No. 806,648. PATENTED DEC. 5, 1905.

P. DICKINSON.

SMOKE STACK.

APPLICATION FILED APR. 22, 1904.

6 SHEETS—SHEET 1.

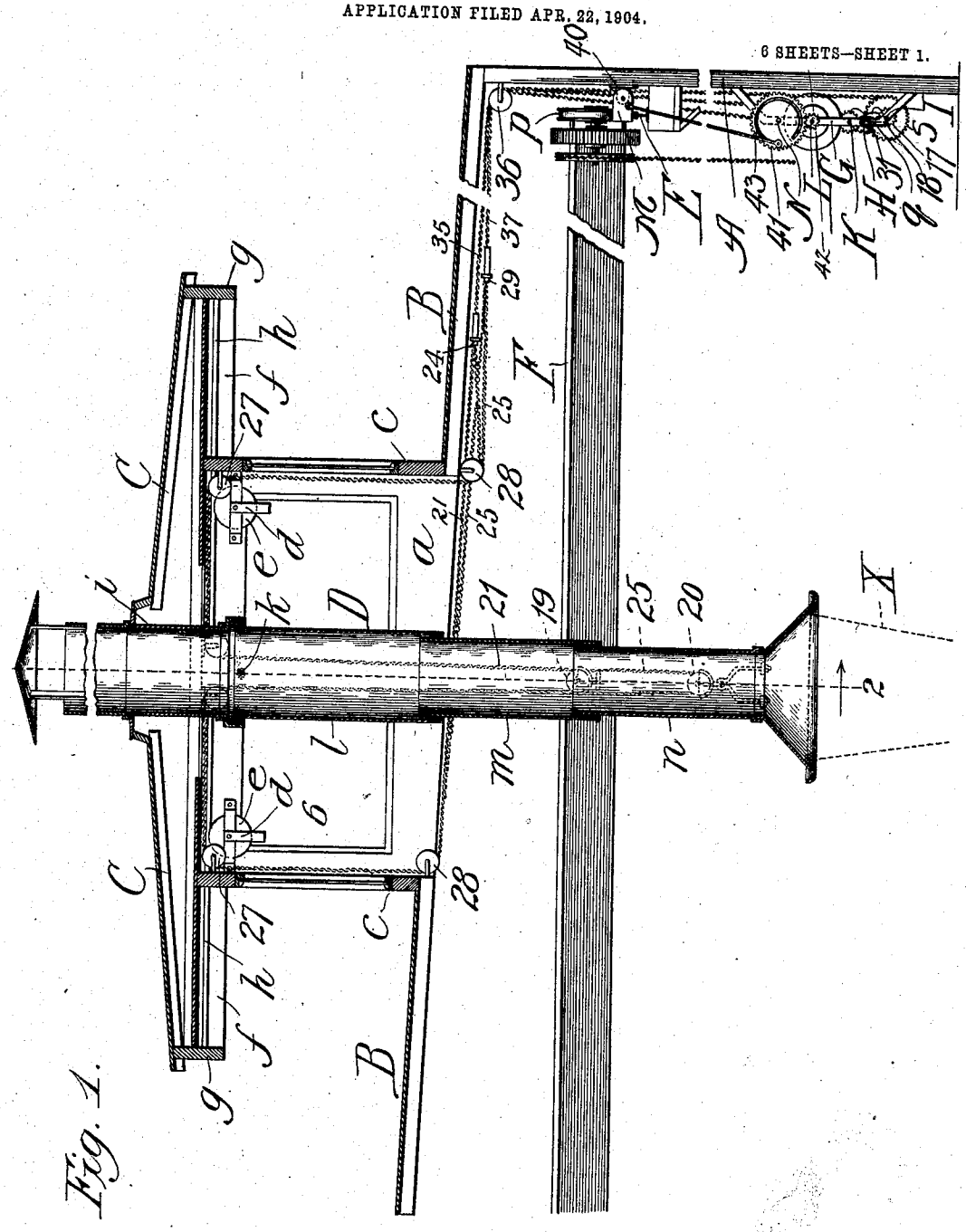


Fig. 1.

Witnesses:
Chas. E. Gaylord.
John Enders.

Inventor:
Paul Dickinson,
By Dyrenforth, Dyrenforth & Lee
Attys.

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6 SHEETS—SHEET 2.

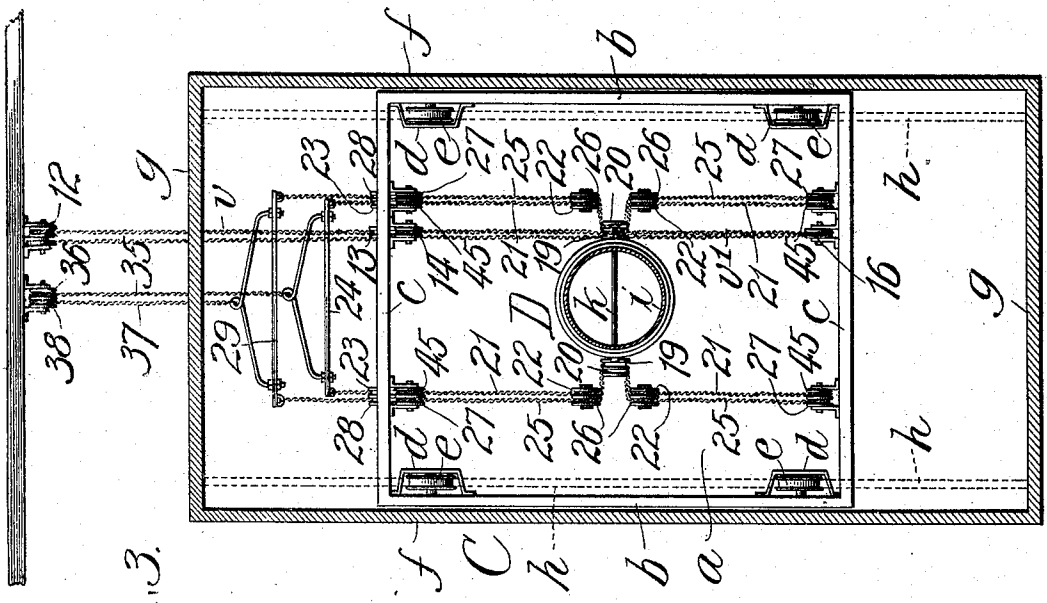


Fig. 3.

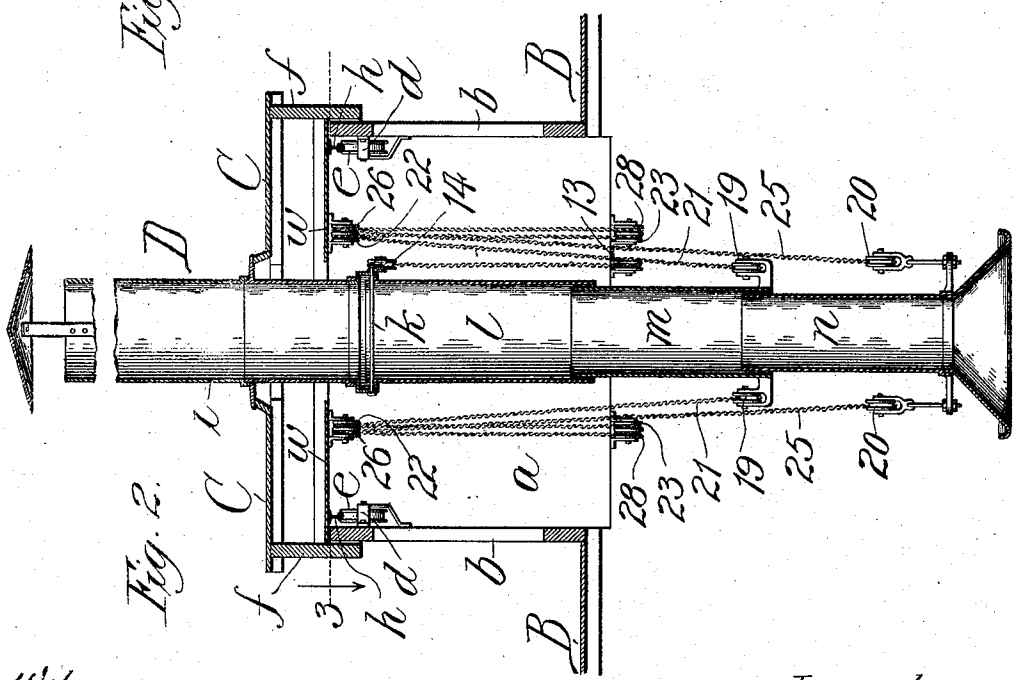


Fig. 2.

Witnesses:
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Inventor:
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6 SHEETS—SHEET 3.

Fig. 4.

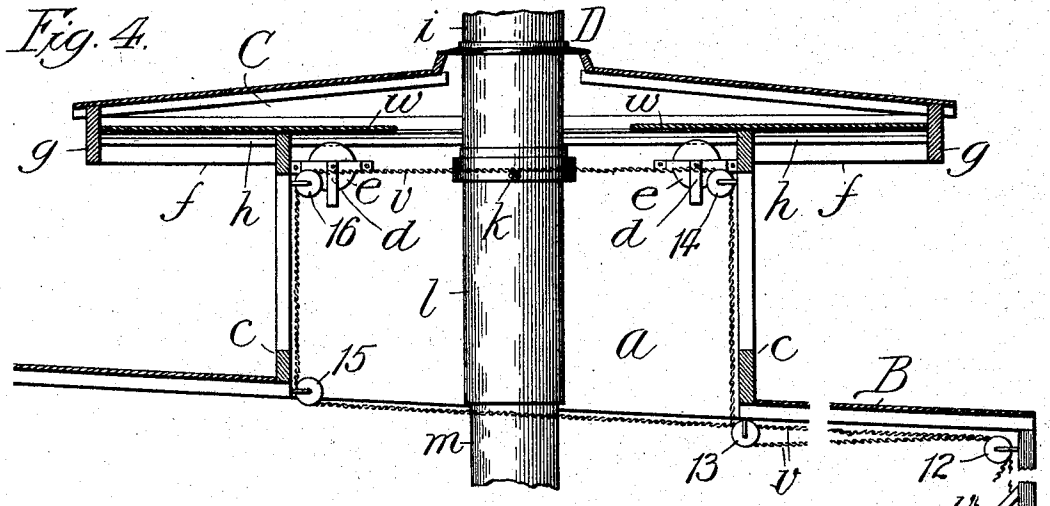
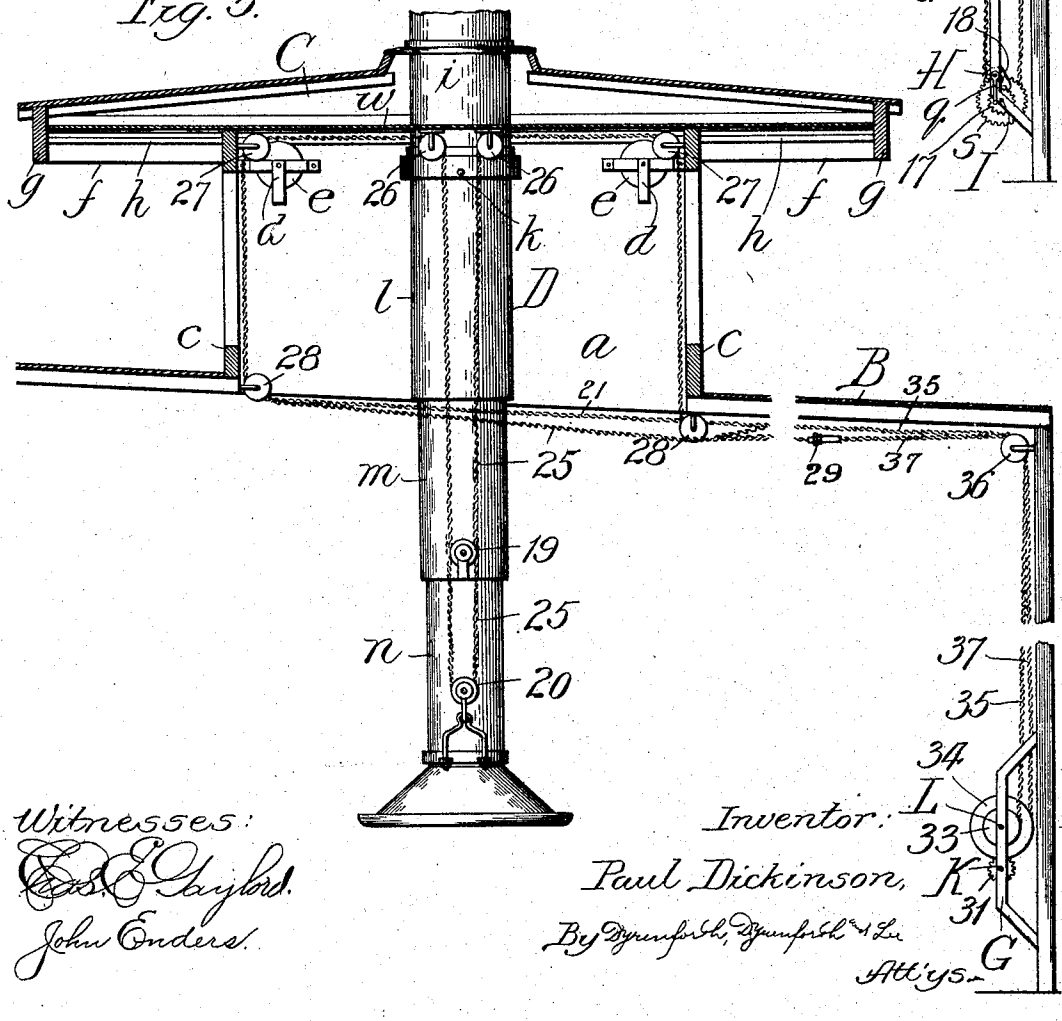


Fig. 5.



Witnesses:

Chas. E. Gaylord.

John Enders.

Inventor:

Paul Dickinson,

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Att'ys.

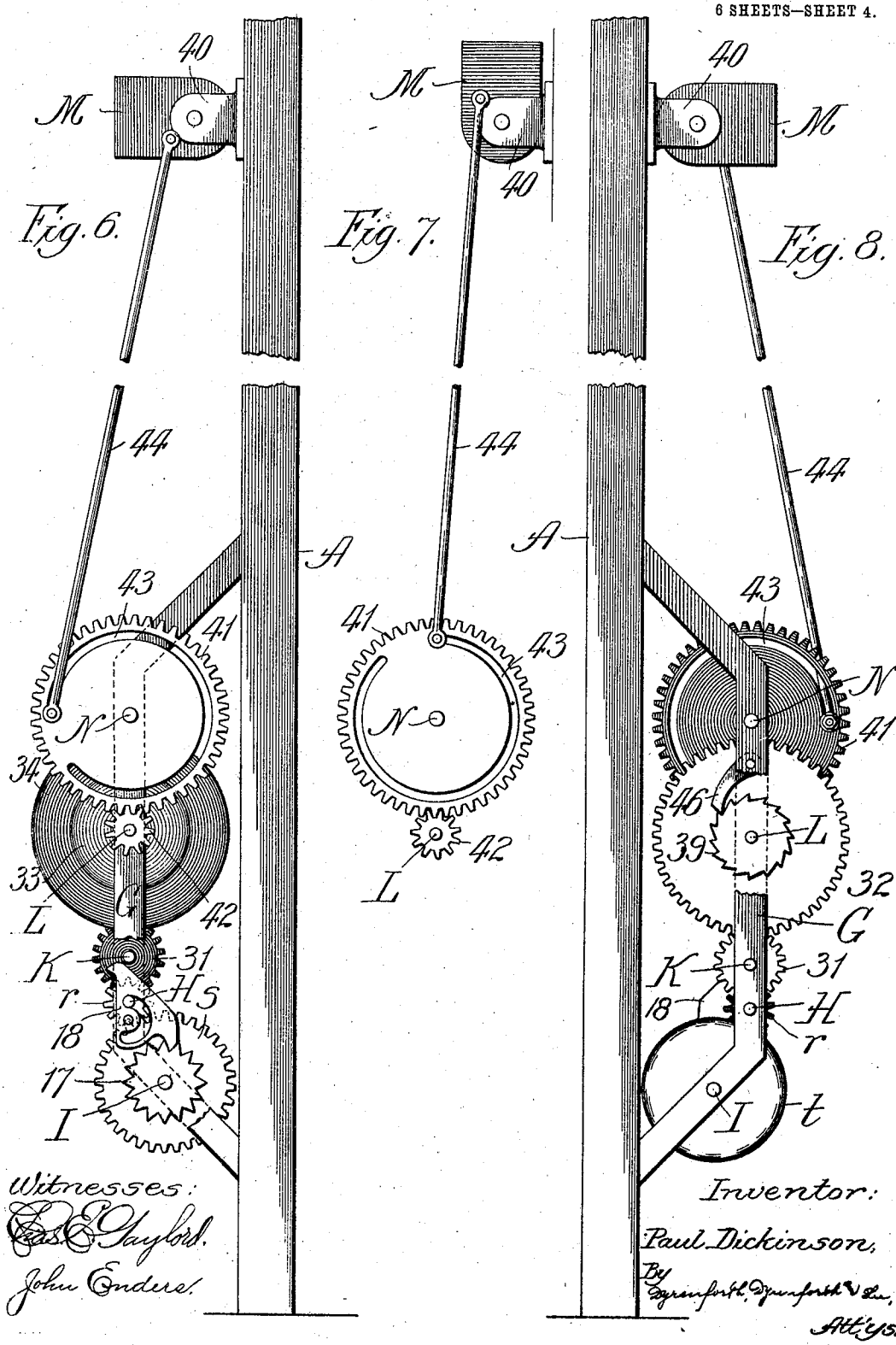
No. 806,648. PATENTED DEC. 5, 1905.

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APPLICATION FILED APR. 22, 1904.

6 SHEETS—SHEET 4.



Witnesses:
Chas. C. Taylor.
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No. 806,648. PATENTED DEC. 5, 1905.

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SMOKE STACK.

APPLICATION FILED APR. 22, 1904.

6 SHEETS—SHEET 5.

Fig. 9.

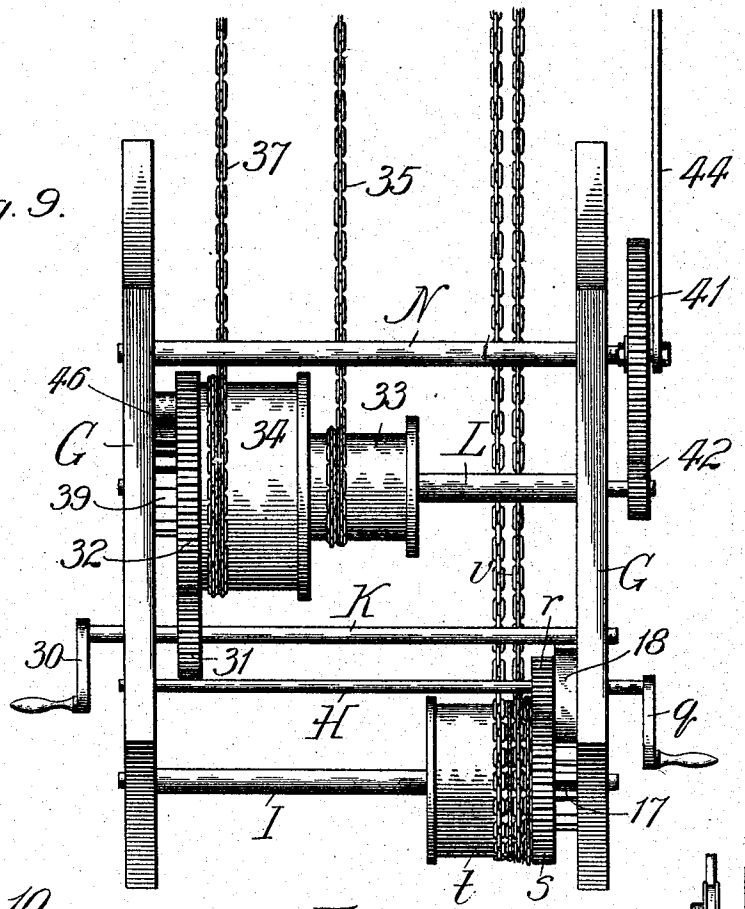
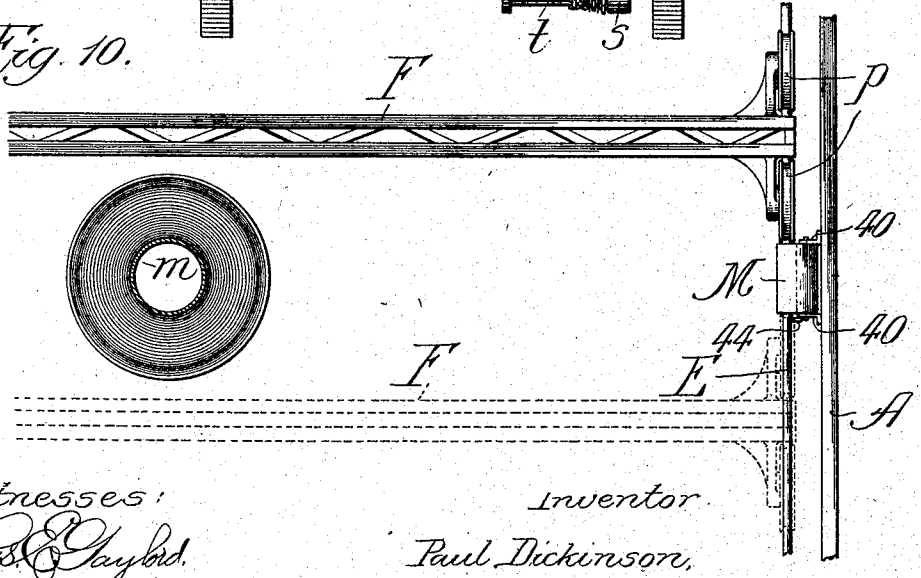


Fig. 10.



Witnesses:
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SMOKE STACK.

APPLICATION FILED APR. 22, 1904.

6 SHEETS—SHEET 6.

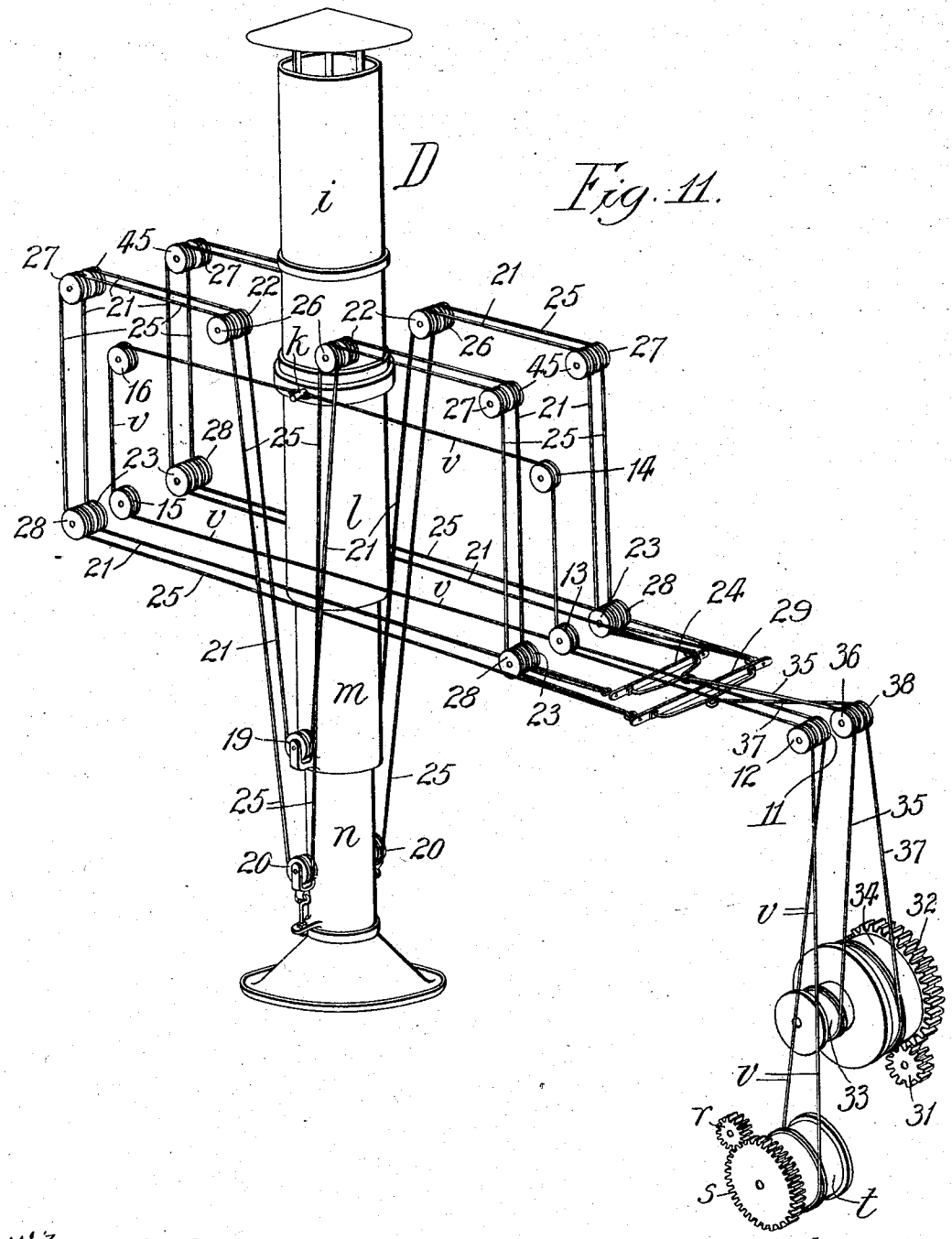


Fig. 11.

Witnesses:

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John Enders.

Inventor:

Paul Dickinson.

By Dyrenforth, Dyrenforth and Lee,

Att'ys.

UNITED STATES PATENT OFFICE.

PAUL DICKINSON, OF CHICAGO, ILLINOIS.

SMOKE-STACK.

No. 806,648. Specification of Letters Patent. Patented Dec. 5, 1905.

Application filed April 22, 1904. Serial No. 204,407.

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 Smoke-Stacks, of which the following is a specification.

My invention relates to improvement in the construction of smoke-stacks for engine-houses or "roundhouses," as they are generally called, in which locomotives are temporarily stored.

It is usual to provide a smoke-stack over each of the locomotive-stalls in an engine-house, with which stack the stack of a locomotive may register when it enters a stall, whereby the smoke and gases from the locomotive are conducted directly through the roof without contaminating the air in the building. It is also usual to equip such buildings with machines, tools, and appliances useful in making repairs upon locomotives while in their stalls.

My object is to provide a smoke-stack of the above class and supporting means therefor of improved construction whereby the smoke-stack may be readily moved longitudinally of the stall to position it with relation to the stack of a locomotive and whereby a traveling crane may be supported to move above the locomotive-stalls.

In the accompanying drawings, showing a desirable embodiment of my invention, Figure 1 is a broken vertical section of a roundhouse at one of its locomotive-stalls; Fig. 2, a section taken on line 2 in Fig. 1; Fig. 3, a broken plan section taken on line 3 in Fig. 2 with the roof of the roundhouse left out to disclose features which would otherwise be hidden and showing the track, carried by the sliding monitor-roof, by dotted lines; Fig. 4, a broken section taken in a plane parallel to Fig. 1 and illustrating the means for moving the smoke-stack longitudinally of the stall; Fig. 5, a broken sectional view in the same plane as Fig. 4 and illustrating the means for raising and lowering the smoke-stack; Fig. 6, an enlarged broken view, in side elevation, of the smoke-stack raising, lowering, and positioning gears and means for throwing an obstacle or guard into and out of the path of the traveling crane; Fig. 7, the guard and its operating mechanism in another position; Fig. 8, a broken elevation of the opposite side of the mechanism shown in Fig. 6; Fig. 9, a broken front elevation of the smoke-stack raising, lowering, and positioning mechanism; Fig. 10, a broken plan section taken just above the plane of the traveling crane; and Fig. 11, a diagrammatic illustration in perspective, showing the smoke-stack and means for moving the same and raising and lowering its telescoping sections.

A is the wall of an engine-house or roundhouse, and B the roof thereof. In the roof B centrally over the tracks of the stall is an opening *a*, leading to a monitor, forming part of the roof structure and having stationary side walls *b b* and stationary end walls *c c*. Mounted in brackets *d* on the walls *b* are grooved wheels *e*, which are all in the same horizontal plane close to the tops of the said walls.

C is a movable monitor roof or cover, formed with side strips *f f* and end strips *g g*. The cover C may be of a length approximating twice that of the opening *a* and carries a pair of parallel longitudinally-extending rails *h h*, which engage and ride upon the wheels *e*.

D is a smoke-stack formed with a top section *i*, rigidly mounted in the center of the movable cover or monitor-roof C. The lower end of the upper section *i* is reinforced and flanged, and extending through the said flange is a pin or bolt *k*, on which is pivotally mounted the section *l* of the smoke-stack D. Telescoping into the section *l* is a next lower section *m*, and telescoping into the section *m* is the lowermost section *n*, adapted to be brought into operative relation with the stack X of a locomotive in the stall. The roof C is watertight around the smoke-stack section *i*, and the said roof carrying the stack is supported altogether by the rails *h*, which slide upon the wheels *e*. The side strips *f* and end strips *g* of the monitor-roof extend downward below the plane of the top of the stationary sides and ends of the monitor, thereby preventing rain or snow from drifting into the monitor.

E is one of a pair of parallel track-rails suitably supported, one by the wall A and the other (not shown) on a parallel support or opposite wall of the building. The track-rails E form guides and a support for the wheels *p* of a traveling crane F. The crane is thus supported to move in a horizontal plane more or less below the roof of the building and above the plane to which a locomotive-stack X reaches. The smoke-stack D, therefore, when in operative position extends across the path of the said crane. In order that the

crane may be moved from one stall to another in the building, it is necessary to provide means for moving the stacks out of the path of the crane to permit the latter to pass.

It has been found desirable for various reasons to provide roundhouses with smoke-stacks which may be moved a more or less limited distance longitudinally of the stalls, so that a locomotive need not be stopped in any exact location to register at its stack with the said smoke-stack. Furthermore, while making repairs upon an engine in a roundhouse it is frequently desirable to move the locomotive a few feet to change the relative positions of moving parts thereof. By providing the roundhouse with a smoke-stack that may be shifted longitudinally of the stall the locomotive may be stopped in any location within a comparatively wide range and the smoke-stack above the stall be moved to conform to the location of the locomotive-stack. In the present construction the smoke-stack D may be moved a distance along the stall approximating the length of the opening *a* and monitor.

Journaled in a bracket-frame G on the wall A is a crank-shaft H or shaft provided with an operating crank-handle *q*, Fig. 9. The shaft H carries a pinion *r*, meshing with a gear-wheel *s* on a shaft I, journaled in the frame G. The shaft I carries a drum *t*. A chain or cable *v*, wound between its ends about the drum, extends from opposite sides thereof over pulleys 11 12. One length of the chain *v* extends from the pulley 12 under a pulley 13 and over a pulley 14 and is fastened at its end to the pin or bolt *k* of the stack D. The other length *v* extends from the pulley 11 under a pulley 15 and over a pulley 16 to the pin or bolt *k*, to which it is fastened at its end. The pulleys 11 to 16, inclusive, may be located as indicated in the figures, whereby when the drum *t* is turned by the shaft H in one direction the chain or cable *v* draws the stack D and monitor-roof C toward one end of the monitor, and reverse motion of the shaft H causes the stack and monitor-roof to be moved in the other direction. On the shaft I is shown a ratchet-wheel 17 to be engaged by a swinging double pawl 18, whereby the drum *t* may be locked against turning in either direction to hold the stack firmly in any location of adjustment. This prevents the stack and monitor-roof from being shifted by a driving wind or from other cause.

The traveling crane moves in a plane above the locomotive-stack, and it is therefore necessary to provide a smoke-stack D of a construction which may be moved at its lower end a comparatively great distance in the vertical plane to permit the crane to pass. I have found it desirable for this reason to form the lowering and raising part of the stack of a plurality of telescoping sections. Mounted on opposite sides of the lower end of the stack-section *m* are pulleys 19 19, and on opposite sides of the lower end of the section *n* are pulleys 20 20. Chains 21 21 extend under the pulleys 19, thence over pulleys 22 45, and thence under pulleys 23 23 to opposite ends of a bar or frame 24, Figs. 3 and 11. Chains 25 extend beneath the pulleys 20 on the stack-section *n*, thence over pulleys 26 and 27 and under pulleys 28 to opposite ends of a bar or frame 29. Journaled in the bracket-frame G is a crank-shaft K or shaft carrying a crank-handle 30 and pinion 31. Also journaled in the bracket-frame G is a shaft L, carrying a gear-wheel 32, meshing with the pinion 31 and drums 33 34, one of much greater diameter than the other. A chain or cable 35, fastened at one end to the drum 33, extends over a pulley 36 and is fastened at its opposite end to the frame 24 between the ends of the latter. A chain 37, fastened at one end to the drum 34, passes over a pulley 38 and is fastened at its opposite end to the frame 29 between the ends of the latter. The pulleys over which the raising and lowering chains or cables for the smoke-stack extend are disposed as shown in the figures. The crank-shaft K, shaft L, and drums 33 34 form a graduated windlass which when turned in one direction causes the chain 35 to draw the frame 24 at one speed and the chain 37 to draw the frame 29 at a much greater speed. In thus moving the frame 29 draws the chains 25 to raise the stack-section *n* and the frame 24 draws the chains 21 to raise the stack-section *m*. The stack-section *n* rises much more quickly than the section *m*, and the parts are preferably so constructed with relation to each other that when the stack-section *m* is slid upward to the limit in the stack-section *l* the stack-section *n* will be raised and telescoped into the section *m* to the limit. By means of the mechanism described the sections *n m* may be raised very quickly out of the path of the crane F. In the construction of windlass shown the shaft L carries a ratchet-wheel 39 to be engaged by a pawl 46 to hold the stack-sections in adjusted position. When it is desired to lower the stack-sections, the shaft K is turned to unwind the chains 35 37, whereby the said stack-sections will descend by gravity.

To prevent danger of the traveling crane ever running into and doing injury to a lowered stack, I provide a safety appliance in the form of a swinging guard or block M, pivotally mounted in brackets 40 on the wall A at the side of the track-rail E shown. Journaled in the bracket-frame G above the shaft L is a shaft N, provided with a gear-wheel 41, meshing with a pinion 42 on the shaft L. Extending nearly around the gear-wheel 41, concentric with the shaft N, is a groove 43. A rod 44 is pivotally and slidably connected at its lower end in the groove 43 and at its upper end is pivotally connected with the guard or swinging block M. The gearing between

the windlass and gear-wheel 41 is such that in the final turning of the windlass to raise the stack-sections out of the path of the crane the end of the groove 43 engages and lifts the rod 44 to swing the block M out of the path of the crane. In the initial reverse movement of the windlass to lower the stack-sections the said end of the groove 43 moves in the direction away from the end of the rod 44, permitting the latter to descend and the block M to swing downward to the track-rail E. The block or guard M is of a length, as indicated in Fig. 10, to stop the truck or running-gear of the traveling crane before the latter can contact with the smoke-stack when moving thereto from either side.

Forming part of the monitor-cover C is a base-plate *w*, which slides closely over the stationary end walls *c* and supports the track-rails *h* and the various chain or cable pulleys carried by the said cover.

While I have shown and described a convenient and desirable means for carrying out the various features of my invention, details may be modified in many ways without departing from the spirit of my invention as set forth in the appended claims.

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

1. In an engine-house provided with a traveling crane, a vertically-adjustable smoke-stack adapted to be extended across the path of the crane, a stop for said crane, and means for moving said stop into its operative position when the smoke-stack is extended across the path of the crane and for removing the stop from said position when the smoke-stack is raised out of said path.

2. In an engine-house provided with a traveling crane, a vertically-adjustable smoke-stack adapted to be extended across the path of the crane, a stop for said crane, and means operatively connected with said smoke-stack and stop, said means being adapted to move the stop into its operative position when the smoke-stack is extended across the path of the crane and to remove the stop from said position when the smoke-stack is raised out of said path.

3. The combination of an engine-house provided with tracks adapted to support a traveling crane, a vertically-adjustable smoke-stack adapted to be extended across the path of the crane, a guard-block, and means, operatively connected with said smoke-stack and guard-block, adapted to move the guard-block onto the track-rail when the smoke-stack is extended across the path of the crane and to move said guard-block therefrom when the smoke-stack is raised out of said path.

4. The combination with the roof structure of an engine-house having an opening through it, of guide-wheels journaled in said structure toward opposite sides of said opening, a cover for said opening movable back and forth upon said guide-wheels, and a smoke-stack extending through and supported by said cover, and adapted to be brought into operative relation with the stack of a locomotive.

5. The combination with the roof of an engine-house having an opening through it, of a monitor on said roof having stationary sides around said opening, a longitudinally-sliding roof on the monitor and a smoke-stack extending through and supported by said roof, and adapted to be brought into operative relation with the stack of a locomotive.

PAUL DICKINSON.

In presence of—
WALTER N. WINBERG,
W. B. DAVIES.