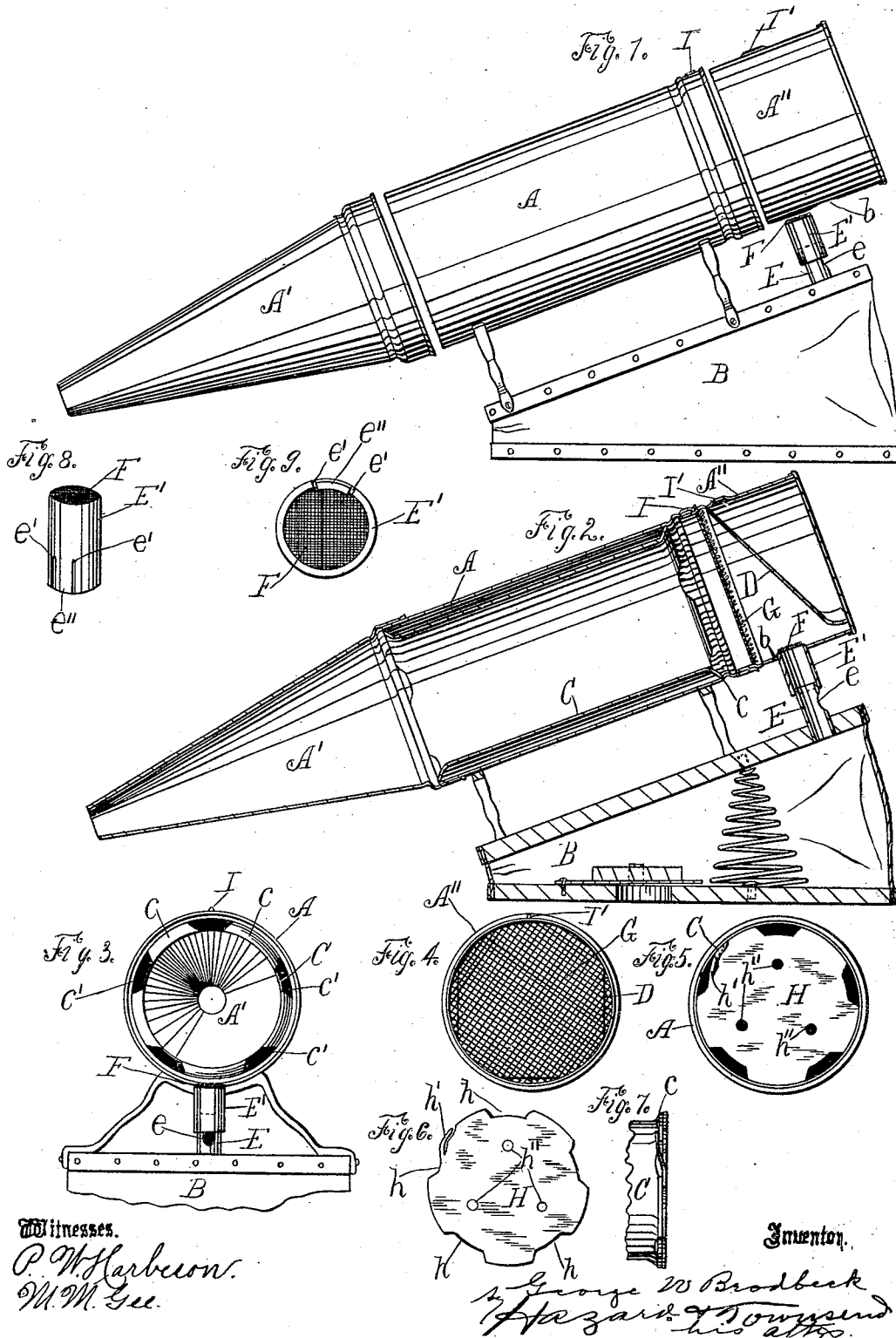


(No Model.)

G. W. BRODBECK.
BEE SMOKER.

No. 484,172.

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UNITED STATES PATENT OFFICE.

GEORGE W. BRODBECK, OF LOS ANGELES, CALIFORNIA.

BEE-SMOKER.

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To all whom it may concern:

Be it known that I, GEORGE W. BRODBECK, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Improvement in Bee-Smokers, of which the following is a specification.

My invention relates to devices employed for forcing smoke into hives of bees to enable the bee-man to remove the honey or to do necessary work in or about the hive.

The object of my invention is to produce a smoker of superior convenience and efficiency of operation and which is interchangeably a hot and cold blast smoker.

My invention comprises a bee-smoker provided with an outer air-chamber surrounding the fire-barrel and communicating at one end with a blast-chamber and with a smoke-nozzle at the other end, a detachable blast-chamber arranged at the opposite end from the smoke-nozzle and provided with a suitable blast-opening and a forwardly-inclined blast-deflector arranged diagonal to the plane of the blast-opening, a bellows attached to the cylindrical casing by suitable means and connected with the blast-chamber by means of an adjustable sliding tube arranged to project into the blast-opening in the blast-chamber and provided upon one side with suitable air-ingress opening communicating with the exterior air to prevent the back suction of air from the blast-chamber.

My invention also comprises the combination, in a bee-smoker, of a suitable barrel provided near one end with a blast-opening, a suitable smoke-nozzle arranged at the opposite end of such barrel, suitable means for producing a blast through such blast-opening, and a forwardly-inclined blast-deflector extending from the rear of the blast-opening upward across and obliquely transverse to the plane of such opening to deflect the blast forward through the barrel and nozzle.

My invention also comprises other features hereinafter set forth and claimed.

The accompanying drawings illustrate my invention.

Figure 1 is a plain side view of my bee-smoker with the nozzle and blast-chamber

partially withdrawn from the cylindrical casing. Fig. 2 is a vertical mid-section of the same as it appears ready for use. Fig. 3 is a rear view of the same, looking directly into fire-barrel and with the blast-chamber removed, the lower portion of the bellows being broken away to contract the view. Fig. 4 is a plain front view of the blast-chamber, showing the fire-screen and blast-deflector. Fig. 5 is a plain rear view of the barrel of the smoker with my improved damper in position to direct the draft through the air-chamber between the fire-barrel and the casing. Fig. 6 is a plain view of the damper. Fig. 7 is a plain side view of one end of the fire-barrel, showing the means of attaching the damper thereto. Fig. 8 is a perspective view of the upper member of the adjustable blast-tube. Fig. 9 is a bottom view of such upper member.

A is the cylindrical casing.

A' is the smoke-nozzle.

A'' is the detachable blast-chamber.

B is the bellows.

C is the fire-barrel, which is formed of Russia iron or any suitable material, and is of smaller diameter than the casing A, and is provided at each end with an outward-turned flange c, which extends across the space between the fire-barrel and the casing A. In these flanges are provided the air-passages c', which are arranged at both ends of the fire-barrel.

The nozzle A' is of the ordinary construction. To increase the convenience of charging and igniting the material used to produce the smoke, I provide the detachable chamber A'', which is chambered in the cylindrical casing A.

G is a fire-screen of wire-cloth arranged to prevent the entrance of fuel into the blast-chamber.

To direct the blast forward, I provide the forwardly-inclined blast-deflector D, which extends obliquely upward from the rear of the blast-chamber to the front end thereof and slopes upward and forward over the blast-orifice b, which is provided in the bottom of the blast-chamber A''. This deflector also serves to reflect the heat and prevent the end

of the blast-chamber from becoming unduly heated. The means I employ to connect the bellows with the blast-chamber consists of an extensible blast-tube comprising inner and
 5 outer telescoping members, one of which is provided with longitudinal slits to form a spring-tongue of a portion of its walls, said tongue being arranged to press upon the other member. One of the members E is
 10 fixed in the top of the bellows B and projects upward a suitable distance and is provided upon one side with the air-ingress opening *e*. Upon this member or tube is fitted the adjustable member or tube E', which is of greater
 15 diameter than the tube E and is arranged to slide thereupon. To prevent too free movement of the adjustable member of the extensible tube, I provide the slits *e'* in one side of the lower end of the tube E' and bend the
 20 tongue *e''* thus formed inward, which thus forms a spring to press against the exterior of the tube E to prevent accidental displacement.

F is a screen of wire-cloth, which is soldered
 25 or otherwise secured upon the top of the tube E' and prevents the ashes or sparks from falling into the bellows.

H is my improved damper, which is formed of a sheet of metal of the same approximate
 30 diameter as the interior of the casing A, but is provided in its periphery with a series of notches *h*, corresponding to the air-openings *c'* in the flanges *c* of the fire-barrel C. To hold the damper in place upon the end of the
 35 fire-barrel, I provide the spring-tongue *h'*, which is arranged to enter one of the openings *c'* and project under the flange *c*.

I I' are indicators arranged upon the cylindrical casing and the blast-chamber, and when
 40 placed in line with each other indicate that the blast-opening is in proper position to receive the blast-tube E'.

To use the device as a hot-blast smoker, the damper is omitted.

45 In practice the fuel is inserted into the barrel C from the rear end and is ignited therein, the blast-chamber A'' is inserted in place with the indicators I I' in line with each other, and the tube E' is slipped upward along
 50 the tube E until the upper end enters the blast-opening *b*. The bellows is then compressed. The air passing upward through the tubes E E' and the screen F enters the blast-chamber A'' and strikes against the
 55 blast-deflector D and is directed forward through the mass of fuel and also through the annular chamber around the fire-barrel and causes smoke to issue from the nozzle A'.

To adapt the apparatus for use as a cold-
 60 blast smoker, the blast-tube E' is moved downward upon the tube E and the blast-chamber A'' is removed and the damper H is placed in position upon the end of the fire-barrel C, with the tongue *h'* inserted underneath the
 65 flange *c*, as heretofore described, and the blast-

chamber and blast-tube are then placed in position and the smoker is operated as before. The damper H prevents the passage of the air through the fuel, while the openings
 70 *c'* allow it to pass through the chamber formed between the fire-barrel and the casing A, whence it passes out into the nozzle, thus causing a suction which draws the smoke from the fuel and discharges it through the nozzle.

h'' h'' are air-openings through the damper
 75 to allow the passage of sufficient air to produce combustion necessary for the production of smoke. By this means the smoke does not become so heated as when the damper is not employed.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A bee-smoker provided with an air-chamber surrounding the fire-barrel and communicating with the blast-chamber at one end
 85 and with the smoke-nozzle at the other end, and a suitable damper arranged upon the end of the fire-barrel to prevent the passage of the blast through the fire-barrel and to direct the
 90 blast through such air-chamber.

2. The combination, in a bee-smoker, of a suitable barrel provided near one end with a blast-opening, a suitable smoke-nozzle arranged at the opposite end of such barrel, suitable
 95 means for producing a blast through such blast-opening, and a forwardly-inclined blast-deflector extending from the rear of the blast-opening upward across and obliquely
 100 transverse to the plane of such opening to deflect the blast forward through the barrel and nozzle.

3. In a bee-smoker, the combination of a detachable blast-chamber provided with a blast-opening, the bellows, and a blast-tube connecting
 105 such bellows with such blast-chamber and provided upon one side with an air-ingress opening communicating with the exterior air and arranged to be advanced into or retracted from the blast-opening in the blast-chamber.

4. A bee-smoker comprising the combination set forth of a suitable barrel provided
 110 near one end with a blast-opening, a suitable smoke-nozzle arranged at the opposite end of such barrel, a bellows attached to such barrel by suitable means, and a sliding tube connecting the bellows with the blast-opening and comprising the inner and outer telescoping members, one of which is provided
 115 with the longitudinal slits to form the spring-tongue, said tongue being arranged to press upon the other member, substantially as and for the purpose set forth.

5. A bee-smoker comprising the combination of a casing provided with a nozzle at
 125 one end, a fire-barrel of less diameter than such casing and provided at each end with an outward flange to extend across the space between the fire-barrel and the casing and provided with the air-passages in such flanges, 130

the damper of approximately the same diameter as the inside of the casing and provided with the notches in its periphery corresponding to the air-passage in the flanges of the fire-barrel, and the spring-tongue arranged to project through one of the passages in the flange and engage with such flange to hold such damper in position upon the end of the fire-barrel.

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Witnesses:

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