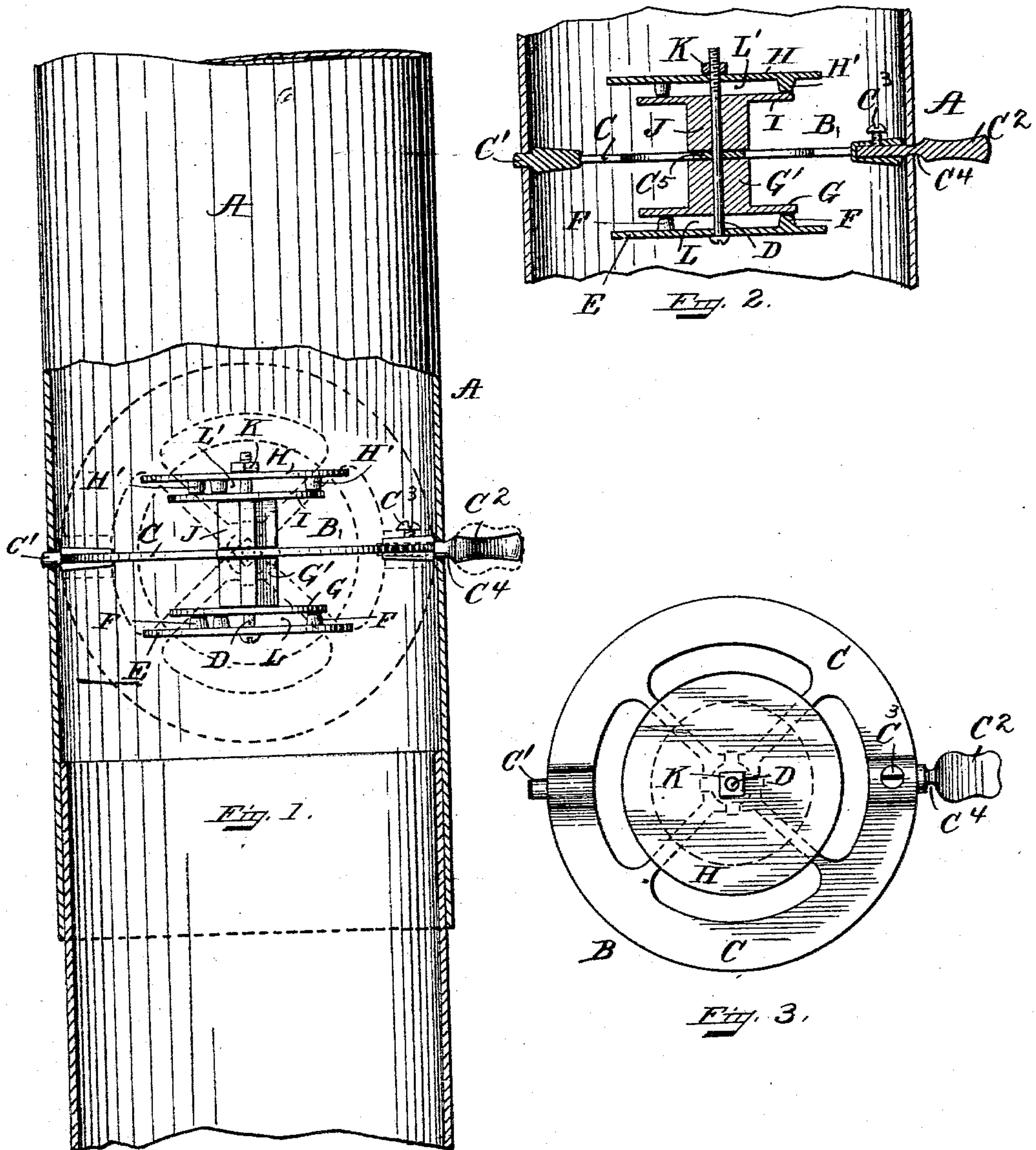


(No Model.)

F. I. COUCH.
DAMPER.

No. 556,738.

Patented Mar. 24, 1896.



Witnesses:
E. L. Harlow.
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Att'y.

UNITED STATES PATENT OFFICE.

FRANKLIN I. COUCH, OF BOSTON, MASSACHUSETTS.

DAMPER.

SPECIFICATION forming part of Letters Patent No. 556,738, dated March 24, 1896.

Application filed October 29, 1895. Serial No. 567,276. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN I. COUCH, of Boston, county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in Dampers, of which the following is a specification; and I hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of dampers which are pivotally supported in the smoke-pipes of stoves, &c.

The objects of my invention are to provide a damper of such construction as to admit of the passage of smoke and gases through the smoke-pipe in which the said damper is located and at the same time prevent a waste of heat by its passing upwardly with the smoke, and another object of my device is to prevent the downward draft of cold air into the heat-chamber of the stove or furnace.

Another object is to construct said damper of interchangeable parts, which may be cast or otherwise formed and easily connected together.

These and other objects are accomplished by the construction hereinafter described and shown.

My invention consists of certain novel features hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, which illustrate a construction embodying my invention, Figure 1 represents a portion of a smoke-pipe partly broken away to show a side elevation of my improved damper located in said pipe, and also showing in dotted lines the position of said damper when turned at right angles to the position shown in full lines. Fig. 2 is a central vertical section through the damper and smoke-pipe. Fig. 3 is a top plan view of said damper.

Like letters of reference refer to like parts throughout the several views.

Within the smoke-pipe A there is journaled the damper B, consisting of a central circular ring C having on one side a journal-pin C' and on the opposite side a key C², secured to said ring C by a set-screw C³, provided with a neck C⁴ having a bearing in the smoke-pipe,

and said damper B, by means of the journal-pin C' and neck C⁴, is pivotally supported in the said smoke-pipe.

Through the center C⁵ of said ring C there is arranged a shaft D, on the lower end of which is arranged a disk E having upwardly-projecting lugs F, on which rests the disk G having an upwardly-projecting hub G' located around said shaft D, and the upper end of which hub is in contact with the center part C⁵ of the ring C.

Above the center part C⁵ there is a disk I having a downwardly-projecting hub J located around the shaft D and in contact with the central part C⁵ of the ring C. Located around said shaft D and above said disk I there is arranged a disk H having downwardly-projecting lugs H', by means of which the disk H is separated from contact with the disk I, and the nut K, having a screw-threaded connection with the upper end of the shaft D, binds securely together the disks E, G, I and H.

By means of the lugs F and H' spaces L and L' respectively are provided between the disks E and G and between the disks I and H for the circulation of air, which have the effect of being a non-conductor of the ascending heat and a non-conductor of the descending cold air respectively.

It is now well known that the rays of heat and cold are independent and that the smoke and gases pass upwardly on the sides of the smoke-flue and the cold downdraft passes down through the center of the flue. These opposing elements of cold and heat, the pressure of which is respectively fifteen and twelve pounds to the square inch, must meet at some given point, either in the heat-chamber of the stove, where the fire has just been lighted, or at the top of the chimney after the fire has become intense. By means of my device these opposing elements are compelled to meet wherever said device is located—that is, when turned across the flue, as shown in full lines in Fig. 1.

The damper being supported in the position shown in full lines, Fig. 1, it is evident that the volume of smoke, heat, and gases passing upwardly through the pipe A will come in contact, first, with the lower disk E, and it

will result that the heat, or a greater portion thereof, will be deflected downwardly, while the smoke and gases will pass upwardly around the edges of the disk E through the ring C and around the edges of the disk H and thence to the open air. It is evident that such heated air as may pass around the edges of the disk E will come in contact with the ring C and be subjected to an additional downward deflection, which operates to retain the heat within the heat-chamber and prevent its escape with the smoke and gases. The ascending heat and gases impinge against the lower disk E, causing the said disk and the disk G to become heated, and they then begin to radiate from their surfaces heat upwardly and downwardly, while the upper disk H receives the downward atmospheric pressure commonly called "downdraft" and prevents it from reaching the lower two disks E and G, and by this arrangement the lower two disks E and G become and remain very hot, while the upper two disks H and I cannot radiate so great a degree of heat, and by this arrangement the oxygen enters the combustion-chamber and keeps up the combustion, as it allows the ascending smoke and gases to pass off freely.

From the construction shown and described it will readily be seen that a simple form of damper is provided which serves to prevent the escape of heat through the smoke-flue, and yet does not retard the outward movement of the smoke and gases.

It is evident from this construction and operation that a perfect combustion of fuel is produced when the required heat is attained, and at the same time a large saving of fuel is made.

When the fire is started the damper is turned to a vertical position, as shown in dotted lines, Fig. 1, and at the proper time it is turned across the flue, as shown in full lines, Fig. 1, and as both ends are constructed alike it is immaterial which end the servant

turns up or down, as the result is the same in either case.

Having thus ascertained the nature and set forth a construction embodying my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a damper, the combination of a ring having a central part, a shaft passing through said central part, a disk located on each side of said ring and each having a hub arranged around said shaft and bearing on said central part of said ring, another disk on each side of said ring located around said shaft, and means for separating said disks.

2. In a damper, the combination of a ring having a central part, a shaft passing through said central part, a disk located on each side of said ring and each having a hub arranged around said shaft and bearing on said central part of said ring, another disk on each side of said ring located around said shaft, means for separating said disks, and a nut having a screw-threaded connection with said shaft for holding the parts together.

3. In a damper, the combination of a ring having a central part, a shaft passing through said central part, a disk located on each side of said ring and each having a hub arranged around said shaft and bearing on said central part of said ring, and another disk on each side of said ring and provided with lugs for separating said disks.

4. A damper consisting of a central ring and two disks arranged on each side of said central ring, and means for separating said disks.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 23d day of October, A. D. 1895.

FRANKLIN I. COUCH.

Witnesses:

A. D. FOSKIT,
L. T. HAZEN.