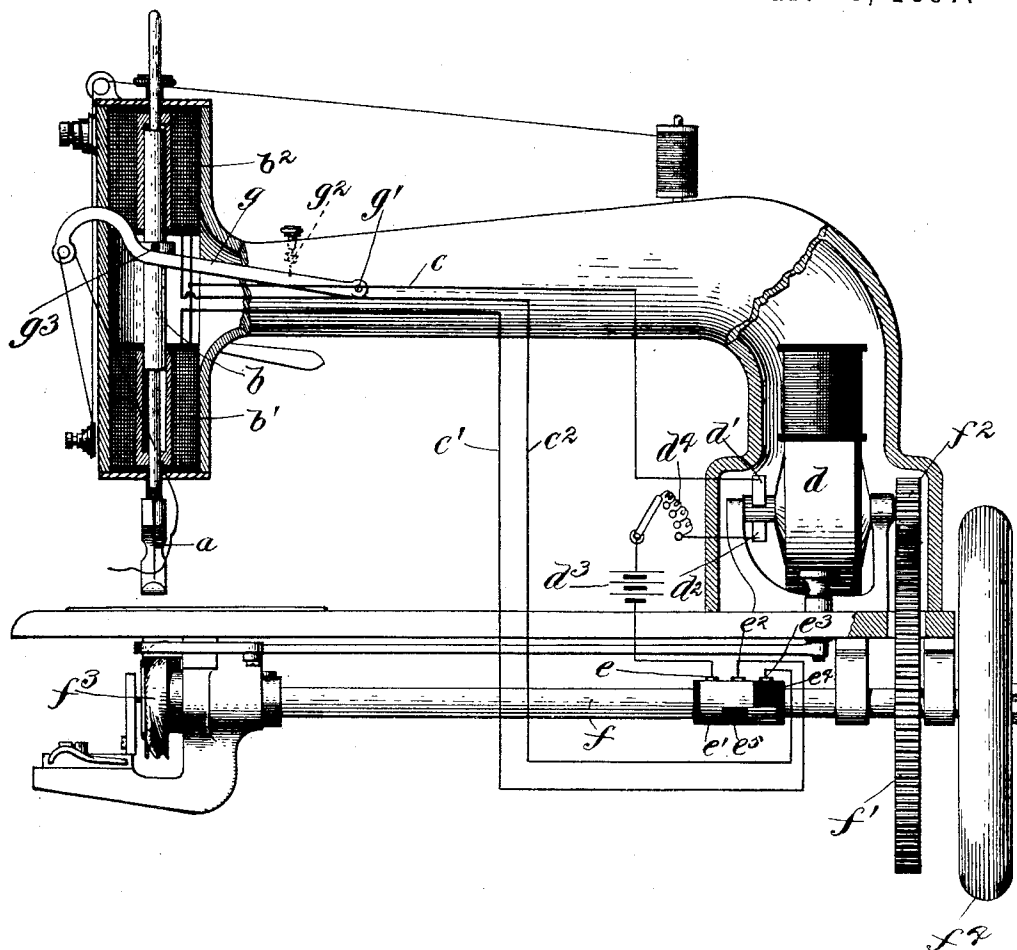


(No Model.)

J. S. BIGGAR.
ELECTRICALLY OPERATED SEWING MACHINE.

No. 579,511.

Patented Mar. 23, 1897.



WITNESSES:

Dr. H. H. C. Sannet.
W. Clyde Jones.

INVENTOR:
JOHN S. BIGGAR

BY *Parton & Brown*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN S. BIGGAR, OF CHICAGO, ILLINOIS.

ELECTRICALLY-OPERATED SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 579,511, dated March 23, 1897.

Application filed January 8, 1896. Serial No. 574,688. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. BIGGAR, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Electrically-Operated Sewing-Machines, (Case No. 2,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to electrically-operated sewing-machines, its object being to provide an improved form of machine wherein the needle, the shuttle, and other moving parts are electrically operated and controlled.

In accordance with my invention I preferably mount the needle upon the lower end of a solenoid-core adapted to be reciprocated through the agency of two solenoids which are alternately energized, the circuits through the solenoids being controlled by suitable switch mechanism. I employ a rotary shuttle and gear the shaft upon which the shuttle is mounted to an electric rotary motor which is mounted within the frame or standard of the machine. I provide upon the shaft switch-contacts adapted to control the circuit through the solenoids that reciprocate the needle.

I will describe my invention more in particular by reference to the accompanying drawing.

The needle *a* is mounted upon the lower end of a core *b*, adapted to be reciprocated by a pair of solenoids *b'* *b''*. The solenoids *b'* *b''* are connected with a common conductor *c*, which extends to the brush *d'* of a rotary electric motor *d*, the circuit then extending through the armature of the motor to the brush *d''*, thence through a controlling-rheostat *d'* and battery or source of electricity *d''* to a brush *e*, resting against the metallic face *e'* of the rotating switch-cylinder. Upon the cylinder *e'* also rest brushes *e''* *e'''*, the brushes *e''* *e'''* being adapted to alternately engage the metallic surface *e'* of the cylinder. During the time that one of the brushes, say *e''*, is in engagement with the metallic cylinder *e'* the other brush, *e'''*, is in contact with the strip of in-

sulation *e''*. When the brush *e'''* is in contact with the metallic surface of the cylinder, the brush *e''* engages the insulating-strip *e''*. The brush *e''* is connected by a conductor *c'* with the solenoid *b'*. The brush *e'''* is connected by the conductor *c''* with the solenoid *b''*. The shaft *f*, upon which the switch-contacts are mounted, is geared to the motor *d* through the agency of the gear-wheel *f'* and pinion *f''*. As the shaft *f* rotates the brush *e* remains continuously in engagement with the surface *e'* of the cylinder, while the brushes *e''* and *e'''* alternately engage the metallic surface. Thus current is alternately directed through the solenoids *b'* *b''*, and the core *b* is reciprocated to reciprocate the needle *a*. A lever *g*, pivoted at *g'* and yieldingly maintained in an elevated position by the spring *g''*, is provided in the end with an eye through which the thread may be passed, the lever being engaged by a pinion or projection *g'''*, carried upon the core *b*, so that as the core reciprocates the lever *g* is oscillated to feed the thread forward. The spring *g''* serves to maintain the needle in an elevated position when the machine is not in operation. The rotary shuttle *f'''* is mounted upon the end of the shaft *f*, and a fly-wheel *f''''* is provided upon the opposite end.

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

In an electrically-operated sewing-machine, the combination of a needle-holder, a pair of solenoids adapted to reciprocate the same, a rotary shuttle with a shaft upon which said shuttle is mounted, a circuit-controlling switch adapted to control the circuits through said solenoids, and a motor contained within the frame or standard of the machine adapted to rotate said shaft and the shuttle and switch mounted thereon, substantially as described.

In witness whereof I hereunto subscribe my name this 27th day of November, A. D. 1895.

JOHN S. BIGGAR.

Witnesses:

JOHN W. SINCLAIR,
W. CLYDE JONES.