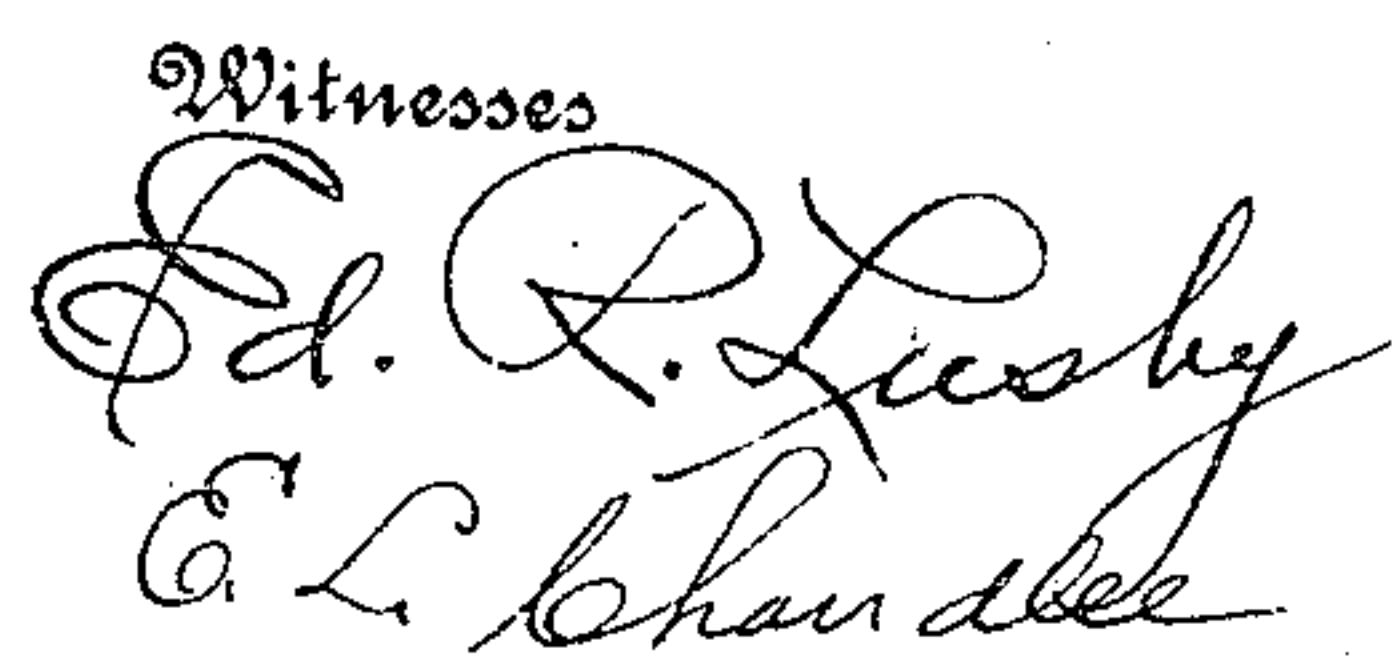


APPLICATION FILED JAN. 14, 1909.

Patented Mar. 15, 1910.
2 SHEETS—SHEET 1.



William J. Lair and
Howard E. Widdows
By Woodward & Chandler
Attorneys

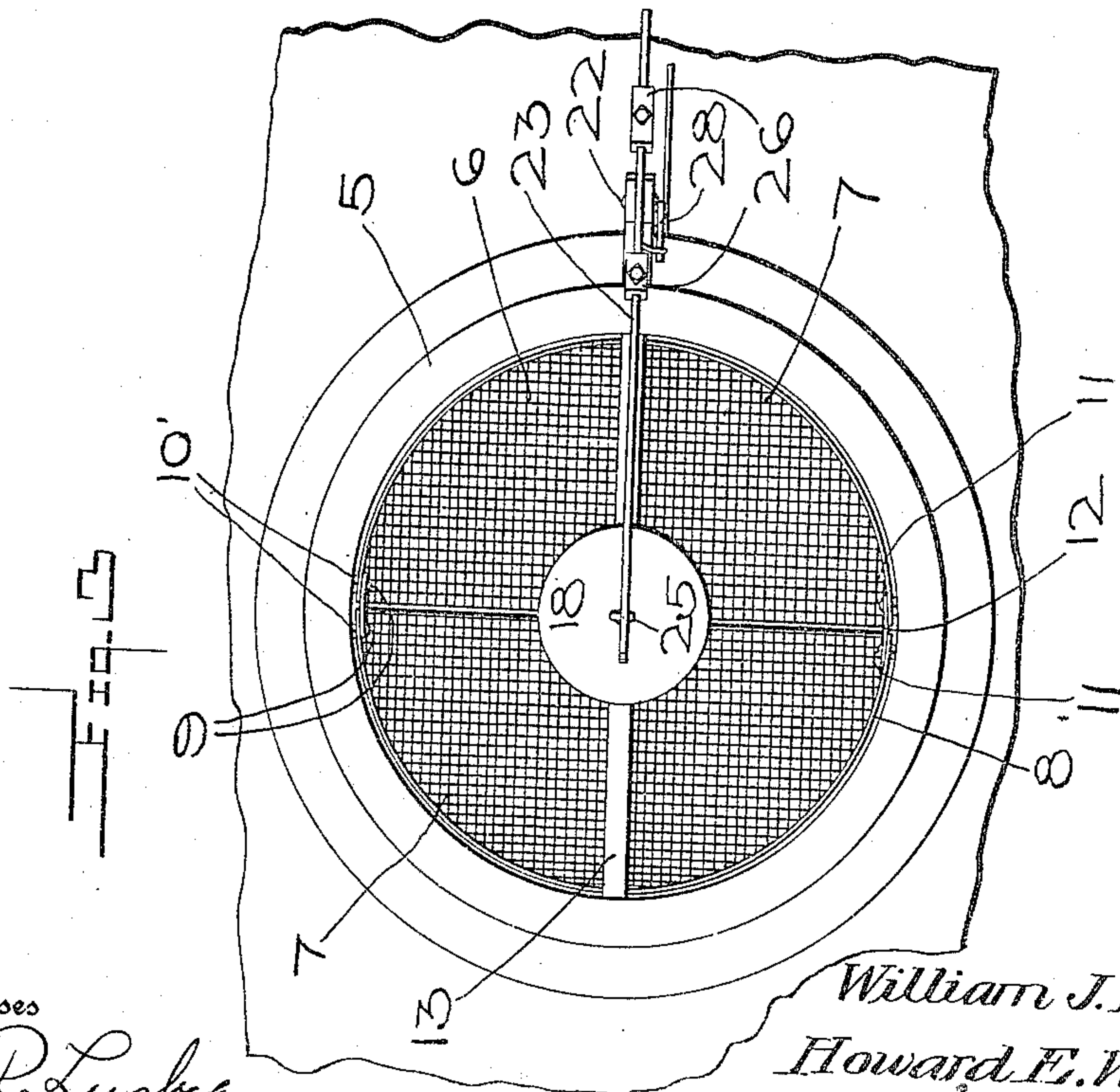
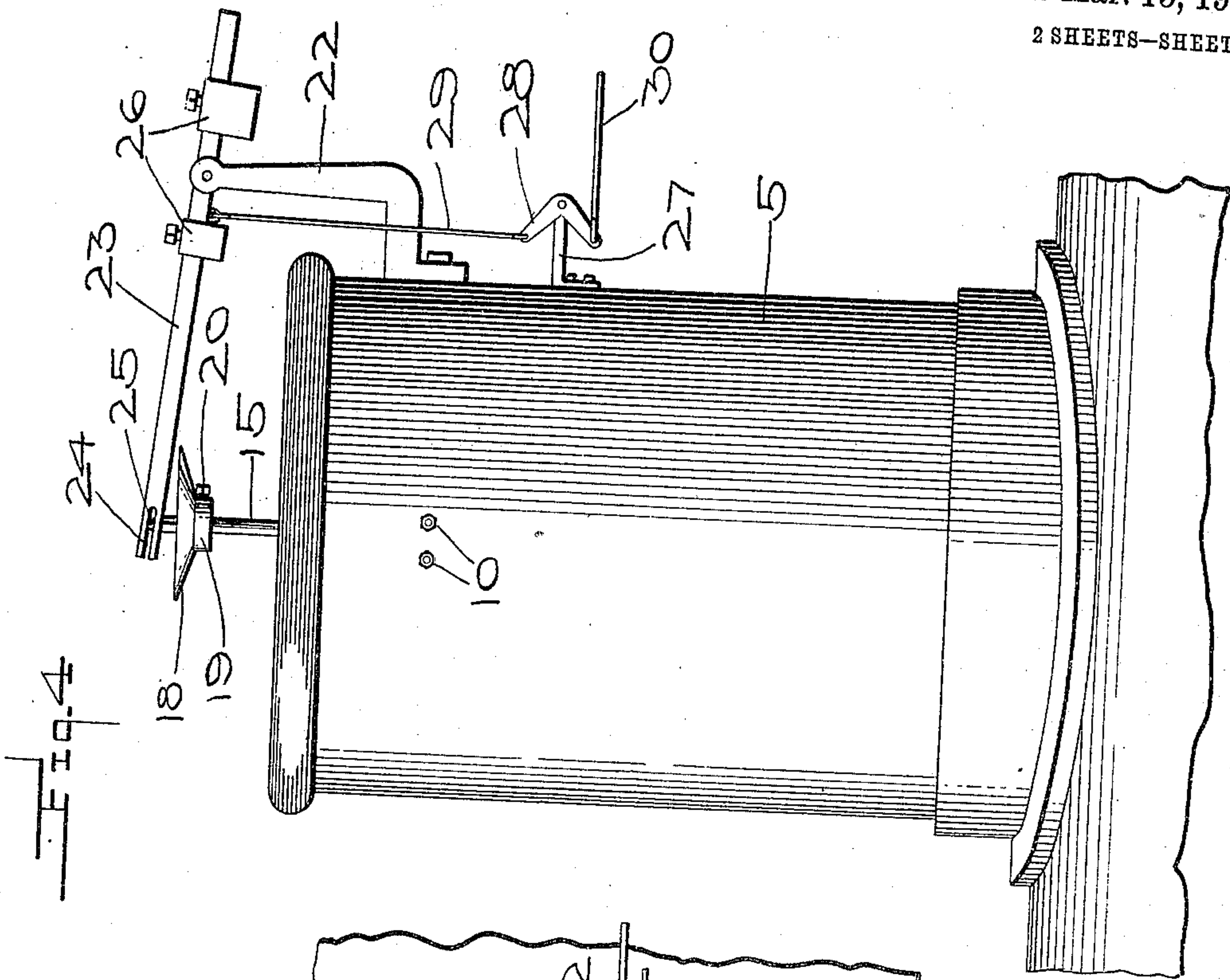
W. J. LAIR & H. E. WIDDOWS.
SPARK ARRESTER.

APPLICATION FILED JAN. 14, 1909.

951,819.

Patented Mar. 15, 1910.

2 SHEETS—SHEET 2.



Witnesses
Ed. P. Lusby
E. L. Chandler

Inventors
William J. Lair and
Howard E. Widdows
By Woodward & Looney
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM J. LAIR AND HOWARD E. WIDDOWS, OF CONNERSVILLE, INDIANA.

SPARK-ARRESTER.

951,819.

Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed January 14, 1909. Serial No. 472,354.

To all whom it may concern:

Be it known that we, WILLIAM J. LAIR and HOWARD E. WIDDOWS, citizens of the United States, residing at Connerville, in the county of Fayette and State of Indiana, have invented certain new and useful Improvements in Spark-Arresters, of which the following is a specification.

This invention relates to spark arresters and more particularly to arresters for locomotive smoke stacks and has for its object to provide a spark arrester which will be movable into and out of operative position and which will be constructed and arranged to be automatically moved into operative position when the engine is exhausting through the smoke stack.

Other objects and advantages will be apparent from the following description and it will be understood that changes in the specific structure shown and described may be made within the scope of the claim without departing from the spirit of the invention.

In the drawings forming a portion of this specification and in which like numerals of reference indicate similar parts in the several views, Figure 1 is an elevational view of the mechanism in operative position, the smoke stack being shown in section, Fig. 2 is a view similar to Fig. 1, showing the mechanism in inoperative position, Fig. 3 is a top plan, Fig. 4 is a side elevation of the complete structure.

Referring now to the drawings, there is shown a smoke stack 5, having an arrester 6 therewithin in the form of an inverted cone. This arrester consists of two semi-conical foraminous members 7, each of which is provided with a semi-circular stiffening band 8 at its upper end.

Spaced pairs of inwardly extending bolts 9 are engaged in the smoke stack 5 at diametrically opposite points, nuts 10 being engaged with the bolts outwardly of the smoke stack, and other nuts 10' being engaged with the bolts inwardly of the smoke stack. The heads 11 of the bolts lie in spaced relation to the nuts 10' and engaged with the bolts and resting against the outwardly presented faces of the heads, there are short metallic straps 12. The strengthening bands 8 are engaged pivotally at their ends with the corresponding bolts 9 of the opposed pairs, the ends of these bands lying between the plates 12 and the nuts 10', and it will thus be seen

that the members 7 may be moved pivotally to bring their mutually adjacent edges into and out of co-engagement.

A transverse guide member 13 is mounted in the smoke stack above the arrester 6 and a similar guide member 14 is mounted in the smoke stack below the arrester. A rod 15 extends vertically and is slidably engaged in the members 13 and 14. A collar 16 is adjustably engaged with the rod 15 and is movable with the rod into and out of engagement with the member 14, the collar thus limiting the movement of the rod in one direction and absorbing a portion of the shock incident to the actuation of the mechanism. A collar 17 is mounted upon the rod 15 below the member 13 and is arranged for engagement of this member to limit the upward movement of the rod. An impact plate 18 is arranged upon the rod 15 above the member 13 and is held into position by means of a collar 19 carried by the plate and having a set screw 20 engaging the rod.

Links 21 are pivoted to the members 7 and to the rod 15 and when the members 7 are in co-engaged position, the links 21 extend upwardly and inwardly. The links thus form toggle levers to separate the members 7 when the rod is moved downwardly.

It will be observed that under normal conditions, the members 7 will lie in separated position, but that the impact of exhaust steam against the plate 18 will cause this plate to rise, thus bringing the members 7 into operative position.

An upwardly extending bracket 22 is carried by the smoke stack and has a lever 23 pivoted thereto, this lever having a slotted end 24 receiving a traveler 25 carried by the upper end of the rod 15, and counterpoises 26 are carried by the lever at opposite sides of its pivot point, for operation to properly adjust the lever. A bracket 27 is carried by the side of the smoke stack and has an angle lever 28 pivoted thereto and connected with the lever 23 by means of a rod 29, and having a draft rod 30 connected thereto which may be pulled by the engineer to move the lever 23 into position to separate the members 7.

What is claimed is:—

In a spark arrester, the combination with a smoke stack, of transverse guide members located in the smoke stack and spaced vertically from each other, said transverse members having vertical guide openings

therein, a rod slidably engaged in the guide
openings, an adjustable stop collar carried
by the rod below the upper guide member,
said collar being arranged for engagement
5 of the upper guide member to limit the up-
ward movement of the rod, a second stop
collar adjustably mounted on the rod above
the lower guide member for engagement of
the said member to limit the downward
-10 movement of the rod, a collar adjustably
mounted upon the rod above the upper guide
member, an impact plate carried by the
upper collar, semi-conical members pivoted
to the smoke stack and lying therewithin,
15 said conical members being of a foraminous

nature and being arranged for movement to
bring the mutually adjacent portions into
and out of mutual engagement, and links
connected with the vertically movable rod
and with the lower portions of the semi- 20
conical members for movement of the said
members inwardly into engagement with
each other when the rod is moved upwardly.

In testimony whereof we affix our signa-
tures, in presence of two witnesses.

WILLIAM J. LAIR.

HOWARD E. WIDDOWS.

Witnesses:

O. E. DALE,

S. E. GORDIN.