(No Model.) 2 Sheets—Sheet 1.

J. A. MARSH.

DYNAMO BRUSH HOLDER.

No. 589,904. Patented Sept. 14, 1897.

Fig. 1

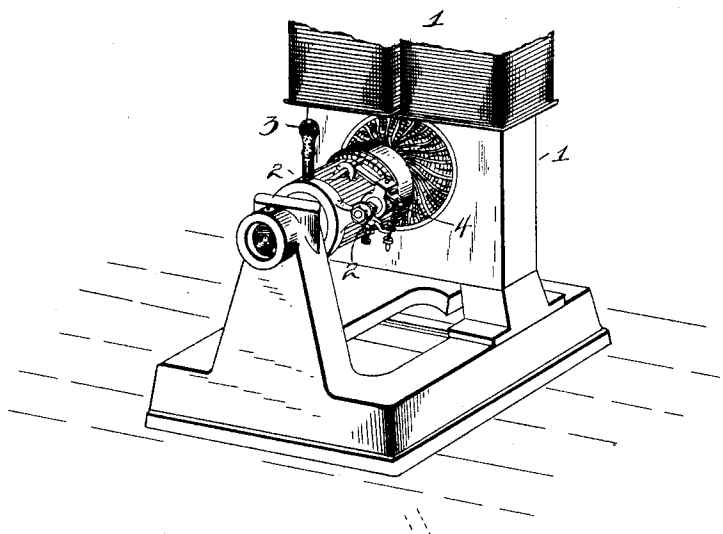


Fig. 2

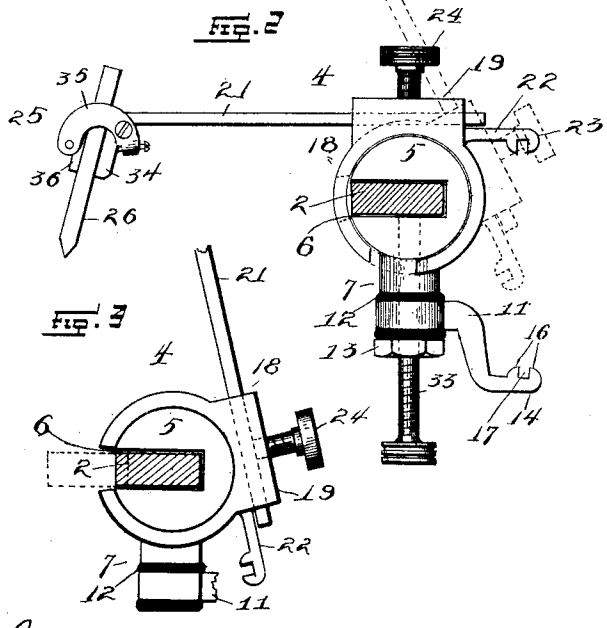


Fig. 3

Witnesses
Geo. F. Lane
A. F. Dooley.

Inventor
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2

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Fig. 4

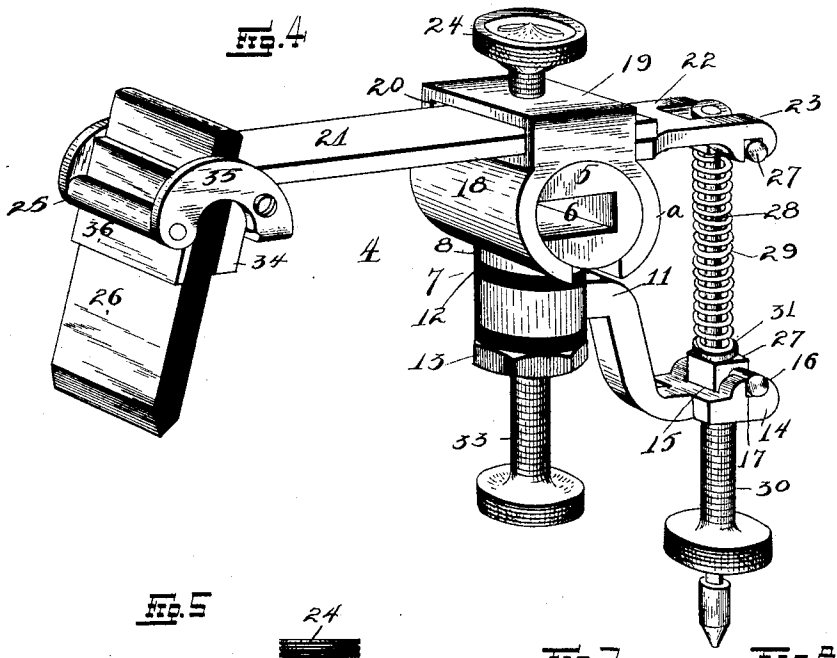


Fig. 5

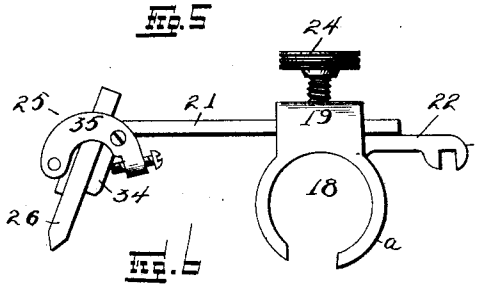


Fig. 6

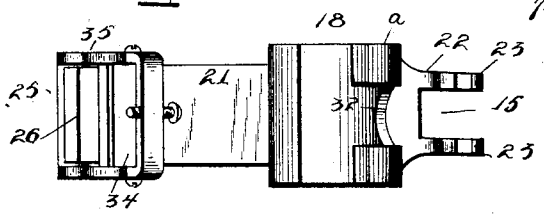


Fig. 7

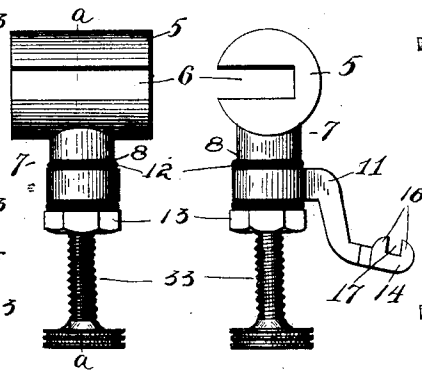


Fig. 8

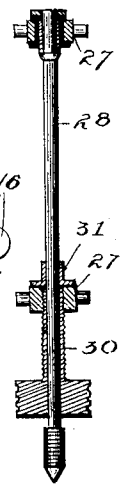


Fig. 10

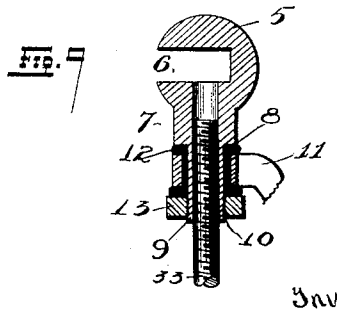


Fig. 9

Witnesses:
Geo. F. Lane
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Inventor.
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UNITED STATES PATENT OFFICE.

JOHN A. MARSH, OF ST. LOUIS, MISSOURI.

DYNAMO BRUSH-HOLDER.

SPECIFICATION forming part of Letters Patent No. 589,904, dated September 14, 1897.

Application filed January 9, 1897. Serial No. 618,519. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. MARSH, of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Dynamo Brush-Holders, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in a dynamo brush-holder; and it consists in the novel arrangements, construction, and combination of parts, as will be more fully hereinafter described, and set forth in the claims.

The object of my invention is to construct a brush-holder which is applied to the quadrant-bar of a dynamo or motor and is so arranged that any time without stopping the machine the entire device may be removed therefrom for the purpose of cleaning and removing any part which may need attention.

By this device the brush is always brought in close positive electrical contact with the commutator of the machine, and the said brush can be used until it is worn down to the extent of the length held in the clamp of the holder.

The device is adjustably constructed, and the brush carried by the holder is regulated to make its contacts by a spring-pressure forming a part of said device, and the construction of said device will be more fully hereinafter described.

Referring to the drawings, Figure 1 is a perspective view of a dynamo with parts broken away, showing my device applied thereto. Fig. 2 is a side view of my device, showing a portion of itself tilted by dotted lines. Fig. 3 is a side view of a portion of the device in a tilted position with parts broken away. Fig. 4 is a perspective view of my complete invention detached from the machine. Fig. 5 is a detail side elevation of a portion of my device carrying the brush. Fig. 6 is a bottom plan view of the same. Fig. 7 is a face view of the portion of the device which is secured to the quadrant-bar. Fig. 8 is a side view of the same. Fig. 9 is a vertical sectional view taken on the line *a a* of Fig. 7. Fig. 10 is a vertical sectional view of the spring-supporting device.

In the drawings, 1 indicates an ordinary dynamo or motor, and has upon itself to regulate the position of brush-holder a quadrant and a quadrant-bar 2 of the usual construction, and is operated by a handle or lever 3.

To the quadrant-bar 2 my device 4 is secured, which consists of a cylindrical-shaped casting or disk 5, formed with an elongated slot 6, provided for the purpose to be placed over the said quadrant-bar 2. The said cylindrical-shaped casting or disk 5 has formed at its under side a downwardly-extending projection 7, forming a collar 8, (see Fig. 9,) terminating to a smaller projection 9, and is provided at its lower end with screw-threads 10. To this projection is held an arm 11, thoroughly insulated from the entire casting by ordinary insulating material 12, and said arm is held in position by means of a nut 13, placed upon the lower end of the projection 9. The said arm 11 is provided at its one end with prongs 14, forming between them a U-shaped opening 15, and each prong is provided with lugs 16, forming a recess 17, for the purpose hereinafter set forth.

Over the cylindrical-shaped casting 5 is placed a hollow similar-shaped casting 18, provided at its upper end with a projection 19, in which is an opening 20, which is for the purpose to allow the adjustment of a rod 21. To the rear of the projection 19 and forming a part thereof is an arm 22, provided with prongs 23. Said prongs are constructed identically the same as those previously mentioned, only being reversed. (See Figs. 2 and 4.)

To the top of the projection 19 is provided a thumb or set screw 24, which is used to tighten and firmly hold the rod 21 at its adjusted position in the opening 20.

To the end of the rod 21 is provided an angular clamp 25, in which the carbon brush 26 is firmly held. In this clamp any brush may be used—for example, such as carbon, copper, &c.—but preferably carbon, as it prevents any sparking upon the commutator.

Within the recess 17, formed in the prongs 14 and 23, are placed and held spring-supports 27. The top support 27 is thoroughly insulated from the rod 28, connecting said supports. Said rod 28 is also a guide for the spring 29.

To the lower support 27 is secured a thumb-

screw 30, having an opening through its center, and through which the rod 28 is adapted to slide. This thumb-screw 30 is for the purpose to adjust the tension of the spring 29, as the spring has its lower end resting upon a collar 31, located immediately above the screw 30.

The casting 18 is provided at its rear side *a* with a slot 32. This slot allows the said casting to be tilted, as shown in Fig. 3 and by dotted lines in Fig. 2. This is necessary when the operator desires to remove the holder from the quadrant-bar.

The portion *a* of the casting 18 is so arranged that when said casting is in position upon the casting 5 the prongs on each side of the slot 32 of the portion *a* rest against a slight portion of the projection 7, acting as a guide, and thus preventing the casting 18 from becoming disconnected from the casting 5 when in operation upon the machine.

The device is held to the quadrant-bar by a set or thumb screw 33, which passes through the projection 7, communicating with the bar 2 when placed in the slot 6, making a positive mechanical and electrical connection.

When it is desired to remove the device from the quadrant-bar 2, the operator removes the spring-supporting device from the arms 22 and 11, and then the casting 18 is tilted in the position as shown in Fig. 3. The set or thumb screw 33 is then released and the device is removed from the quadrant-bar 2. This is done one at a time when more than one holder is in operation upon the machine, thus enabling the operator or attendant to keep all of the parts of said holder in first-class condition during the run without effecting the efficiency of the machine.

The clamp 25 is composed of a bar 21, having its one end bent forming an angular extension 34, forming a rear support for the carbon. To the extension 34 is pivotally connected a segment or locking device 35.

Between the segment or locking device is secured a plate 36, which is adapted to be brought in contact with the carbon by means of a screw centrally situated at the rear of the extension 34 through the horizontal portion of the segment, thus bringing the two flat surfaces of said plate and extension in close contact with said carbon, serving a perfect mechanical and electrical connection.

The detachable spring-holder is mechanically arranged so as to allow its being removed by simply compressing the spring, and the position of the spring and its supports will allow said spring to be compressed until it is entirely closed, giving an equal and even tension at whatever point it may be set, enabling the operator to take off said brush-holder, and when it is replaced the tension of the spring will remain the same as it was before the holder was taken off the quadrant-bar.

The object of insulating the spring-holder and the spring-supporting arm is to provide a way to prevent the current of electricity from passing through the spring, which when prevented will cause the spring to retain its temper and elasticity for an indefinite time.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An improved dynamo brush-holder, having a casting provided with a slot adapted to be fitted over a quadrant-bar of a machine, a casting movably secured to the casting held to the quadrant-bar, a bar adjustably secured to said movable casting, a clamp placed upon the end of said bar, said clamp carrying a brush, said movable casting regulated by a spring, said spring connecting both castings substantially as shown and described.

2. An improved dynamo brush-holder having a cylindrical-shaped casting, said casting provided with a slot to be placed over a quadrant-bar, said casting provided with a projection, a set or thumb screw placed in said projection, said screw holding said casting to the quadrant-bar, making a positive mechanical and electrical connection, an arm secured around the projection and insulated therefrom, said arm provided with prongs, said prongs carrying and supporting spring-supports, a casting movably secured to the casting by which the device is held to the quadrant-bar, said casting carrying a bar, said bar adjustably secured to said casting and held by a screw, an arm extending from the said casting, said arm also provided with prongs, a spring-support guided and held by said prongs, said spring-supports connected by a spring, for the purpose as shown and described.

3. An improved dynamo brush-holder having a cylindrical T-shaped casting provided with an opening, said casting secured to the quadrant-bar of the machine, a casting provided with an opening to fit over the cylindrical T-shaped casting an opening formed in the top of said casting, a bar adjustably held in said opening, a brush-clamp secured to said bar, arms connected to both castings, a spring communicating with both arms, for the purpose as shown and described.

4. An improved dynamo brush-holder composed of a circular sleeve having on its upper side an extension, said sleeve adapted to slip over the cylindrical-shaped casting, a slot cut in said sleeve to correspond with the opening in the cylindrical-shaped casting, an opening or slot centrally located and cut from the under slot, around and to the rear side of said sleeve, said slot to act as a guide for said sleeve when in operation by spanning the projection formed on said cylindrical casting, arms formed on said castings, a spring connecting said arms but insulated therefrom, for the purpose to guide the brush and give it necessary tension, substantially as set forth.

5. An improved dynamo brush-holder having journaled spring-bearing blocks, a rod insulated but secured to said spring-blocks,

a hollow thumb-screw placed over said rod and in contact with a collar, said screw passing through one spring-block for the purpose to gage the tension of said spring, said rod constructed at its lower end with an elongated enlargement for the purpose to prevent said rod from slipping out of said screw, arms supporting spring-blocks, said spring-blocks located in recesses formed in the arms, said arms secured to both castings, said castings movably connected to each other, yet connected to the quadrant-bar, substantially as set forth.

6. An improved dynamo brush-holder, composed of a casting, provided with a horizontal elongated disk, said disk provided with an elongated opening throughout its entire length, a downwardly-projecting extension forming part of said disk, a casting having a portion of itself formed with a sleeve, said sleeve provided at its lower end with a slot of the same width as the extension formed on the disk, a slot formed on the rear side of said sleeve extending from the horizontal slot to the under side of the arm formed on said casting, said sleeve adapted to slide over said disk, and be tilted thereon, said sleeve provided with a projection, said projection provided with a horizontal elongated opening, a bar carrying the brush adapted to be adjusted therein, substantially as set forth.

7. An improved dynamo brush-holder, having a sleeve carrying the brush, said sleeve adapted to fit and be held and tilted upon a circular disk, said disk secured to a quadrant-bar by means of a set-screw, said screw located in the downwardly-extending projection, an arm secured to said sleeve and one arm secured to the projection but thoroughly insulated therefrom, a spring communicating with said arms, and guided by a rod, substantially as shown and described.

8. An improved dynamo brush-holder, the combination of a disk, said disk adapted to be placed and held to a quadrant-bar by means of a set or thumb screw, of a sleeve movably placed over said disk, a rod carrying the clamp and brush held by said sleeve, said sleeve provided with slots for the purpose to allow its movement upon said disk, a spring guided by a rod, and resting upon blocks, said blocks supported by arms secured to the sleeve and disk, said spring used for the purpose to adjust the tension of the brush as it wears always bringing it in close electrical contact with the commutator of the machine, substantially as set forth.

9. An improved dynamo brush-holder, the combination of a disk, of an extension formed on the bottom of said disk, a bore formed in said extension, a set or thumb screw placed in said bore, an arm secured around said extension, and insulated therefrom, a nut holding said arm in position upon the extension, a horizontal opening formed in said disk, a sleeve adapted to be movably secured over said disk, a bar held in an opening formed in said sleeve, said bar held to its adjustment by a screw formed in the top of said sleeve, a clamp formed on the end of said bar, said sleeve and disk provided with an arm, said arms supporting a spring, said spring regulating the tension brought by said brush, substantially as set forth.

10. An improved dynamo brush-holder composed of a casting adapted to be held to a quadrant-bar, said casting having an elongated opening in the side thereof, said opening of sufficient size to slip over said quadrant-bar, a circular projection extending from said casting and at right angles thereto, a collar formed on said circular projection, for the purpose to act as a guide, and a shoulder, intended as a support, against and around which is placed an insulating-washer, an arm placed upon said projection, the end of said projection provided with threads, a threaded nut placed thereon, for the purpose of insulating and holding said arm mechanically secure, a bore formed through said circular projection longitudinally, a screw inserted in said bore for the purpose of forming a positive mechanical and electrical connection to said quadrant-bar, a sleeve placed over said casting, said sleeve carrying a brush, substantially as set forth.

11. An improved dynamo brush-holder composed of a casting adapted to be secured to the quadrant-bar of a dynamo, a casting formed with a sleeve, said sleeve adapted to slide over said casting, a bar adjustably secured to said sleeve-casting, a clamp formed on the end of said bar, said clamp composed of a segment, a plate secured to said segment, a screw adapted to adjust the said clamp, a brush placed in said segment between the plate and bar, substantially as set forth.

12. An improved dynamo brush-holder having a clamp, said clamp composed of a segment or locking device pivotally secured to a bar, a plate secured to said segment, a screw placed in said segment, said screw bearing against the extension of the bar for the purpose of tightening said clamp, a carbon or brush held in said segment between the plate and bar, said bar adjustably held to a casting, said casting provided with a sleeve, said sleeve mounted upon a cylindrical-shaped casting, said casting placed upon a quadrant-bar of a dynamo, substantially as set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN A. MARSH.

Witnesses:
ALFRED A. EICKS,
GEO. F. LANE.