

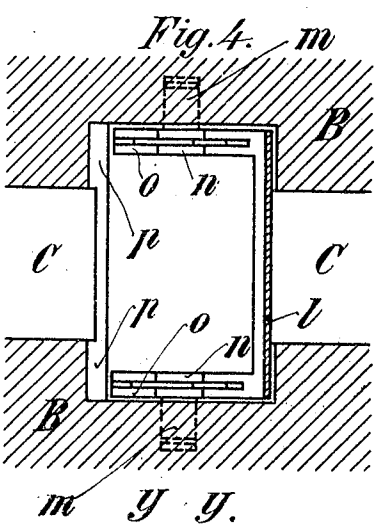
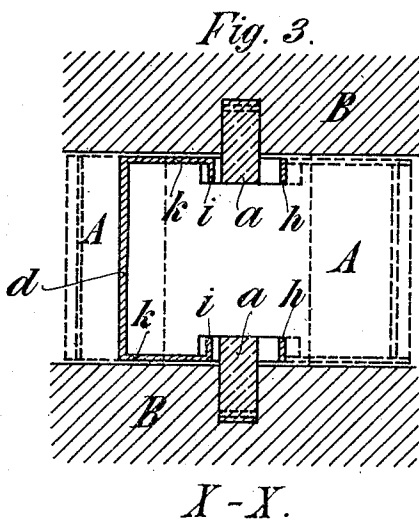
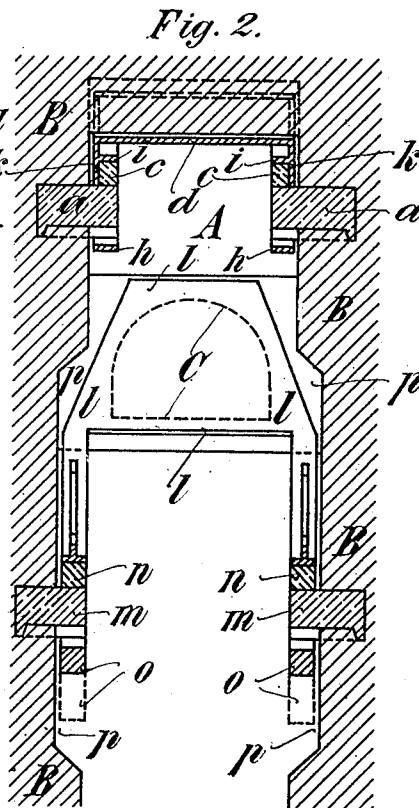
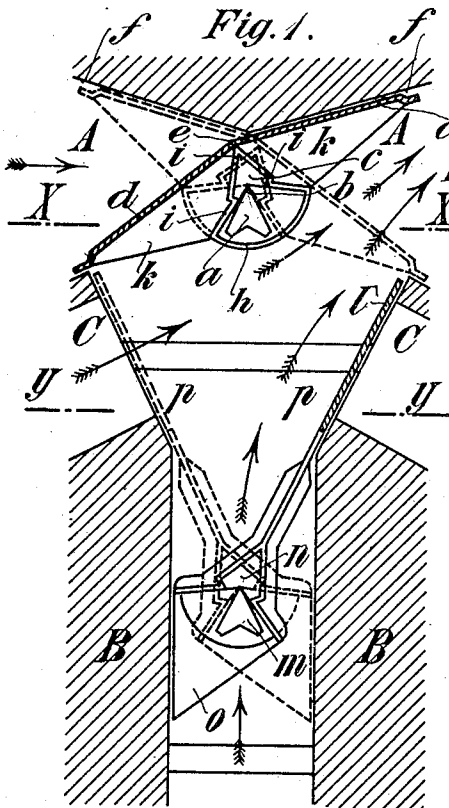
No. 887,677.

PATENTED MAY 12, 1908.

A. MARCKS.
CHIMNEY.

APPLICATION FILED FEB. 16, 1905.

2 SHEETS—SHEET 1.



Witnesses:

*Joh. P. Bahr,
Gertie P. Bahr*

Inventor:

Alexander Marcks

No. 887,677.

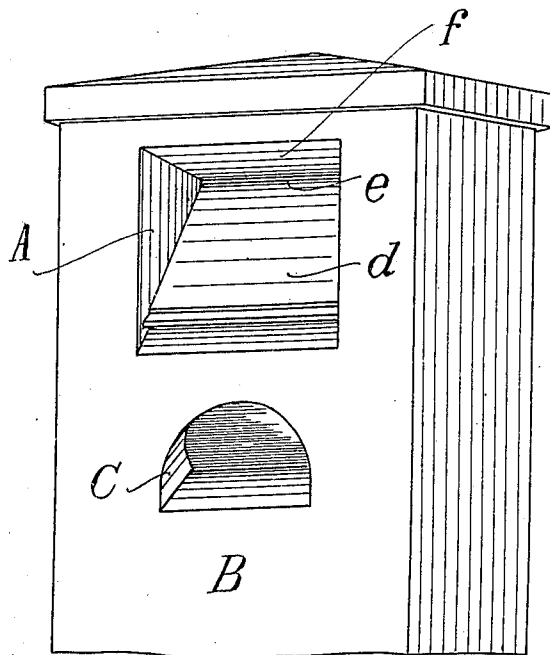
PATENTED MAY 12, 1908.

A. MARCKS.
CHIMNEY.

APPLICATION FILED FEB. 16, 1906.

2 SHEETS—SHEET 2.

Fig. 5.



Witnesses:
J. Baker.
Ch. Ditz.

Inventor:
Alfred Marcks
per *J. Brockhaus*
att'y.

UNITED STATES PATENT OFFICE.

ALFRED MARCKS, OF DELLBRÜCK, NEAR COLOGNE, GERMANY.

CHIMNEY.

No. 887,677.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed February 16, 1905. Serial No. 245,907.

To all whom it may concern:

Be it known that I, ALFRED MARCKS, a subject of the German Emperor, and resident of Dellbrück, near Cologne, Germany, have invented certain new and useful Improvements in Chimneys, of which the following is a specification.

This invention relates to improvements in chimneys and has for its object a device for protecting chimneys against the wind and promoting, at the same time, the draft of the same.

A simple form of construction of the invention inside of a chimney of masonry is shown on the accompanying drawing.

Figure 1 shows a vertical section through the middle of the chimney with the new device, Fig. 2 shows a vertical section of the device turned to form an angle of 90° with the vertical section of Fig. 1, while Fig. 3 shows a horizontal cross-section on the line X—X, and Fig. 4 a similar section on the line Y—Y of Fig. 1. Fig. 5 shows a perspective view of the whole chimney with the new device therein.

Similar letters refer to similar parts throughout the several views.

It is however not absolutely necessary to place the device in the chimney itself, for the same can also be arranged inside of a prolongation of sheet-iron, sheet-zinc or any other suitable sheet-metal to be put on the top of the chimney of masonry, as a so-called chimney-pot or top.

The invention is based on the idea that it would be easy for the smoke, steam, damp or any other gases, to escape freely and unhampered out of the top or upper end of the chimney, if the outlet-opening could be protected against the wind, provided the wind only blew from one direction and the opening at the top of the chimney were covered over and two lateral openings provided instead, one in the one direction and the other in the other of the two opposite directions it is supposed the wind could only blow from. With regard to the direction of the wind one of these openings might thus be said to be on the weather-side, the other on the lee-side. If now a clack-valve or flap is arranged between these two openings in a manner that it is moved by the wind itself and always closes the weather-side opening, but opens the one on the lee-side, the desired effect is attained. There is however to be observed that no hinge-joint should be used for turning the

flap, as the same loses its mobility too soon through dirt and the influences of the weather. The movement should therefore be effected by a tipping or turning on edges of a hard material, which is very little liable to be worn out, does not oxidize and causes very little friction, for instance glass or the like. This task has been solved in this invention in the following way:

In the middle between the two outlet-openings A for the smoke is arranged, on each side of the wall, a body *a* preferably of glass or the like, tapering towards the top and forming the edge *b*. On the latter rests on both sides a body *c*, likewise of a suitable material, such as glass or the like, which has at the bottom an angular recess and thus forms the negative edge which rests on the positive edge *b*. This body *c* carries at the top a sort of hood of sheet-metal or the like, which forms the flap, and the two halves *d* of which meet at an obtuse angle and thus form at *e* a vertex or ridge, which, when the hood is in a horizontal position, lies exactly vertically above the edge *b*. The angle between the two halves *d* corresponds with the inclination of bottom planes *f* of that wall, which closes the flue above the outlet openings A—A, and the length of the parts *d* corresponds with the width of these openings, so that when the hood tips over to the left with the negative edges *c* on the positive edges *b*, the right half *d* of the hood sets against the upper part of the wall *f* of the right outlet-opening A and frees the same, while, at the same time, the other half *d* enters into the left opening A and closes the same entirely. But if the hood tips over to the right on the edge *b*, the left half *d* sets against the top of the wall *f* of the left opening A and frees the same, while the right half *d* enters into the right opening A and closes the same. The first case, in which the wind is supposed to come from the left in the direction of the arrow *g*, is shown in Fig. 1 of the drawing in full lines; the smoke leaves here through the right opening A. The second case, in which the wind comes from the right and the smoke leaves by the opening A on the left, is shown in Fig. 1 in dotted lines.

In order to prevent the parts *a* and *c* from shifting away from each other, so that their edges cannot turn on each other as required, a safety-bow *h* is provided, which is fastened to the upper, the negative edge *c*, and which,

at the bottom, passes around *a*. This-bow *h* may suitably form a bottom-end continuation of a frame *i* of flat-iron or sheet-metal or the like, encompassing and holding the body *c* in its upper part, by means of which
 5 the body *c*, if it is of glass or any similar hard material, difficult to fasten, is fastened to the hood *d*, and preferably, as shown in the drawing, on a narrow side-wall *k* of the same, which unites and strengthens the two
 10 halves *d* laterally.

The bodies *a* with the positive edges may, if the whole device is lodged in a chimney-top of metal, very suitably be fastened in
 15 a similar way to the walls of the same by means of a metal frame. If however the device, as shown in the drawing, is arranged in a chimney of masonry B, the simplest mode of fastening the parts *a* will be to
 20 lengthen them, as represented in the drawing, and to simply wall or let them into the masonry of the chimney B with their continuations. In reality however the wind
 25 does not blow from one of two opposite directions alone, but from any direction. But from whatever direction it may come, it must always be nearer to one of the first
 supposed two directions than to the opposite, with the only exception of that case when
 30 it blows exactly in the direction of the horizontal axis of the clack-valve or flap. If therefore arrangements have been made by means of which the flap can tip over
 35 very easily, the tipping will always take place in the required way and the opening which is nearest to the weather-side be closed, except in the case when the wind
 blows exactly, or nearly, in the direction of the prolongation of the horizontal axis. In
 40 the short time however this takes place during a change in the direction of the wind, the wind can at least not blow into one of the two openings, because it is then directed
 45 against one of the two closed side-walls of the chimney, and it consequently blows past the openings without doing any harm. As soon as it is possible for the wind to blow into one of the openings, the apparatus commences to work, and protects at once
 50 the opening which requires to be protected by a corresponding adjustment of the flap. As it is thus necessary for the perfect working of the device that the flap should move with the greatest ease, its center of gravity
 55 must, of course, lie in its horizontal axis, which is a very easy matter and in the construction shown in the drawing it is supposed that this is the case.

In the construction shown in the drawing
 60 there has further been arranged below each opening A an opening C with an upward slant, for the entrance of the outer air, by means of which the column of smoke is, in the well known manner, driven upwards towards the
 65 top, where it leaves with the air, which thus

facilitates its exit, through the upper opening A on the lee-side. This special form of construction of the device with the two openings C is in most cases to be preferred to the construction without these two openings, as
 70 the wind entering through the opening C aids in tipping over the upper flap *d*, *d*, and to bring it thus more rapidly into the required position, not considering the fact that, as already stated, the air promotes the exit of the
 75 smoke.

In order that the outer air entering through the opening C on the weather-side cannot escape through the opposite opening C on the lee-side, and thereby impede the exit of the
 80 smoke, a second movable and more vertical flap *l* is provided with a fixed positive edge *m* and a negative edge *n* movable on the former. As the second flap *l* is however, unlike the flap *d*—*d*, seized by the wind with a
 85 considerable leverage, it requires a considerable counter-weight *o*, to hold it in equilibrium, which, as shown in the drawing, may be arranged below the body *m* with the positive edge, and thus be a substitute for the
 90 safety-bow, by which the two edges are prevented from moving away from each other. In order that this apparatus may not obstruct the passage of the smoke, the tipping-device is to be placed into lateral recesses *p*
 95 of the smoke-pipe.

As the drawing shows, the present device can be built into the chimney itself, so that it is not visible, and will thus suit any style
 of architecture and not mar the beauty of a
 100 building. It can therefore be used in chimneys of any description and construction, no matter of what kind the architecture may be. What I claim as my invention and desire
 105 to secure by United States Letters Patent is—

1. A device for protecting chimneys against the wind and promoting, at the same time, the draft of the same, consisting of the closed top of the chimney, two opposite
 110 outlet-openings A for the smoke below said top, a flap *d*, *d* consisting of two halves *d* which form an obtuse angle, and tipping on a horizontal axis in the middle between said openings A so as to close the same alternately,
 115 an air inlet-opening C below each opening A and a flap *l* brought in equilibrium by a counter-weight, in the middle between said openings C and tipping on a horizontal axis so as to close alternately the one or the other of said
 120 openings C.

2. A device for protecting chimneys against the wind and promoting, at the same time, the draft of the same, consisting of the closed top of the chimney, two opposite
 125 outlet-openings A for the smoke below said top, a flap *d*, *d* consisting of two halves *d* which form an obtuse angle, and tipping on a horizontal axis in the middle between said openings A so as to close the same alternately,
 130

an air inlet-opening C below each opening A
and a flap *l* brought in equilibrium by a
counter-weight, in the middle between said
openings C and tipping on a horizontal axis
5 so as to close alternately the one or the other
of said openings C, each of the horizontal
tipping axes of the flaps *d*, *d* and *l* being
formed between two immovable bodies fixed
at opposite walls of the chimney, each taper-
10 ing towards its top and forming a positive
edge, on the one hand, and two correspond-
ing movable bodies fixed to the flaps, each

forming at its bottom side a negative edge
and resting with it upon the positive edge
of the corresponding immovable body, on the 15
other hand.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

ALFRED MARCKS.

Signed in presence of—

WILLIAM KUEPPERS,

JOH. SCHOLZ.