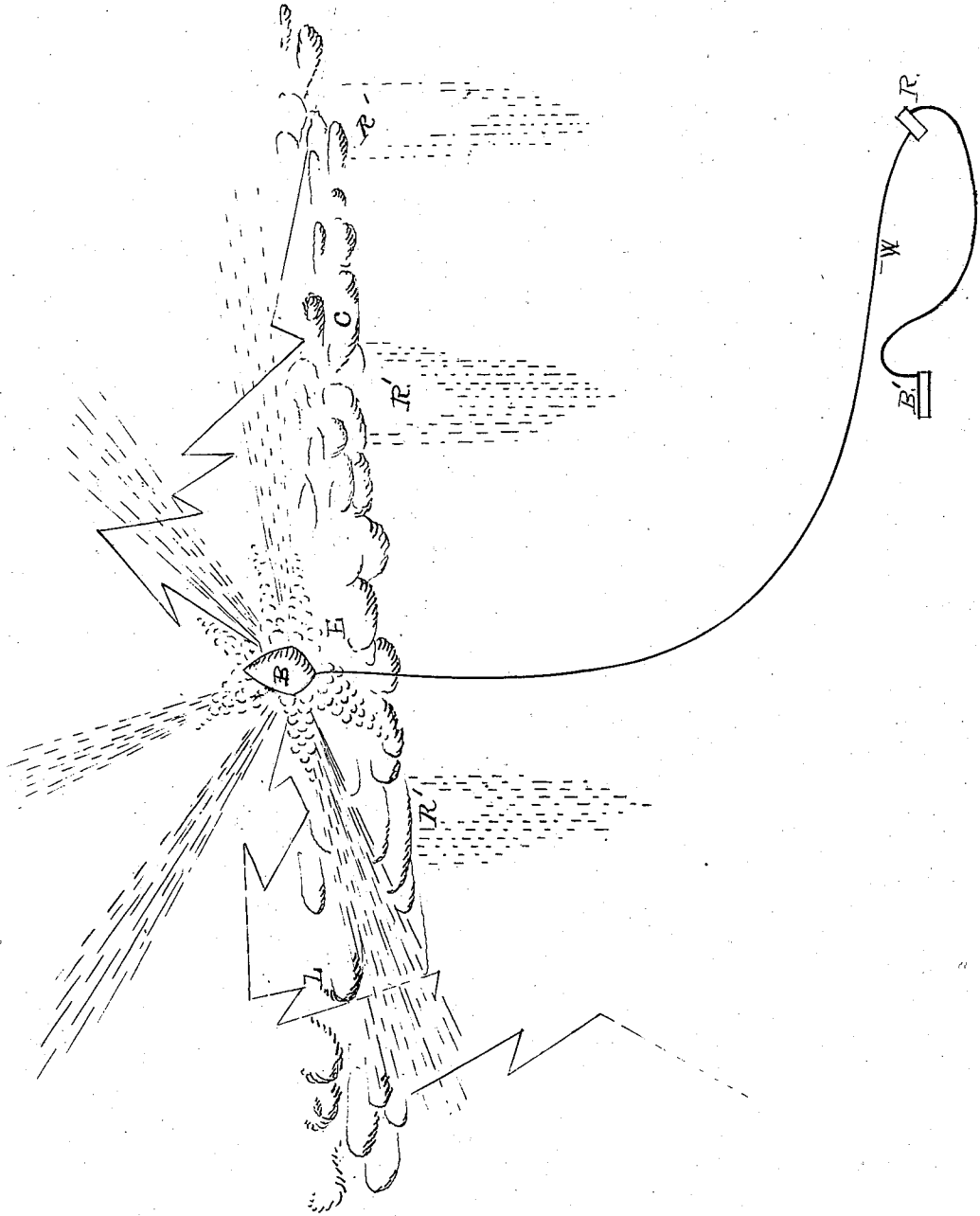


(No Model.)

D. RUGGLES.  
Method of Precipitating Rain Falls.  
No. 230,067. Patented July 13, 1880.



Attest:  
J. P. Th. Lang  
G. H. Th. Lang

INVENTOR.  
Daniel Ruggles  
by  
M. B. Rawick & Lawrence

# UNITED STATES PATENT OFFICE.

DANIEL RUGGLES, OF FREDERICKSBURG, VIRGINIA.

## METHOD OF PRECIPITATING RAIN-FALLS.

SPECIFICATION forming part of Letters Patent No. 230,067, dated July 13, 1880.

Application filed June 7, 1880. (No model.)

To all whom it may concern:

Be it known that I, DANIEL RUGGLES, of Fredericksburg, in the county of Spottsylvania and State of Virginia, have invented a new and useful Mode of Producing Rain or Precipitating Rain-Falls from Rain-Clouds, for the purpose of sustaining vegetation and for protection against drought and for sanitary purposes; and I do hereby declare that the following is a full, clear, and exact description of the invention, reference being had to the accompanying drawing, and letters of reference marked thereon, forming a part of this specification.

The nature of my invention consists in sending one or more balloons into the cloud-realms, said balloon or balloons carrying torpedoes and cartridges charged with explosives, and there to explode or detonate them by magneto-electric or electric force through metallic wire, textile cordage, or by the fuse, or by mechanical force, in order to precipitate rain-fall by concussion or vibration of the atmosphere.

The drawing illustrates one mode of carrying my invention into practice, in which—

B represents a balloon carrying dynamite torpedoes at a high elevation in the atmosphere or within the cloud-realm, the elevation of the balloon being effected by the usual appliances.

W indicates a wire connected with the torpedoes stored within the balloon, and thence passes down to a reel, R, upon the ground, from which wire is reeled off as the balloon ascends. From the reel R one end of the wire connects with a magneto-electric battery, (indicated at B',) also situated upon the ground, and by means of which the explosion of the torpedoes contained in the balloon B can be effected when desired.

C indicates clouds and the cloud-realm.

In the figure and surrounding the balloon B, I have represented various dotted lines and clusters of lines, and also zigzag lines, as at L, representing lightning, the said figure being an imaginary representation of such a condition as would appear immediately after an explosion of the torpedoes, and with rain

falling from the clouds C, as indicated in dotted lines at R'.

My design is to employ every kind of explosive force at an elevation in the cloud-region of the atmosphere, in order to condense rain-clouds by concussive force or the power of explosion within such region, thereby precipitating rain to sustain vegetation, prevent drought, and also purify and renovate the atmosphere during periods of pestilence and epidemics.

I contemplate the employment of nitroglycerine, dynamite, chlorates of nitrogen, gun-cotton, gunpowder, fulminates, and other explosives, and to use the magneto-electric telegraph on the surface of the ground and the phono-telegraph in the cloud-realm to direct action in cases where a regular balloon not charged with explosives is occupied by an aeronaut to reconnoiter the cloud-realm, to trail torpedoes and cartridges, or to throw them in parachutes, and to explode or detonate them either from the balloon occupied by the aeronaut or from the ground.

Instead of a single balloon provided with explosives—say ten small torpedoes or cartridges, each charged with a half pound of dynamite and arranged for simultaneous magneto-electric explosion—I propose in some cases the employment of small balloons in groups in the cloud-region, each provided with explosives and arranged for simultaneous explosion or detonation by either electric or mechanical force; and I contemplate not only to precipitate rain-fall, but also to check its fall in over-abundance in a given locality by causing the rain-clouds to discharge rain before the given locality has been reached by such clouds.

My invention is based on discoveries in meteorological science, and that electrical force sways and controls the atmospheric realm and governs the movements of the rain-clouds, bursting into thunder-storms, dispensing rain and hail, and into cyclones and tornadces illuminated by magneto-electric forces as prime attributes of matter.

I propose to employ the magneto-electric

engine to send explosives into the cloud-realm,  
and compressed air and steam into the at-  
mosphere whenever found expedient, each  
through its appropriate medium of metallic  
5 wire, textile fiber, cordage, and elastic tubes.

I claim—

The mode herein described of producing  
rain-fall, said mode consisting in conveying

and exploding torpedoes or other explosive  
agents within the cloud-realm, substantially 10  
as described.

City of Austin, Texas, February 22, 1879.

DANIEL RUGGLES.

Witnesses:

THOMAS B. BOTTS,  
GARDNER RUGGLES.