Existing ways of firefighting

About Hunan Way-Joy

Our proprietary products

Designed for safety & security

Groundbreaking extinguisher bombs
Existing ways of firefighting

- Fire trucks
- Aerial firefighting
- Chemical agents
- Isolation areas
Firefighting worldwide

Water is the leading force for firefighting worldwide to be supplemented only by chemical agents. Uneven dousing hardly helps to put out fire, particularly in frigid zones where water is frozen and hence useless.

Topography makes water bombers and fire engines dysfunctional for some bushfires.

Large-scale bushfires in China are hard to contain and destroy millions hectares of forests every year.

Chemical extinguishing agents could increase efficiency but the damage caused to the environment cannot be ignored. In 1987 a huge amount of foam extinguishers wiped out all fishes in the affected rivers in Switzerland.

All existing firefighting solutions require firefighters to approach the blaze which easily causes casualties.

Existing ways of firefighting

Poor control

Pollutant ingredients

Poor efficiency

Poor mobility

Poor safety
Wildfires in China are 5-8 times as destructive as the world’s average.

More than 200,000 fires take place worldwide every year, burning down 1‰ of the world’s total forest areas. In China 10,000+ fires are reported every year destroying tens of millions of hectares or 5-8‰ of the total forest areas.
About Hunan Way-Joy

Hunan Way-Joy Security & Safety Technology Co Ltd

Since 2012 Hunan Way-Joy has been developing fire extinguisher bombs and filed a series of patents. Led by Chairman Zeng Shaowen, the company was officially incorporated in 2018 with more than RMB 21 million in registered capital and a team of 30+ professionals. Our proprietary, safe and eco-friendly extinguisher bombs can be used against fires in mountains, forests, grasslands and high-rises. Way-Joy is based in Liuyang, Hunan province which is best known for its firecracker industry dating back to some 2,000 years ago. We have now incorporated modern technology into our firecracker tradition and produced an extraordinary firefighting product – the fire extinguisher bomb.
In light of firefighting requirements and the disadvantages of the existing approaches, we have developed 3 shock-wave types of extinguisher bombs which have been recommended by China’s forestry authorities and which in turn have made us the only company on the government purchase list.
Technical innovation

Pull-ring design

*User friendly and faster than traditional ignition fuse*

Eco-friendly materials

*Meet national environment standards and recognized by the government as setting the national firefighting standards*

Innovative firefighting principle

*Blend the shock-wave principle with traditional approaches for more effective fire extinguishment*
**Hurl/pull-ring bombs**

_Hurl/pull-ring bombs are easy to carry and can be hurled from a distance for effective and eco-friendly firefighting._

<table>
<thead>
<tr>
<th>Type</th>
<th>Product</th>
<th>Radius * length (mm)</th>
<th>Agent weight (g)</th>
<th>Total weight (g)</th>
<th>Hurling distance (m)</th>
<th>Doused fire (m²)</th>
<th>Power source (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WZMHD-SL</strong></td>
<td>Forest hurling bomb</td>
<td>87<em>87</em>167</td>
<td>1000</td>
<td>1120</td>
<td>≤10</td>
<td>3~5</td>
<td>8~10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>87<em>87</em>167</td>
<td>1000</td>
<td>1125</td>
<td>≤10</td>
<td>4~6</td>
<td>15~20</td>
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<td></td>
<td>122<em>122</em>165</td>
<td>2000</td>
<td>2150</td>
<td>≤10</td>
<td>10~20</td>
<td>15~30</td>
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<td><strong>WZMHD-ML</strong></td>
<td>Pull-ring bomb</td>
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<td>1000</td>
<td>1120</td>
<td>≤10</td>
<td>3~5</td>
<td>8~10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>87<em>87</em>125</td>
<td>750</td>
<td>780</td>
<td>≤10</td>
<td>2~4</td>
<td>6~8</td>
</tr>
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<td></td>
<td>87<em>87</em>85</td>
<td>500</td>
<td>520</td>
<td>≤10</td>
<td>1~2</td>
<td>4~6</td>
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</table>
**Insulation bombs**

*Insulation bombs are easy to carry and insulate the fire for effective and eco-friendly extinguishment*

<table>
<thead>
<tr>
<th>Type</th>
<th>Product</th>
<th>Radius * length (mm)</th>
<th>Agent weight (g)</th>
<th>Total weight (g)</th>
<th>Hurling distance (m)</th>
<th>Doused fire (m²)</th>
<th>Power source (g)</th>
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<td>Forest insulation bomb</td>
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<td>5000</td>
<td>5500</td>
<td>--</td>
<td>15～20</td>
<td>40～50</td>
<td>Insulation firewall</td>
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<tr>
<td></td>
<td></td>
<td>250<em>250</em>250</td>
<td>10000</td>
<td>10000</td>
<td>--</td>
<td>30～40</td>
<td>70～90</td>
<td>Insulation firewall</td>
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</tbody>
</table>
Handle-hurl bombs are easy to carry and can be hurled from a distance for effective and eco-friendly firefighting

<table>
<thead>
<tr>
<th>Type</th>
<th>Product</th>
<th>Radius * length (mm)</th>
<th>Agent weight (g)</th>
<th>Total weight (g)</th>
<th>Hurling distance (m)</th>
<th>Doused fire (m²)</th>
<th>Power source (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WZMHD-SL</td>
<td>Forest hurling bomb</td>
<td>φ118*298</td>
<td>1000</td>
<td>1300</td>
<td>≤10</td>
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<td></td>
<td></td>
<td>Φ90*265</td>
<td>750</td>
<td>845</td>
<td>≤10</td>
<td>2~4</td>
<td>10~12</td>
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</table>
Where to use

Our extinguisher bomb can be used not only in mountains, forests, grasslands and urban buildings but also works particularly well for difficult-to-approach high-rises, electrically charged equipment, explosive-laden power plant transformer oil pit, fuel depots, oilfields, gas stations, chemical plants and households.
Our extinguisher bomb can be hurled from a distance which will keep the user away from the fire, smoke, hypoxia and explosions that may cause casualties. Pop out the ring, pull it and then hurl the bomb. It is easy to use in sparsely populated areas such as mountains, forests and grasslands.
Our extinguisher bomb can be hurled safely by hand, dropped by aircraft or shot by ejector. It works better at large burning areas and high-rises.
Unlike usual fire hydrants, our extinguisher bomb is light, small and easy to carry and has no high pressure formed within the fire-resistant paper material container.
After being thrown into the fire, our extinguisher bomb quickly douses and insulates the fire.
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After being thrown into the fire, our extinguisher bomb quickly douses and insulates the fire.

A transformer substation
According to the GB 19595-2004 National Standards for Fireworks and Firecrackers Ignition Fuse, the safe ignition fuse is made as a type of time-delay ignition fuse which can accurately controls the burst time of the product within 4–7 seconds. Our extinguisher bomb quickly douses the fire and thereby prevents human and animal injuries.
According to the GB 19595-2004 National Standards for Fireworks and Firecrackers Ignition Fuse, the safe ignition fuse is made as a type of time-delay ignition fuse which can accurately controls the burst time of the product within 4–7 seconds. Our extinguisher bomb quickly douses the fire and thereby prevents human and animal injuries.

A human hand and a butterfly remain unscathed after an explosion.
According to the GB 19595-2004 National Standards for Fireworks and Firecrackers Ignition Fuse, the safe ignition fuse is made as a type of time-delay ignition fuse which can accurately control the burst time of the product between 4 and 7 seconds. Our extinguisher bomb quickly douses the fire and thereby prevents human and animal injuries.
Upon ignition of the fuse of a spherical fire extinguishing bomb (which is self-priming when the ball encounters a flame), the ball will explode. The disadvantage of this ball is its shape. When it hits the ground, it will roll out of the best position and miss the best fire extinguishing timing. In the meantime, the ball normally falls in the inner zone of the flame which carries the lowest temperature in the flame and hence the ignition fuse would unlikely be ignited. The ball therefore could hardly explode or not be ignited at all. As a result, after being thrown into the fire the ball cannot extinguish the fire and certain contained fire may even rekindle.
Compared with T-type self-priming fire extinguishing balls on the market, this ball is featured by its handle and the 2 ignition fuses exposed on the one end. We conducted a test with 2 balls. The first one was thrown into the fire but was not ignited and the lead burned out in the hard shell. We suspect that the ignition fuse was wet. The second ball was ignited but the fire was not extinguished and hard fragments were left on the scene, which may cause secondary injuries.
The pull-ring triggered projectable extinguisher bomb is activated by pulling the pull-ring so that the percussion cap ignites the safe ignition fuse. The ignition fuse leads the fire into the bomb to ignite the pyrotechnic agent component therein in a time-delay manner. The pyrotechnic agent instantly deflagrates to generate high-pressure and high-temperature gas to form columnar detonation waves which in turn exert negative pressure to cut off flames of the surrounding combustibles and destroy their combustion chain links, along with which the ultrafine fire-extinguishing dry powder is also covered at a high speed so that the fire is instantly extinguished. In parallel, the ultrafine fire extinguishing dry powder decomposes at high temperature to form a glass-like isolation film barrier on the combustibles such that they will no longer re-ignite.
The cavity of the product is filled with ultrafine dry powder fire extinguishing agent, which has no ozone depletion potential, no greenhouse effect potential, no irritation to the human skin and respiratory tract as well as no corrosion to protective substances (i.e. toxic and hazard free). Residues are easily cleanable after the fire has been extinguished and can thus be widely used in various production and living scenarios to extinguish classes A, B and C fires and those fires caused by live electrical equipment. Our extinguisher bomb has been accredited by China’s science and technology authorities to be the first of its kind in the nation and a global leader.
实用新型专利证书

实用新型名称：一种新型拉环式干托环联发灭火器

发明人：杨文和、曾绍文

专利号：ZL 2018 2 0797280.4

专利申请日：2018年05月28日

专利权人：曾绍文

地 址：410300 湖南省长沙市开福区文家市镇文化村金片向阳路388号

授权公告日：2019年01月15日 授权公告号：CN 208372338 U

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局长：申长雨

2019年01月15日
专利登记簿副本
专利号：ZL201420743692.4
证书号：4296589

Ⅰ 著录项目
实用新型名称：一种投掷式森林灭火灭火器
申请日：2014年12月02日
授权日：2015年06月13日
主分类号：A62C 19/00（2006.01）
发明人：孔祥磊、江根根

专利权人：曾文文
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专利权人邮政编码：410300
国籍或地区的国家或地区：中国

Ⅱ 法律状态
专利权有效

Ⅲ 其他登记事项
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