(No Model.)

J. HIRAYAMA.

DAYLIGHT FIREWORKS.

No. 282,891. Patented Aug. 7, 1883.

Fig. 1

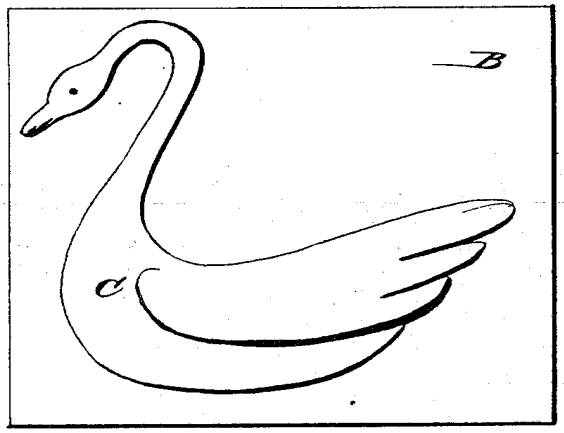


Fig. 2

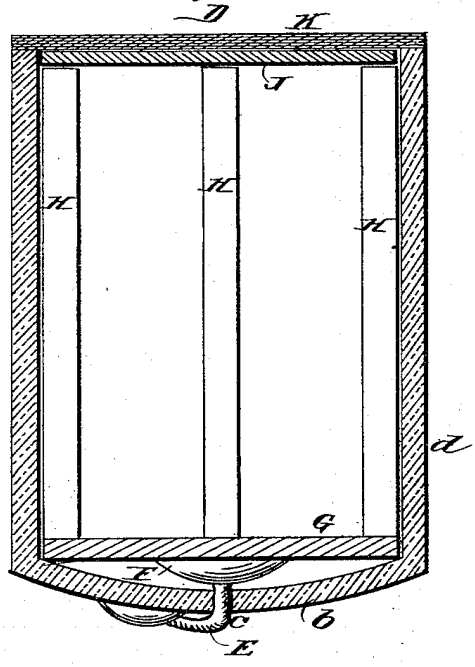
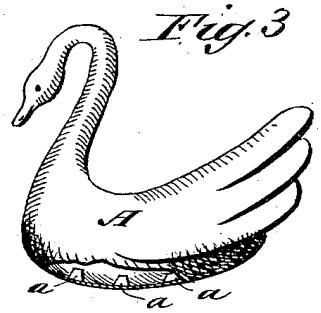


Fig. 3



WITNESSES:

C. McArdle.

C. Sedgwick

INVENTOR:

J. Hirayama

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JINTA HIRAYAMA, OF OTAMACHI, YOKOHAMA, JAPAN.

DAYLIGHT FIRE-WORKS.

SPECIFICATION forming part of Letters Patent No. 282,891, dated August 7, 1883.

Application filed March 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, JINTA HIRAYAMA, of Otamachi, Yokohama, Japan, have invented a new and useful Improvement in Daylight Fire-Works, of which the following is a full, clear, and exact description.

The invention consists of certain means and appliances whereby images of birds, animals, human beings, or any figure or design made of paper or other light and flexible material may be projected into the air, and after reaching a considerable height burst out, showing the figure or design intended.

The invention also consists of the images or designs themselves for the purpose stated.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a view illustrating the method of making the images or designs. Fig. 2 is a sectional elevation of one of the shells with which the images or designs are projected into the air, and Fig. 3 is a side elevation of one of the images as it appears when inflated and floating in the air.

In making the images or designs A, I take a folded sheet, or two sheets, of paper or other light flexible material, put together as at B, and place upon them the pattern of the figure or design to be imitated, as at C, and then cut the two thicknesses of paper according to the pattern. These two shaped sheets of paper are then to be printed or colored to correspond with the natural object, or to suit the taste, and then they are to be pasted or otherwise joined together all around their edges, except at the bottom. At the bottom each sheet of the figures or designs is to be provided with the series of small weights, as shown at *a*, Fig. 3. This having been done, the stiffness of the paper is to be taken out of the images or designs by rubbing and squeezing the images, usually in the hands. This being completed, they are ready to be packed inside of the small shells D, by means of which they are fired into the air. The shells D are by preference made of the cases *d*, of Japanese paper, varying in thickness from one-quarter to one-half inch, more or less, and open at the top and closed at the bottom, as shown at *b*. A small hole, *c*, is bored in the bottom *b* of the case for the passage through the bottom of the fuse E. To the inner extremity of the fuse is attached the small charge F of powder. Over the powder is then placed the wooden lid G, which is made loose enough in the shell to act as a kind of piston for forcing out the contents of the shell. On the top of the lid G are placed the three or four wooden posts H H, which are secured perpendicularly, by weak glue or otherwise against the inner walls of the shell, as shown, thus to protect the paper images or designs packed between them in the shell, and prevent them from being broken by the sudden explosion of the charge of powder below.

In packing the paper images or designs in the shells D, between the posts H H, small quantities of pulverized mica or soapstone should be occasionally sprinkled in with the paper images, to prevent the images from sticking to the walls of the shell and to the posts H H, and to prevent them from taking fire from the explosion. The required number or quantity of the images or designs having been thus packed in the shell D, the wooden lid J is to be placed upon the upper ends of the posts H H, covering the images, soapstone, &c., and finally the open end of the shell is to be closed by pasting over it the several sheets K of paper, as shown in Fig. 2.

Thus constructed, to use the shell it is to be placed in a small cannon or other device for projecting it, with its contents, into the air. The explosion which sends the shell into the air will ignite the fuse E, which, after the shell reaches a considerable height, will ignite the charge F of powder. The explosion of this charge will fire the paper images, designs, &c., out of the shell, and the images or designs, being of light material and open at the bottom, and provided with weights, will become inflated with air, exhibiting the designs, and will float gradually to the ground, presenting a fantastic and beautiful appearance.

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

1. The daylight fire-works herein shown and described, consisting of a shell packed with images or designs cut out of some light and flexible material, and provided with a charge of powder and a fuse, the shell being adapted to be projected into the air and to expel its contents, substantially as set forth.

2. The casing *d*, having the charge of powder F and fuse E, in combination with the lid G, posts H H, lid J, and cover K, the casing being packed with paper images or designs and powdered mica or soapstone, and adapted for projection into the air, substantially as described.

JINTA HIRAYAMA. [L. S.]

Witnesses:
GEO. E. RICE,
U. S. Vice Consul-General.
JIDA SOHICHI.