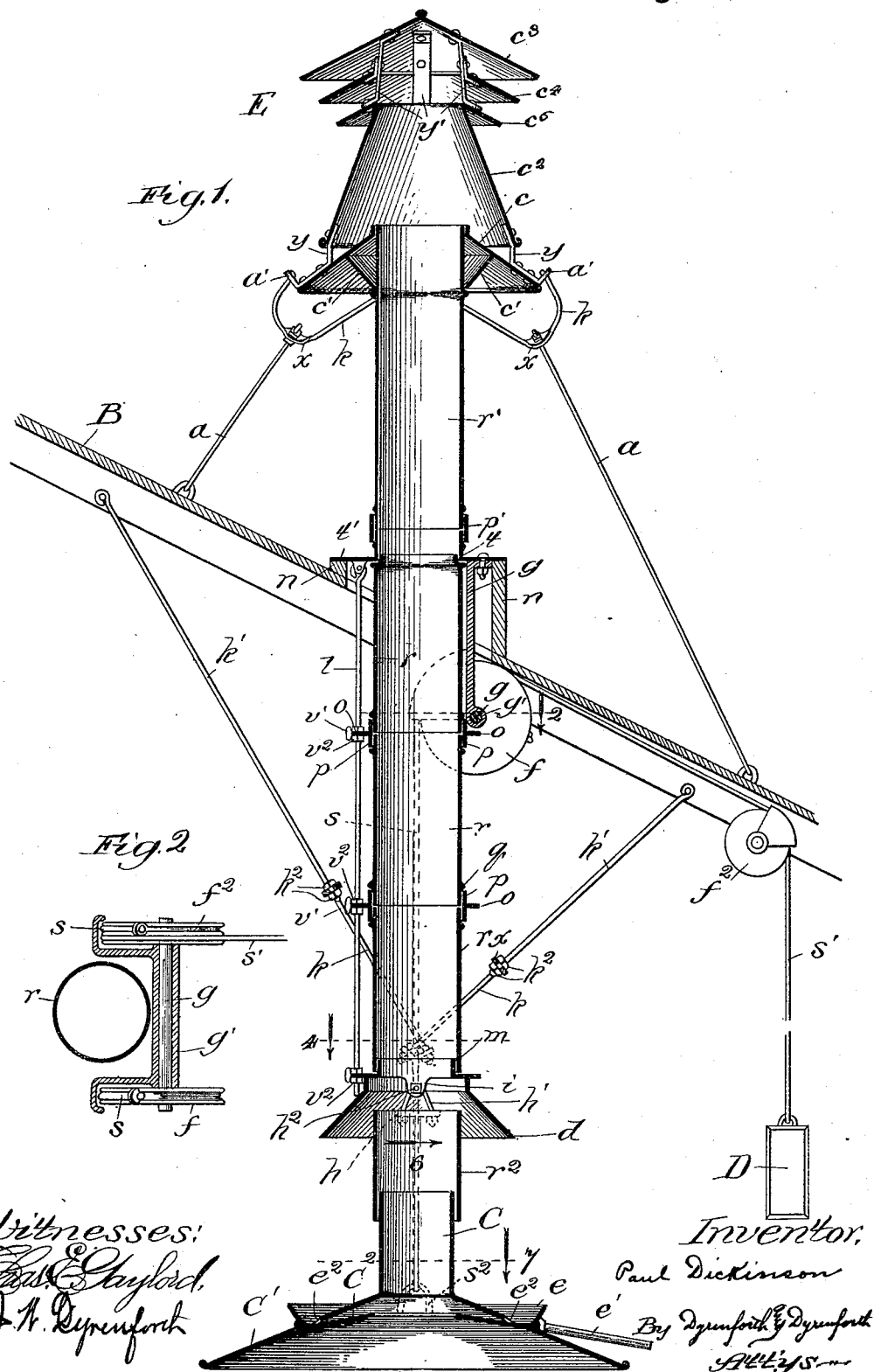


P. DICKINSON.  
CHIMNEY.

No. 457,910.

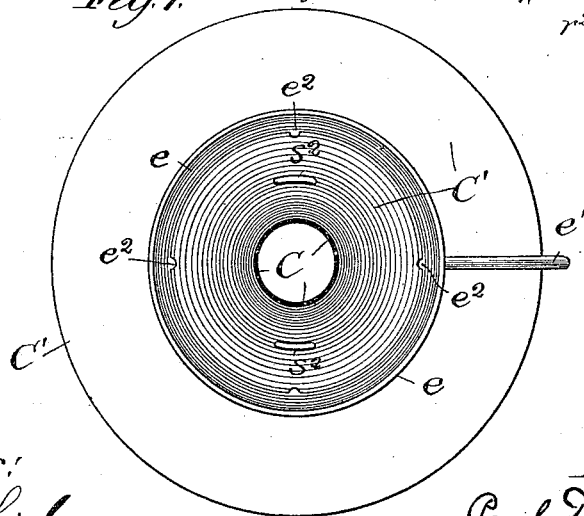
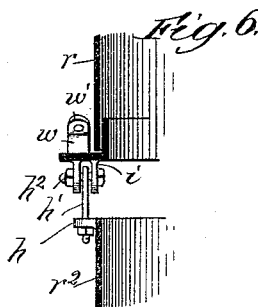
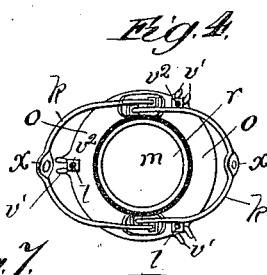
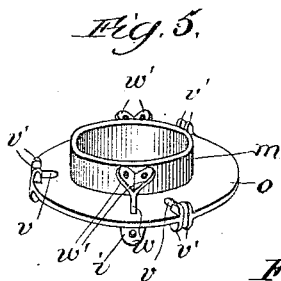
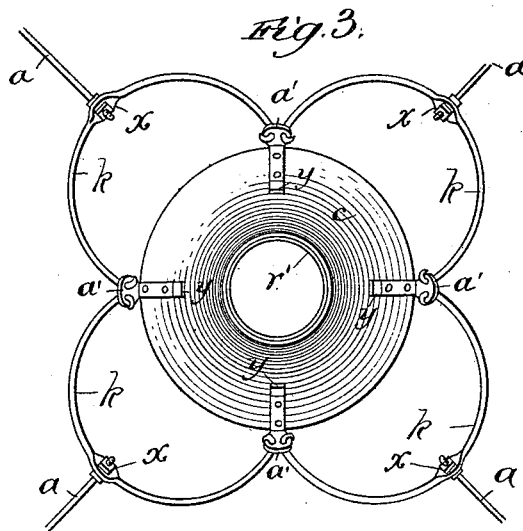
Patented Aug. 18, 1891.



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# UNITED STATES PATENT OFFICE.

PAUL DICKINSON, OF CHICAGO, ILLINOIS.

## CHIMNEY.

SPECIFICATION forming part of Letters Patent No. 457,910, dated August 18, 1891.

Application filed January 30, 1891. Serial No. 379,659. (No model.)

*To all whom it may concern:*

Be it known that I, PAUL DICKINSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Chimneys, of which the following is a specification.

My invention relates to an improvement in the class of chimneys adapted for use in ventilating, and as a smoke-stack for use on the roof of a railway-station shed as a flue for the escape of smoke from the locomotive-stack.

More particularly stated, my invention relates to an improvement upon the chimney set forth in Letters Patent of the United States No. 445,714, granted me on the 3d day of February, 1891.

My object is to provide, as to chimneys of the general class referred to, improvements in details of construction thereof, which improvements shall be especially applicable to chimneys involving the general construction of the chimney shown and described in my aforesaid patent, and shall serve to cheapen the structure involved in and the erection of chimneys provided with my improvements, besides otherwise bettering the construction thereof.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a chimney formed with my improvements and represented as being supported on a roof, shown broken and in section. Fig. 2 is a section taken on the line 2 of Fig. 1, and viewed in the direction of the arrow. Fig. 3 is a plan view of the chimney as represented in Fig. 1 with the ventilator-cap removed. Fig. 4 is a section taken on the line 4 of Fig. 1, and viewed in the direction of the arrow. Fig. 5 is a perspective view of a flanged collar detail to surround sections of the chimney at their junction. Fig. 6 is a section taken on the line 6 of Fig. 1, and viewed in the direction of the arrows, showing the supporting details for the pivotal section. Fig. 7 is a section taken on the line 7 of Fig. 1 and viewed in the direction of the arrows.

A is the chimney formed in longitudinal sections  $r$  and  $r'$ , preferably of cast-iron, fitting one against the other. The sections  $r$ ,

extending below the roof B, are surrounded at their junctions by collars  $p$ , confined between beads  $q$ , and having lateral flanges  $o$ , of peculiar construction, as and for the purpose hereinafter described, while the section  $r'$  above the roof is surrounded at its junction with the section below it by a collar  $p'$ , which need not be flanged. The parts shown and described as collars surrounding the sections at their junctions, while represented as separable features of the construction, may be the mere expanded integral ends of sections to overlap the adjacent ends of other sections, and I desire to be understood as including both said forms of the collars as within my invention.

That part of the chimney which hangs below the roof B is supported thereon from a collar  $t$ , having a lateral flange  $t'$  extending around it and resting on a suitable prop  $n$ , arranged to sustain the collar in a horizontal position on the roof. The said collar  $t$  is connected with a collar  $m$ , fitting the lower end of the lowermost of the sections  $p$  and encircled by one of the flanges  $o$ , and the two collars  $t$  and  $m$  are connected together from their flanges by tie-rods  $l$ , whereby the pipe-sections of the chimney are firmly fastened together.

The construction of the collar  $m$  is clearly shown as a detail in Fig. 5, and each collar  $p$  is like it, with the exception that the latter should fit inside its pipe-section, and has attachments for bails  $k$  and ears  $i$ , from which to support the lower pivotal section  $r^2$ , as hereinafter described, with which the collars  $p$  are unprovided.

The flange of each of the collars  $p$  and  $m$  is provided in its perimeter with a radial slot  $v$  for each rod  $l$  employed (three being shown,) and the slots  $v$  are provided near their outer extremities with projections forming stops  $v'$ . The rods  $l$  are pivotally suspended from the flange  $t'$  of the collar  $t$  to extend through the flanges  $o$ , and at the slots  $v$  the rods are threaded and carry nuts  $v^2$ , two for each slot, whereby when a rod is swung into its vertical line of slots  $v$  the nuts for each may be screwed respectively upward and downward against the collar-flange at the inner side of

the stop  $v'$ , thus clamping the rod to each collar-flange, and the stops  $v'$  obstructing the nuts against lateral displacement, and thus preventing strain from swinging the rods outward.

To further stay the collar  $m$  and parts supported by it, I provide thereon at opposite sides a lug  $w$ , extending upward from the flange and each terminating in a pair of perforated ears  $w'$ , in the form of a V, to receive in their perforations the ends of the bails  $k$ . Thus one bail is inserted at its opposite ends through an ear  $w'$  of each pair of such ears, and it is expanded and perforated at its center, as shown at  $x$ , there to receive the threaded end of a guy-rod  $k'$ , secured by nuts  $k^2$  at opposite sides of the bail, the opposite ends of the guy-rods being secured as in the manner represented in Fig. 1 to the roof B. The pivotal section  $r^2$  is provided at opposite sides of its upper end with perforated lugs  $h$  to admit the threaded ends of bifurcated links  $h'$ , secured by nuts, as shown, and each of which links is pivotally suspended from a pin  $h^2$ , having its bearing in a lug  $i$ , depending from the collar  $m$ , which lug should be bifurcated, as represented in Fig. 6.

C is the drop-section terminating in a hood  $C'$ , from which it is adjustably suspended. The means I prefer to employ for the suspension of the drop-section comprises a rotary shaft  $g$ , Fig. 2, in a suitable bearing  $g'$ , supported to extend downward from the collar-flange  $f'$  at one side of the chimney, the shaft carrying to rotate with it, at one end, a guide-pulley  $f''$ , to which is secured one end of a rope  $s$ , having its opposite end fastened to the drop-section, preferably at a bail  $s^2$  on the hood C, and at the opposite end of the shaft it carries, similarly, a pulley  $f$ , having secured to it a rope  $s$ , fastened at its lower end to the opposite side of the drop-section, also preferably to a bail  $s^2$  on the hood. The pulley  $f$  is also adapted to have fastened to it one end of the rope  $s'$  passing over a guide-pulley  $f^2$  and carrying the counterbalancing-weight D. This manner of supporting the drop-section on opposite sides from the ends of a rotary shaft carrying pulleys to revolve with it is especially advantageous, inasmuch as it tends to prevent wobbling of the drop-section in raising and lowering it and permits true adjustment thereof to be readily effected.

I provide circumferentially on the upper side of the hood  $C'$  a gutter  $e$  to receive moisture that may run down the outside of the chimney, and a discharge-pipe  $e'$  leads from the gutter to any point desired for the discharge, and this outside gutter I connect with the commonly-provided internal gutter  $C^2$  by perforations  $e^2$ , whereby the contents of the inner and outer gutter may discharge through the same pipe.

To preclude the entrance of moisture into the pivotal section  $r^2$  from its upper end, I ex-

tend from the flange  $o$  of the collar  $m$  a deflector  $d$ , whence moisture running down the chimney upon it will drop into the gutter  $e$ . This double gutter and its discharge-pipe may be provided on the stationary hoods  $C'$  with which some chimneys of the class to which my improvement relates are provided. Hence I do not limit the application of the said gutter to the hood  $C'$  on a drop-section.

E is the ventilator-cap which surmounts the uppermost section  $r$ . It is formed of a hollow conical deflector  $c$  extending from the upper end of the section  $r'$ , and braced circumferentially from underneath by a collar  $c'$ , having the form of an inverted cone, extending upward and outward from the section  $r'$  against the deflector  $c$ , some distance inward from its outer flaring edge. This construction is peculiarly advantageous inasmuch as by causing the circular brace  $c'$  to engage the deflector  $c$  midway, or thereabout, of its extent it not only props it firmly, but itself serves the better to deflect currents of air in a downward direction by first catching them underneath the deflector  $c$ . On the cone  $c$  is supported, through the medium of suitable legs  $y$  fastening the parts together, a deflector in the form of a conical frustum  $c^2$ , surmounted by a hood  $c^3$ , supported and fastened in place by means of the legs  $y'$ . Between the parts  $c^2$  and  $c^3$  are two overlapping deflectors in the form of hollow conical frustums  $c^4$  and  $c^5$ , the former being secured to the legs  $y'$  and the latter to the upper end of the deflector  $c^2$ , between which and the deflector  $c^5$  there is thus no open passage.

The upper section  $r'$ , with the parts it supports, is steadied by guy-rods  $a$ , secured at their lower ends to the roof, and which I prefer to fasten at their upper ends in a manner analogous to that employed for connecting the guy-rods  $k'$ , namely, by means of bails  $k$ , perforated at their expanded centers  $x$ , through which the threaded ends of the guy-rods extend, being fastened by nuts, and the ends of the bails being passed through and secured in perforated ears  $a'$  projecting from the lower ends of the ventilator-cap legs  $y$ .

From the foregoing description it will be apparent that my improvements tend to cheapen the construction and erection of the chimney, and that they render the construction durable, since the part underneath the roof B, which is pivotally movable, is comparatively light, and does not bear so heavily on its pivot as to tend to cut or wear it; and the accidental moving against it of a locomotive is not liable to demolish the latter, though if it should, being only a single section, it may be readily replaced by a new one at comparatively little expense.

The rod means for connecting the sections is advantageous, particularly since thereby one—the uppermost—section  $r$  may be quite

readily fastened in place, and the others successively in their order downward and independently of each other.

What I claim as new, and desire to secure by Letters Patent, is—

1. A chimney formed with connected sections  $r$  to extend below a roof B, and rods  $l$ , suspended from their upper ends, having stops at intervals and engaging projections on the sections, thereby suspending the said sections in connected relation with each other, substantially as described.

2. A chimney A, formed in connected sections  $r$  and  $r'$  to extend, respectively, below and above a roof B, flanges  $o$  on collars  $p$ , surrounding the sections  $r$  at their junctions, a collar  $m$  for the lowermost of said sections, having a flange  $o$ , slots in the flanges extending inward from the peripheries thereof, and tie-rods  $l$ , suspended from their upper ends and adapted to enter the slots in the flanges, the rods being threaded near their engagement with the said slots and provided with nuts for fastening the rods and flanges together and thereby suspending the sections in connected relation with each other, substantially as described.

3. A chimney A, formed in connected sections  $r$  and  $r'$  to extend, respectively, below and above a roof B, flanges  $o$  on collars  $p$ , surrounding the sections  $r$  at their junctions, a collar  $m$  for the lowermost of said sections, having a flange  $o$ , slots  $v$  in the flanges extending inward from the perimeters thereof and provided with stops  $v'$  near their outer ends, and tie-rods  $l$  suspended from their upper ends and adapted to enter the slots in the flanges, the rods being threaded near their engagement with the slots, and provided with nuts for fastening the rods and flanges together and thereby suspending the sections in connected relation with each other, substantially as described.

4. A chimney A, formed in connected sections  $r$  and  $r'$  to extend, respectively, below and above a roof B, a collar  $t$  at the junction of the uppermost section  $r$  with the adjacent section  $r'$ , and provided with a flange  $t'$ , supported on a prop  $n$  on the roof, collars  $p$  at the junctions of the sections  $r$ , and a collar  $m$  for the lowermost of said sections, the collars having flanges  $o$ , provided with slots  $v$ , extending inward from their perimeters, and tie-rods  $l$  suspended from the flange  $t'$  and adapted to be swung into the slots  $v$ , the rods being threaded near their engagement with the slots and provided with nuts for fastening the rods and flanges together and thereby suspending the sections in connected relation with each other, substantially as described.

5. A chimney A, formed in connected sections  $r$  and  $r'$  to extend, respectively, below and above a roof B, flanges  $o$  on collars  $p$ , surrounding the sections  $r$  at their junctions, a

collar  $m$  for the lowermost of said sections, having a flange  $o$ , and provided with perforated lugs  $w$ , slots  $v$  in the flanges extending inward from the perimeters thereof, tie-rods  $l$  suspended from their upper ends and adapted to enter the slots in the flanges, the rods being threaded near their engagement with the slots, and provided with nuts for fastening the rods and flanges together, bails  $k$ , fastened to the perforated lugs  $w$  on the collar  $m$ , and guy-rods  $k'$ , extending from the said bails to the roof, substantially as described.

6. A chimney A, formed in connected sections  $r$  and  $r'$  to extend, respectively, below and above a roof B, a collar  $m$  for the lowermost of said sections having a flange  $o$ , from which the sections  $r$  are tied together, and dependent lugs  $i$ , a section  $r^2$ , and bifurcated links  $h'$ , pivotally connecting the section  $r^2$  with the lugs  $i$ , substantially as described.

7. A chimney A, formed in connected sections  $r$  and  $r'$  to extend, respectively, below and above a roof B, a collar  $m$  for the lowermost of said sections having a flange  $o$ , from which the sections  $r$  are tied together, dependent lugs  $i$ , and a deflector  $d$ , and bifurcated links  $h'$ , pivotally connecting the section  $r^2$  with the lugs  $i$ , substantially as described.

8. A chimney A, formed in connected sections  $r$  and  $r'$  to extend, respectively, below and above a roof B, a collar  $t$  at the junction of the uppermost section  $r$  with the adjacent section  $r'$  and provided with a flange  $t'$ , supported on a bearing  $n$  on the roof, collars  $p$  at the junctions of the sections  $r$ , and a collar  $m$  for the lowermost of said sections, the collars having flanges  $o$ , provided with slots  $v$ , perforated lugs  $w$ , dependent lugs  $i$ , and a deflector  $d$  on the collar  $m$ , tie-rods  $l$ , suspended from the flange  $t'$  and adapted to be swung into and secured in the slots  $v$ , bails  $k$ , secured in the lugs  $w$  and connected by guy-rods  $k'$  with the roof, and a pivotal section  $r^2$ , suspended by bifurcated links  $h'$  from the lugs  $i$  on the collar  $m$ , substantially as described.

9. A chimney A, formed in connected sections  $r$  and  $r'$  to extend, respectively, below and above a roof B, a pivotally-suspended section  $r^2$ , a drop-section C, carrying a hood  $C'$ , provided circumferentially on its upper side with a gutter  $e$ , having a discharge-pipe  $e'$ , a rotary shaft  $g$ , supported in a suitable bearing  $g'$  and carrying at opposite ends pulleys  $f$  and  $f'$ , from which the drop-section is suspended from opposite sides by ropes  $s$ , and a counterbalancing-weight D on a rope  $s'$ , secured to the pulley  $f$ , substantially as described.

10. In combination with a chimney A, a hood  $C'$ , provided circumferentially on its inner side with a gutter  $C^2$  and on its outer side

with a gutter *e*, having a discharge-pipe *e'* and with which the inner gutter communicates, substantially as described.

11. A chimney A, formed in connected sections *r* and *r'* to extend, respectively, below and above a roof B, and means for supporting the uppermost sections *r'*, comprising bails *k*, fastened at their ends to the said sec-

tion near its upper end, and guy-rods *a*, connecting the bails with the roof, substantially as described.

PAUL DICKINSON.

In presence of—  
J. W. DYRENFORTH,  
M. J. FROST.