

E. W. SERRELL, Jr.  
 Electrical Regulator for Reeling Silk from Cocoons.

No. 202,125.

Patented April 9, 1878.

Fig. 1.

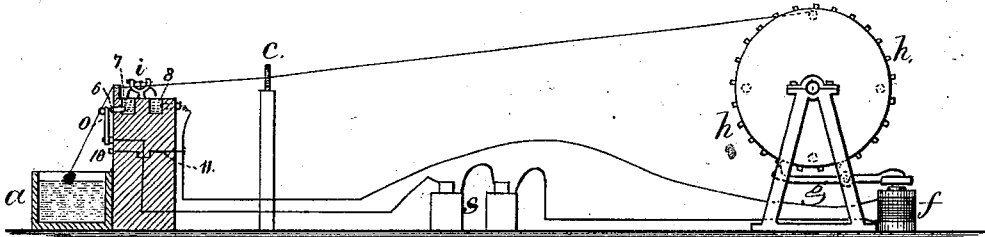


Fig. 4. i.

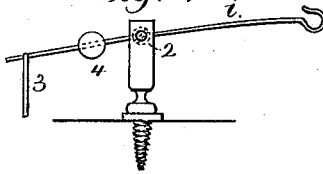


Fig. 2.

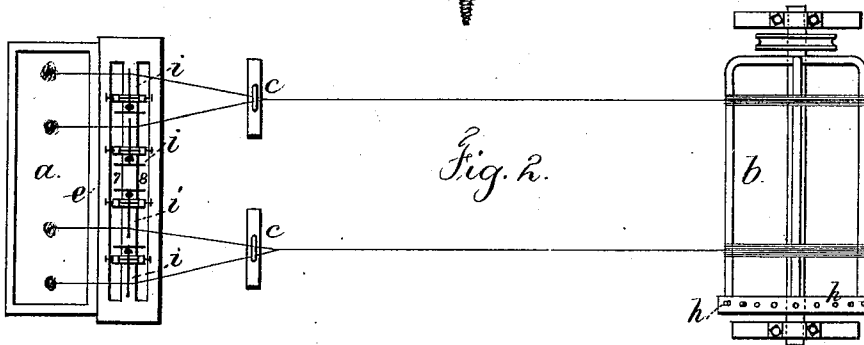
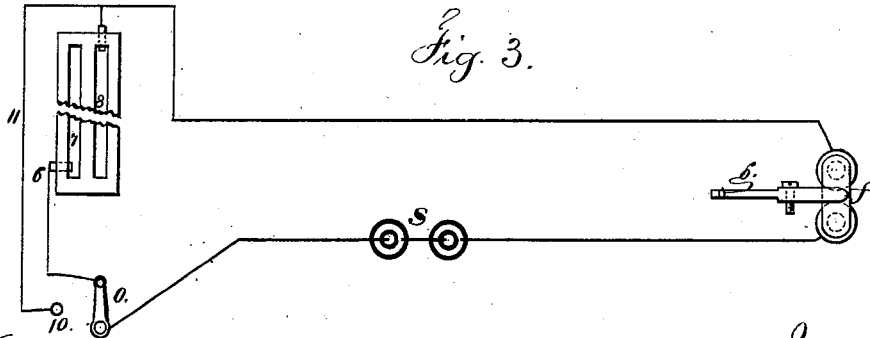


Fig. 3.



Witnesses

Chas. H. Smith  
 Geo. T. Finckney

Inventor

Edward W. Serrell, Jr.  
 per Lemuel W. Serrell  
 atty.

# UNITED STATES PATENT OFFICE.

EDWARD W. SERRELL, JR., OF CASTLETON, NEW YORK.

## IMPROVEMENT IN ELECTRICAL REGULATORS FOR REELING SILK FROM COCOONS.

Specification forming part of Letters Patent No. **202,125**, dated April 9, 1878; application filed June 13, 1877.

### *To all whom it may concern:*

Be it known that I, EDWARD W. SERRELL, Jr., of Castleton, in the county of Richmond and State of New York, have invented an Improvement in Reeling Silk from Cocoons, of which the following is a specification:

In reeling silk from cocoons the operator has to exercise great care to preserve the continuity of the delicate filament, because if one of these threads breaks and it is unobserved, the twist, warp, or other thread or tram of silk is defective and weak at that particular point.

In consequence of the care necessary in reeling silk, but little of it is done in this country, and there being no automatic device for stopping the reel, the operator frequently connects the end of the broken filament to the others, leaving a space that is defective.

The object of the present invention is to stop the reel automatically the instant that the filament of silk gives out or breaks, so that there may be no defects in the thread. This is accomplished by an electro-magnetic stop or brake applied to the reel, and brought into action by a circuit-closer that is moved by the thread. This circuit-closer is necessarily of the most delicate character, so as not to interfere in the reeling operation. I also provide a switch, that is moved to throw the brake into or out of action upon the reel at the option of the attendant, so as to allow the reel to be started or to be stopped at any desired time.

In the drawing, Figure 1 is an elevation of the reel and brake or stop-motion. Fig. 2 is a plan of the same. Fig. 3 is a plan of the mercury-troughs and circuit-connections, and Fig. 4 is an elevation of one of the levers in larger size.

The water-box *a*, reel *b*, and guides *c* are to be of any usual or desired character, and the threads of silk are passed from the cocoons in the water-box *a*, over the notched guide-bar *e*, to the guides *c*, where two or more filaments are brought together and pass to the reel.

An electro-magnet, *f*, and lever-armature *g* are made use of to stop the reel *b* whenever the circuit to such magnet is closed, or the reverse, and for this purpose it is preferable to employ pins or teeth around the reel, as at *h*, to form stops for the end of the armature-lever *g*.

The lever-guides *i* are applied to the silk filament at the most convenient place. I prefer and use them between the guide-bar *e* and guides *c*, and these guide-levers act as circuit-closers.

I prefer to use the levers in the form shown in Fig. 4, in which the lever is made of a fine wire, with a delicate pivot or fulcrum, 2, and a circuit-closing fork, 3, the whole being balanced by a suitable counterpoise, 4, positioned so as to tend to move the fork 3 downward whenever the filament of silk runs out or breaks, such filament passing through the eye or hook at the end of the lever.

The circuit-closer that I prefer is composed of two troughs or cups of mercury, there being a conductor from the battery to each, so that the fork 3, falling into the mercury, closes the circuit to the electro-magnet and stops the reel. It will be evident that if the stop or brake to the reel was held out of action by the electro-magnet, the fork 3 would be upon the other side of the fulcrum of the guide-lever, in order that the circuit may be broken when the lever-guide rises.

I prefer to make use of a switch, *o*, in the circuit between the battery *s* and the pin 6, that connects with the mercury-trough 7, so that when the switch is in contact with 6, the circuit can be closed from the battery *s*, through switch *o*, pin 6, mercury-trough 7, fork 3, trough 8, to the electro-magnet *f*, and thence to the battery.

After the filament has been joined, the operator moves the switch *o* from the pin 6 to break the circuit, in order that the reel may be free to revolve. Should it be necessary to stop the reel when the filaments are all in place, the operator turns the switch from the pin 6 to the pin 10 to close the circuit through the wire 11. By this means the reel is under the control of the attendant, and it is also stopped automatically by either of the filaments breaking or running out.

Reeling-machines are generally adapted to a given number of threads, and a guide-lever is to be provided for each thread. Hence, when the machine is not running at its full capacity, the guide-levers not in use should be removed or blocked up out of action.

I do not claim an electric stop-motion in it.

self, nor a stop-motion applied in doubling or twisting machines. My stops are applied to the filaments of thread as they draw off from the cocoon, and hence are constructed, as aforesaid, with great delicacy, so as to operate reliably, but not strain the filament.

I claim as my invention—

1. The combination, in a silk-reeling apparatus, of the lever-guides between the reel and the water-vat, the electric circuit-closers, actuated by such levers, and an electro-magnetic brake to stop the reel when a filament breaks or runs out, substantially as set forth.

2. The combination of the lever-guides for the silk filament, the circuit-closers, the electro-magnetic brake, and the switch, substantially as set forth, whereby the operator can liberate or bring the brake into action regardless of the tension of the silk upon the circuit-closing lever.

Signed by me this 12th day of June, A. D. 1877.

EDW. W. SERRELL, JR.

Witnesses:

GEO. T. PINCKNEY,  
HAROLD SERRELL.