

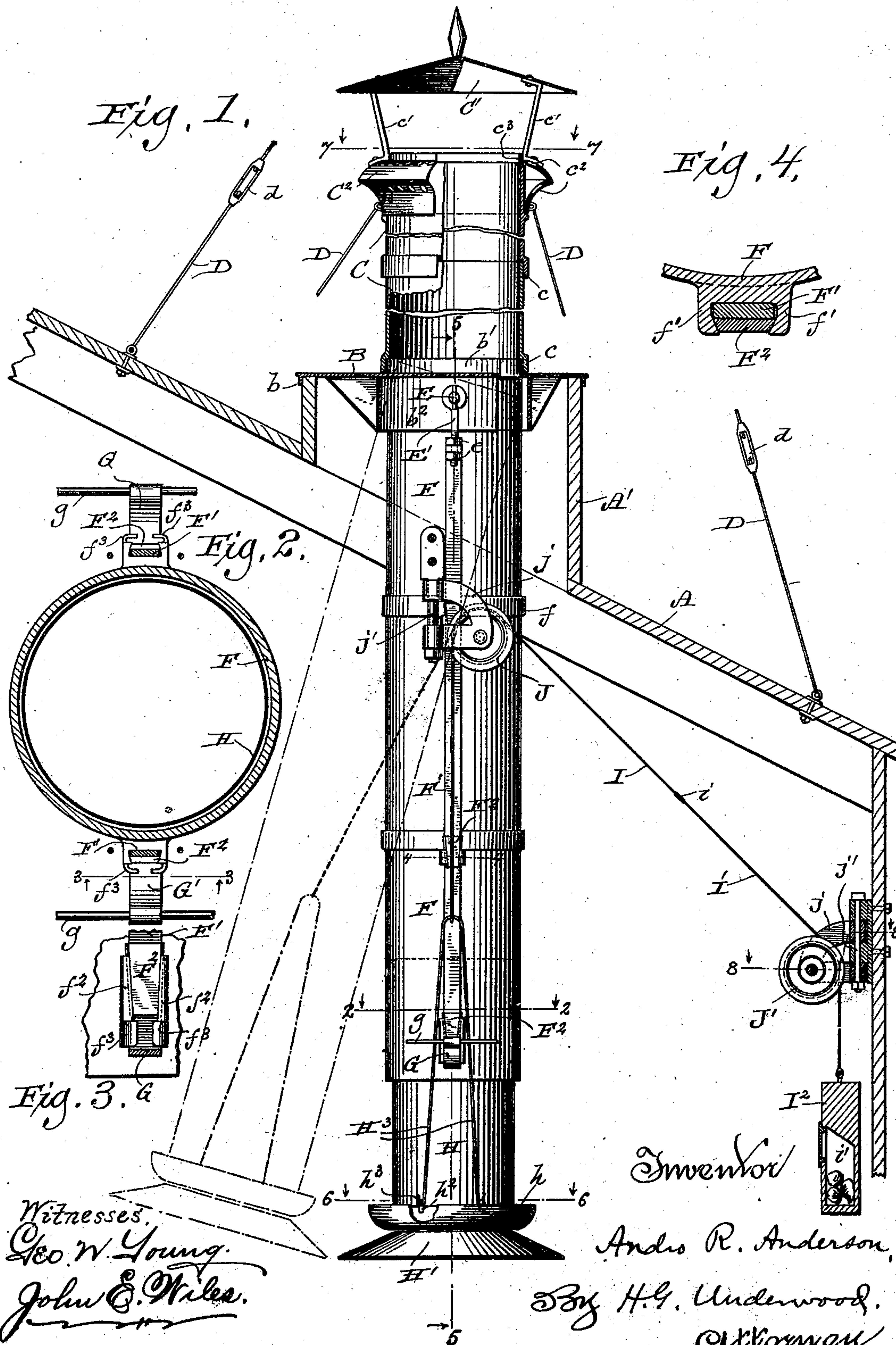
(No Model.)

2 Sheets—Sheet 1.

A. R. ANDERSON.  
SMOKE JACK.

No. 504,511.

Patented Sept. 5, 1893.



Witnesses.  
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John E. Miles.

Inventor  
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Attorney

(No Model.)

2 Sheets—Sheet 2.

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Fig. 7.

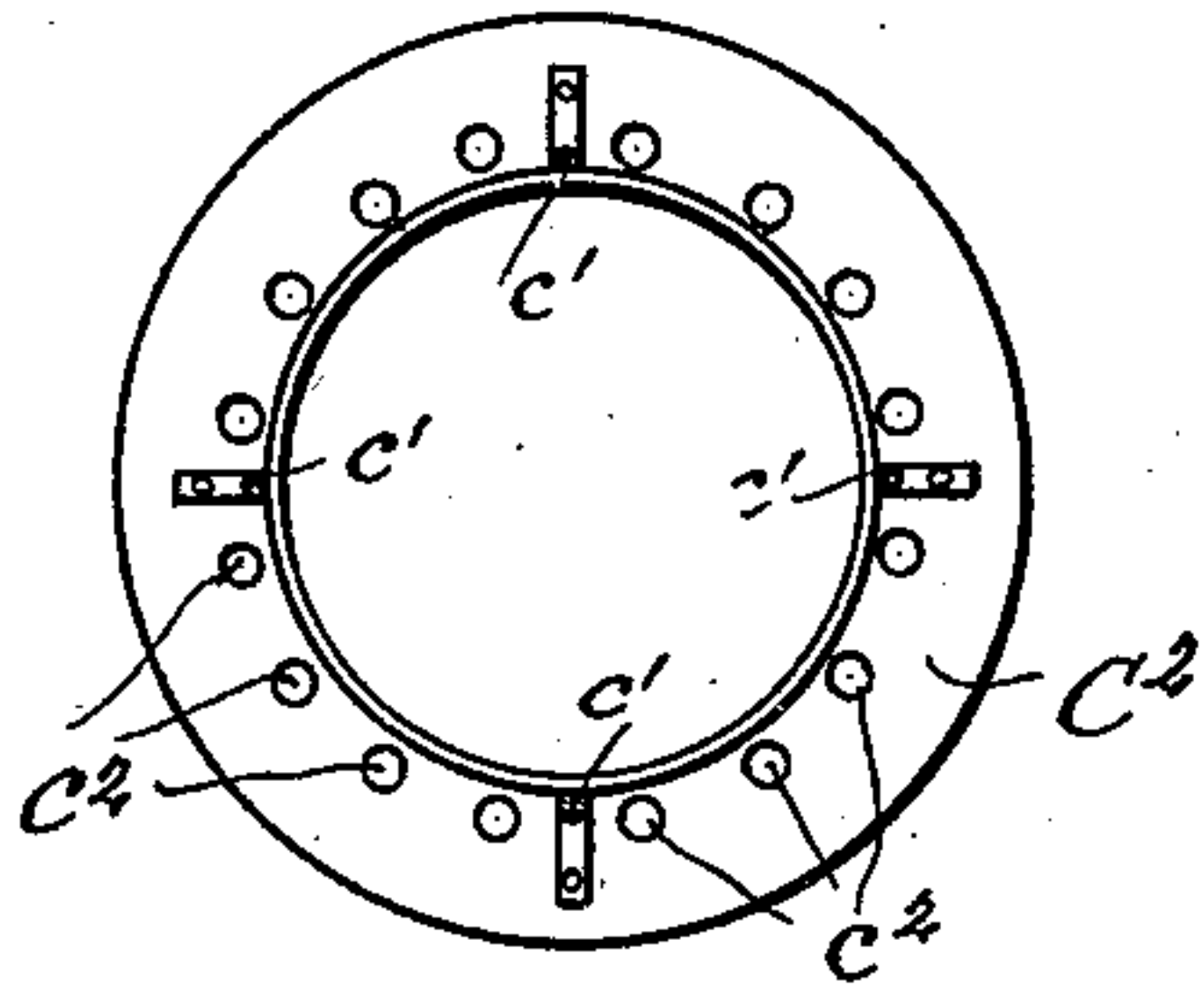


Fig. 5.

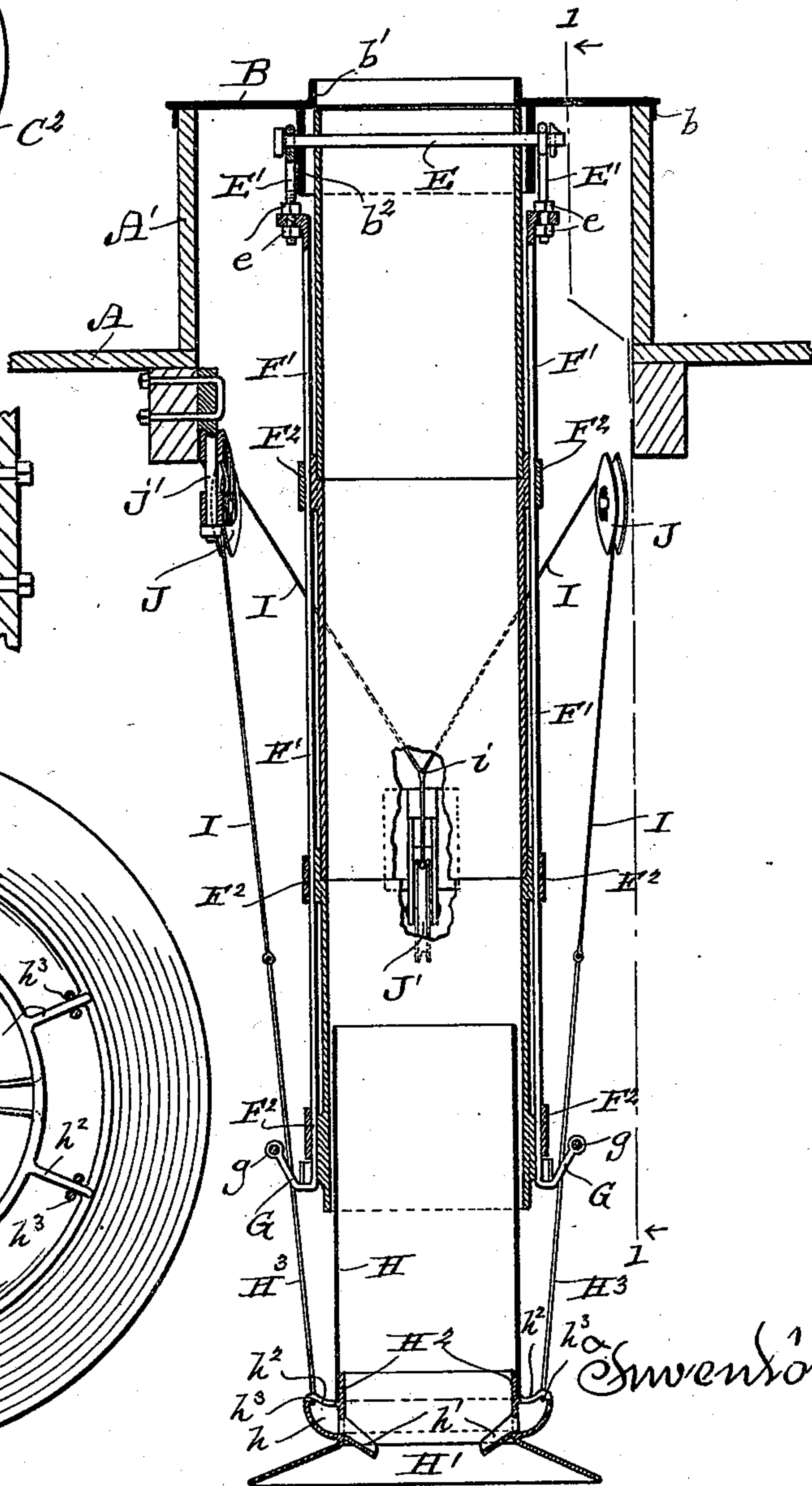


Fig. 8.

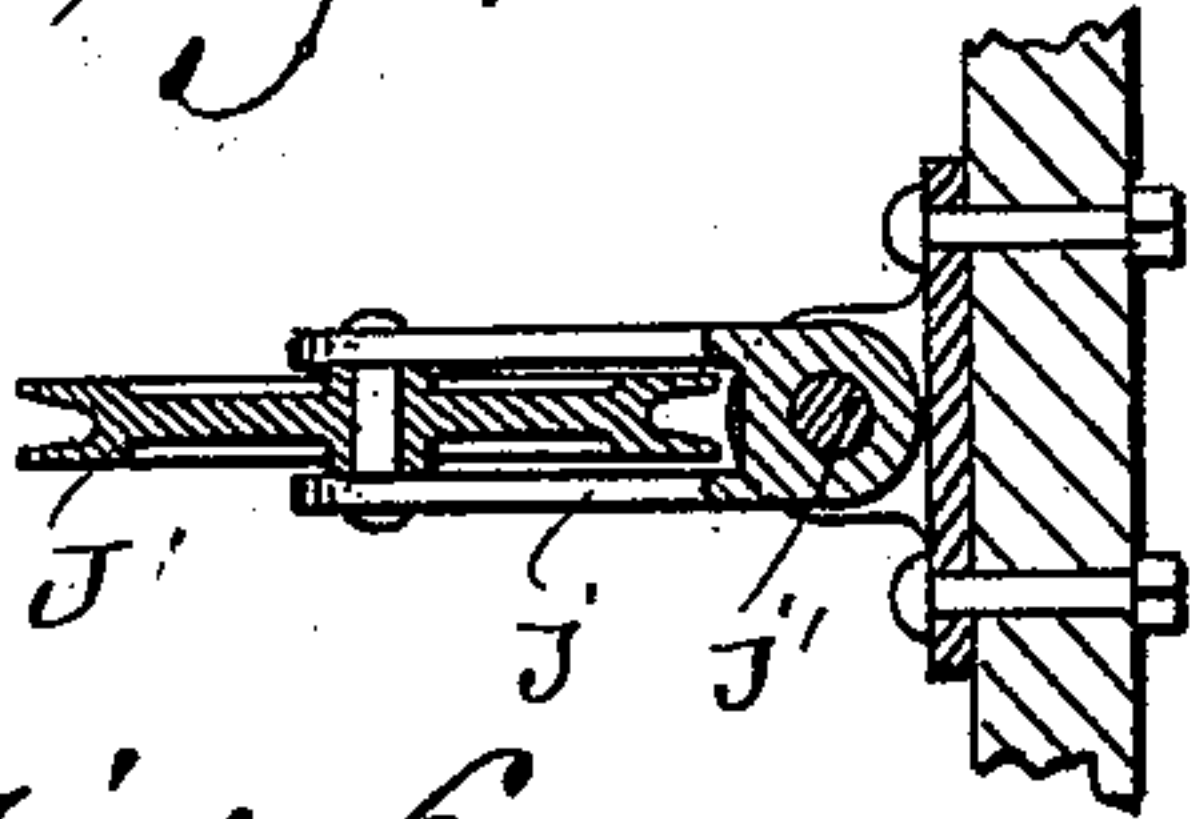
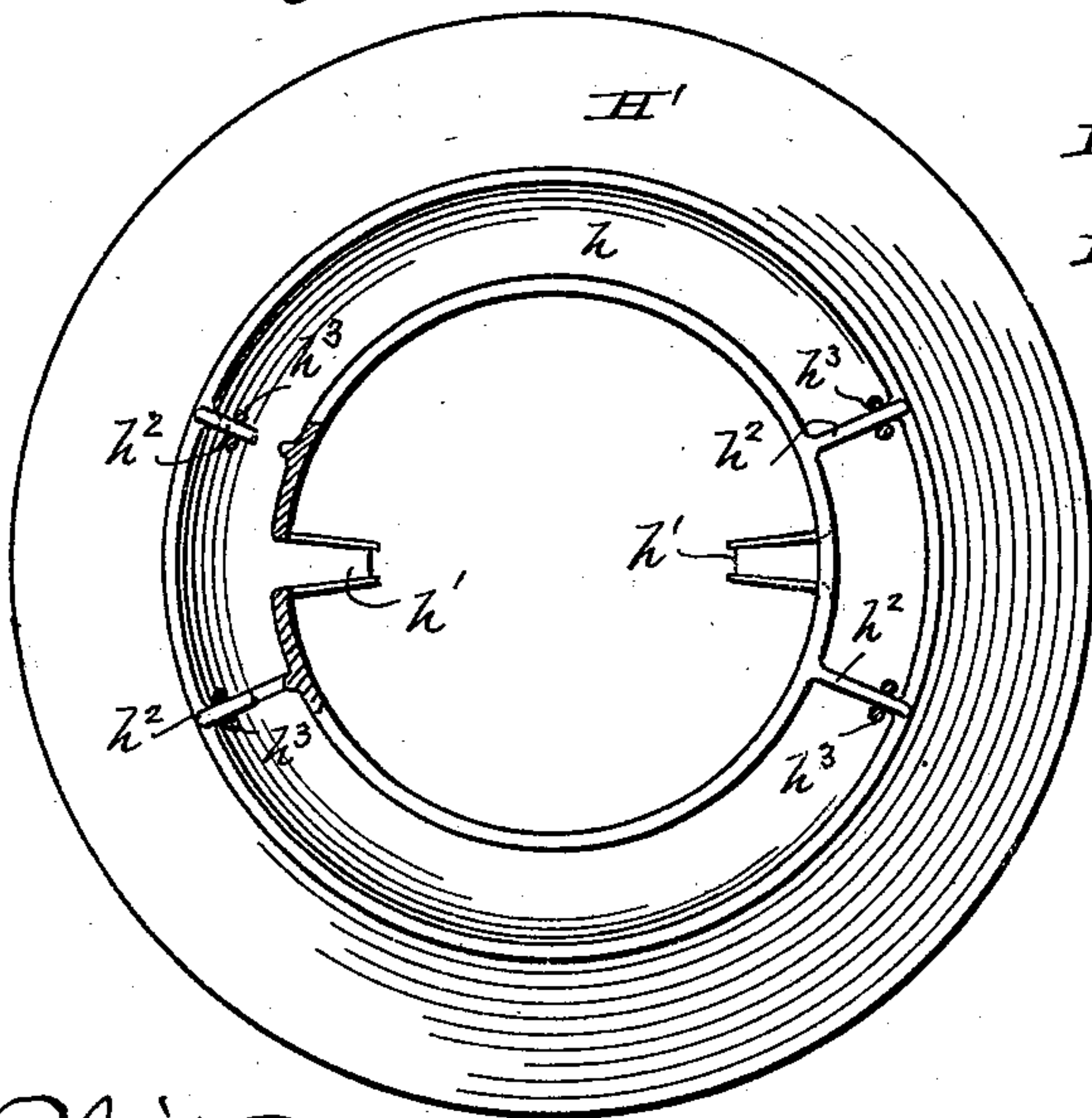


Fig. 6.



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# UNITED STATES PATENT OFFICE.

ANDRO R. ANDERSON, OF MILWAUKEE, WISCONSIN.

## SMOKE-JACK.

SPECIFICATION forming part of Letters Patent No. 504,511, dated September 5, 1893.

Application filed August 19, 1892. Serial No. 443,545. (No model.)

*To all whom it may concern:*

Be it known that I, ANDRO R. ANDERSON, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Smoke-Jacks; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to new and useful improvements in the construction of ventilators and smoke jacks for locomotive houses, shops, &c., and my said invention consists in the matters hereinafter described and pointed out in the appended claims.

In the accompanying drawings illustrating my invention:—Figure 1, is a vertical sectional view of a roof to which my improved device is applied, and shows portions of the upper part of the same as broken away to better illustrate the construction. Fig. 2, is a horizontal sectional view taken on line 2—2 of Fig. 1. Fig. 3 is a detail vertical sectional view taken on line 3—3 of Fig. 2. Fig. 4, is a detail horizontal sectional view taken on line 4—4 of Fig. 1. Fig. 5, is a vertical sectional view taken on line 5—5 of Fig. 1. Fig. 6, is an enlarged horizontal sectional view taken on line 6—6 of Fig. 1. Fig. 7 is a similar sectional view taken on line 7—7 of Fig. 1. Fig. 8, is a detail horizontal sectional view taken on line 8—8 of Fig. 1.

In said drawings: A represents the roof of a building to which my improved device is applied and A' a suitable tubular base, extending a short distance above the roof and provided with a horizontal upper end upon which a supporting plate B, preferably of cast metal, is secured. This plate B is provided with a peripheral, downwardly extending flange *b*, adapted to fit over the outside of the upper end of the tubular base A'. An annular, upwardly extending flange *b'* is arranged upon the upper side of the supporting plate B and adapted for engagement with the lower end of the smoke stack. A depending annular flange *b*<sup>2</sup> of somewhat greater diameter than said flange *b'*, is provided upon the under side of the supporting plates B, and from the depending flange, the swinging smoke pipe is suspended as shown in Figs. 1 and 5, of the drawings. The smoke stack comprises

any desired number of sections C C, of cast iron, or earthen ware pipe each provided at one end with the usual socket *c*, the socket at the lower end of the lowest section being arranged to fit over the annular flange *b'* on the supporting plate B. A cap C' is arranged above the open upper end of the top section C, of the stack, said cap being supported upon suitable arms *c' c'* which extend upward from a hollow annular collar C<sup>2</sup> provided in its upper and lower walls with apertures *c*<sup>2</sup> *c*<sup>2</sup> as shown. This collar C<sup>2</sup> is fitted around the upper end of the stack and has an inwardly directed annular flange *c*<sup>3</sup> arranged to rest upon the extremity of the top section C of the stack, so as to support the weight of said collar and the cap C connected therewith. Suitable guide rods D D, are connected with the collar C<sup>2</sup> and extend downward and are engaged at their lower ends with the roof, said rods being each conveniently made in two parts and engaged with turn-buckles *d d*, by means of which the said rods may be lengthened or shortened to properly align the stack in an obvious manner. A transversely arranged suspension rod E is passed through the annular flange *b*<sup>2</sup> on the lower side of the supporting plate B. A pendulous pipe composed of any desired number of sections F F, preferably of cast metal pipe, is engaged at its upper end with the suspension bolt E, as shown more particularly in Fig. 5 of the drawings. These sections F F of pipe are each provided at one end with a socket *f* for the reception of the adjacent end of the next section, as in the construction described with reference to the sections C C of the stack. Lugs *f' f'*, are conveniently provided upon each section F adjacent to one end thereof, said lugs being arranged in pairs and diametrically opposite to each other. The adjacent faces of each pair of lugs are arranged to converge toward their outer edges so as to leave a dove tail recess between them, and a bar or strap F' is arranged vertically at each side of the pendulous pipe and engaged with the recesses between said pairs of lugs, said bar or strap being arranged to extend throughout the length of said pipe and secured in its engagement with several sections F F by means of suitable wedge keys or cotters F<sup>2</sup> F<sup>2</sup> which are driven into the dove tail spaces be-



tween the lugs  $f' f'$ . The upper ends of these straps or bars are engaged with the screw threaded ends of eye bolts  $E' E'$ , the eyes of which are engaged upon the ends of the suspension rod  $E$ , the said upper ends of the straps being held in engagement with said eye bolts by suitable nuts  $e e$  in an obvious manner.

At the lower end of the bottom section  $F$ , are provided lugs  $f^2 f^2$  similar in construction and arrangement of the lugs  $f' f'$ , and between which the lower ends of the straps  $F' F'$  are engaged as before described. Convergent ears  $f^3 f^3$  are arranged below the lugs  $f^2 f^2$ , said ears being arranged to embrace the lower ends of the said straps to prevent their displacement in case one or both of the keys or cotters should become dislodged from their seats between the lugs  $f' f'$ . As a further protection against such accidents, I provide the straps  $F' F'$  with outwardly bent ends  $G G$  which are arranged to engage with said convergent ears  $f^3 f^3$  in such a manner that if the pipe should become disengaged from the suspension rod  $E$  at its upper end, the weight of said pipe would be supported by the engagement of said outwardly bent ends  $G G$  with said ears. A section  $H$  of pipe is telescopically engaged with the open lower end of the bottom section  $F$ , of the pendulous pipe, as shown, and a hood  $H'$  is suitably engaged with the lower end of said section  $H$ , as by means of an annular flange  $H^2$  fitted within the lower end of the same as shown. An annular gutter or trough  $h$  is provided around the upper part of the hood  $H'$ , and spouts  $h' h'$  lead from said annular gutter or trough to the inside of the hood  $H$ , for a purpose to be presently described.

Suitable cross bars or rods  $h^2 h^2$  are arranged upon opposite sides of the hood  $H'$  with which the lower ends of suitable suspension yokes  $H^3 H^3$  are engaged to support said hood together with the telescopic section  $H$  in position.

Cords or cables  $I I$  are engaged with the suspension yokes  $H^3 H^3$  and are passed over suitable pulleys or sheaves  $J J$ , arranged adjacent to the upper end of the pendulous pipe, said cords or cables being brought together as at  $i$  and joined to another cord  $I'$  which is passed over a pulley or sheave  $J'$  and connected with a counterpoise weight  $I^2$  having a pocket  $i'$  for the insertion of additional weights to regulate the weight of said counterpoise according to that of the telescopic section  $H$  of the pendulous pipe and the hood  $H'$ . These sheaves  $J J$  and  $J'$  are journaled in suitable hangers  $j j$  which are in turn revolvably engaged with vertically disposed bolts  $j' j'$  which are secured to any convenient supports. As illustrated in the drawings, the vertical bolts  $j' j'$  which support the pulleys or sheaves  $J J$ , are secured to the roof structure adjacent to the upper part of the pendulous pipe, the arrangement being such that the cords or cables  $I I$  will extend vertically

in line with the axis of said pipe, and said cords or cables may be carried to one side or the other as may be found convenient for the arrangement of the cord  $I'$ . Similarly, the bolt  $j'$  that supports the pulley  $J'$  is arranged upon any convenient support such as the wall of the building, a post, or other suitable part of the building, and the pulley or sheave  $J'$  will adjust itself to the position of the cord  $I'$  in an obvious manner.

As shown more particularly in Fig. 1 of the drawings, the suspension yokes  $H^3 H^3$  are arranged to extend downward upon opposite sides of the outwardly bent ends  $G G$  of the straps or bars  $F' F'$ , and suitable transverse rods  $g g$  are arranged in the outer extremities thereof which serve to prevent accidental displacement of the said yokes. The yokes  $H^3 H^3$  are of such length that they will permit the desired vertical adjustment of the section  $H$  and its hood  $H'$ , but will engage with the outwardly bent ends  $G G$  of the straps  $F' F'$  when the section  $H$  reaches the limit of its downward movement, so as to prevent too great a downward movement of the same and consequent disengagement of said section  $H$  from the lower section  $F$ .

By the construction of the stack in the manner described from sections of cast metal or earthenware pipe, said stack is rendered much more durable and less liable to burn or rust out than if it were made in the usual manner from sheet metal pipe.

A further advantage is gained by the construction of the cap and the annular collar  $C^2$ , from the fact that the arrangement of the apertures  $c^2 c^2$  in the upper and lower walls of said collar serves to materially increase the draft of the stack.

A further advantage is gained by the construction and arrangement of the eye bolts and side straps, is that, by means of the nuts  $e e$  the straps may be adjusted in their engagement with the eye bolts so as to align the pendulous pipe and cause it to hang true.

By the construction of the hood at the lower end of the telescopic section  $H$ , with the annular gutter and the inwardly extending spouts, any water that may collect by condensation either inside or outside of the pendulous pipe will run down into said gutter and will be discharged from the spouts into the smoke stack of a locomotive located beneath the pipe.

By the construction of the pendulous pipe as before described, it is permitted to swing freely from its points of connection with the plate  $B$ , so as to enable the telescopic section with its hood to be swung into a position to bring the said hood into engagement with the top of a locomotive stack even if the locomotive has not been stopped with its stack precisely beneath the pendulous pipe. By making the upper part of said pipe from sections of cast metal, said pipe is rendered much more durable than the ordinary forms of such pipes which are made from sheet metal pipe, as it is



found that the upper sections of said pipe are the first to burn out.

Having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. An improved smoke jack comprising a suitable support plate provided upon its upper and lower sides with annular flanges, a stack engaged at its lower end with the upper one of said annular flanges, a pendulous pipe smaller in diameter than the lower one of said flanges and arranged with its upper end concentrically within said flange, a suspension rod passed transversely through said flange and pipe and suitable vertically disposed straps engaged with the sides of said pipe and with the ends of said suspension rod upon the outside of the flange, substantially as set forth.

2. An improved smoke jack comprising a suitable supporting plate provided upon its upper and lower surfaces with annular flanges, a stack, fitted at its lower end to the upper one of said annular flanges, a pendulous pipe arranged with its upper end located centrally within the lower annular flange, a transversely arranged suspension rod passed through apertures in said lower annular flange and the upper end of said pendulous pipe, vertically disposed straps engaged with opposite sides of said pendulous pipe, a section of pipe having telescopic engagement with the lower end of

said pendulous pipe and carrying at its lower end a suitable hood, and means for raising and lowering said section of pipe, substantially as set forth.

3. In a smoke jack, the combination with a suitable supporting plate, provided upon its upper and lower sides with annular flanges and a stack extending upwardly therefrom, and engaged with the upper one of said annular flanges of a pendulous pipe comprising two or more sections of cast metal pipe jointed together at their ends, the upper end of the upper section being pivotally connected with said plate, and arranged concentrically within the lower one of said annular flanges, integral lugs arranged in pairs upon opposite sides of said pipe sections and provided with converging inner faces, vertical straps pivotally connected at their upper ends with said plate and arranged to extend downwardly between said lugs at opposite sides of said pipe, and suitable wedges for securing said straps in their engagement with said lugs, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

ANDRO R. ANDERSON.

Witnesses:

JOHN E. WILES,

H. G. UNDERWOOD.