

## Ecological Guardian-based on Scenery Complement Water Performance Device

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### Abstract

Because forest fires generally occur in unprecedented places, there are traffic, inconvenient water removal, and inconvenience of fire trucks into the forest, etc., which causes relevant personnel to be unable to take effective fire prevention measures in the early stage of the fire. Based on this, we designed and developed a water collection device for forest fire prevention and can achieve ecological repair. This device uses energy - saving and environmentally friendly wind power and photovoltaic boards to ensure that the device has sufficient power operation, and it can also achieve ultra -low -efficiency emissions. Under normal work, this device fully collects water droplets in the forest, the maximum water purification, and collects the water into a double -layer water tank. The automatic spray fire extinguishing device of this device can play an effective forest fire prevention. This device also explores the use of special fire protection coatings on the surface of the device, which is better. At the 19th National Congress of the Communist Party of China, a series of policies related to energy conservation and emission reduction and environmental protection were proposed. General Secretary Xi Jinping announced in the general debate of the 75th UN General Assembly that China strives to reach the peak of carbon dioxide emissions by 2030 and strive to achieve carbon neutrality before 2060. At present, my country lacks the necessary high -tech as a actual effect to support environmental protection. my country's motor vehicle ownership has increased steadily year by year. Nowadays, the recycling of automobile braking energy is concentrated when using the inertia of the car during the brake, but the thermal energy generated during friction does not get good recycling, and the energy recovery system of most car brake systems is not highly available, generally generally, generally There is a phenomenon of insufficient low -speed torque force, which cannot brake quickly in time, and even cause the brake pads to kill, causing a security accident.

### Keywords

Rain Collection; Solar Energy; Ecological Repair; Forest Fire Extinguishing.

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### 1. Introduction

The occurrence of forest fires will seriously endanger the safety of people and animals, destroy the ecological environment, and cause huge losses to the national economy. The forestry department across the country has always attached great importance to forest fire prevention work. But forest guards or firefighters cannot conduct effective fire prevention in the early stage of the fire [1-2]. In response to the problem of forest fire, my country's forest fire has a significant impact on the construction of the ecological environment and the safety of forest resources and other aspects. If such disaster incidents occur, its control will be very difficult. Therefore, the fire prevention work carried out seriously. Thereby reducing the occurrence of forest disasters and minimizing various losses [3-4].

Forest fires are one of the most frequent and devastating disasters in various disaster conditions. Not only will not severely damage the safety of forest resources, threatens human survival environment, but also affects the sustainable development of the economy and society, severely damage the ecological environment, affects production order, etc. Essence Based on this, we can effectively reduce the huge losses caused by forest fires by extinguishing the source of the fire at the source. Compared with some large -scale fire -extinguishing irrigation equipment, we provide a low manufacturing and use cost, convenient maintenance, setting in the forest and can automatically store rainwater for forest fire prevention collection devices and intelligent water. This device can work for the forests of forestry departments across the country and bring huge benefits to the protection and restoration of the ecological environment.

At present, countries around the world have developed various forest fire extinguishing equipment. Most of the forest ground -extinguishing vehicles at home and abroad are modified based on military vehicles and ordinary vehicles. Most vehicles have good off -road performance and protection performance of these trains. Most vehicles have other auxiliary functions. For example, many vehicles are equipped with pickups such as pickup, puppet, fluttering rake (metal plate), long -handle ax, portable spray cylinder, safety rope and electric saws [5]. Therefore They provide security. Nowadays, the main materials of fire extinguishing are water, and the fire extinguishing efficiency is poor [6-10]. Based on the above research, we found that the fire extinguishing device at home and abroad has consumed the cost and operation, and lacks convenience and flexibility.

## 2. Machine Structure Design

The mechanical part of the device mainly adopts the cooperation between support plates, double -layer support, water collection, acrylic board, filter cover, water storage tank, battery storage, motor, double -layer support tank, spray head, etc. Reaches strong use functions. The main structure is shown in Figure 1 as follows:

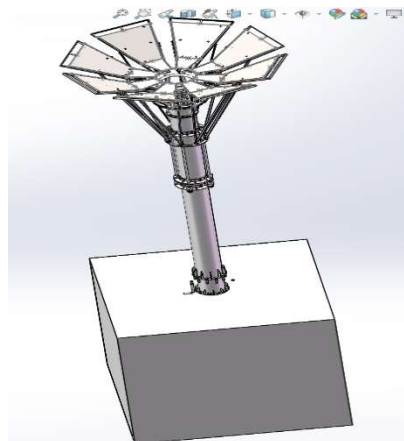


Figure 1. Device overall structure

### 2.1 Rainwater Collection Design

As shown in Figure 2: The overall device is collected by rainwater. The rainwater collection device is composed of duck -like water collection board, diversion board, raised and porous structure, water collection pipe, photovoltaic board, and acrylic board.

When collecting rainwater, the acrylic board is located above the photovoltaic board. The rainwater can effectively avoid the falling leaves into the water collecting pipe through the spherical filter cover through the bulging filter cover and reduce the number of artificial cleaning. When the rainwater is collected, the acrylic board is 30 ° with the photovoltaic board, which ensures that the rainwater flows into the diversion pipe along the acrylic board on the photovoltaic board to flow into the water collection pipe as much as possible, thereby flowing into the water storage tank. The acrylic board

above the water collection plate reduces the damage caused by natural phenomena to photovoltaic boards. The rainwater is left to the large end of the duck-like water collection plate to collect the duct pipe into the water collection pipe and finally flow into the water tank. The water storage device is composed of a water storage tank, a water inlet pipe, and a water outlet pipe, and the ground bolts are fixed to the ground. The photovoltaic board is fully collected by solar energy to be transformed into the battery storage of electrical energy.

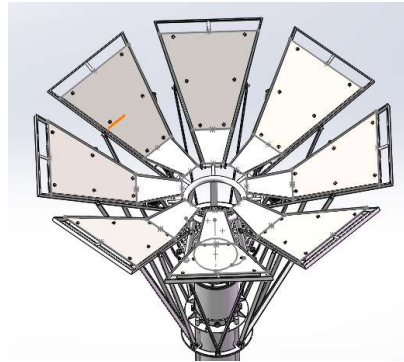


Figure 2. Rainwater collection overall device

### 2.2 Power control design

The leaves drive the outer pole rotation of the device, thereby driving the low-speed gear rotation at the bottom of the outer rod. The low-speed gear drives high-speed gear rotation. Finally, the generator is driven to generate electricity. middle. As shown in Figure 3 power generation work.

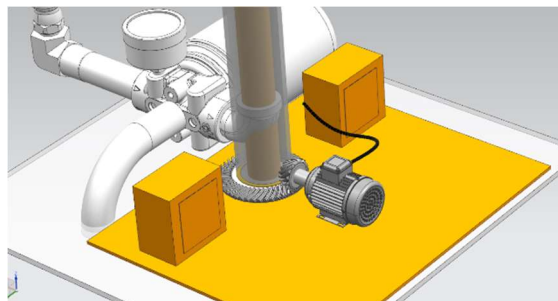


Figure 3. Power Generation Work Principles

### 2.3 Automatic spray fire extinguishing device

When the fire occurs, the temperature sensor in the electrical cabinet controls the pump work. The pump pumping outlet is pumped from the water tank to keep the spray head pipe high pressure. After the seal was lost, it was rushed away by the water flow, and began to spray the water and extinguish the fire. The pressure sensor in the glass will then spray the water spray pump on the water pipe. As shown in the physical display of the spray head and three-dimensional modeling.

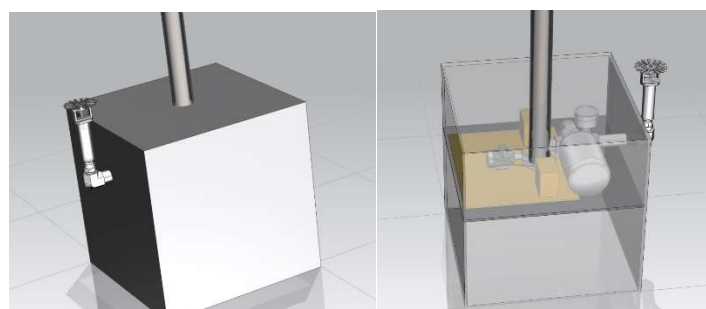


Figure 4. Spray head display and three-dimensional modeling

### 3. Innovation

- (1) In the invention of the forest, collect rainwater and store the water collection through the water collection board. When it can automatically extinguish the forest fire, it will benefit the disaster caused by the forest fire prevention.
- (2) Use temperature and smoke sensors to design a spray head that can sensing the fire source in a timely manner, which greatly reduces the occurrence of fire sources.
- (3) Put the electrical cabinet in the double-layer water storage tank to improve the service life of the battery. The device is painted with a fire layer to better fire prevention.

### 4. Conclusion

The harm of forest fires is serious, destroying the ecological environment: forest fire restricts the sustainable development of the modern forestry economy, directly destroys ecological bad situations, and affects production order. The Party Central Committee attaches great importance to its emergency management and disaster prevention and mitigation work. The present invention device can achieve energy-saving and environmentally friendly water collection, which is in line with the current national strategy.

The device structure is reasonable, the economic benefits are superior: simple structure, convenient use and maintenance, green non-pollution, and sufficient energy conversion.

The promotion of water collection principle, wide application field: automatically extinguish the forest fire, greatly reduce the disaster caused by forest fire prevention, and the intelligent irrigation system combined with multiple irrigation methods can solve a series of ecological repair problems such as vegetation restoration and the problem of drying the fire is prone to fire.

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