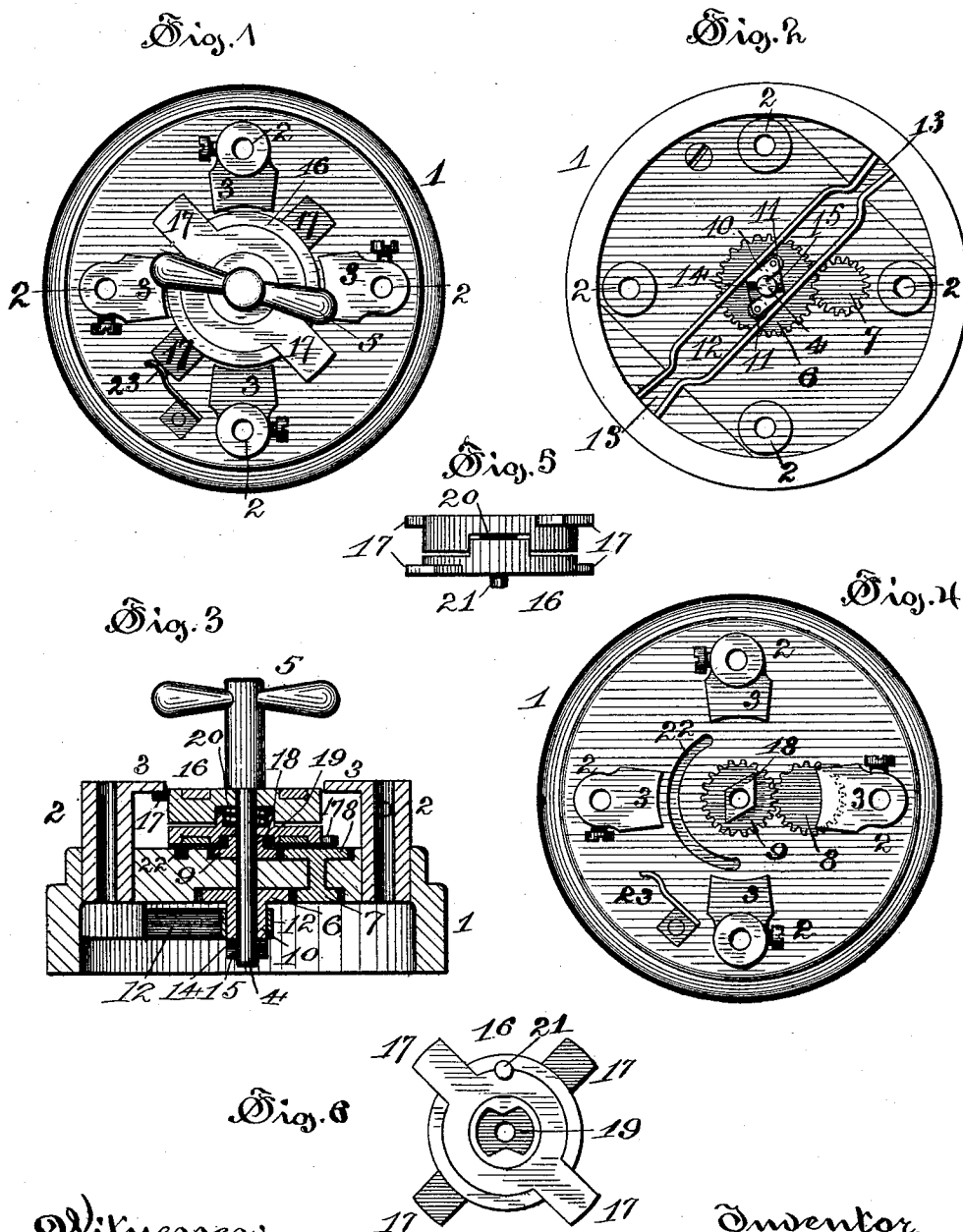


(No Model.)

J. S. GIBBS.
ELECTRIC SWITCH.

No. 480,694.

Patented Aug. 9, 1892.



Witnesses:
C. E. Buckland.
Charles H. Langley

Inventor,
Jacob S. Gibbs, by
Harry R. Williams
Att'y.

UNITED STATES PATENT OFFICE.

JACOB S. GIBBS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE PERKINS ELECTRIC SWITCH AND MANUFACTURING COMPANY, OF SAME PLACE.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 480,694, dated August 9, 1892.

Application filed February 27, 1892. Serial No. 423,005. (No model.)

To all whom it may concern:

Be it known that I, JACOB S. GIBBS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Electric Switches, of which the following is a full, clear, and exact specification.

This invention relates to the class of switches for opening and closing circuits conveying high-tension currents of electricity, the object being to provide a simple and cheap switch of this class in which the distance traveled by the moving poles is so great and their motion so rapid that a current of high tension can be cut off without arcing or burning out the poles.

To this end the invention resides in a switch having a base supporting fixed poles, with movable poles adapted to connect them, a handle connected with the movable poles by gearing to increase their movement, and a spring to accelerate the motion of the poles, as more particularly hereinafter described, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a plan of the switch. Fig. 2 is a bottom view. Fig. 3 is a vertical section. Fig. 4 is a plan with the movable poles and handle removed. Fig. 5 is an edge view of the movable poles, and Fig. 6 is a bottom view of the same.

In the views, 1 indicates a base formed to any desirable shape of insulating material, as wood, porcelain, or composition, having on one side four binding posts or tubes 2, provided with suitable binding-screws for the attachment of the circuit-wires, and on each of these posts is a fixed pole 3, two of which project on a level with the surface of the base and two at a distance from the base. On one side of the base, preferably in a socket in the bottom, journaled on the spindle 4 of the handle 5, is a gear 6, which meshes with a pinion 7, secured to a gear 8, that meshes with a gear 9, journaled on the spindle 4 on the upper side of the base. The gear 6 has an oblong or diamond-shaped hub 10, preferably provided with friction-rollers 11, that lie between a pair of stiff springs 12, that extend across the bottom with their ends held in pockets 13,

formed in the base. A pin 14 projects from the spindle 4 into a somewhat-larger socket 15 in the hub 10 of the gear 6, so that the spindle is loosely and rotarily connected with the gear. Loosely journaled on the spindle near the handle is a bed 16, of insulating material, that bears the movable poles 17, which are adapted to connect or disconnect the fixed poles, according to the position of the bed. The gear 9 is provided with an oblong or diamond-shaped hub 18 on its upper surface, and this hub lies in a socket 19 in the bottom face of the bed. This socket is of a size that allows the bed a little independent movement; but it is not large enough to allow the hub to make a revolution without moving the bed.

In the form of switch shown, but it is not essential, the bed is formed of two blocks of insulating material together, so that while they rotate co-operatively they are free to adjust toward or from each other to insure that the poles which are upon opposite surfaces of the different blocks will make good contact with the fixed poles, and to accomplish this a spring 20 is placed in a socket between the parts to press them from each other into the plane of the fixed poles. A pin 21 projects from the lower part of the bed into a socket 22 in the base forming a stop to prevent the bed from moving too far, and a spring 23 is secured to the upper surface of the base to act as a detent and prevent the poles from moving until the proper time. When the handle is turned, the spindle moves freely until the pin 14 comes in contact with the walls of the socket 15 in the hub 10, which is then moved by the handle until the longest diameter of the hub is between and forces apart the springs; but when the longest diameter has passed between the springs they throw the hub forward suddenly, and this rotates the gear 6, which through the pinion 7 and its gear 8 rotates the gear 9, whose hub 18 throws the bed, with the movable poles, to make or break contact with the fixed poles. Through this arrangement of gears in train—that is, the set of cog-wheels and pinions in series through which motion is transmitted in regular consecution—the wheels intervening in series between the handle and one set of movable poles, the motion of the bed bearing the movable poles is

multiplied, and as the handle is loosely connected with the gears and the gears are loosely connected with the bed the poles are not moved until after the handle has turned the diamond past the center, and then the springs throw the gears and bed with a rapid motion. With this construction the motion of the movable poles is so multiplied that the distance they travel is multiplied, as well as the velocity of their movement, which insures a quick and long break that will prevent the arcing of a high-tension current of electricity.

I claim as my invention—

1. A switch consisting of a base, fixed and movable poles supported thereon, a handle connected with the movable poles, and a train of multiplying-gears interposed between the handle and movable poles, substantially as specified.

2. A switch consisting of a base, fixed and movable poles supported thereon, a handle connected with the movable poles, a train of multiplying-gears interposed between the handle and movable poles, and a spring actuated by the movement of the handle, substantially as specified.

3. A switch consisting of a base, fixed and movable poles supported thereon, a handle, multiple gearing, one of which is loosely at-

tached to said handle, and a spring between the arms of which a projection on the handle is arranged to move, as and for the purposes specified.

4. A switch consisting of a base, fixed and movable poles supported thereon, a handle, and multiple gearing, one of which is loosely connected with said handle and another of which is loosely connected with the movable poles, substantially as specified.

5. A switch consisting of a base, fixed and movable poles supported thereon, a movable bed formed of two movable spring-pressed pieces tenoned together bearing poles, and a handle connected with the bed by gearing, substantially as specified.

6. A switch consisting of a base, fixed and movable poles supported thereon, a movable bed bearing poles, and a handle and gears, said handle connected by means of a pin that projects into an enlarged socket in a spring-controlled hub on one of the gears, another of said gears being connected with the bed by means of a hub projecting into an enlarged socket in the bed, substantially as specified.

JACOB S. GIBBS.

Witnesses:

H. R. WILLIAMS,
C. E. BUCKLAND.