

A. J. GURNEY.
PORTABLE FORGE.

APPLICATION FILED APR. 9, 1900.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1

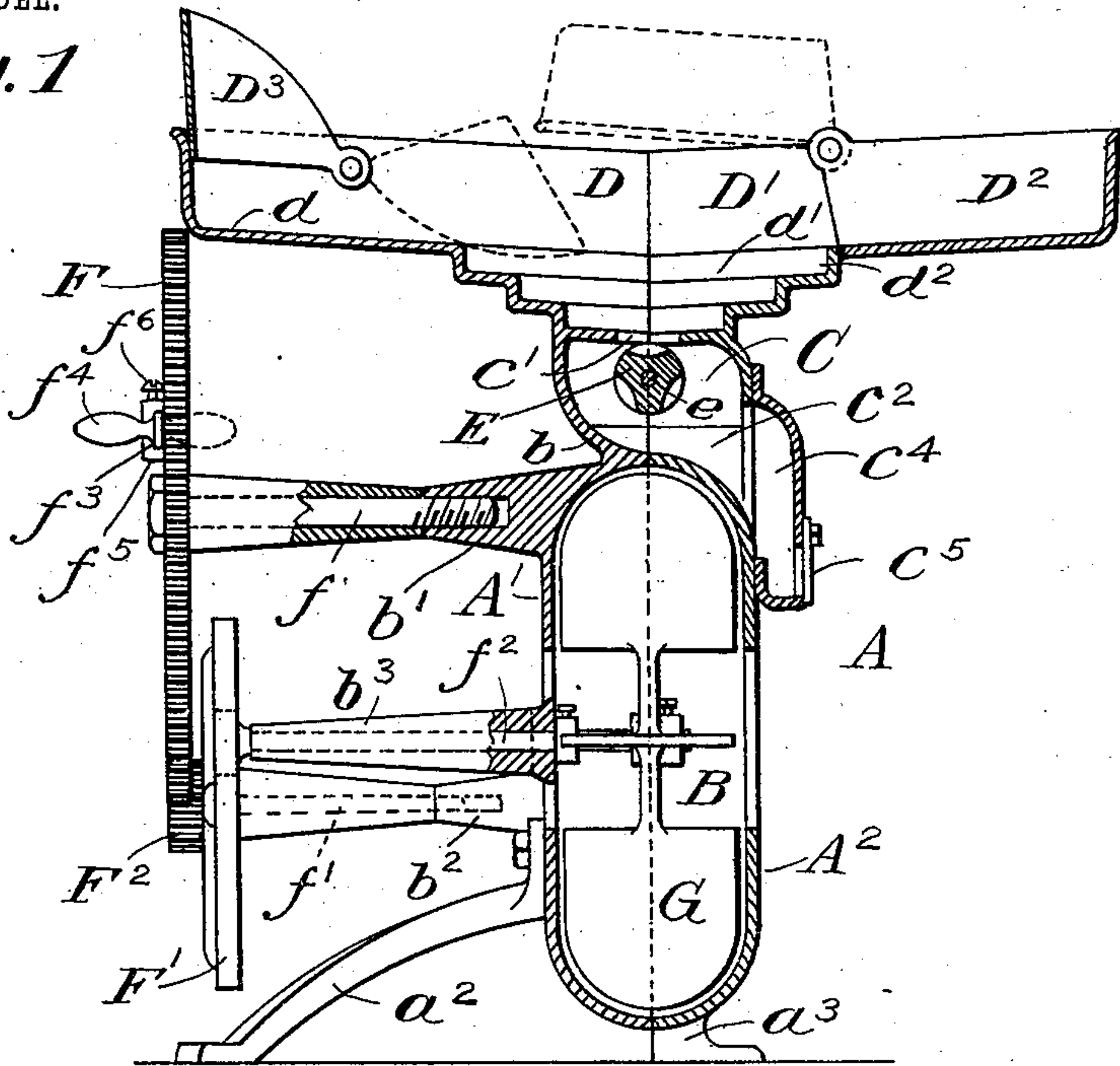
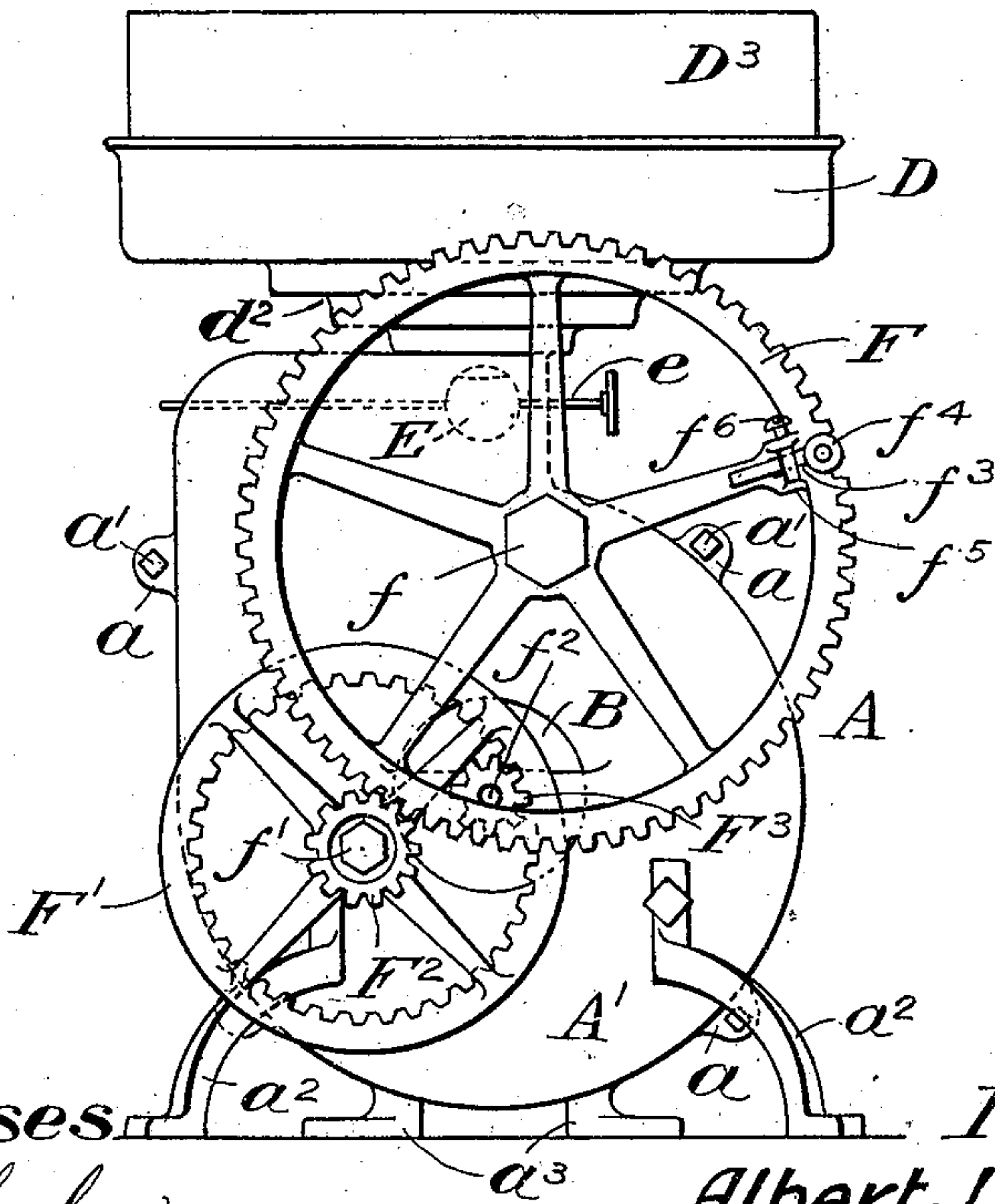


Fig. 2



Witnesses

C. H. Schafer
Geo. H. Meyer

Inventor:

Albert J. Gurney,

- By his Atty. - W. H. Row

No. 724,852.

PATENTED APR. 7, 1903.

A. J. GURNEY.
PORTABLE FORGE.

APPLICATION FILED APR. 9, 1900.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 4

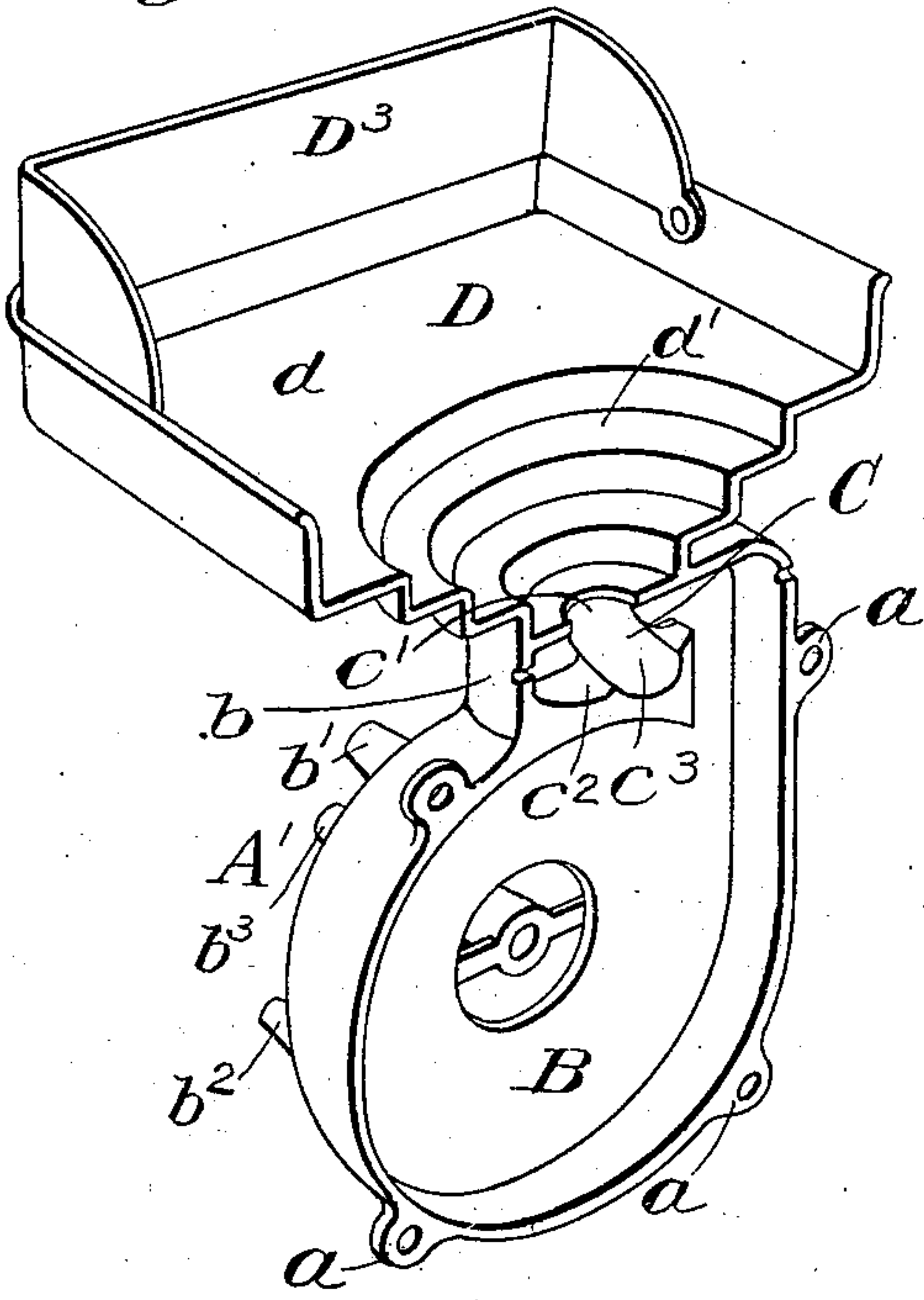


Fig. 5

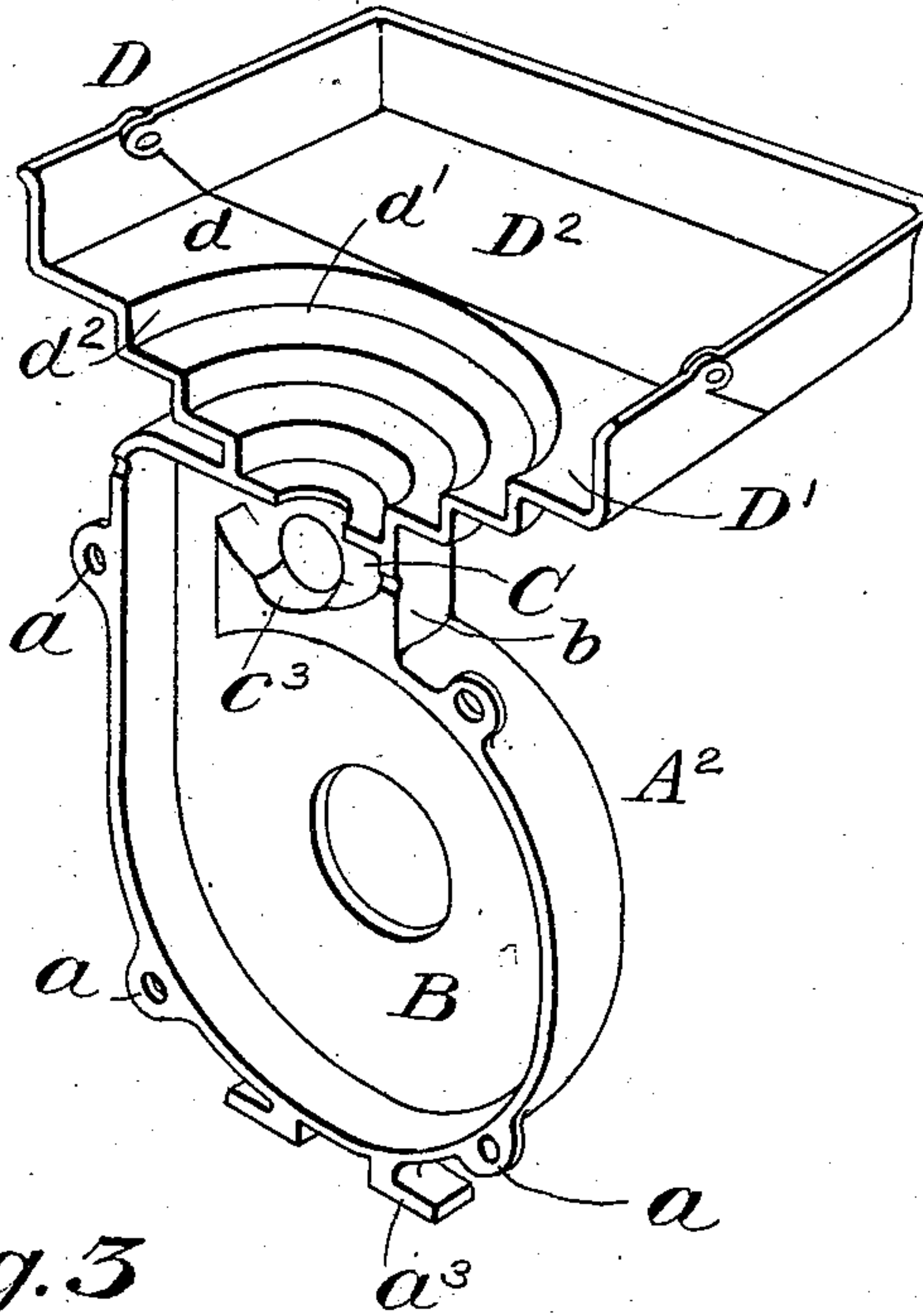
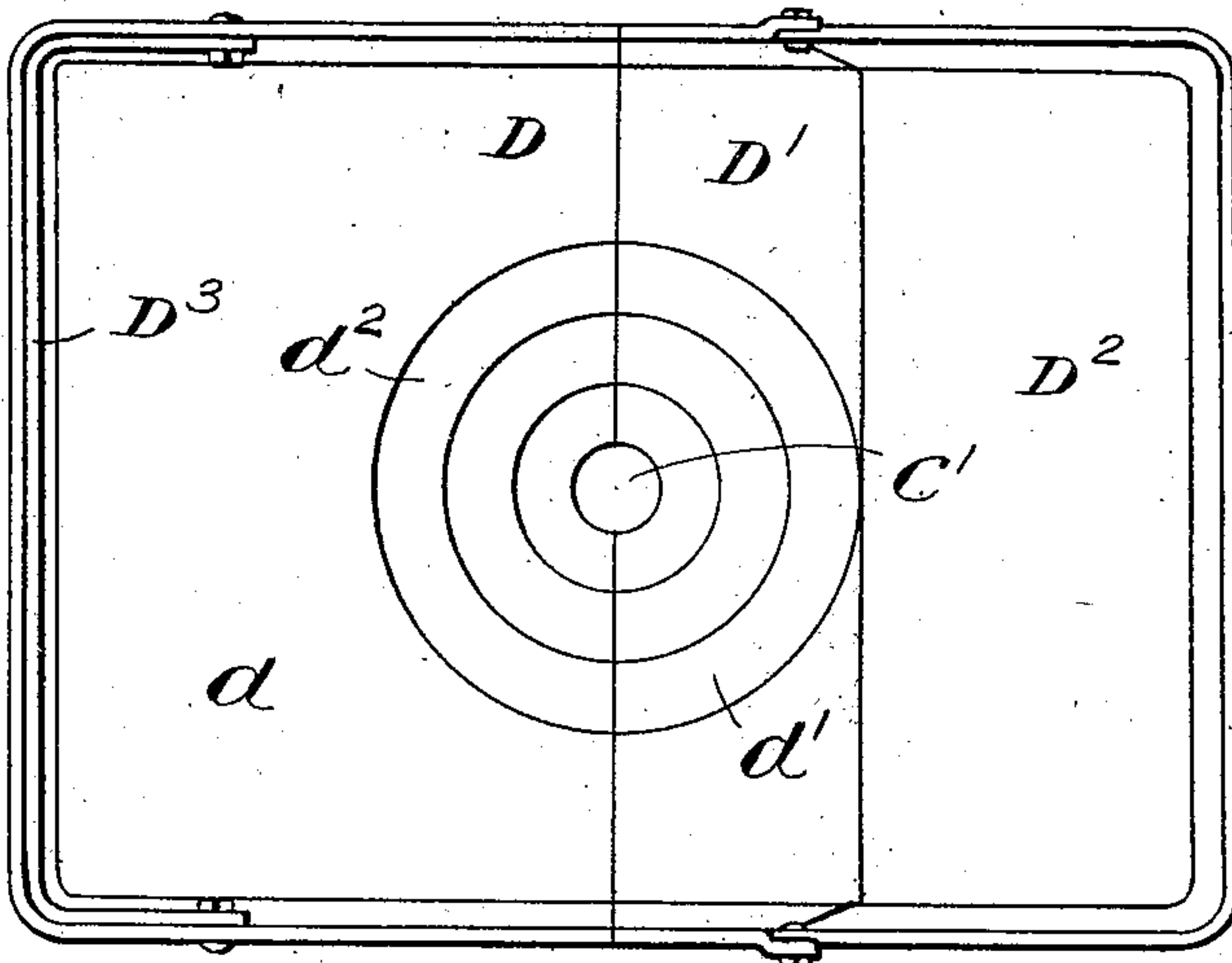


Fig. 3



Witnesses:-

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UNITED STATES PATENT OFFICE.

ALBERT J. GURNEY, OF STREATOR, ILLINOIS.

PORTABLE FORGE.

SPECIFICATION forming part of Letters Patent No. 724,852, dated April 7, 1903.

Application filed April 9, 1900. Serial No. 12,095. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. GURNEY, a citizen of the United States, and a resident of Streator, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Portable Forges, of which the following is a specification.

The object of my invention is primarily to provide a portable forge which will occupy the least possible space with a given strength of blast and is designed to be closely packed and a portion of the hearth made to fold and adapt it to be passed through narrow openings, such as through the furnace-doors or manholes of boilers and through contracted spaces in the framework of bridges, trusses, and structural iron-work of any kind.

It is also an object of the invention to make the forge of few parts to secure lightness in order that it may be easily carried upon frames of structures to any desired height.

A further object of my invention is to provide an improved gear for driving the blower and to provide an improved hearth and an improved throat, ash, and air chest located between the fan and the blower-case.

The invention consists in certain details of construction and combination of parts hereinafter particularly described and claimed.

In the accompanying drawings, Figure 1 is an end elevation of my improved forge with the hearth and blower-casing in section. Fig. 2 is a side elevation thereof. Fig. 3 is a plan view. Fig. 4 is a perspective view of the main shell, and Fig. 5 is a perspective view of the cap-shell, which together form the hearth and throat and blower-casing complete.

The forge-body A is formed of two parts—a main shell A' and a cap-shell A²—which meet in a central vertical plane, dividing both the hearth, blower-chamber, and throat in two like and substantially equal parts, each of which have lugs a to receive bolts a', which secure said parts together in a compact body, which may be easily separated to give access to every part of the interior thereof. The blower-chamber B, the throat and ash chamber C, and the hearth D are located one directly above the other, thus affording a compact structure and one much stronger than when the said parts are extended laterally from beneath the twyer. The ash and air

chest or throat of the casing is located directly below the hearth and above the blower, thus providing a strong, light, and compact shell, which when made in two sections and divided centrally and transversely to the axis of the fan-blower is adapted to be taken apart and any obstruction—such as clinkers, molten metal, or pieces of metal rivets and like obstructions—readily removed.

The arrangement of the air-chest directly over the blower-chamber provides a return-passage and permits the use of an ash and air chamber of sufficient capacity to receive the full amount of blast from the blower and direct it in a suitable manner to a point directly below the opening in the bottom of the hearth without having to extend the casing or shell beyond the area of the blower-shell. I am thus enabled to secure a direct and evenly-regulated blast and also to secure the greatest possible strength and compactness of construction.

The hearth has a fixed section D' upon the cap-shell A² and a hinged section D², which may be folded over thereon, as shown by dotted lines in Fig. 1. The main shell A' of the forge-body has a fixed hearth-section D, to which is hinged a back extension D³, which may also be folded over the top of the hearth, as shown in dotted lines in Fig. 1, when the forge is to be carried about or passed through small doors or openings. The two half-sections may also be readily separated by removing the bolts a' in order to permit the forge being passed through very small or contracted openings, such as are often met with in the erection of structural iron-work, mine-work, or boiler-repair work.

The hearth D has a marginal flat section d and a bowl or cone shaped central section d', preferably comprising a plurality of shelf depressions d², graduated in depth from the marginal flat section d to the nozzle-aperture c' of the throat. The throat C is dished to form an ash-receptacle at c² at the bottom of the horizontal portion of the neck b, the vertical portion of the said neck being tangent to and leading from the blower-chamber B. The said throat is also formed with a transversely-dished conduit c³ for the ash-receptacle c², which conduit leads to a discharge-spout c⁴ upon one side of the forge-body, having an

aperture and cover c^5 at the lower end thereof above the eye of the blower-chamber. The ashes may thus be easily withdrawn from the ash-receptacle.

5 A shaker and twyer-block E of well-known form is supported upon a shaft e directly below the nozzle-aperture in the throat, and the coals may be drawn together closely over the lowermost depression of the bowl-shaped
10 hearth or over any number of the said depressions or banked up over and around the article to be heated, the peculiar form of the hearth adapting it to receive either a very small article, as a rivet, or a much larger ar-
15 ticle and still keep the coals well surrounding it and in close proximity to the blast. The coal may be banked upon the flat section of the hearth and up against the back extension D^3 thereof, and it may be kept dry
20 and in a charged condition in part, while the main body of the coal may be wet down upon the extended hearth and be held in reserve for future use or for maintaining a lower heat and longer period of exposure of the object
25 to be heated.

The L-shaped return-throat, located between the blower-chamber and the bottom of the hearth, is a most important feature of my invention, as it secures a direct connection,
30 great compactness and strength, and a most effective retardation, direct deflection, and an even and continuous discharge of air through the throat and nozzle-aperture.

The blower-chamber B has sleeves b' b^2 b^3
35 projecting laterally therefrom to receive, respectively, the threaded ends of stud-axles f' of the external crank-actuated driving-gear F and the internal intermediate gear F' and pinion F^2 , the said pinion being arranged to
40 mesh with the external gear F and the internal gear F' adapted to mesh with a pinion F^3 upon the shaft f^2 of the fan G, the latter being thus supported within the blower-chamber and driven at any required speed by a set
45 of gear-wheels securely and compactly arranged within the area of the body of the forge. The handle-iron f^3 of the driving-gear F is L-shaped, one of the arms supporting the roller f^4 thereof projecting outwardly
50 and from the face of the gear, the other arm of said handle-iron being held flat against the face of the gear between lugs f^5 thereon by means of a bolt f^6 thereon, which passes
55 through said lugs and across a transverse depression in the handle-iron. When the forge

is not in use, the handle-iron may be turned around with the roller f^4 , projecting inwardly from the outer face of the gear F, as shown by dotted lines in Fig. 1. The main shell A' has legs a^2 bolted thereto and the cap-shell 60 has legs a^3 cast thereon to properly support it. The forge is constructed of such size and so very compactly that when the parts of the hearth are folded together the same will readily pass through a manhole or other opening 65 sufficiently large to permit a man of average size to pass therethrough.

Should it ever be necessary, the removal of the four bolts a' permits the device to be knocked down, reducing the size sufficiently 70 to permit the same being passed through much smaller apertures.

I claim as my invention—

1. A portable forge comprising two vertically-joined, approximately equal shells or 75 casings forming when united a blower-chamber, a throat and ash-chamber and a hearth all arranged in vertical alinement, integrally-connected hearth-sections on each shell, an unfolding portion on each hearth-section and 80 a train of gears adapted to operate the forge, and disposed to coincide with the contour of the shells.

2. In a portable forge, the combination with a hearth, of hinged sections and a central 85 downwardly-stepped depression, an ash-receptacle situated immediately below said hearth and provided with a transverse conduit, a discharge-spout leading from the conduit, a cover for said discharge-spout, a fan- 90 casing situated immediately below said ash-receptacle, a fan mounted in said casing and means for revolving said fan.

3. In a portable forge, the combination with a hearth having infolding hinged sections and 95 a central section formed of a plurality of graduated shelf depressions, a dished ash-receptacle situated immediately below said hearth, a fan-casing situated immediately below said ash-receptacle, an air-chest leading vertically 100 and tangentially from the fan-casing and having a horizontal elbow at its upper end leading to the ash-receptacle, a fan mounted in said fan-casing and means for operating said fan.

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Witnesses:

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