

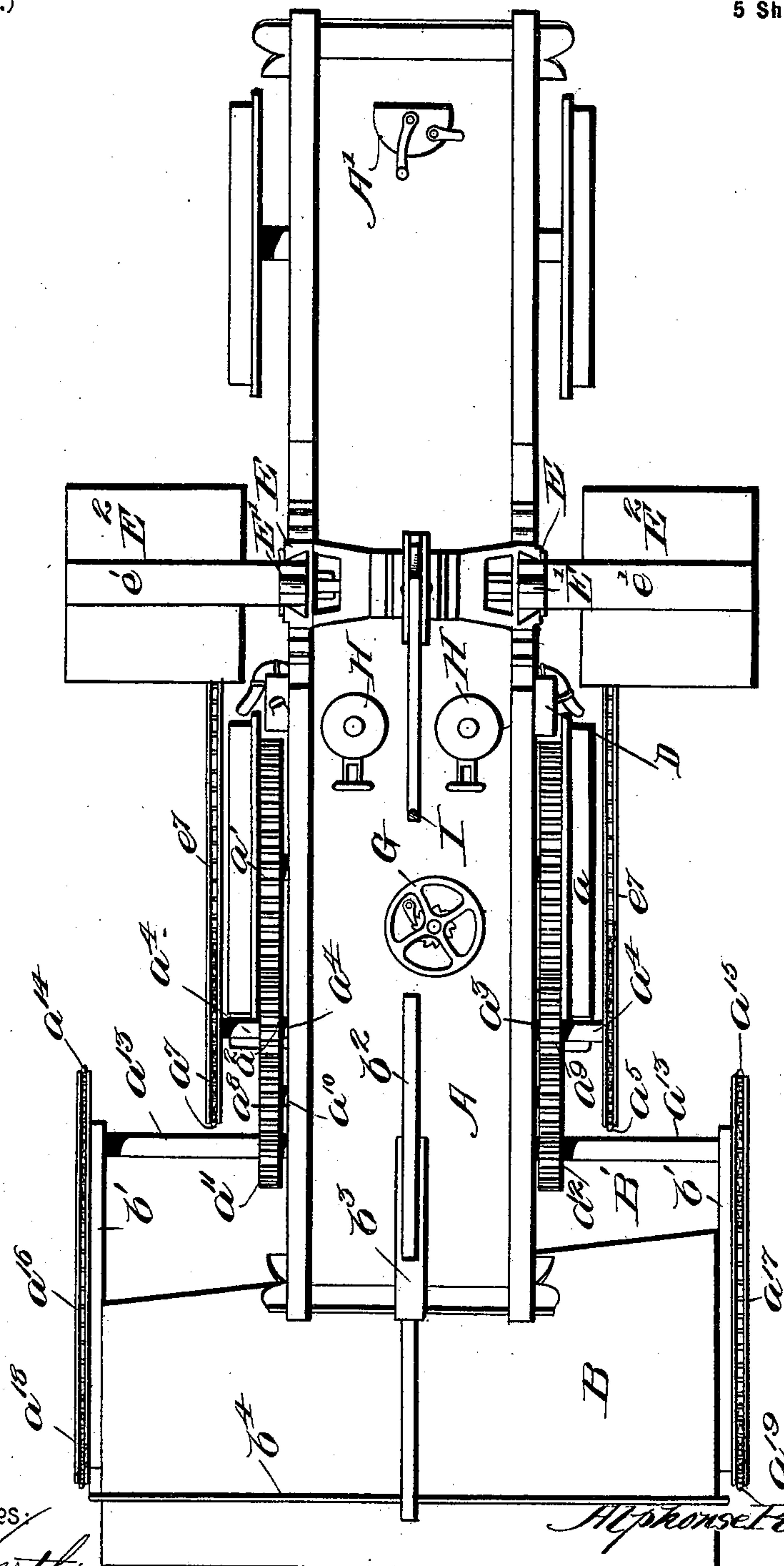
A. PITON.
STREET SWEEPER.

(Application filed Dec. 15, 1899.)

(No Model.)

5 Sheets—Sheet 1.

Fig. 1.



Witnesses:

W. B. Roberts
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Alphonse Piton Inventor

By

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Attorneys

No. 656,210.

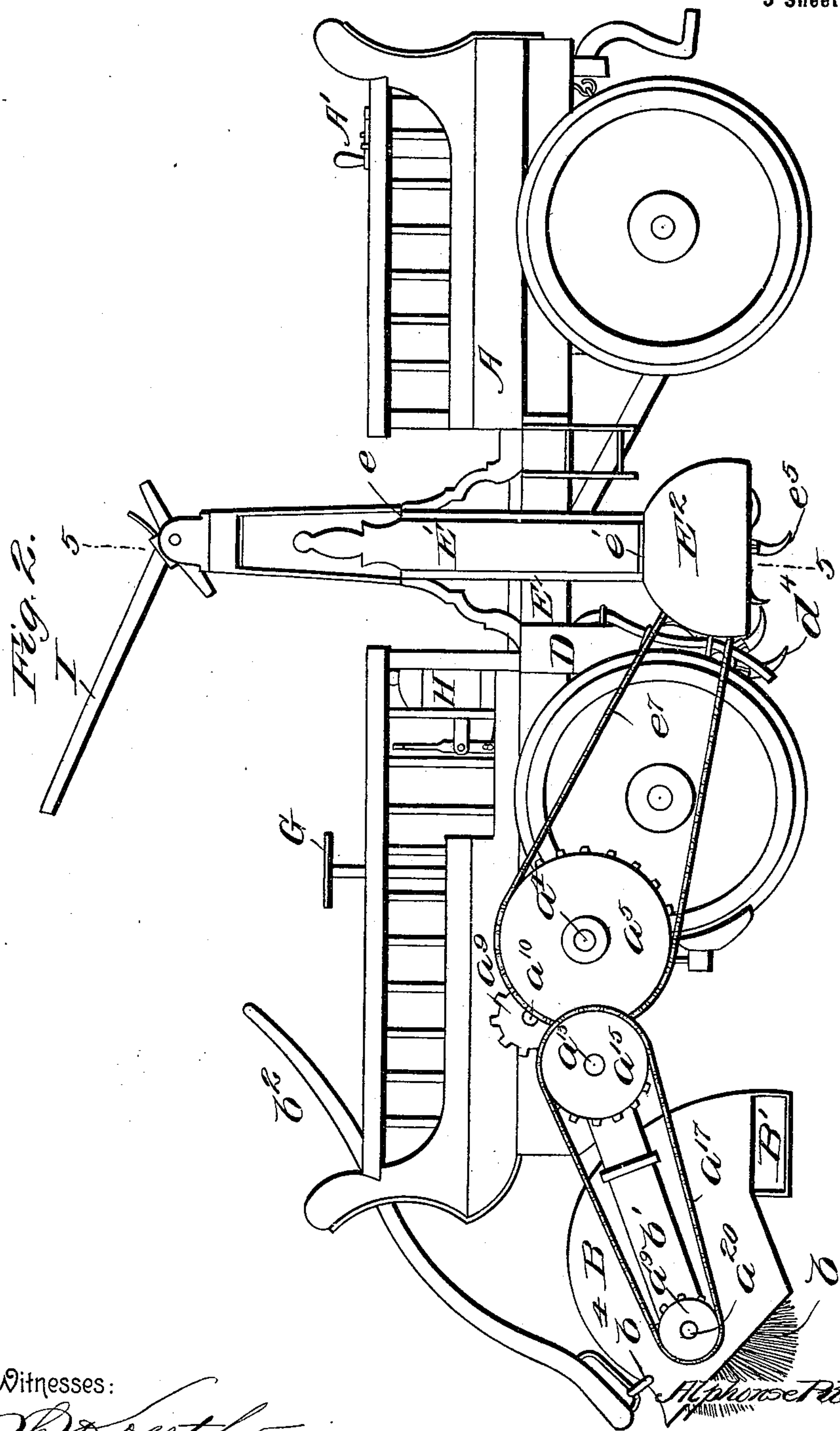
Patented Aug. 21, 1900.

A. PITON.
STREET SWEEPER.

(Application filed Dec. 15, 1899.)

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Witnesses:

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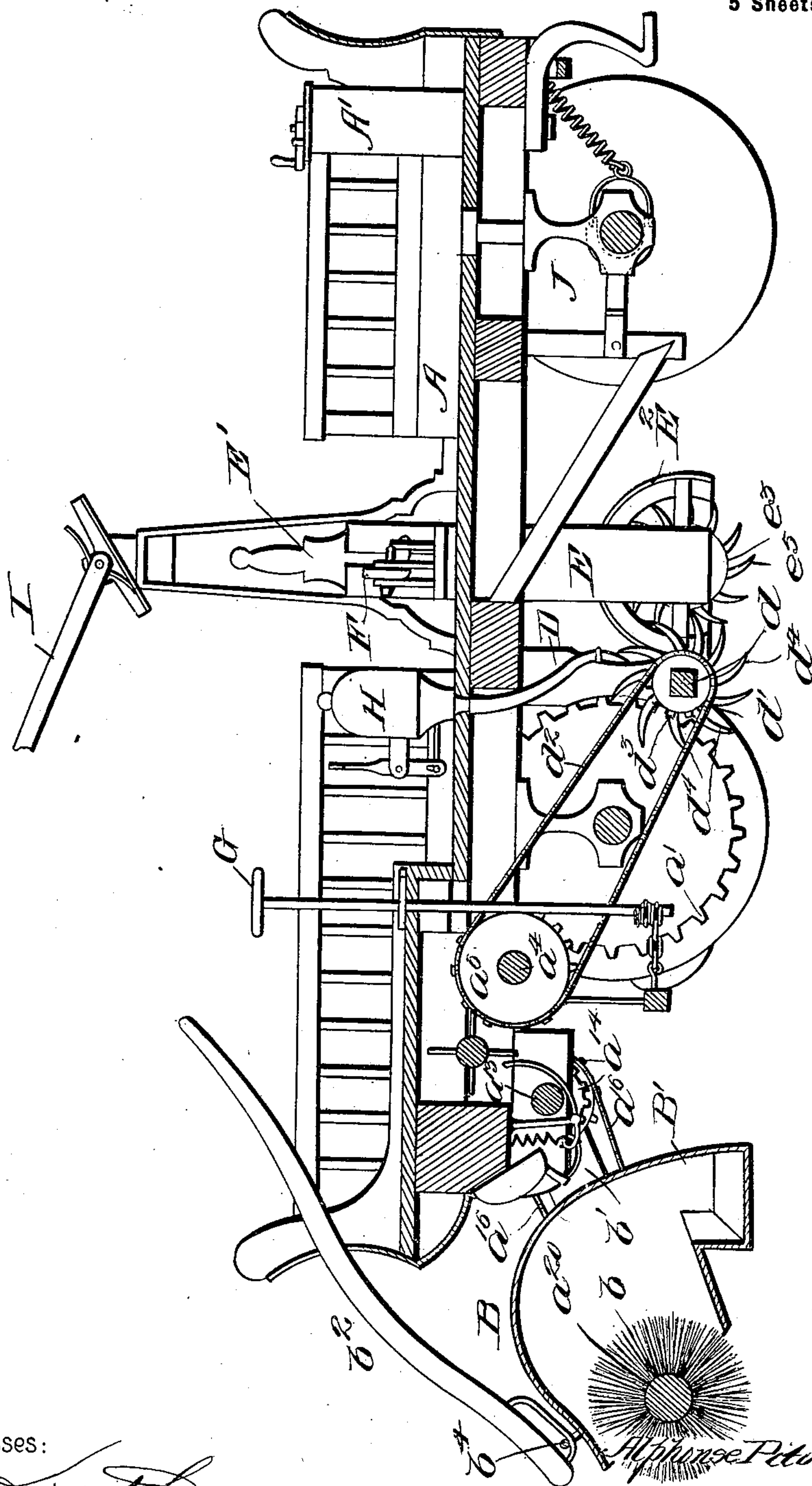
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(No Model.)

5 Sheets—Sheet 3.

Fig. 5.



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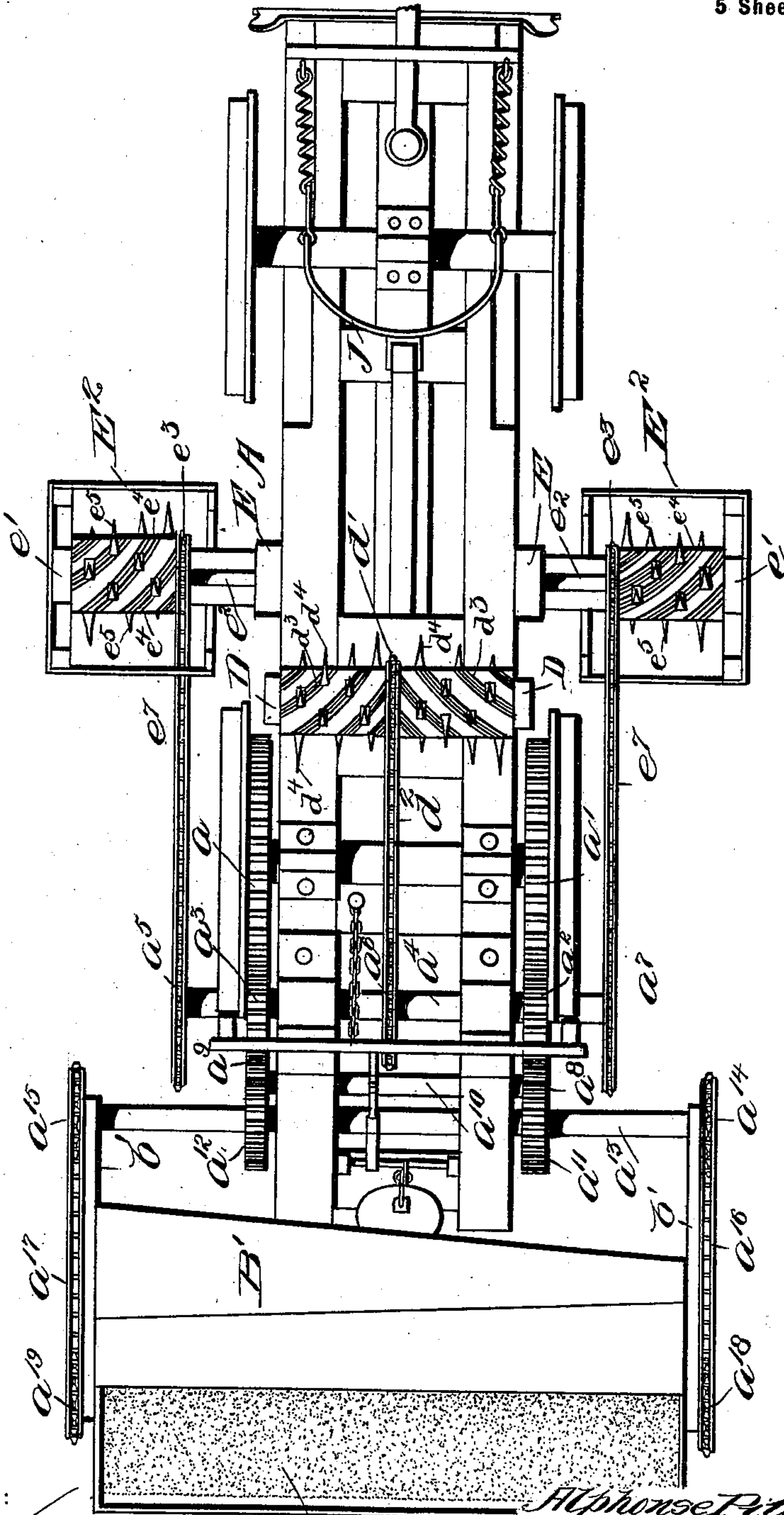
A. PITON.
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(Application filed Dec. 15, 1899.)

(No Model.)

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Fig. 4.



Witnesses:

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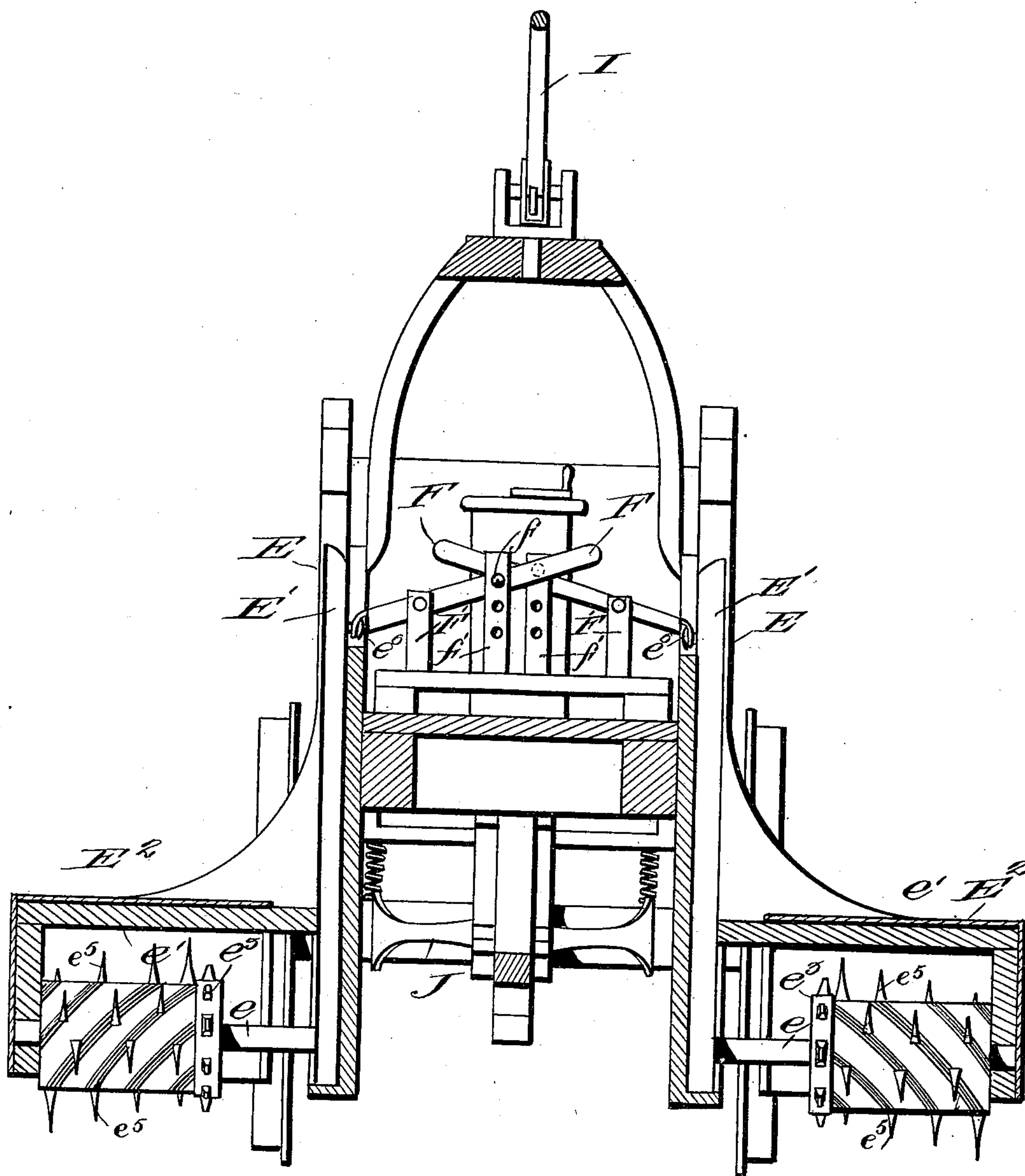
Patented Aug. 21, 1900.

A. PITON.
STREET SWEEPER.
(Application filed Dec. 15, 1899.)


(No Model.)

5 Sheets—Sheet 5.

Fig. 5.



Witnesses:

Witnesses:

 William B. Roberts.

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UNITED STATES PATENT OFFICE.

ALPHONSE PITON, OF QUEBEC, CANADA.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 656,210, dated August 21, 1900.

Application filed December 15, 1899. Serial No. 740,449. (No model.)

To all whom it may concern:

Be it known that I, ALPHONSE PITON, a subject of Her Majesty the Queen of Great Britain, residing in the city and district of Quebec, Province of Quebec, Canada, have invented certain new and useful Improvements in Street-Sweepers, (for which I have obtained Canadian Letters Patent No. 65,264, dated December 7, 1899;) and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to street-sweepers; and one object is to provide an apparatus of this character which is especially adapted for removing ice and snow from car-tracks.

A further object is to provide such an apparatus with means whereby it may perform the work of cutting the ice and snow only, the sweeper being adapted to be raised and held in its elevated position.

A further object is to provide an apparatus of this kind which is strong and durable, so as to be able to withstand the rough work for which it is intended.

A further object is to provide such an apparatus with means whereby the snow and ice or dirt may be automatically deposited to one side of the car-tracks as the work of sweeping progresses.

Finally, the object is to provide an apparatus which is simple in construction, efficient in operation, and economical to manufacture.

To these ends the invention consists in an apparatus for removing snow and ice from car-tracks, constructed substantially as hereinafter illustrated and described, and defined in the appended claims.

Referring to the drawings, in which similar letters of reference indicate similar parts throughout the several views, Figure 1 is a plan view of the apparatus in which the invention is embodied. Fig. 2 is a side elevation thereof. Fig. 3 is a vertical central longitudinal section. Fig. 4 is a plan viewed from below. Fig. 5 is a cross-section on the line 5 5 of Fig. 2, parts being shown in elevation, looking toward the front end of the car.

In the drawings, A represents the body of a car, which may be of any ordinary or pre-

ferred construction, but, as shown, is an open car operated by electricity. The front end of the car is shown as provided with an ordinary form of motor A'. Upon the rear axle and adjacent to each rear wheel is fixed a gear a and a' , which mesh with gears a^2 and a^3 , fixed upon the shaft a^4 , while at each end and at the center of said shaft a^4 are fixed sprocket-wheels a^5 , a^6 , and a^7 . The gears a^2 and a^3 mesh with gears a^8 and a^9 , fixed upon the shaft a^{10} , and the last-named gears mesh with gears a^{11} and a^{12} , fixed upon the shaft a^{13} . Upon each end of the shaft a^{13} is fixed a sprocket-wheel a^{14} and a^{15} , which are connected by sprocket-chains a^{16} and a^{17} to the sprocket-wheels a^{18} and a^{19} , fixed to the ends of the shaft a^{20} , which is journaled in the hood B and carries the broom b . The hood B is provided at each end with a supporting-arm b' , which are revolvably connected at their upper ends to the shaft a^{13} . An operating-lever b^2 is pivotally mounted in a standard b^3 , fixed upon the car-platform. To the outer end of the lever b^2 is loosely secured a metal bail b^4 , the lower ends of which engage in perforations formed in the ends of the hood B. By this means the hood B, and with it the broom b , may be raised up out of contact with the ground wherever it is so desired.

The hood B is provided at the lower portion of its inner end with an inclined chute B', which communicates with that portion of the hood carrying the broom. The inclined chute B is closed at its upper end, while the lower end is open and extends to a point near the ground. By reason of the length of the shaft a^{13} and the corresponding width of the hood B the open end or spout of the chute B' extends to a point some distance beyond the rails of the tracks, thus permitting the dirt, snow, &c., to be deposited away from the rails and leaving a wide clean road-surface.

Upon each side of the car-body and immediately in front of the rear axle thereof is fixed a depending supporting-arm D, in the lower ends of which is journaled a shaft d , and upon the central portion of this shaft is fixed a sprocket-wheel d' , connected by a sprocket-chain d^2 to the sprocket-wheel a^6 on the shaft a^4 . Upon the shaft d is fixed a series of parallel bars d^3 , arranged spirally

thereon, and between each pair of said bars d^3 is secured a series of curved hooks d^4 , having sharp cutting-points, which hooks by reason of the spiral arrangement of the bars d^3 are inclined toward the outer sides of the car, thus tending in operation to throw the broken ice, &c., away from the track. Each series of bars and hooks are divided by the sprocket-wheel d' , and the series on one side of said wheel are inclined in the opposite direction from those on the other side of said sprocket-wheel.

Upon each side of the car-body and in front of the shaft d is secured a downwardly-extending support E, having a vertical recess e , with undercut sides, forming a guideway for the adjustable arm E' , the lower end of which is extended laterally, forming a bracket e' , in which is journaled the shaft e^2 . A sprocket-wheel e^3 is centrally fixed upon said shaft e^2 , and between said sprocket-wheel and the outer portion of the bracket is secured upon said shaft a series of parallel bars e^4 , arranged spirally thereon. A series of curved hooks e^5 , having sharp cutting-points, is secured between each pair of said parallel bars, which hooks, by reason of the spiral arrangement of the said bars, are inclined toward the outer sides of the car, thus tending in operation to throw the broken ice, &c., away from the tracks, being in all respects constructed and operating in a manner similar to the hooks d^4 on the shaft d . A protecting hood or shield E^2 is secured to said bracket e' and extends over the hooks e^5 .

Upon the inner side of the arm E' is a lug e^6 , which is pivotally connected to the end of an operating-lever F, which is pivotally supported in a suitable standard F' , fixed upon the car. The lever-handle is provided with suitable openings, through which a pin f is inserted and passed through openings in an upright f' , whereby the lever is secured in its adjusted position. By means of this construction it will be evident that the hooks e^5 may be lowered into or raised up-out of operative contact with the ice. Sprocket-chains e^7 connect the sprocket-wheels e^3 with the sprocket-wheels a^5 and a^7 on the shaft a^4 .

The foregoing description renders unnecessary a detailed description of the operation of the apparatus, it being obvious that the forward movement of the rear wheel of the car causes the broom and the several sets of cutting-hooks to rotate by means of the train of intermeshing gears and the sprocket wheels and chains.

The hooks d^4 serve to cut the ice, snow, &c., from between the rails of the tracks, while the hooks e^5 perform the same work just outside the rails. The broom sweeps up the broken ice, &c., and deposits it into the inclined chute B' , by which it is carried beyond the rail, leaving a wide clean space, which extends beyond the outer rail of the tracks.

There are many features shown on the drawings which are common to cars of this

construction and which need no detailed description of their construction and operation, as they do not pertain to my invention and are shown only that a complete car be shown having the necessary equipment for carrying out the purpose of a street-cleaning apparatus applied to a car. Such, for example, is the brake mechanism G, the track-sanding device H, the trolley-beam I, and the device J for steadying the front axle.

While I have herein shown a preferred form of carrying my invention into effect, yet I do not desire to limit myself to such preferred details of construction, but claim the right to use any and all modifications thereof which will serve to carry into effect the objects to be attained by this invention in so far as such modifications and changes may fall within the spirit and scope of my said invention.

I claim—

1. The combination with a car, of an adjustable rotary ice-cutter, a fixed rotary cutter, a rotary broom, and intermediate gearing connecting each of said cutters and said broom with the car-wheels for operating the same, substantially as described.

2. The combination with a car, of an adjustable rotary ice-cutter, a fixed rotary cutter, a rotary broom, a chute operatively connected with said broom, a train of gearing connected with each of said cutters and said broom and meshing with a gear fixed to the car-wheel, substantially as described.

3. The combination with a car, of an adjustable rotary cutter, a fixed rotary cutter, a broom, a train of gearing operatively connected therewith and meshing with a gear fixed to the car-wheel and a suitable adjusting mechanism for said adjustable cutter, substantially as described.

4. The combination with a car, of an adjustable rotary cutter, a fixed rotary cutter, a broom, a chute operatively connected with said broom, a train of gearing operatively connected with said cutters and said broom and meshing with a gear fixed to the car-wheel, an adjusting-bar secured to said adjustable cutter and an operating-lever secured to said adjusting-bar, substantially as described.

5. The combination with a car, of an adjustable rotary cutter, a chain-and-sprocket connection between said cutter and the car-wheel, a protecting-cover attached to said cutter, an adjusting-bar secured to said hood and an operating-lever pivoted upon the car for raising said cover and cutter up out of their operative position, substantially as described.

6. The combination with a car, of an adjustable rotary cutter, a chain-and-sprocket connection between said cutter and the car-wheel, an adjusting-bar secured to said cutter, an operating-lever pivoted upon the car for raising said cutter up out of its operative position, a fixed rotary cutter, and a train of

gearing operatively connecting said fixed rotary cutter with the car-wheel, substantially as described.

7. The combination with a car, of a shaft journaled in vertically-adjustable bearings, a chain-and-sprocket connection between said shaft and the car-wheel, adjusting-bars mounted upon each side of the car and attached to each end of said shaft, an operating-lever pivoted upon the car for raising said shaft and a series of cutter-hooks mounted upon said shaft, substantially as described.

8. The combination with a car, of a shaft journaled in vertically-adjustable bearings, means for adjusting said bearings, a series of cutter-hooks mounted upon said shaft, a shaft journaled in fixed bearings, a series of cutter-hooks mounted on said shaft and extending along its entire length, and a train of gearing connecting each of said shafts to the car-wheel, substantially as described.

9. The combination with a car, of a series of rotary cutter-hooks mounted in adjustable bearings, means for adjusting said bearings, a series of rotary cutter-hooks mounted in fixed bearings, a train of gearing operatively connecting said cutter-hooks with the car-wheel, a rotary broom, and a train of gearing operatively connecting said broom with the car-wheel, substantially as described.

10. The combination with a car, of a rotary shaft mounted in adjustable bearings, a series of cutter-hooks fixed on said shaft, a rotary

shaft mounted in fixed bearings and arranged behind said adjustable shaft, a series of cutter-hooks fixed on said shaft, a train of gearing operatively connecting said shaft with the car-wheel, a rotary broom journaled in the rear end of said car, a train of gearing operatively connecting said broom with the car-wheel, a hood arranged to cover said broom and a chute transversely arranged in said hood and in operative connection with said broom, substantially as described.

11. The combination with a car, of a rotary shaft mounted in independently-adjustable bearings and arranged one on each side of the car, a series of cutter-hooks fixed on each of said shafts, a rotary shaft mounted in fixed bearings and arranged behind said adjustable shafts, a series of cutter-hooks fixed on said shaft, a train of gearing operatively connecting said shafts with the car-wheel, a rotary broom journaled in the rear end of said car, a train of gearing operatively connecting said broom with the car-wheel, a hood arranged to cover said broom, and a chute transversely arranged in said hood and in operative connection with said broom, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ALPHONSE PITON.

Witnesses:

I. P. SELARRGER,
TIB. DESSAINT.