

No. 776,239.

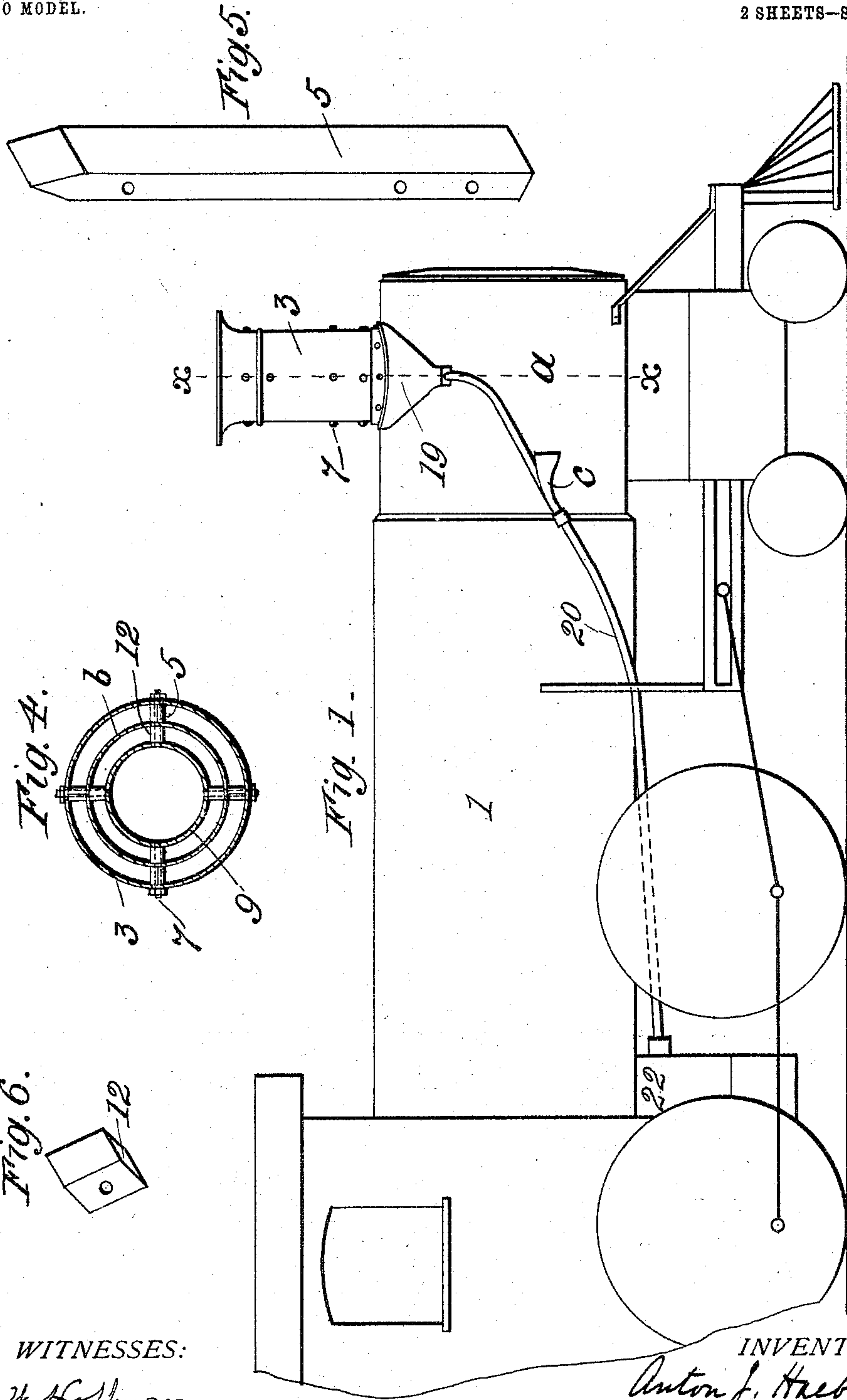
PATENTED NOV. 29, 1904.

A. J. HAEBLER.
SPARK ARRESTER.

APPLICATION FILED AUG. 3, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

J. H. Hoffman

A. O. Bayley

INVENTOR.

Anton J. Haebler,
BY W. H. J. Howard,
ATTORNEY.

No. 776,239.

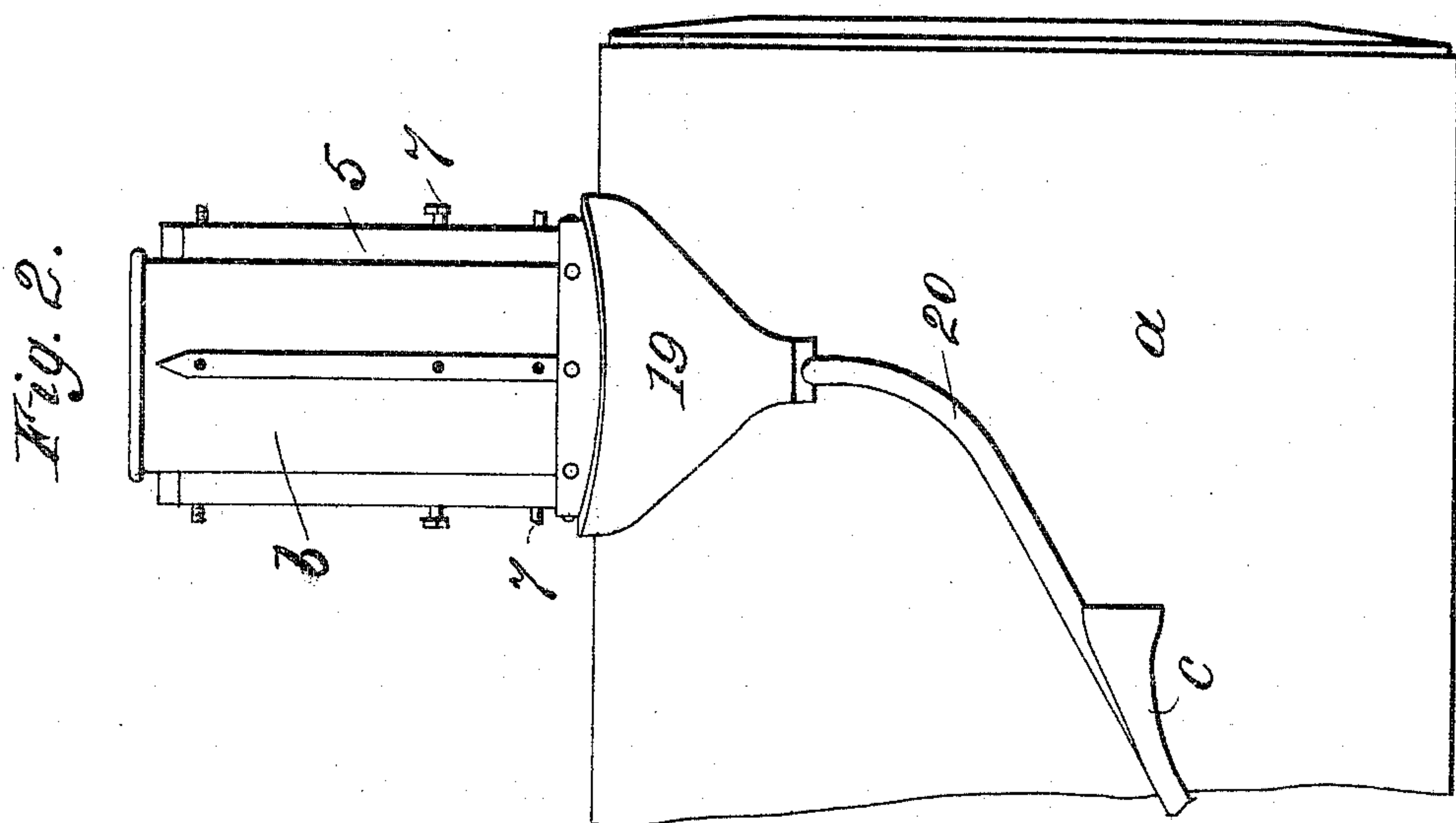
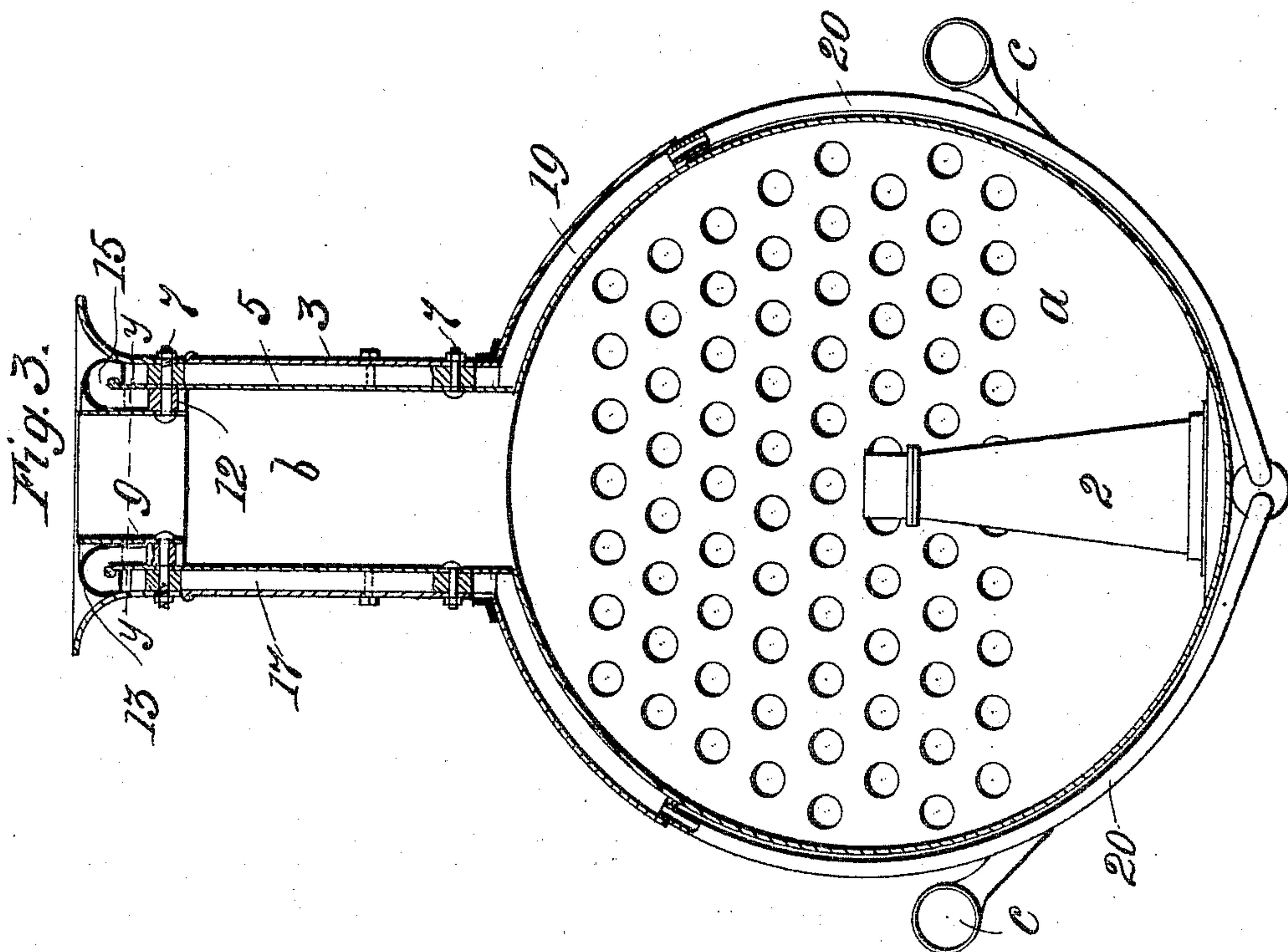
PATENTED NOV. 29, 1904.

A. J. HAEBLER.
SPARK ARRESTER.

APPLICATION FILED AUG. 3, 1904.

NO MODEL.

2 SHEETS—SHEET 2.



WITNESSES:

J. H. Hoffman

A. D. Bayley

INVENTOR.

Anton J. Haebler
BY *W. H. I. Howard*
ATTORNEY.

UNITED STATES PATENT OFFICE.

ANTON J. HAEBLER, OF BALTIMORE, MARYLAND, ASSIGNOR OF
TWELVE ONE-HUNDREDTHS TO THOMAS MACKENZIE, OF BAL-
TIMORE, MARYLAND.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 776,239, dated November 29, 1904.

Application filed August 3, 1904. Serial No. 219,261. (No model.)

To all whom it may concern:

Be it known that I, ANTON J. HAEBLER, of the city of Baltimore, State of Maryland, have invented certain Improvements in Spark-Ar-
5 resters, of which the following is a specification.

In the description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof,
10 and in which—

Figure 1 is an exterior side view of certain parts of a locomotive provided with a spark-arrester constructed in accordance with the present invention. Fig. 2 is an enlarged view
15 of parts of Fig. 1 with a certain jacket which surrounds the stack of the boiler removed. Fig. 3 is an enlarged section of Fig. 1, taken on the dotted line *xx*. Fig. 4 is a section of Fig. 3, taken on the dotted line *yy*. Figs. 5
20 and 6 are still enlarged details of the invention and hereinafter described.

Referring now to the drawings, 1 is a locomotive-boiler, of which *a* is the smoke-box, and *b* the smoke-stack.

25 2 is the exhaust-steam nozzle in communication by means of pipes (not shown) with the steam-cylinders (also not shown) in the usual manner.

30 3 is an annular jacket considerably greater in diameter than the stack *b* over which it is placed, as shown in Fig. 3.

The jacket 3 is held concentric with the stack by means of vertical bars 5 and bolts 7, which extends through them and the walls of
35 the stack and jacket.

9 is a short cylindrical shell, which has a diameter considerably less than the stack *b*. It is held within the upper end of the stack *b* with its top edge above the same and in practical alinement with the flaring edge of the jacket 3 by means of the upper bolts 7, which
40 are longer than the similar bolts below. Spacing-blocks 12 serve to retain the said cylinder concentric with the stack.

45 13 is an annular plate curved in cross-section, as shown in Fig. 3, secured to the cylinder 9 by the bolts 7. The central portion of this annular plate is elevated above the

edge of the stack over which it extends, and its outer circumference touches the inner circumference of the jacket, as shown in Fig. 3.

I have described the annular curved plate 13 and the cylinder 9 as distinct parts secured together, but they may be cast in one piece if such an arrangement is deemed preferable.
55 With either of the constructions just described is formed an annular passage 15, leading from the interior of the stack to the space 17, which exists between the stack and its jacket and which is annular except that its
60 continuity is broken by the vertical bars 5.

The exhaust-steam escaping from the exhaust-pipe 2 expands laterally as well as vertically, and any solid matter, such as sparks and cinders, owing to their being heavier than
65 the steam, are thrown against the stack and in following it upward enter the annular curved passage 15 and pass thence to the annular space 17, in which they fall by gravity. The movement of the sparks and cinders is
70 increased by the current of escaping steam should there be an outlet at the bottom of the said space. Such outlets are provided in the downward extensions 19 of the jacket 3 on the
75 outer surface of the smoke-box *a*, and the pipes 20 leading from the said extensions to the ash-pit 22, through the wall of which they enter, as shown in Figs. 1 and 3.

To increase the current in the pipes 20, they are furnished with branch pipes *c* with outwardly-flaring ends, which face the wind when
80 the locomotive is moving in a forward direction.

The pipes 20 are made detachable from the extensions 19 of the jacket and the ash-pit for
85 cleaning purposes, and the jacket and its connection may be removed from the stack for cleaning or repairs by first taking out the bolts 7.

I claim as my invention—

In combination with the smoke-box, the ash-pit and the cylindrical smoke-stack of a locomotive-boiler, the said smoke-stack forming a free and uninterrupted passage from the
90 smoke-box, combined with an exhaust-steam nozzle, an annular jacket which surrounds the

said smoke-stack and is separated therefrom
by vertical bars, a short cylindrical shell sit-
uated at the upper end of the smoke-stack, an
annular plate curved in cross-section which
5 connects the said cylindrical shell with the an-
nular jacket whereby a passage is formed
leading from the space around the inner cy-
lindrical shell with the space between the

smoke-stack and its jacket, and pipes leading
from the said space to the ash-pit of the 10
boiler, the said pipes having air-entering noz-
zles, substantially as specified.

ANTON J. HAEBLER.

Witnesses:

OREGON MILTON DENNIS,
A. O. BAYLEY.