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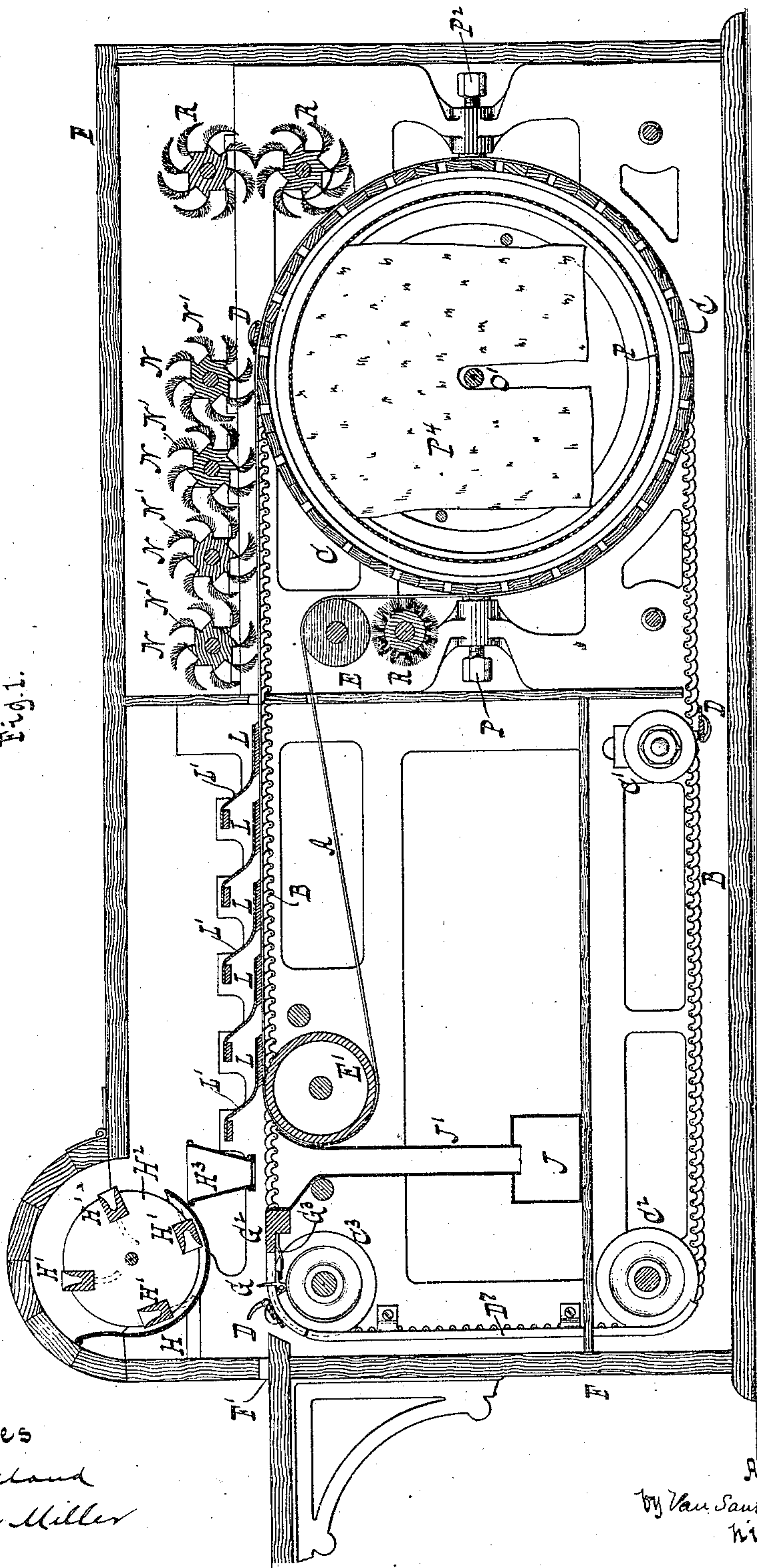
A. KOMP.

## BRONZING MACHINE.

No. 311,189.

Patented Jan. 27, 1885.

Fig. 1.



Witnesses

Otto Hufeland

William Miller

Inventor

Albert Komp

by Van Santwood & Hauff  
his attys

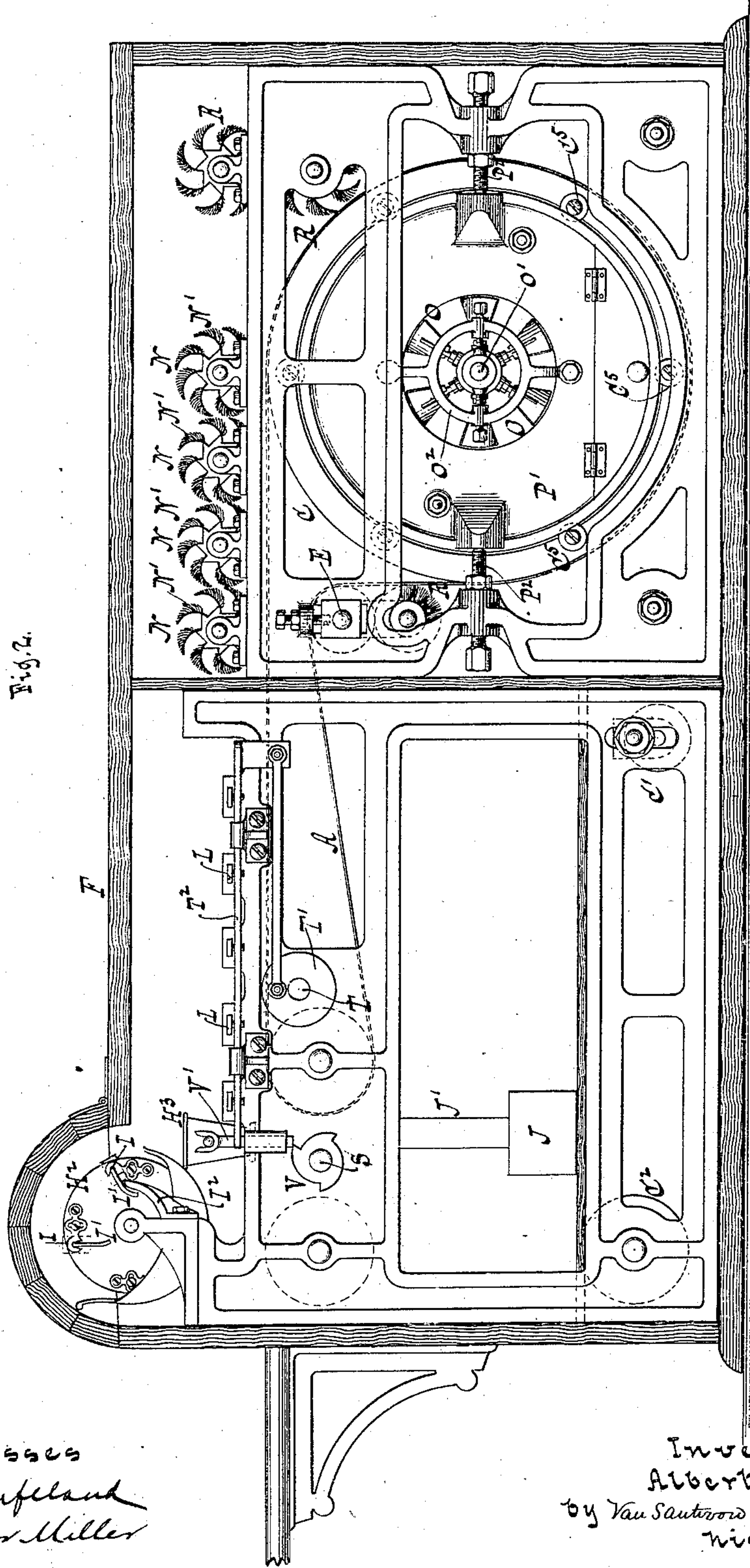
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A. KOMP.  
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(No Model.)

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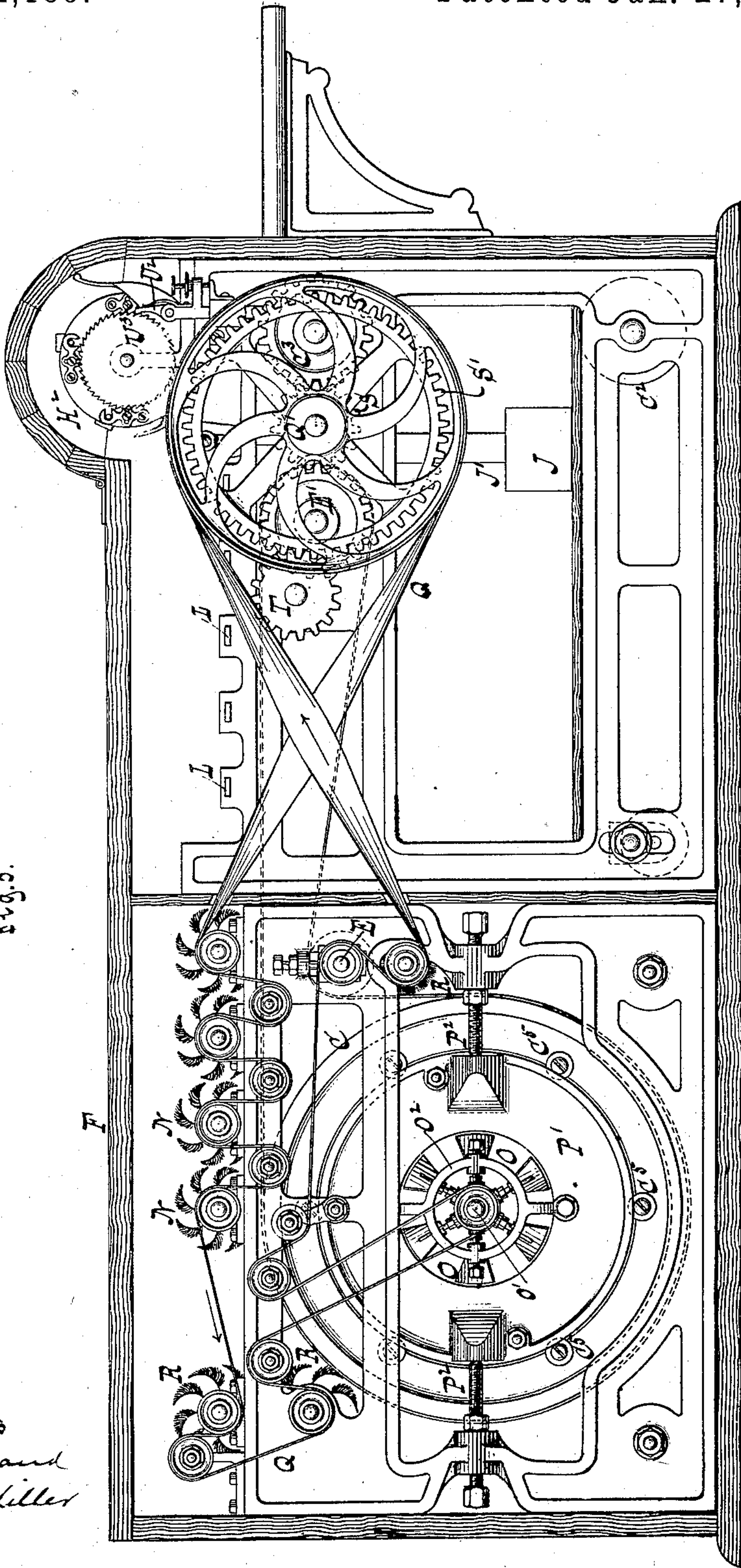
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BRONZING MACHINE.

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Fig. 3.



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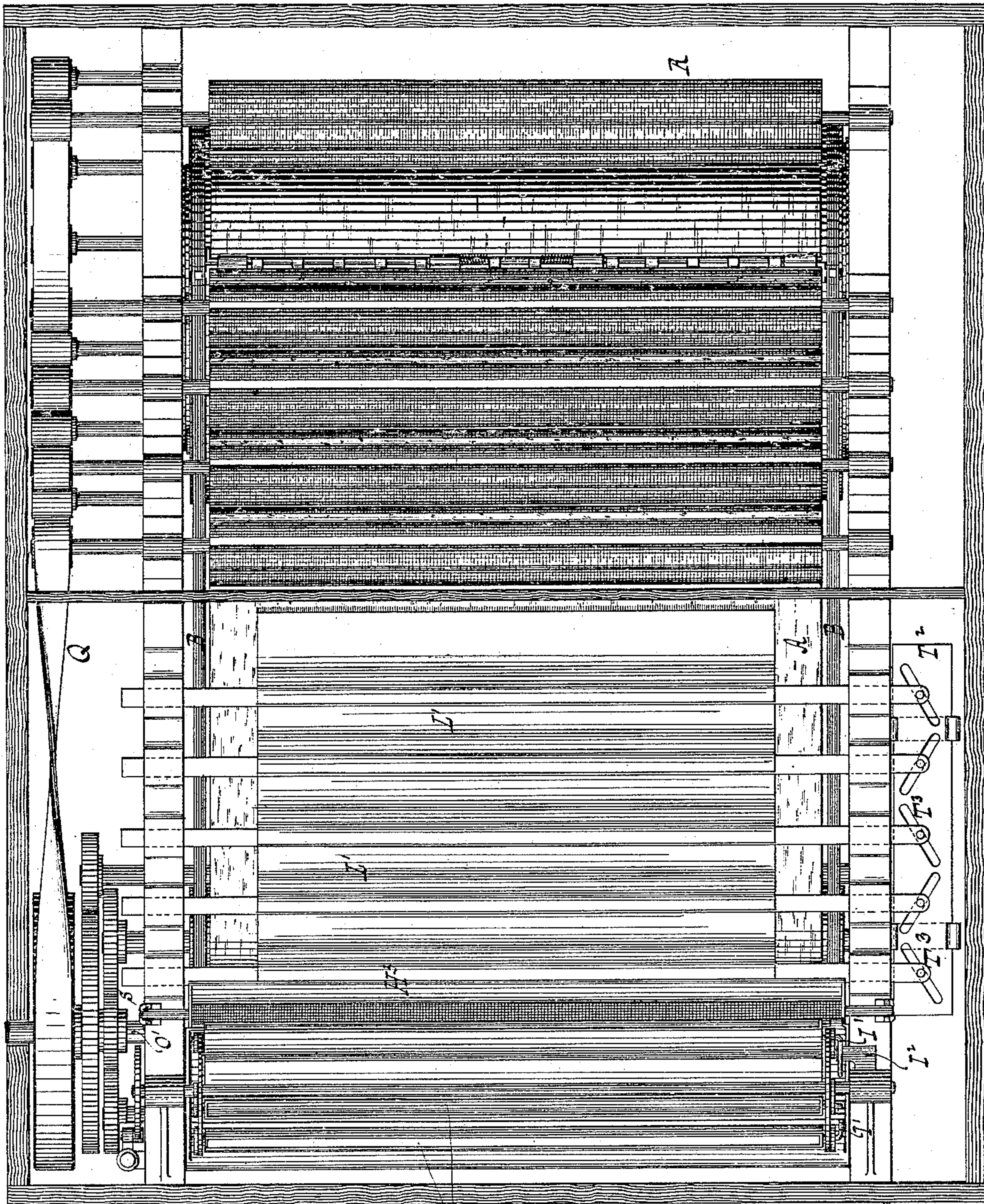
(No Model.)

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A. KOMP.  
BRONZING MACHINE.

No. 311,189.

Patented Jan. 27, 1885.



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Fig. 4.

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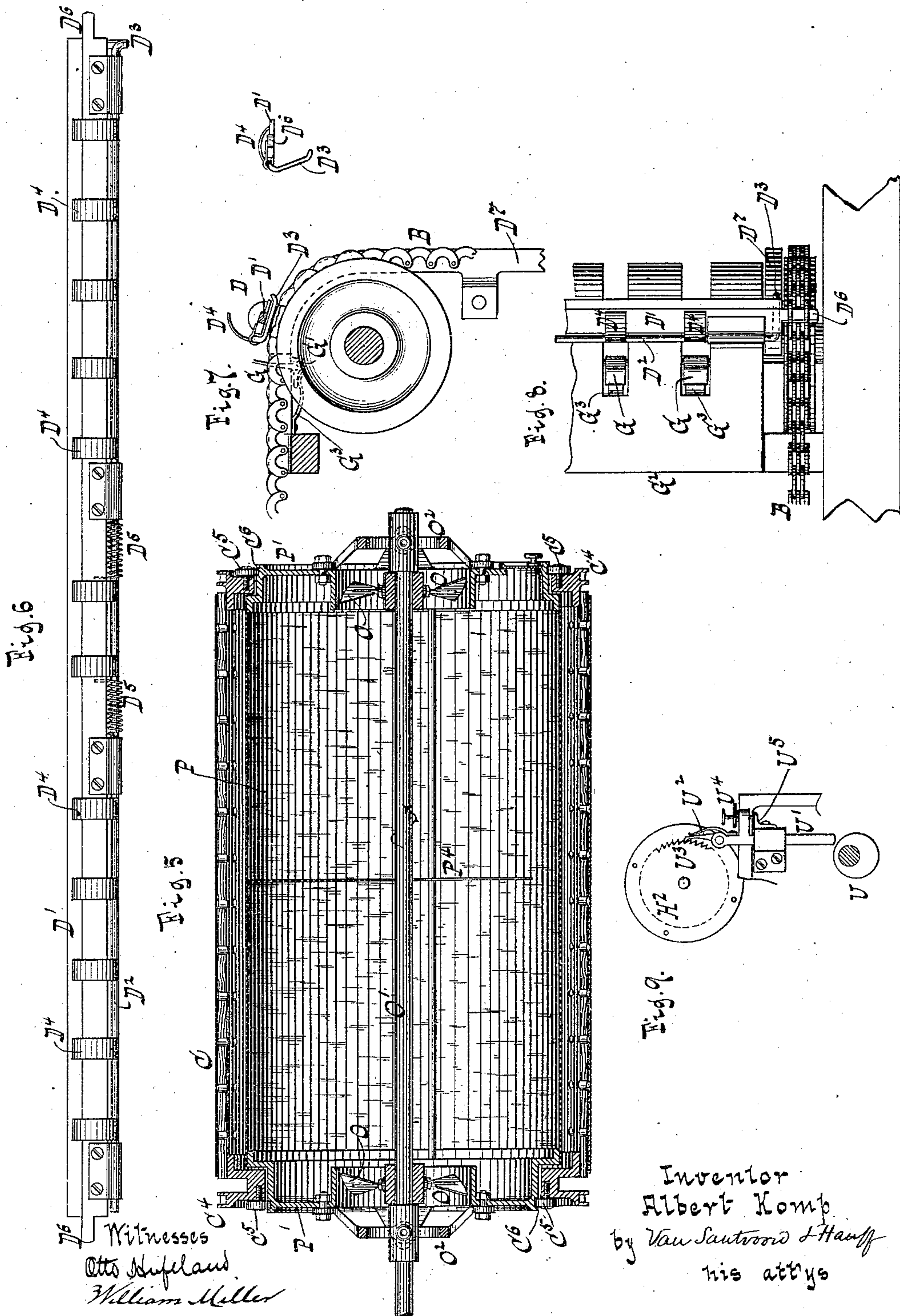
(No Model.)

5 Sheets—Sheet 5.

A. KOMP.  
BRONZING MACHINE.

No. 311,189.

Patented Jan. 27, 1885.





# UNITED STATES PATENT OFFICE.

ALBERT KOMP, OF NEW YORK, N. Y.

## BRONZING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 311,189, dated January 27, 1885.

Application filed April 10, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT KOMP, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Bronzing-Machines, of which the following is a specification.

This invention relates to that class of bronzing-machines for which Letters Patent of the United States were granted to me September 27, 1881, No. 247,660; and it consists in the arrangement of the sheet-carrier and gripper-carrier in relation to each other; also, in the construction of the grippers and gripper-operating mechanism; further, in the construction of the supply-bucket-operating mechanism; also, in the arrangement of a waste-receptacle in relation to the bronze-feeder; further, in the construction of bronze-distributing and sheet-cleaning brushes, and in the construction of a suction apparatus for collecting the floating bronze, as hereinafter set forth in detail.

This invention is illustrated in the accompanying drawings, in which Figure 1 is a longitudinal central section. Fig. 2 is a side view, partly in section. Fig. 3 is a similar view, looking in an opposite direction to Fig. 2. Fig. 4 is a plan or top view. Fig. 5 is a longitudinal section of the exhaust apparatus. Fig. 6 is a plan view of one of the grippers. Figs. 7 and 8 are detail views of the gripper-operating mechanism. Fig. 9 is a detail view of the bucket-wheel-operating mechanism.

Similar letters indicate corresponding parts.

The letter A designates an endless apron composing the sheet-carrier, and B two chains composing the gripper-carrier, these chains being arranged adjacent to the edges of the apron on rollers C C' C<sup>2</sup> C<sup>3</sup>, to travel with the same speed as the apron, and being connected together by the grippers D, one or more of which may be used. The roller C, together with additional rollers E E', also forms a support for the apron A, such roller being a hollow cylinder of comparatively large diameter, and a feature of the suction apparatus, as hereinafter explained. The rollers C C' E' are arranged in such relation to each other that a portion of both the apron A and chains B is in the same horizontal plane, as shown in Fig.

1, and consequently when the machine is in operation the grippers D are brought in superficial contact with that portion of the apron, thus allowing the sheet to rest thereon, where it is exposed to the action of distributing and cleaning brushes, as hereinafter explained. Each of the grippers D is composed of a bar, D', (see Fig. 6,) a shaft, D<sup>2</sup>, arranged on the bar and constructed with an arm, D<sup>3</sup>, at one end, a series of jaws, D<sup>4</sup>, fixed to the shaft to close against the bar, and spiral springs D<sup>5</sup>, arranged on the shaft to act thereon with a tendency to close the jaws. The bar D' is sunken on one of its longitudinal edges, where the jaws close against it, to protect the edges of the sheet, the shaft D<sup>2</sup> being on the other longitudinal edge of the bar, and the chains B are made to engage the opposite ends of the bar by means of openings formed in the proper links to receive projections D<sup>6</sup> of the bar.

At the receiving end of the machine is trip, D<sup>7</sup>, which extends from a point below the chain-roller C<sup>2</sup> upward, and thence horizontally inward beyond the roller C<sup>3</sup>, and which is in the path of the arm D<sup>3</sup> of the gripper-shaft, so that when in the movement of the chains B the gripper is opposite to the trip the shaft-arm comes in contact therewith and is displaced, thus imparting to the gripper-shaft a movement appropriate to open the jaws D<sup>4</sup>, in which condition the jaws are held until the shaft-arm ceases its contact with the trip.

It will be noticed that by the arrangement of the trip D<sup>7</sup> the jaws of each gripper are held open to receive the sheet and conduct it upon the horizontal portion of the apron A, while the jaws remain closed until just before the gripper begins to ascend, and the sheet being consequently carried up to that point, it is laid on the bottom of a case, F, inclosing the operative parts of the machine. The sheet, however, may be delivered at any other point by a suitable modification of the trip. The sheet is introduced into the inclosing-case F through a suitable slot or opening, F', therein, and abuts on its leading edge against an edge-gage, G, until it is caught by the gripper D, thus assuming and maintaining a true position in its passage through the machine.



The edge-gage G is made in sections, which are pivoted, as at G', in a bed, G<sup>2</sup>, affording the required support to the leading edge of the sheet as it is presented to the gage. Each of the gage-sections, moreover, is exposed to the action of a spring, G<sup>3</sup>, having a tendency to hold the same in an upright position, as indicated in Figs. 7 and 8, so that while the sections oppose an inward movement of the sheet they yield to the grippers and allow the latter to pass over them. The position of the gage-sections G is such, in relation to the trip D<sup>7</sup> of the gripper-shaft, that the gripper-jaws D<sup>4</sup> close at a point opposite to the gage-sections—that is to say, while the gripper is passing over the sections—and hence the sheet is caught by the gripper at the proper point. It is evident that a single spring may be used for all the gage-sections.

The bronze is supplied to the sheet from a reservoir, H, by means of buckets H', which are hung to a revolving wheel, H<sup>2</sup>, and empty into a feeder, H<sup>3</sup>, they being reversed at a point above the feeder by the following means: Each of the buckets H' is hung above the center of gravity, and thus weighted to assume and maintain an upright position, and the shafts or pivots I of the buckets are each constructed with an arm, I', at one end (see Figs. 2 and 4) to engage with a trip, I<sup>2</sup>, fixed to the machine-frame, when in the motion of the bucket-wheel the buckets reach a point above the feeder, as shown in Fig. 2, thus causing the reversal of the buckets successively. When the buckets have been reversed, they enter the bronze-reservoir H, as shown in Fig. 1, so as to receive a fresh supply of bronze. The bronze-feeder H<sup>3</sup> is arranged at a point in advance of the apron A, to leave an open space below the feeder, as shown in Fig. 1, through which space the bronze discharging from the feeder during the absence of a sheet is carried to a waste-receptacle, J, through a conveyer, J', which leads from a point below the feeder to such receptacle.

Above the horizontal portion of the apron A are arranged the bronze-distributing brushes L, to receive a laterally-reciprocating motion, and the sheet-cleaning brushes N, to receive a revolving motion. The distributing-brushes L are supported by means of spring-arms L', so that they exert a yielding pressure on the sheet, while the cleaning-brushes N are each constructed with yielding flaps N', which impinge against the sheet and engage the flaps of the adjacent brush or brushes in the motion thereof, so that these brushes, like the distributing-brushes, exert a yielding pressure, and at the same time, by the contact of the flaps, free one another of bronze.

The cylinder C is made of wood or other similar material, and is perforated throughout, while it is partly left bare from the apron A, as shown in Fig. 1, so that a portion of the holes of the cylinder are always exposed. At the opposite ends of the cylinder C are ar-

ranged revolving suction-fans O, by the action of which the floating bronze in the inclosing-case F is drawn into the cylinder, the current of air thus created escaping through the cylinder-holes.

In order to prevent the withdrawal of the bronze by the escaping air from the cylinder C, a second cylinder, P, is arranged within it, this cylinder being made of cloth or other similar material which is pervious to air but impervious to bronze, and being stationary. Said stationary cylinder P is provided with end heads, P', which are supported on the machine-frame by set-screws P<sup>2</sup>, or other suitable means, and in turn support the revolving cylinder C, the latter having end rings, C<sup>4</sup>, which are provided with anti-friction rollers C<sup>5</sup>, running in guideways P<sup>3</sup> of the end heads.

To accommodate the chains B, the end rings, C<sup>4</sup>, of the revolving cylinder C should be provided with grooves C<sup>6</sup>, Fig. 5, the groove of one ring being made deeper than the other to accommodate also the arm of the gripper-shaft. The position of the suction-fans O is in the end heads, P', of the stationary cylinder, both fans being mounted on an axial shaft, O', having its bearings in hangers O<sup>2</sup>, secured to the heads.

At about the mid-length of the stationary cylinder P is arranged a screen, P<sup>4</sup>, of cloth or other similar material, which serves to check the currents of air created by the fans and prevent such currents from reacting on each other. A belt, Q, Figs. 3 and 4, serves to impart motion from a driving-shaft, Q', to pulleys of the fan-shaft O', the apron-roller E, the sheet-cleaning brushes N, and a series of apron-cleaning brushes, R, while a cog-wheel, S, on such shaft serves to impart motion to corresponding wheels of the apron-roller E' and chain-roller C<sup>3</sup>. A second cog-wheel, S', of the driving-shaft serves to impart motion to a shaft, T, carrying a crank-wheel, T', which acts on a slide, T<sup>2</sup>, having oblique grooves T<sup>3</sup>, connecting with the distributing-brushes I, so that a reciprocating motion is thence imparted to the brushes.

On the shaft of the chain-roller C<sup>3</sup> is mounted a cam, U, (see Fig. 9,) which acts on a slide-rod, U', carrying a pawl, U<sup>2</sup>, which engages a ratchet-wheel, U<sup>3</sup>, of the bucket-wheel H<sup>2</sup>, so that an intermittently-revolving motion is thence imparted to the bucket-wheel, the extent of such motion being regulated by a set-screw, U<sup>4</sup>, of the arm resting on a bracket, U<sup>5</sup>, of the machine-frame.

Cams or wipers V, arranged on the main shaft S to act on slide-rods V', supporting the feeder H<sup>3</sup>, serve to impart a shaking motion to the feeder.

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

1. The combination of the endless apron composing the sheet-carrier, the endless chains composing the gripper-carrier, arranged adjacent to the edges of the apron, and rollers



supporting a portion of both the apron and the chains in the same horizontal plane, substantially as and for the purpose described.

2. A gripper composed of the bar, the shaft arranged on the bar, and constructed with an arm at one end, the jaws fixed to the shaft to close against the bar, and the spiral springs arranged on the shaft to close the jaws, in combination with the trip fixed to the machine-frame to engage the arm of the gripper-shaft for opening the jaws, and the endless chains engaging the opposite ends of the gripper-bar, substantially as and for the purpose described.

3. A gripper composed of the bar sunken on one of its longitudinal edges, the shaft arranged on the other longitudinal edge of such bar, and constructed with a lateral arm at one end, the jaws fixed to the shaft to close against the sunken portion of the bar, and the spiral springs arranged on the shaft to close the jaws, in combination with the trip fixed to the machine-frame to engage the arm of the gripper-shaft for opening the jaws, and the endless chains engaging the opposite ends of the gripper-bar, substantially as and for the purpose described.

4. The combination of the bed for supporting the leading edge of the sheet, the edge-gage made in sections which are pivoted in the bed, and the spring or springs of the gage-sections with the gripper-carrier and the gripper arranged to displace the gage-sections, and constructed to close at a point opposite thereto, substantially as and for the purpose described.

5. The combination, with the bronze-feeder and bronze-reservoir, of the revolving bucket-wheel, the weighted buckets of such wheel, the bucket-shafts constructed with an arm at one end, and the trip fixed to the machine-frame to engage the arms of the bucket-shafts for reversing the buckets at a point above the bronze-feeder, substantially as described.

6. The combination, with the apron composing the sheet-carrier, of the bronze-feeder arranged at a point in advance of the sheet-carrier, leaving an open space below the feeder, the waste-receptacle, and the conveyer leading from a point below the bronze-feeder to the waste-receptacle, substantially as shown and described.

7. The combination, with the endless apron composing the sheet-carrier, of laterally-reciprocating bronze-distributing brushes, and the spring-arms supporting such brushes, substantially as and for the purpose described.

8. The combination, with the endless apron composing the sheet-carrier, of the revolving sheet-cleaning brushes, each constructed with yielding flaps to impinge against the sheet and engage the flaps of the adjacent brush or brushes, substantially as and for the purpose described.

9. The combination, with the apron composing the sheet-carrier, the bronze feeding and distributing devices, and the inclosing-case, of the revolving perforated cylinder, forming a support for the apron, and the revolving suction-fans arranged at the opposite ends of the cylinder, substantially as and for the purpose described.

10. The combination, with the apron composing the sheet-carrier, the bronze feeding and distributing devices, and the inclosing-case, of the revolving perforated cylinder, forming a support for the apron, the stationary cylinder, of cloth or other similar material, within the revolving cylinder, the end heads of the stationary cylinder, and the revolving suction-fans arranged in the end heads, substantially as and for the purpose described.

11. The combination, with the apron composing the sheet-carrier, the bronze feeding and distributing devices, and the inclosing-case, of the revolving perforated cylinder having end rings provided with anti-friction rollers, the stationary cylinder, of cloth or other similar material, within the revolving cylinder, the end heads of the stationary cylinder having guideways for the anti-friction rollers of the revolving cylinder, and the revolving suction-fans arranged in the cylinder-heads, substantially as and for the purpose described.

12. The combination, with the apron composing the sheet-carrier, the bronze feeding and distributing devices, and the inclosing-case, of the revolving perforated cylinder, the stationary cylinder, of cloth or other similar material, the screen arranged in the stationary cylinder at about its mid-length, and the revolving suction-fans arranged in such cylinder at its opposite ends, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

A. KOMP. [L. S.]

Witnesses:

W. HAUFF,  
CHAS. WAHLERS.