so that the box-like member with its contact 27 may move upward on its pivot. A pneumatic element 43 is located within the box-like member 40 and said element is adapted at its lower surface to rest 40 upon the head 44 of a device 45. This device 45 has a stem portion 46 one end of which passes through an aperture 47 in the bottom of the box-like member 40 and is adapted to rest upon a lug or projection 48 45 extending outwardly from the rear plate member 11 of the casing. This lug forms a lower support for the box-like member 40 and an abutment against which the lower end of the stem 46 is adapted to engage. A 50 pipe or hose connection 49 enters the box-like member 40 at one end and is attached to the pneumatic member 43, and at the other end said connection passes through the casing and is attached to the hose 18 so that 55 the same pressure within the hose 18 will pass through the branch pipe 49 to inflate the member 43 which may be of rubber or other form of device.

It will be evident that when the pump is 60 in operation, the air in going through the branch pipe 49 will inflate and expand the member 43 and will press upon the head 44. The lower end of the device 45 resting upon the fixed lug 48 will cause the member 40 to 65 rock on its pivot and move away from the

lug 48 and in doing so will cause the switch contacts 27 and 28 as well as the lever 29 to move upward therewith. This movement will be such that the arm 29 will again enter the slot 36 and be held against movement by 70 the latch 33 until again released by another coin, as already described. As soon as the coupling 20 is disconnected from the inflating valve of the tire the pressure being reduced will cause the member 43 to be de- 75 flated and this will permit the member 40 to lower either by gravity or by a spring 50 provided for that purpose, one end of said spring being secured to the member 40 and the other end to the casing. The lowering 80 of the member 40 will separate the switch members 27 and 28, thereby breaking the circuit and stopping the motor and consequently the pump. If desired, the operating handle 29 may be provided with a pin 85 or projection 50 to engage the upper portion of the member 40 to assist in raising the operating switch or lever 29 in its upward movement.

In Fig. 3 the construction is substantially 90 the same as in Fig. 2 except that the latch is pressed in one direction by a light spring 51. The latch end has a lip 52 to engage under the switch arm and a recess 53 to receive a projecting part 54 on the said switch 95 arm. The latch as in the other form is released by the weight of the coin and as soon as the arm is operated to close the electric circuit the coin which rests on the top of said arm against the latch will be permitted 100 to drop to the bottom of the casing or into a receptacle provided therefor.

Fig. 4 shows how a cylinder and piston may be used instead of the inflatable element 43. Here the member 55 carries the 105 switch member 28 and is pivoted to swing upward in a similar manner and for the same purpose as the member 40. The member carries a cylinder 56 to one end of which is held the contact 28, and to which is 110 connected the branch pipe 49 from the pump to permit air to enter at one end of said cylinder. A piston 57 is movable in the cylinder and the piston rod 58 passes through the cylinder and bears against the fixed lug 48 115 to raise the member 55 as already described, there being a spring 59 provided to restore the member to its normal position when the air pressure in the cylinder is reduced.

From the foregoing, it will be seen that 120 simple and efficient means is provided whereby pneumatic tires may be inflated by coin controlled means; that simple means is provided whereby an electrically operated pump may be set in action; that the coin con- 125 trolled means is adapted for use in connection with any source of air supply; and that simple means is provided whereby the desired air pressure may be obtained for the proper inflation of the tire. 130

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. The combination of an air pump, an electric motor, an arm, a switch member carried by said arm, a second switch member, means forming an electric connection between the switch members and the motor, means for conveying the air away from said pump under pressure, means adapted normally to hold the arm against movement and adapted to be released to adapt the arm carrying the switch member to be moved relatively to the other switch member to close the circuit, and means connected to the pump adapted to automatically restore the arm to a locked position and to automatically stop the motor and pump by reduction of pressure of the air.
2. The combination of an air pump, an electric motor, an arm, a switch member carried by said arm, a second switch member, means forming an electric connection between the switch members and the motor, means for conveying the air away from the pump under pressure, means adapted normally to hold the arm against movement and adapted to be released to permit the arm carrying the switch member to be moved relatively to the other switch member to close the circuit, and means connected to the pump adapted to automatically restore the arm to a locked position and to automatically stop the motor and pump.
3. The combination of an arm, a switch member carried by said arm, a second switch member, a normally open electric circuit including the switch members, a source of air supply, means for conveying the air under pressure, means included in the electric circuit to shut off or permit the air to flow, means adapted normally to hold the arm against movement and adapted to be released to permit the arm carrying the switch member to be moved relatively to the other switch member to close the circuit, and means whereby the circuit may be automatically opened.
4. The combination of an air pump, an arm, means whereby the arm may stop or permit the pump to operate, means for conveying air away from the pump under pressure, means adapted normally to hold the arm against movement and adapted to be released to permit the arm member to be moved to set the pump in operation; and means connected to the pump adapted to automatically restore the arm to a locked position and to automatically stop the pump.
5. The combination of a switch arm, a movable switch element, means for normally holding the switch arm against movement, means whereby the switch arm may be released to permit the same to be manually operated, a source of air supply, a normally

open electric circuit controlling the source of air supply and connected to the switch members, and means controlled by the pressure of air whereby the switch arm may be automatically restored to a locked position and the circuit automatically broken.

6. The combination of a switch arm, a movable switch element, means for normally holding the switch arm against movement, means whereby the switch arm may be released to permit the same to be manually operated, a source of air supply, a normally open electric circuit controlling the source of air supply and connected to the switch members, and means controlled by the pressure of air whereby the switch arm may be automatically restored to a locked position and the circuit automatically broken.

7. The combination of an arm, means for normally holding the arm against movement, means whereby the arm may be released to permit the same to be manually operated, a source of air supply, and means connected with the source of air supply whereby through the pressure of air the arm may be automatically restored to a locked position and the air supply automatically shut off.

8. The combination of a switch arm, a movable switch element, means for normally holding the switch arm against movement, means whereby the switch arm may be released to permit the same to be manually operated, a source of air supply, a normally open electric circuit controlling the source of air supply and connected to the switch members, and means connected to the source of air supply whereby through the pressure of the air the circuit may be automatically opened and the supply of air shut off.

9. The combination of a switch arm, a movable switch element, means for normally holding the switch arm against movement, means whereby the switch arm may be released to permit the same to be manually operated to close the circuit, a source of air supply, a normally open electric circuit controlling the source of air supply and connected to the switch members, and means connected with the source of air supply whereby through the pressure of the air the circuit may be automatically opened and the supply of air shut off.

10. The combination of a manually operated arm, a source of air supply, switch members having a relative movement and adapted to have the circuit closed there-through by the movement of said arm, a normally open electric circuit controlling the source of air supply and including the switch members, a gravity latch adapted to hold the arm against movement or to permit the same to be released, and bodily movable means connected to the source of air

supply adapted to move the switch members to a position to have the latch lock the arm against movement and to cause the switch members to be moved apart by reduction of pressure of the air to automatically shut off the source of air supply.

11. The combination of a manually operated arm, a source of air supply, switch members having a relative movement and adapted to have the circuit closed there-through by the movement of said arm, a normally open electric circuit controlling the source of air supply and including the switch members, a gravity latch adapted to hold the arm against movement or to permit the same to be released, and bodily movable means connected to the source of air supply adapted to move the switch members to a position to have the latch lock the arm against movement and to cause the switch members to be moved apart by reduction of pressure of the air to automatically shut off the source of air supply.

12. The combination of a manually operated arm, a source of air supply, switch members having a relative movement and adapted to have the circuit closed there-through by the movement of said arm, a normally open electric circuit controlling the source of air supply and including the switch members, a gravity latch adapted to hold the arm against movement or to permit the same to be released, and means connected to the source of air supply adapted to move the arm to have the latch lock the arm against movement and to cause the switch members to be moved apart to automatically shut off the source of air supply.

13. The combination of a source of air supply, a manually operated arm, means whereby the arm may control the source of air supply, means for holding the arm against movement or permitting the same

to be released, a pivotally held member, a pneumatic element carried by said member and connected to the source of air supply, an abutment, a device actuated by the pneumatic element adapted to move the member on its pivot by the pressure of the air from the source of supply to move the arm to a locked position, and means whereby on the reduction of pressure the member may be moved and by such movement shut off the air supply.

14. The combination of a source of air supply, a manually operated arm, means whereby the arm may permit the air to flow from the source of supply, means for holding the arm against movement or permitting the same to be released, a pivotally held member, means carried by said member and connected to the source of air supply, an abutment, a device actuated by the last mentioned means adapted to move the member on its pivot to move the arm to a locked position, and means whereby the member may be moved and by such movement shut off the air supply.

15. The combination of a source of air supply, means whereby the air may be permitted to flow from the source of air supply, a pivotally held member, a pneumatic element carried by said member and connected to the source of air supply, an abutment, a device actuated by the pneumatic element adapted to move the member on its pivot by the pressure of the source of supply, and means whereby on the reduction of pressure the member may be moved and by such movement shut off the source of supply.

This specification signed and witnessed this 23rd day of August A. D. 1912.

FREDERICK A. RUFF.

Witnesses:

LILLIAN I. MAYER,
LESTER C. TAYLOR.