

(No Model.)

J. B. Z. DUMAIS.  
SOOT AND SPARK ARRESTER.

No. 406,710.

Patented July 9, 1889.

Fig. 2.

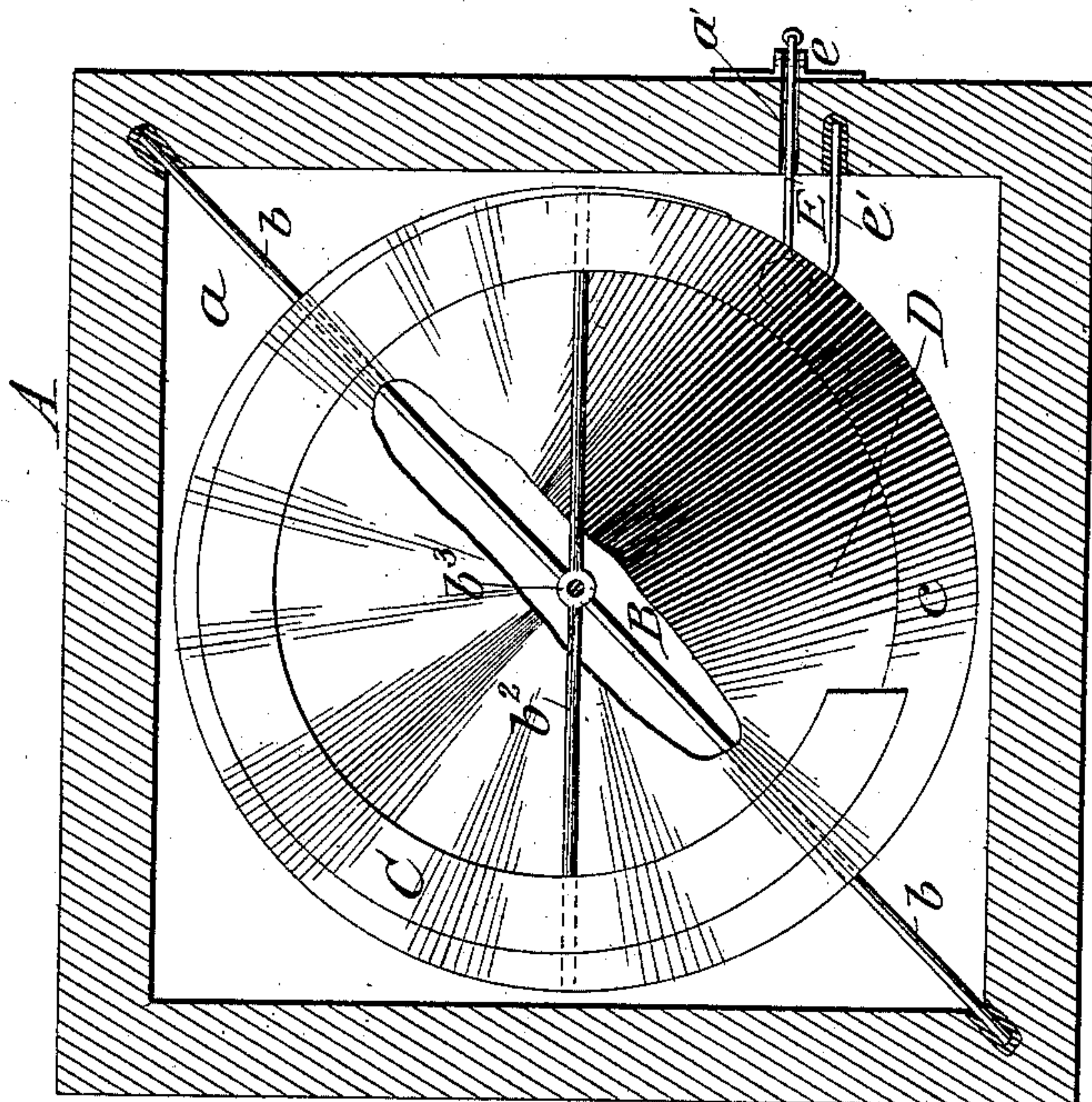
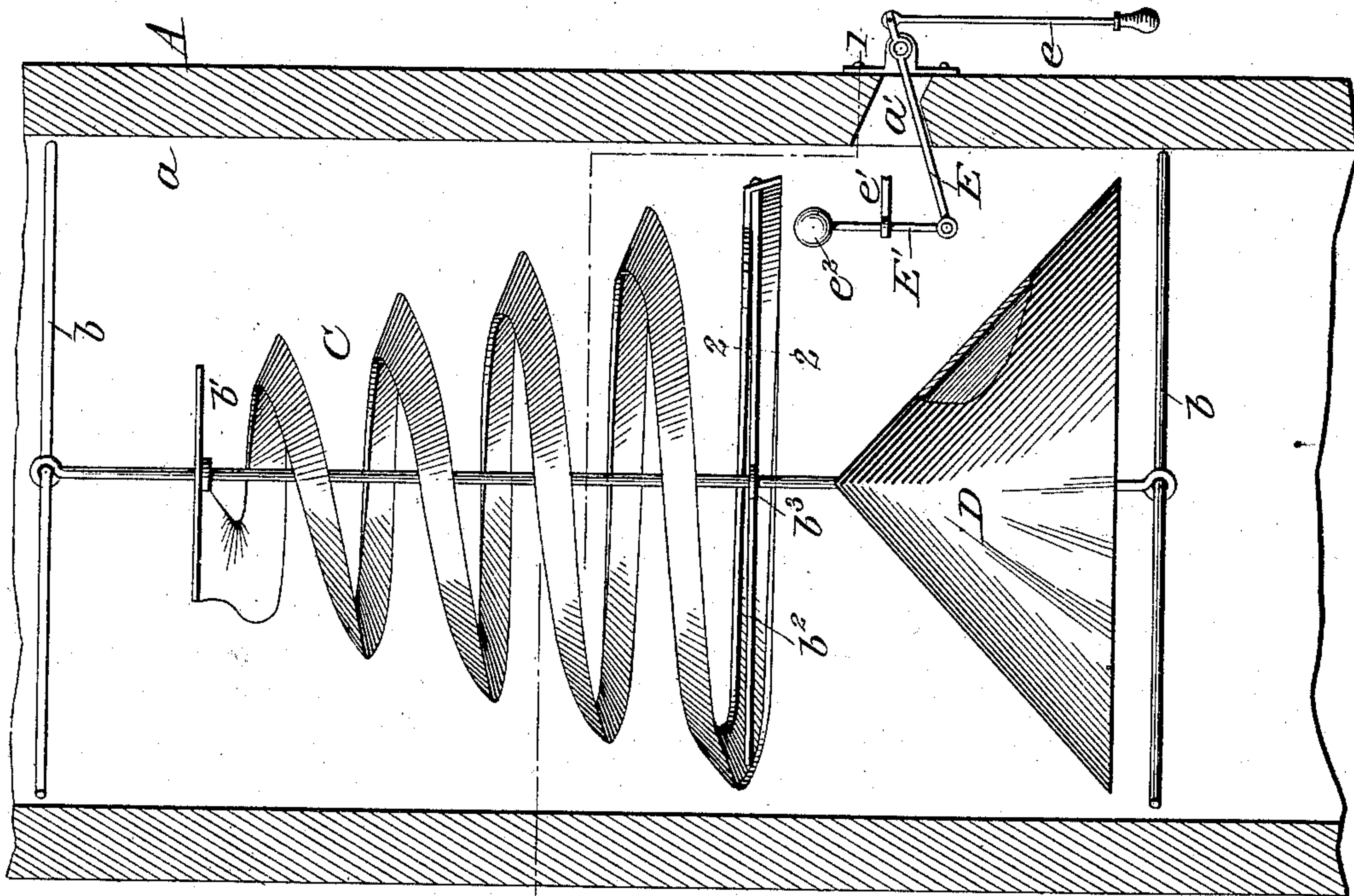
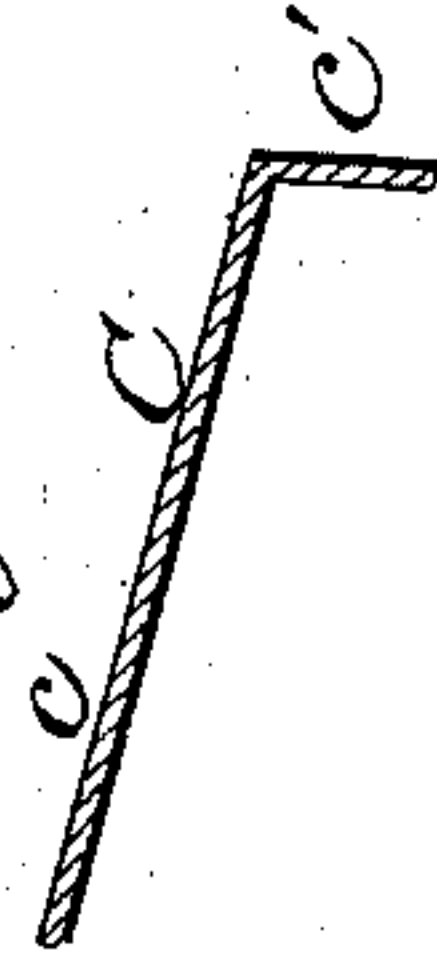


Fig. 3.



Witnesses:  
A. M. Best.  
A. M. Orr

Fig. 1.

Inventor.  
Jean B. Z. Dumais  
By *Coburn V. Thacher*  
Attys.



# UNITED STATES PATENT OFFICE.

JEAN B. Z. DUMAIS, OF CHICAGO, ILLINOIS, ASSIGNOR OF THREE-FOURTHS  
TO ABRAHAM BACHRACH, CHARLES BACHRACH, AND DOMINICK L.  
LANGEVIN, ALL OF SAME PLACE.

## SOOT AND SPARK ARRESTER.

SPECIFICATION forming part of Letters Patent No. 406,710, dated July 9, 1889.

Application filed February 20, 1889. Serial No. 300,612. (No model.)

*To all whom it may concern:*

Be it known that I, JEAN B. Z. DUMAIS, a  
subject of the Queen of Great Britain and  
Ireland, residing at Chicago, in the county of  
5 Cook and State of Illinois, have invented a  
certain new and useful Improvement in Soot  
and Spark Arresters, which is fully set forth  
in the following specification, reference being  
had to the accompanying drawings, in which—

10 Figure 1 is a sectional view of a chimney  
having my improvement applied thereto;  
Fig. 2, a plan section taken on the line 1 1 of  
Fig. 1, and Fig. 3 a detail sectional view  
taken on the line 2 2 of Fig. 1.

15 Like letters refer to like parts in all the  
figures of the drawings.

My invention relates to spark and soot ar-  
resters, and has for its object to provide a  
simple, cheap, and effective device which may  
20 be placed in the chimney or stove-pipe, and  
which, without interrupting the draft, will ef-  
fectually prevent the passage of sparks and  
soot.

25 To these ends my invention consists in cer-  
tain novel features, which I will now proceed  
to describe, and will then particularly point  
out in the claims.

In the drawings, A represents the chimney,  
provided with the smoke-flue  $a$ , which serves  
30 to carry off the products of combustion.  
Across this flue there extend transverse rods  
 $b$ , which serve to support a vertical shaft B,  
connected thereto at top and bottom. Mounted  
on this shaft so as to revolve is the spiral  
35 arrester C, which in the present instance is  
shown as supported by a collar  $b'$  on the shaft,  
said collar being arranged immediately below  
the point where the shaft passes loosely  
through the upper end of the spiral. The  
40 spiral is of gradually increasing diameter  
downward, its lower convolution being as  
large as the dimensions of the flue  $a$  will per-  
mit, and the whole being allowed to hang  
freely, being supported at its upper end by  
45 the collar  $b'$  and at its lower end by a trans-  
verse rod  $b^2$ , attached at its ends to the lower  
convolution of the spiral, and loosely em-  
bracing the shaft B, being provided with a  
loop or eye  $b^3$  for this purpose. The body of

the strip which composes the spiral C is in- 50  
clined downward and outward, as shown at  $c$   
in Fig. 3, and there is provided at the outer  
margin of the said strip a depending flange  $c'$ .

D indicates a cone attached to the shaft B  
below the spiral C, and having its apex ar- 55  
ranged upward and about on a level with the  
bottom of the spiral, its base being of a di-  
ameter as great as the dimensions of the flue  
 $a$  will permit.

There is formed in the chimney A a slot  $a'$ , 60  
and through this slot there extends into the  
chimney a lever E, the outer end of which is  
provided with a cord  $e$  or other suitable de-  
vice for operating the same, while its inner  
end is connected to a vertical rod E' passing 65  
through a guide  $e'$ , and having its upper end,  
which is preferably provided with an enlarge-  
ment  $e^2$ , arranged to strike the spiral C when  
the lever E is operated.

The operation of the device is as follows: As 70  
the products of combustion pass upward  
through the flue  $a$  they first encounter the  
cone D, which deflects them outward, a suffi-  
cient space being left between the cone and  
the walls of the flue to permit their further 75  
passage upward. They then pass upward  
through the spiral, which rotates under the  
influence of the current thus formed, and  
therefore does not act as an obstruction to  
the draft. The products of combustion grad- 80  
ually pass out through the spaces between the  
convolutions of the spiral, and as these con-  
volutions overlap each other they arrest and  
cause the deposit of the sparks and soot and  
prevent their being carried out of the chim- 85  
ney. The convolutions overlap each other  
somewhat, and this arrangement, taken in con-  
junction with the downward inclination of  
the body  $c$  and the depending flange  $c'$ , serves  
to so deflect the products of combustion as to 90  
obtain a maximum of efficiency and arrest all  
the sparks and soot. This inclination also  
serves to prevent the accumulation of the soot  
and sparks upon the spiral to a great extent,  
while the inclination of the upper surface of 95  
the cone D performs a similar service for this  
latter. In case, however, the soot does ac-  
cumulate upon the spiral, it may be readily



removed by operating the lever E, when the rod E' will strike the spiral and impart a vertical vibration to the same, which will effectually dislodge whatever may have accumulated thereon.

It is obvious that various modifications in the details of construction and arrangement of the parts may be made without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself strictly to the precise details hereinbefore described, and shown in the drawings.

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

1. The combination, with the chimney A, having flue *a*, of the rotating spiral C, mounted in said flue, and having an increasing diameter from top to bottom, substantially as and for the purposes specified.

2. The combination, with the chimney A, having flue *a*, of the rotating spiral C, mounted in said flue, and composed of a strip having a body inclined transversely downward and outward, and provided at its outer margin with a depending flange, the said spiral increasing

in diameter from top to bottom, whereby the convolutions are caused to overlap each other, substantially as and for the purposes specified.

3. The combination, with the chimney A, having flue *a*, of the rotating spiral C, mounted in said flue, and having an increasing diameter from top to bottom, and the cone D, arranged in the flue below the spiral with its apex upward, and having a base of a diameter equal to the diameter of the bottom of the spiral, substantially as and for the purposes specified.

4. The combination, with the chimney and its flue, of the spiral loosely suspended therein, and means for vibrating said spiral, substantially as and for the purposes specified.

5. The combination, with the chimney and its flue, of the spiral loosely suspended therein, the lever E, extending through a slot in the chimney, and the rod E', operated by said lever and adapted to strike the spiral, substantially as and for the purposes specified.

JEAN B. Z. DUMAIS.

Witnesses:

CARRIE FEIGEL,

IRVINE MILLER.