

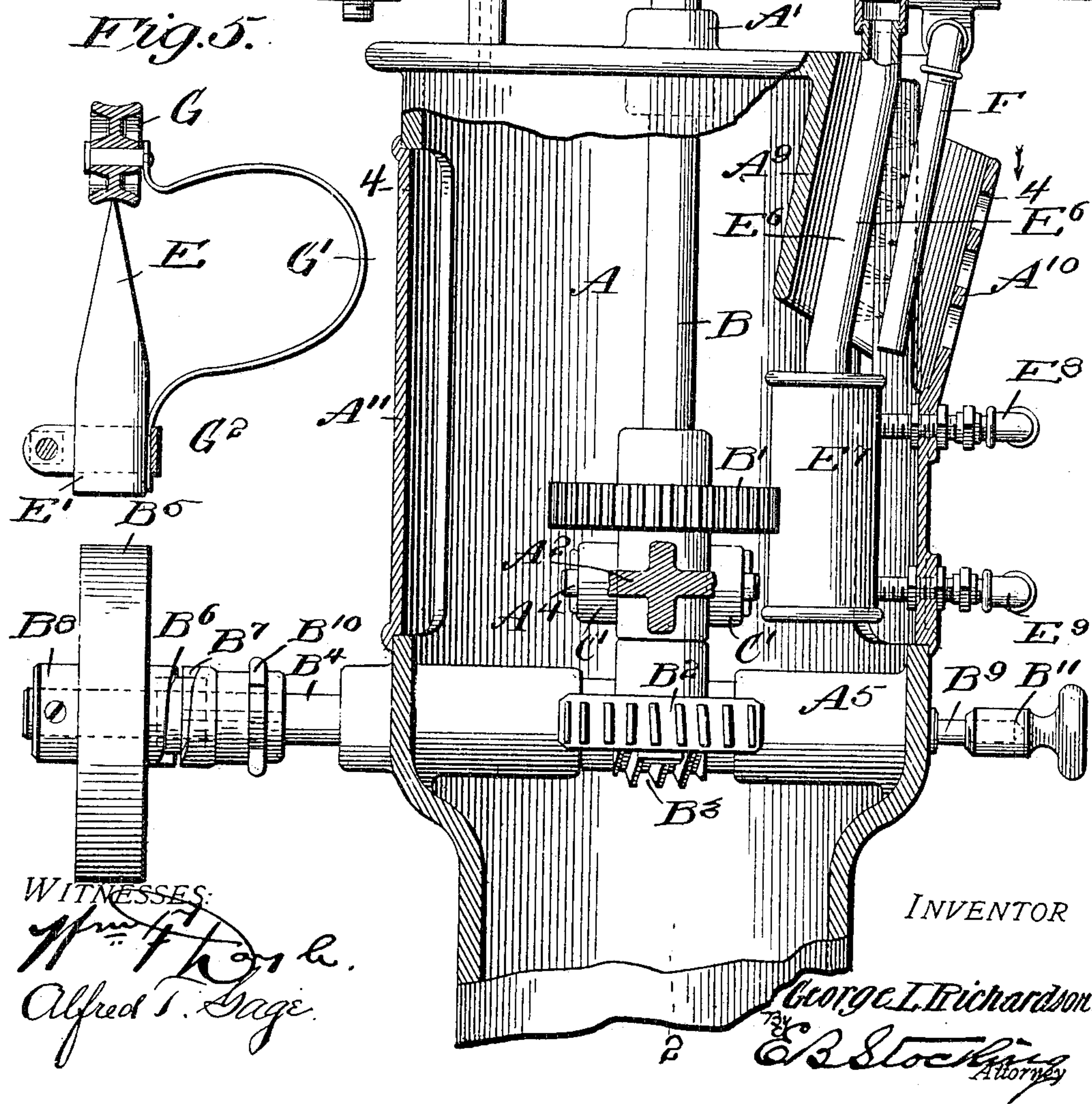
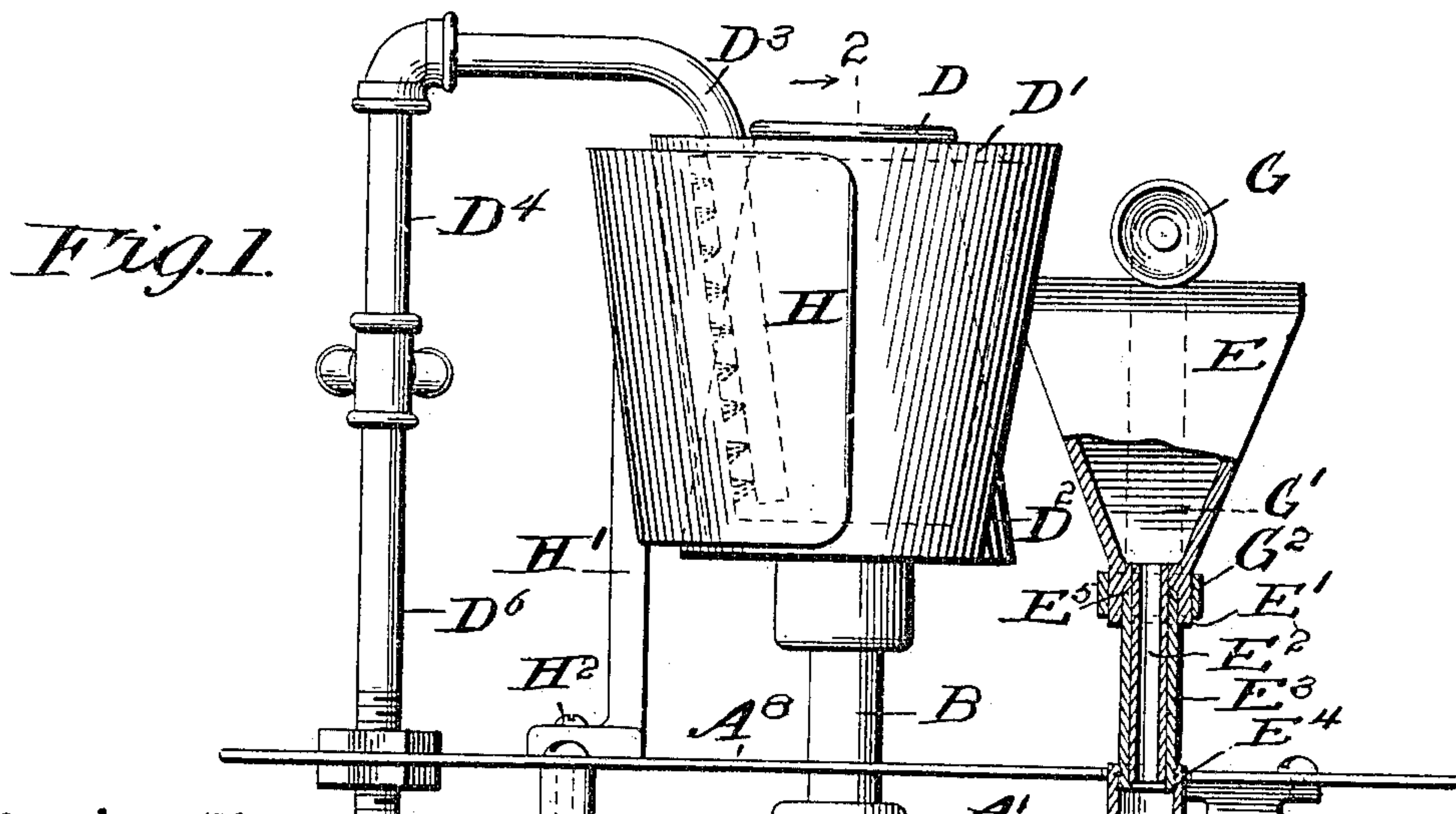
No. 818,915.

PATENTED APR. 24, 1906.

G. L. RICHARDSON.
COLLAR AND CUFF SHAPER.

APPLICATION FILED SEPT. 24, 1904.

3 SHEETS—SHEET 1.



WITNESSES:

Alfred S. Gage.

INVENTOR

George L. Richardson
E. B. Stocking
Attorney

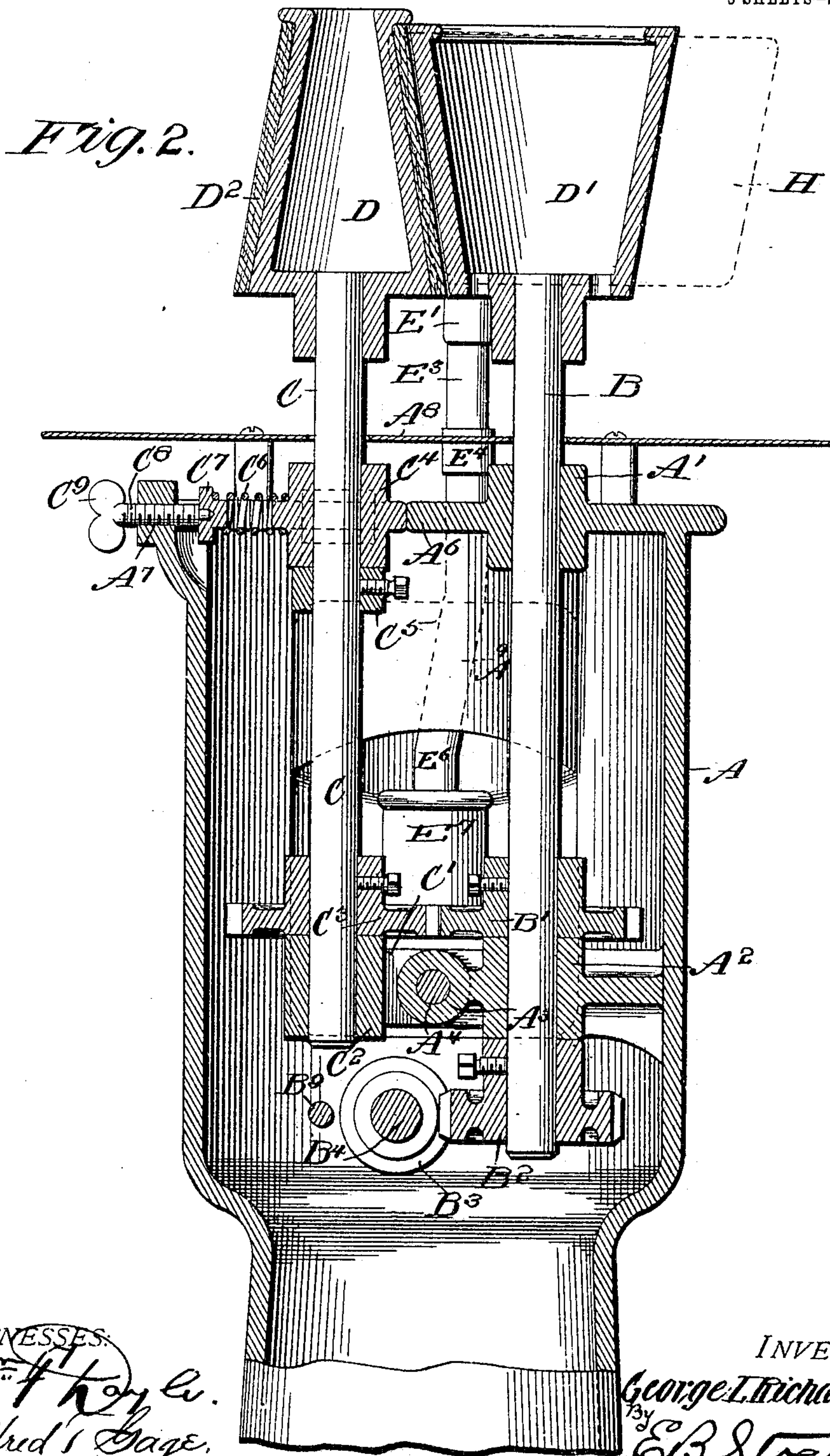
No. 818,915.

PATENTED APR. 24, 1906.

G. L. RICHARDSON.
COLLAR AND CUFF SHAPER.

APPLICATION FILED SEPT. 24, 1904.

3 SHEETS—SHEET 2.



WITNESSES:
W. F. Key, Jr.
Alfred S. Gage.

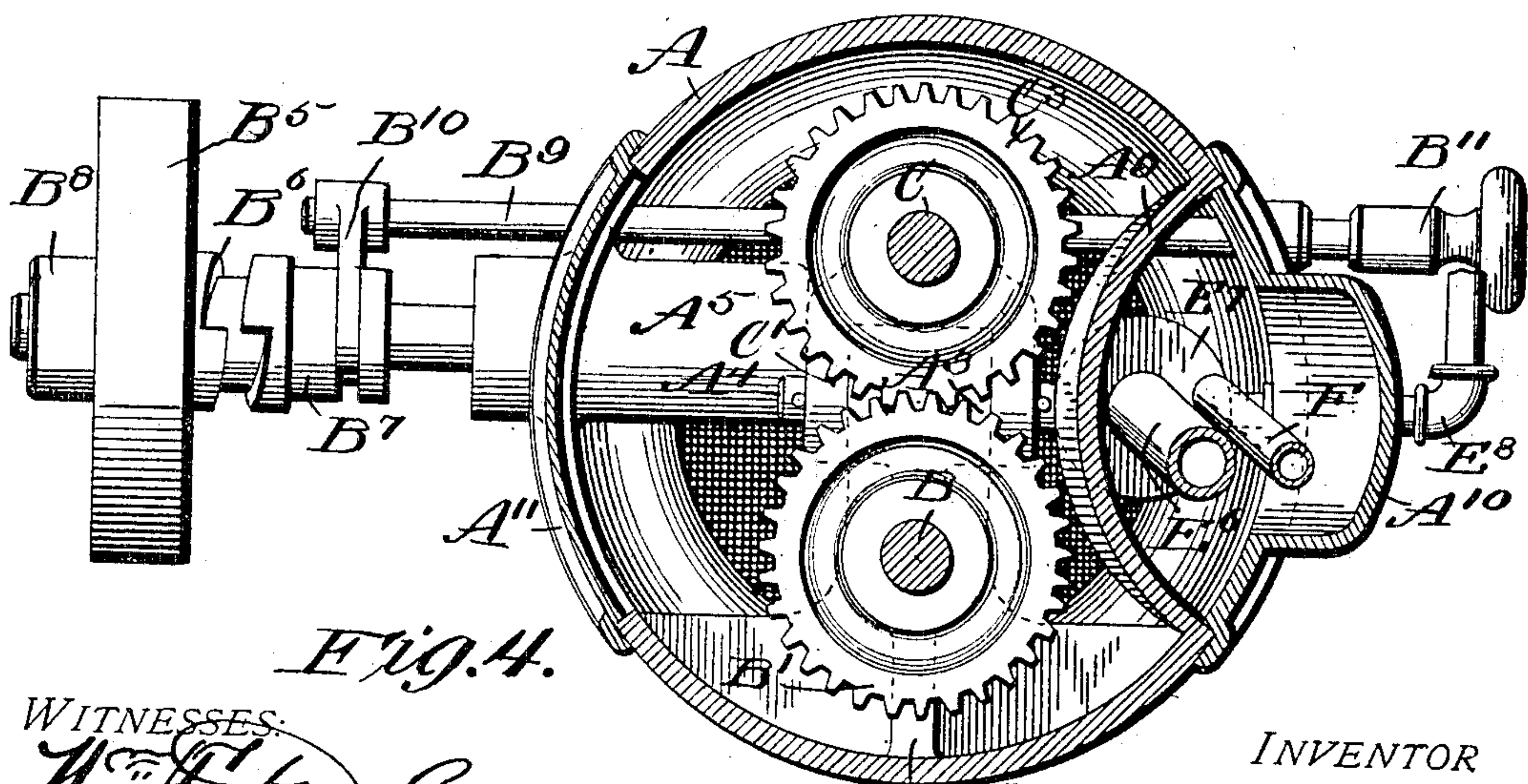
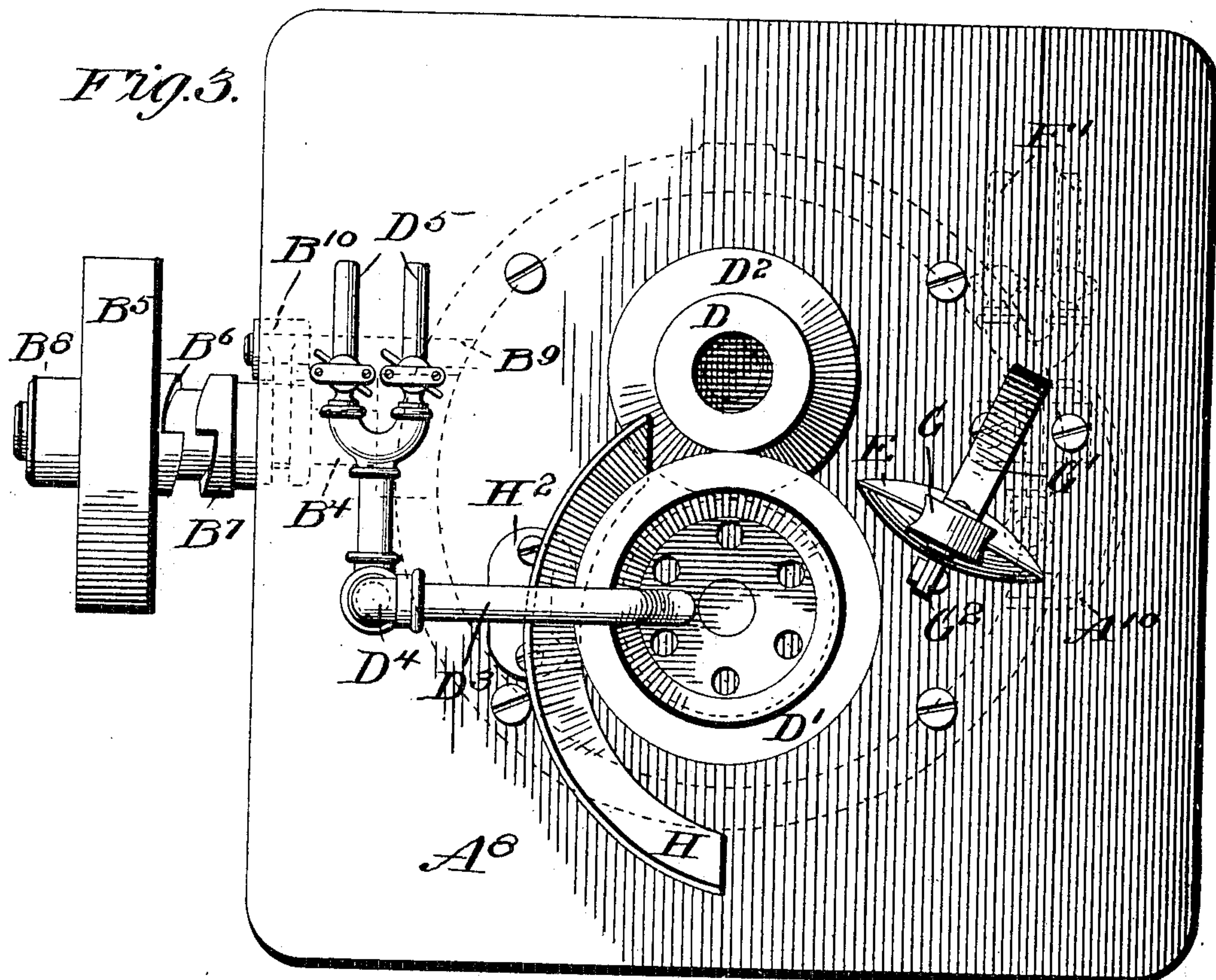
INVENTOR
George L. Richardson,
by *E. B. Stocking*
Attorney

No. 818,915.

PATENTED APR. 24, 1906.

G. L. RICHARDSON.
COLLAR AND CUFF SHAPER.
APPLICATION FILED SEPT. 24, 1904.

3 SHEETS—SHEET 3.



WITNESSES:

W. F. K. Ryle
Alfred T. Sage.

INVENTOR

George L. Richardson,

By

E. B. Stocking
Attorney

UNITED STATES PATENT OFFICE.

GEORGE L. RICHARDSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO TROY LAUNDRY MACHINERY COMPANY, LIMITED, OF TROY, NEW YORK, A CORPORATION OF NEW YORK.

COLLAR AND CUFF SHAPER.

No. 818,915.

Specification of Letters Patent.

Patented April 24, 1906.

Application filed September 24, 1904. Serial No. 225,842.

To all whom it may concern:

Be it known that I, GEORGE L. RICHARDSON, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Collar and Cuff Shapers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to a collar and cuff shaper, and particularly to a structure adapted to moisten the article upon the fold-line and subsequently press it in its folded condition.

15 The invention has for an object to improve the construction and arrangement of parts disclosed in the patent to J. A. Anderson, No. 572,239, dated December 1, 1896, in order to render the construction of parts more simple, strong, durable, efficient, and inexpensive of construction.

20 Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

25 In the drawings, Figure 1 is a side elevation of the machine with parts in section; Fig. 2, a central vertical section on the line 2 2 of Fig. 1; Fig. 3, a top plan; Fig. 4, a horizontal section on the line 4 4 of Fig. 1, and Fig. 5 a detail elevation of the nozzle and roller.

Like letters of reference refer to like parts in the several figures of the drawings.

30 The letter A designates a frame or casing, which may be of any desired material, dimensions, or configuration; but a desirable form is herein disclosed for the purpose of supporting the parts of its mechanism. In this form of casing a cone-shaft B is supported by means of a fixed bearing A' at the top of the casing and an inwardly-extending bracket A², provided with a similar bearing through which the shaft extends. This bracket is provided at its free end with a pivoting-eye A³, adapted to receive a bolt or pivot A⁴, extending from the pivoting-ears C', carried by the cone-shaft C. These ears extend from a bearing C², in which the lower end of the shaft C is free to rotate and embrace the eye A³.
45 The shaft B has secured thereto a gear B', which rests upon the upper face of the bearing in the bracket A² and meshes with a similar gear C³, secured to the cone-shaft C, while

these shafts are driven by means of a worm-gear B², carried by the lower end of the shaft B and meshing with a worm B³, secured upon the driving-shaft B⁴, which shaft is mounted in suitable elongated bearings A⁵ at opposite sides of the machine. Upon the extended end of the driving-shaft B⁴ a loosely-mounted pulley B⁵ is provided and has formed upon one face thereof a clutch member B⁶, adapted to coöperate with a corresponding member B⁷, which is slidingly held by a suitable key upon the shaft B⁴, so as to be moved into and out of contact with the member B⁶, while the outward movement of the pulley is resisted by a stop-collar B⁸ at the end of the shaft. This clutch member may be shifted in any desired manner—for instance, by means of the rod B⁹, having at one end a yoke B¹⁰ to embrace the clutch member B⁷ and at its opposite end an operating-handle B¹¹, mounted to reciprocate the rod through the casing and disposed at the opposite side thereof from the driving-pulley.

The pivotal mounting just described permits a slight oscillation of the cone D in relation to its associate member D', such movement occurring without interfering with the meshing of the gears B' and C³, as it is of a limited extent. For the purpose of restoring the cones into contact with each other the shaft C is provided at its upper portion with a bearing-collar C⁴, held against vertical movement upon the shaft by means of a collar C⁵ beneath the same and normally adapted to contact with the face A⁶ of the top of the casing by means of the tension-spring C⁶, bearing at one side against the collar C⁴ and provided at its opposite end with a bearing-block C⁷, in which an adjusting-screw C⁸ is swiveled, said screw having a threaded bearing in the upper edge A⁷ of the casing and being provided with the usual handle C⁹ for operation. By this means the tension of the cones in contact with each other may be adjusted.

The cone members D and D' are oppositely disposed—that is, the smaller end of each being disposed in an opposite direction—and the cone member D is provided with a suitable clothing of felt, cloth, or similar material, as indicated at D², while the opposite cone is formed of metal and heated by means of a burner D³, extending over its top and downward, so as to direct a jet against a

wall of the cone, as shown in Fig. 1. This burner is connected, by means of a suitable pipe D⁴, with a source of gas and air supply, the connections for such supply being indicated at D⁵ as of a conventional form, while the pipe is supported by a standard D⁶, secured to the table A⁸, which is suitably apertured to permit the passage of the cone-shafts B and C therethrough and the necessary movement of the latter shaft.

Disposed adjacent to the cones just described is a discharge-nozzle E, being suitably curved on its upper surface in relation to the feed to the cones and of the same general construction, having its discharge-passage upon its upper edge, as disclosed in Patent No. 572,239, before mentioned. It has, however, been found desirable to mount this nozzle so that it may be freely movable in a horizontal plane for the purpose of automatically adjusting itself in the feed of the material or article to the cones. This is accomplished by the formation of a ground bearing in the base E' of the discharge-nozzle and securing within that base a bushing E² to extend downward therefrom, which bushing telescopes within a nipple E³, secured in a fixed position by a coupling E⁴, said nipple being provided at its upper edge with a ground face E⁵ to fit the bearing E', and thus permit a rotary movement of the discharge-nozzle upon its support without the escape of steam at that point. The steam for supplying the nozzle is conveyed thereto through a superheating-pipe E⁶, which extends parallel to a baffle-plate A⁹, projecting downward from the top of the frame or casing, and disposed opposite to the superheating-pipe E⁶ is a burner F, provided with jets disposed to contact with said pipe and supplied from any suitable source by means of the air and gas couplings of conventional form, as indicated by dotted lines in Fig. 3. The steam before passing to the superheating-pipe passes through a condensing-chamber E⁷, being supplied thereto by a feed-pipe E⁸ at the upper portion of the chamber, while the condensed steam or water is removed from said chamber by means of a return-pipe E⁹, connected to the lower portion of the chamber.

It has also been found desirable to provide a perforated protecting-plate A¹⁰, secured to the casing and extending upward at the front of the burner F, while at the opposite side of the casing a removable plate A¹¹ is provided, by which access can be had to the gearing and other parts contained therein.

The articles to be softened upon their fold-lines may be pressed into contact with the slotted edge of the discharge-nozzle by hand, or a contact-roller G may be provided for that purpose and rides upon the upper face of the nozzle, where it is supported by means of a looped spring G', which is secured to the base of the nozzle by a clip G², so as to rotate

with the nozzle in any movement thereof. The looped portion of this spring permits the hands of the operator to pass at opposite sides of the nozzle in directing the goods therefrom to the cones. It is also found desirable to provide adjacent to the heating-cone a curved guide-plate H, extending at one side of the cone and supported by means of a standard H', secured at H² to the table A⁸. This plate is opposite the heated face of the cone and retains the article in sufficiently close contact therewith to thoroughly dry the same and cause it to assume an approximately curved form in its finished state after its passage between the cones.

In the operation of the invention the collar, cuff, or other article to be folded is passed over the nozzle, by which the line of fold is moistened by the application of dry steam thereto, after which the article passes between the clothed and heated cones, which, owing to their disposition, cause the article to travel between them in a direction approximately at a right angle to the meeting line of the contacting surfaces, so that it will be ironed smoothly from end to end and not twisted or creased, this result being further attained by the curved face of the discharge-nozzle. After passing between the cones the article is thoroughly dried and shaped between the outer surface of the heated cone and the guide-plate, whence it will be discharged at the same side of the machine at which it was introduced, so that a single operator can attend to the machine. An important feature of the invention is the means for superheating the steam before its introduction into the discharge-nozzle, so as to prevent any excess of moisture coming into contact with and destroying the finish upon the goods which have been laundered prior to the folding operation in this machine. The application of the heating means to one face or surface of the cone opposite the guide-plate causes a proper degree of temperature upon the contact-surfaces of the cones and also maintains in the space between the guide and the cone a temperature for the drying of the article passing therethrough. The pivotal mounting for the clothed cone is such as to reduce the friction in its oscillation and renders it consequently more delicate in its tension relation to the opposite member. By the pivotal mounting of one of the oppositely-disposed cones it moves directly away from the other, so that the surfaces thereof have no relative longitudinal movement which would produce a buckle or bending of the collar. The use of the roller upon the discharge-nozzle holds the goods in proper contact, so that they will only be moistened upon the fold-line, and obviates the necessity of the operator holding the goods across the nozzle under tension.

It will be obvious that changes will be

made in the details of construction and configuration without departing from the spirit of the invention as defined by the appended claims.

5 Having described my invention and set forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. In a machine of the class described, the combination with presser members, of a
10 freely-rotatable nozzle adjacent thereto, and means for supplying steam to said nozzle.

2. In a machine of the class described, a freely-rotatable nozzle, means for supplying steam to said nozzle, and means for super-
15 heating the steam in its passage to said nozzle.

3. In a machine of the class described, a rotatable nozzle, means for supplying steam to said nozzle, means for superheating the steam in its passage to said nozzle, and a con-
20 densing-chamber beneath said superheater.

4. In a machine of the class described, a nozzle, means for supplying steam thereto, and a superheating-burner adjacent to the steam-supply means for superheating the
25 steam in its passage to said nozzle.

5. In a machine of the class described, a nozzle, means for supplying steam thereto, a superheating-burner adjacent to the steam-supply means for superheating the steam in
30 its passage to said nozzle, cooperating cones disposed adjacent to said nozzle, and means for heating one of said cones.

6. In a machine of the class described, a pivotally-mounted nozzle, means for sup-
35 plying steam thereto, cooperating cones disposed adjacent to and in alinement with said nozzle, and means for heating one of said cones.

7. In a machine of the class described, a
40 nozzle, means for supplying steam thereto, cooperating cones adjacent to said nozzle, a vertically-disposed guide-plate spaced from one of said cones, and means at one side of one of said cones opposite the guide-plate for
45 applying heat to said cone at that point.

8. In a machine of the class described, a nozzle, means for supplying steam thereto, a superheating-burner adjacent to the steam-supply means, cooperating cones disposed
50 adjacent to said nozzle, means at one side of one of said cones for heating the same, a guide-plate spaced from said cone opposite the heating means therein, and means for permitting a movement of one of said cones to-
55 ward and from the other.

9. In a machine of the class described, the combination with cooperating cones, of a rotatable nozzle disposed adjacent to said
60 cones, and means for supplying steam to said nozzle.

10. In a machine of the class described, the combination with cooperating cones, of a rotatable nozzle disposed adjacent to said
65 cones, means for supplying steam to said nozzle, means for heating one of said cones, and

a guide-plate disposed adjacent to the heated cone at the opposite side thereof from said nozzle.

11. In a machine of the class described, the combination with cooperating cones, of a ro- 70
tatable nozzle disposed adjacent to said cones, means for supplying steam to said nozzle, means for heating one of said cones, a guide-plate disposed adjacent to the heated cone at the opposite side thereof from said nozzle, a 75
superheating-burner disposed to heat the steam-passage to said nozzle, and a condens-
ing-chamber communicating with said pas-
sage beneath the heater.

12. In a device of the class described, an 80
elongated slotted steam-nozzle, and a roller supported to yieldingly contact with the slotted face of said nozzle intermediate of its ends.

13. In a device of the class described, an 85
elongated slotted steam-nozzle, a roller supported to contact with the slotted face of said nozzle, and a looped supporting-spring extending from said roller to the base of the
90 nozzle.

14. In a device of the class described, an
elongated slotted steam-nozzle, a roller sup-
ported to contact with the slotted face of said
nozzle, a looped supporting-spring extending
95 from said roller to the base of the nozzle, co-
operating cones at one side of said nozzle, and means for permitting a rotation of said nozzle and base relative to said cones.

15. In a machine of the class described, co-
operating cones provided with driving-shafts 100
one of which is provided with fixed bearings and has the widest portion of its cone uppermost, a pivotally-mounted bearing-box for the lower end of the opposite cone-shaft carried by the lower fixed bearing and construct- 105
ed and arranged to travel in a downward path therefrom, and meshing gears carried by each of said shafts.

16. In a machine of the class described a driving-shaft mounted in fixed bearings and 110
provided with a cone having its wider portion uppermost, and a cooperating oppositely-disposed and relatively movable cone carried by a driving-shaft having a pivotal mounting constructed and arranged to effect 115
a direct movement of the coacting surfaces of the cones toward and from each other.

17. In a machine of the class described, a steam-discharge nozzle, a feed-pipe commu- 120
nicating therewith, a superheating-burner
disposed parallel to said feed-pipe and having jets directed against said pipe, and a condens-
ing-chamber at the lower end of said feed-pipe.

18. In a machine of the class described, a 125
steam-discharge nozzle, a feed-pipe communicating therewith, a superheating-burner disposed parallel to said feed-pipe and having jets directed against said pipe, a condens-
ing-chamber at the lower end of said feed- 130

pipe, a casing surrounding said parts and provided with a partition-wall at the rear of the feed-pipe, and an apertured guard-wall at the front of said burner.

5 19. In a machine of the class described, a slotted steam-nozzle provided at its base with a ground bearing and a bushing projecting therefrom, and a stationary nipple provided with a ground joint at its upper portion
10 to engage said bearing and adapted to inclose said bushing whereby the nozzle may be rotated upon said nipple.

20. In a device of the class described, a metallic cone open at its upper portion, a
15 heating-burner depending within said cone and provided with jets directed in one direction therefrom, and a guide-flange spaced from the outer wall of said cone opposite the burner therein.

20 21. In a device of the class described, a metallic cone open at its upper portion, a heating-burner disposed within said cone and provided with jets directed against the inner wall thereof, a guide-flange spaced from
25 the outer wall of said cone opposite the burner therein, a cooperating oppositely-disposed clothed cone, and a pivotally-mounted discharge-nozzle adjacent to said cones.

22. In a machine of the class described, a
30 casing having at its lower portion elongated bearings for a driving-shaft, a fixed bearing for a cone-shaft, an inwardly-projecting bracket having a bearing for said cone-shaft

in alinement with said top bearing and provided with a pivoting member, an oscillating
35 bearing for a parallel cone-shaft, a bearing for said parallel cone-shaft normally held in contact with the top of said casing, a steam-nozzle and conducting-pipe, a depending partition carried by the casing at the rear of said
40 conducting-pipe, and a guard-plate carried by the casing at the front of said pipe.

23. In a machine of the class described, a casing having at its lower portion elongated bearings for a driving-shaft, a fixed bearing
45 for a cone-shaft, an inwardly-projecting bracket having a bearing for said cone-shaft in alinement with said top bearing and provided with a pivoting member, an oscillating bearing for a parallel cone-shaft, a bearing
50 for said parallel cone-shaft normally held in contact with the top of said casing, a steam-nozzle and conducting-pipe, a depending partition carried by the casing at the rear of said conducting-pipe, a guard-plate carried by
55 the casing at the front of said pipe, bearings in said casing for a shifter-rod parallel to the driving-shaft bearings, and a removable closure-plate at one side of said casing.

In testimony whereof I affix my signature 60
in presence of two witnesses.

GEORGE L. RICHARDSON.

Witnesses:

HENRY S. WILCOX,
J. WEBB GRIFFEN.