J. E. BURGE.

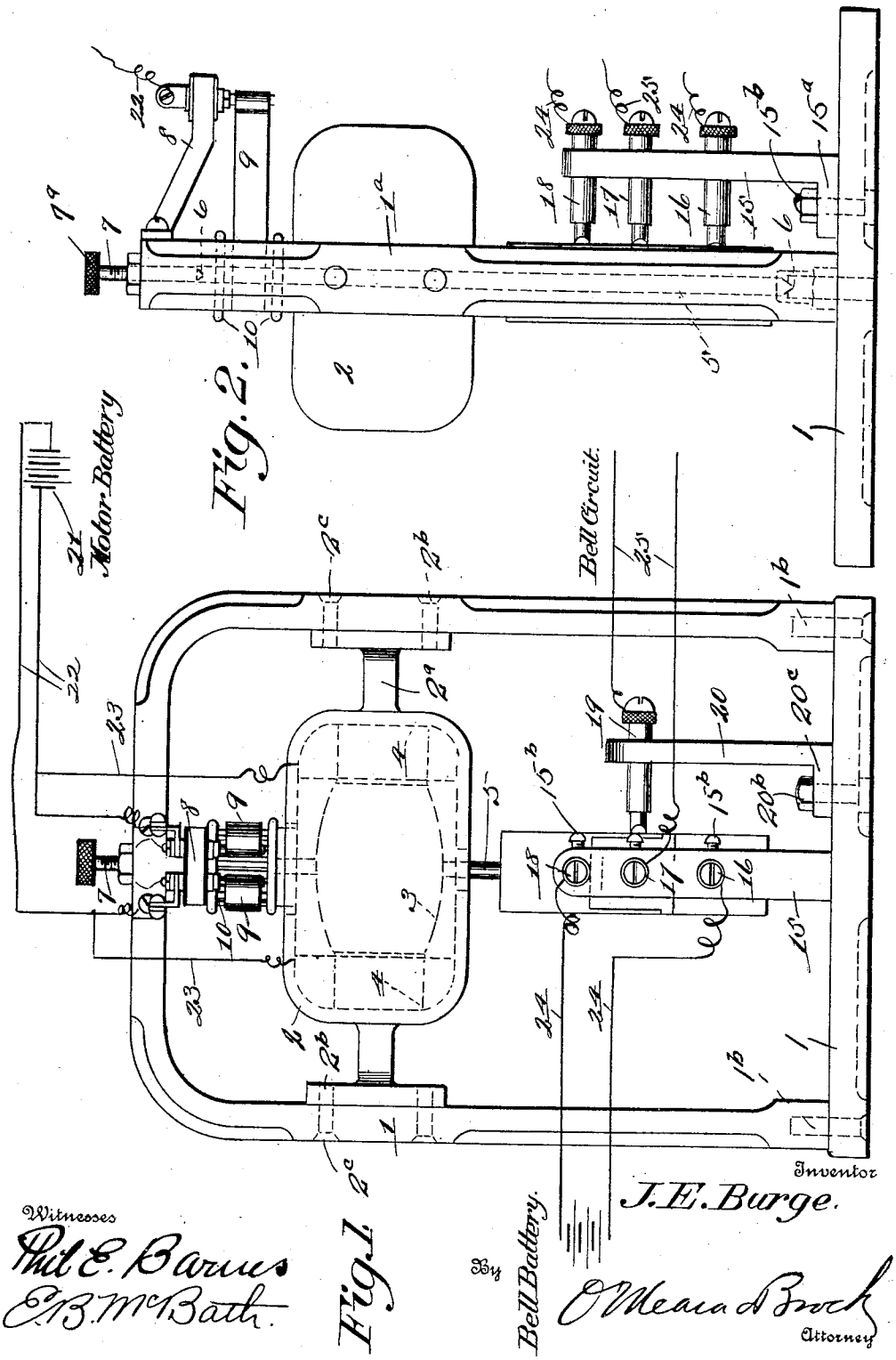
RINGING MACHINE.

APPLICATION FILED DEC. 6, 1907.

973,340.

Patented Oct. 18, 1910.

2 SHEETS—SHEET 1.




Witnesses

Phil E. Barnes

C. B. McBath.

Inventor

J. E. Burge.

By O'Meara & Brock

Attorney

J. E. BURGE.

RINGING MACHINE.

APPLICATION FILED DEC. 6, 1907.

973,340.

Patented Oct. 18, 1910.

2 SHEETS—SHEET 2.

Fig. 5.

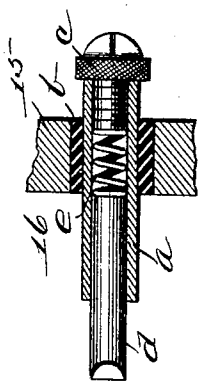



Fig. 4.

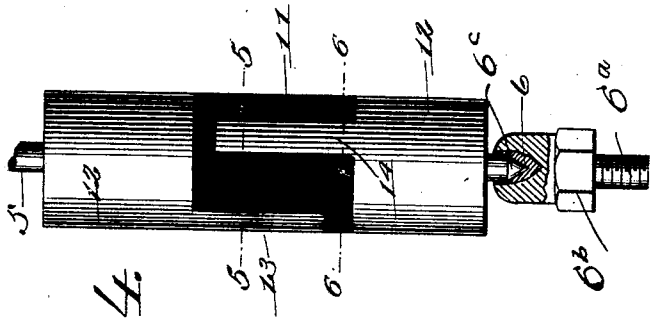
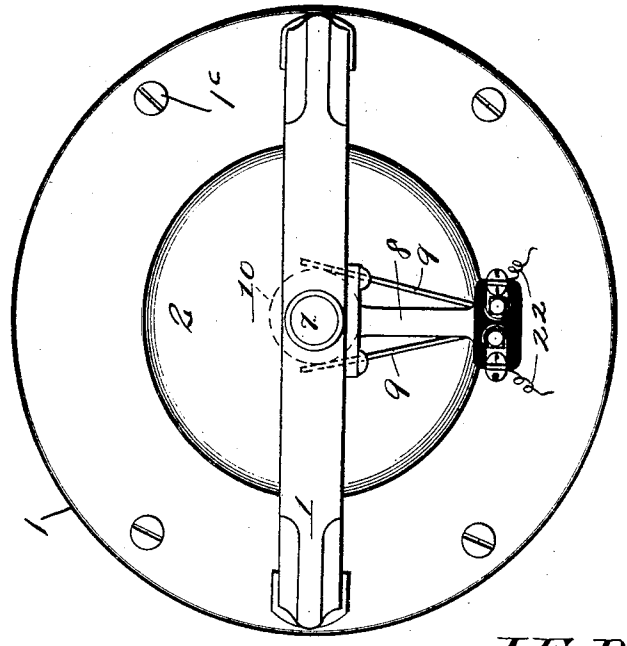



Fig. 3.




Witnesses

Phil E. Barnes

F. B. McBath

Inventor

J. E. Burge.

By O'Meara & Brock

Attorney

# UNITED STATES PATENT OFFICE.

JAMES E. BURGE, OF LINCOLN, NEBRASKA.

## RINGING-MACHINE.

973,340. Specification of Letters Patent. **Patented Oct. 18, 1910.**

Application filed December 6, 1907. Serial No. 405,398.

*To all whom it may concern:*

Be it known that I, JAMES E. BURGE, a citizen of the United States, residing in Lincoln, in the county of Lancaster and State of Nebraska, have invented a new and useful Improvement in Ringing-Machines, of which the following is a specification.

My invention relates to improvements in rotary pole changers of that type comprising a motor, a motor circuit, a circuit maker and breaker mounted upon the armature shaft of the motor, a bell circuit, and brushes included in the bell circuit and contacting with the circuit maker and breaker.

The object of my invention is the provision of a simple, durable and efficient frame structure for a rotary pole changer of the above stated character.

The invention consists of the construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, wherein:—

Figure 1 is a view in side elevation of a rotary pole changer embodying my invention. Fig. 2 is a view in side elevation thereof. Fig. 3 is a top plan view thereof. Fig. 4 is a detail side elevational view of the circuit breaker and maker. Fig. 5 is a sectional view of one of the bell circuit brushes.

My improved frame structure comprises a circular base 1, and an inverted U-shaped member $1^a$ secured at its ends to the base 1 by bolts $1^b$. A bearing member 6 (see Fig. 4 of the drawing) is provided with a screw threaded stem $6^a$ through the medium of which it is secured to the base 1. To permit of its application and removal and to permit of its adjustment by means of a wrench, the bearing member 6 is provided with an angular portion $6^b$. In its upper surface the bearing member 6 is provided with a socket for the reception of a jewel bearing $6^c$. The lower end of an armature shaft 5 is journaled in the bearing 6 and the upper end of the shaft is recessed as at $6^d$ for the reception of the lower end of a bolt 7 which is threadedly mounted in the cross bar of the member $1^a$. To permit of its adjustment the bolt 7 is provided with a milled operating head $7^a$, and the bolt is secured in its adjusted position through the medium of a jam nut $7^b$. The drum armature 3 of a motor is secured to the shaft 5 and is located within a casing 2. The motor casing 2 carries the field coils 4 and is secured to the sides of the member $1^a$ through the medium of arms $2^a$. The arms are formed integrally with the motor casing 2 and project in opposite directions therefrom. The arms $2^a$ are provided with enlarged attaching flanges $2^b$, bolts $2^c$ passing through the sides of the frame $1^a$ and engaging the attaching flanges $2^b$. An arm 8 extends downwardly and forwardly from the cross bar of the member $1^a$ and carries the brushes 9 of the commutator 10. The motor is supplied with current from a battery 21, wires 22 leading from the battery to the armature brushes 9, and wires 23 lead from the wires 22 to the field coils 4. The motor is of the usual construction and mounted upon the armature shaft 5 thereof is a circuit breaker and maker of the usual construction.

By reference to Fig. 4 it will be seen that the circuit breaker and maker comprises metallic contact cylinders 12, and metallic contact fingers 13 separated by insulation 11. The brushes 16 and 18 of a bell circuit contact with the cylinders 12 and are connected to the bell battery by wires 24. The brushes 17 and 19 of the bell circuit contact with the fingers 13 and are connected to the bell by wires 25. The brushes 16, 17 and 18 are carried by a vertical standard 15 which is provided at its lower end with a horizontally disposed attaching flange $15^a$. The standard 15 is secured to the base 1 through the medium of a bolt $15^b$ which passes through the base and through the flange $15^a$. The brush 19 is carried by a vertically disposed standard 20 which is provided at its lower end with a horizontally disposed attaching flange $20^a$, this standard being secured to the base by a bolt $20^b$ which passes through the base and through the flange. Each of the brushes 16, 17, 18 and 19 comprise a cylinder *a* mounted in the sleeve of insulation *b* which is located in an opening $15^c$ formed in the standard. The sleeve *a* carries a brush *d* and a threaded bolt $15^d$, and mounted between the brush and the bolt is a coiled expansion spring 16. The bolt $15^d$ retains the spring 16 in applied position and provides means by which the tension of the spring may be adjusted. The bolt is held against movement by a jam nut $15^e$. The pole changer is adapted to be secured in applied position through the medium of bolts $1^c$ passing through the base 1 and engaging a suitable support.

From the foregoing description, taken in

connection with the accompanying drawings, it should be apparent that I provide a frame structure which will permit the parts of a rotary pole changer to be compactly assembled, and which is simple, durable and efficient.

Having thus described the invention, what I claim is:—

A frame structure for pole changers, comprising a horizontal base, an inverted U-shaped member secured at its ends to the base, a bearing member threadedly secured to the base, a bolt secured to the cross piece of the U-shaped member in vertical alinement with the bearing, a motor casing, arms secured to the ends of the motor casing and extending in opposite directions therefrom, attaching flanges secured to the ends of the arms and secured to the sides of the U-shaped member, and vertically disposed brush supporting standards, each standard being provided with a horizontally disposed attaching flange secured to the base.

J. E. BURGE.

Witnesses:
FRANK PARSONS,
W. H. CAWGRU.