

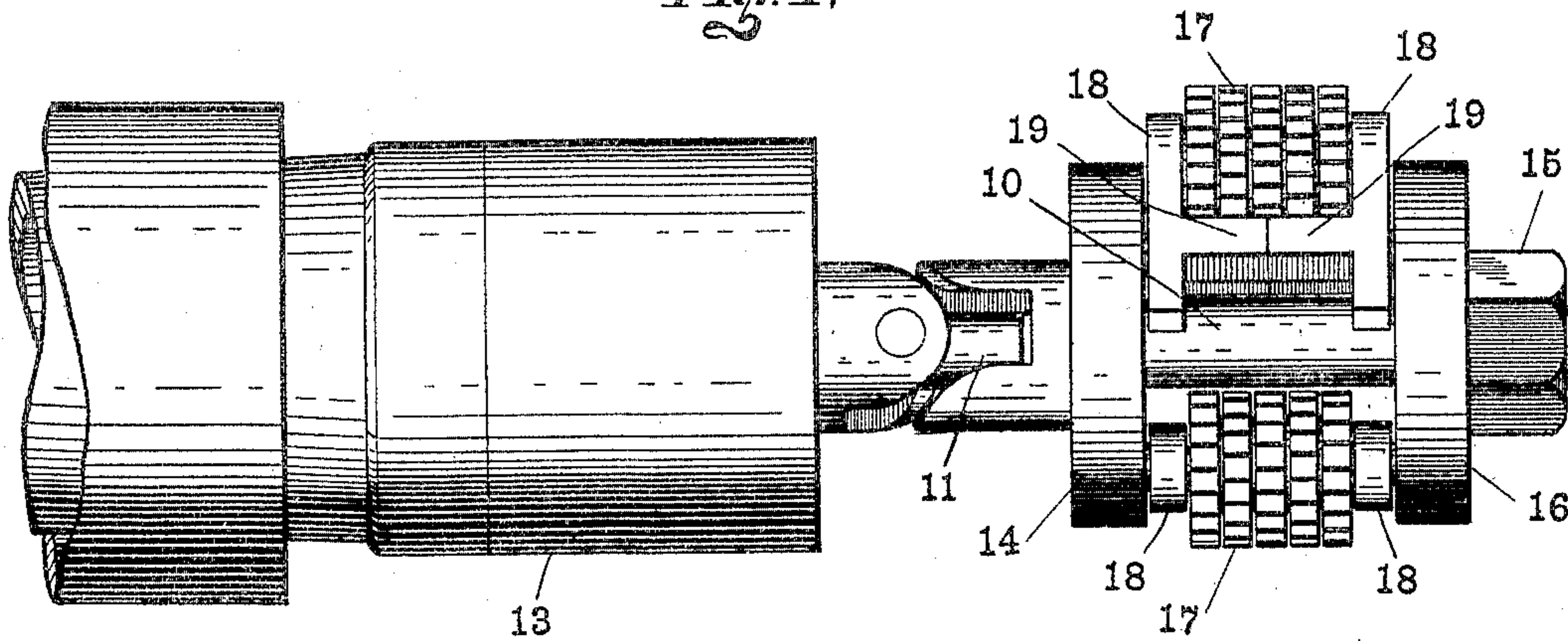
No. 776,478.

PATENTED NOV. 29, 1904.

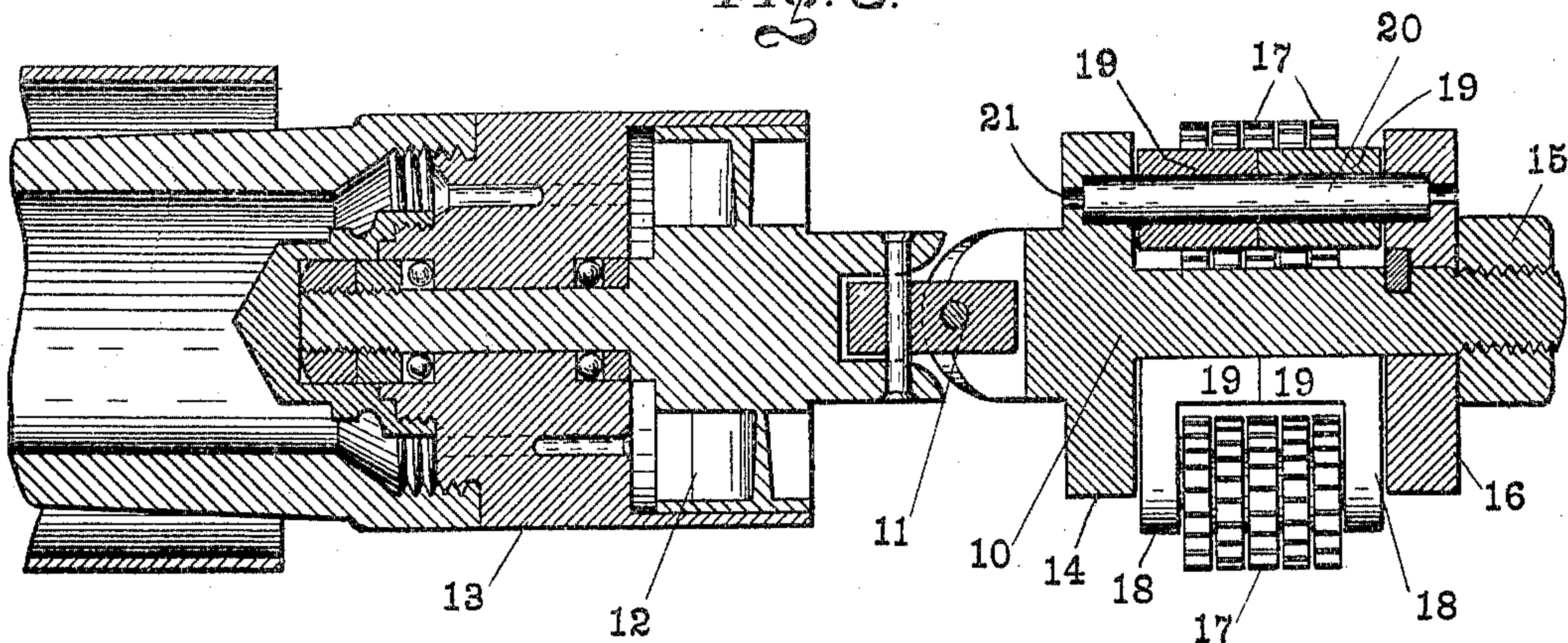
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BOILER TUBE CLEANER.  
APPLICATION FILED MAR. 14, 1904.

NO MODEL.

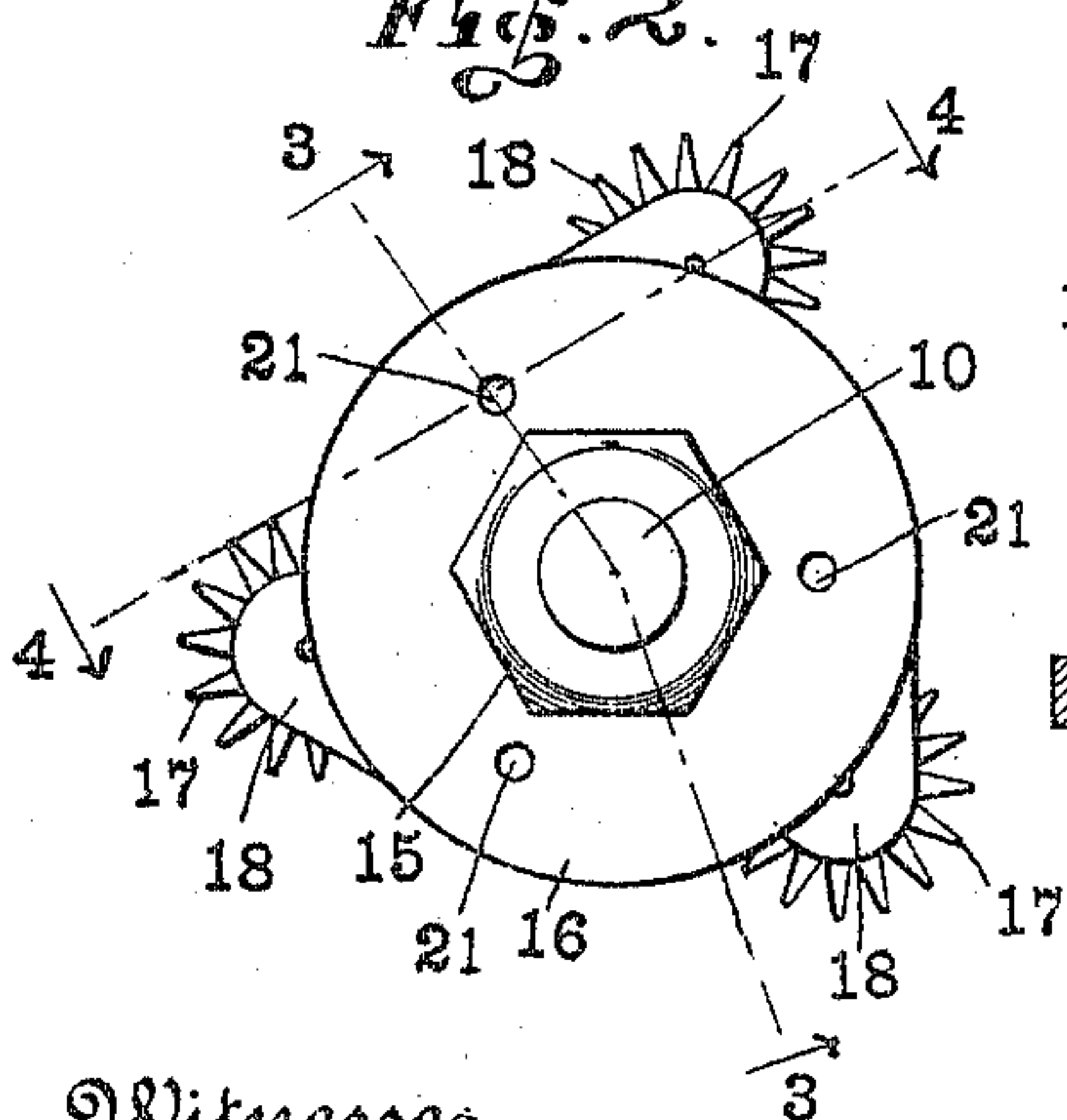
*Fig. 1.*



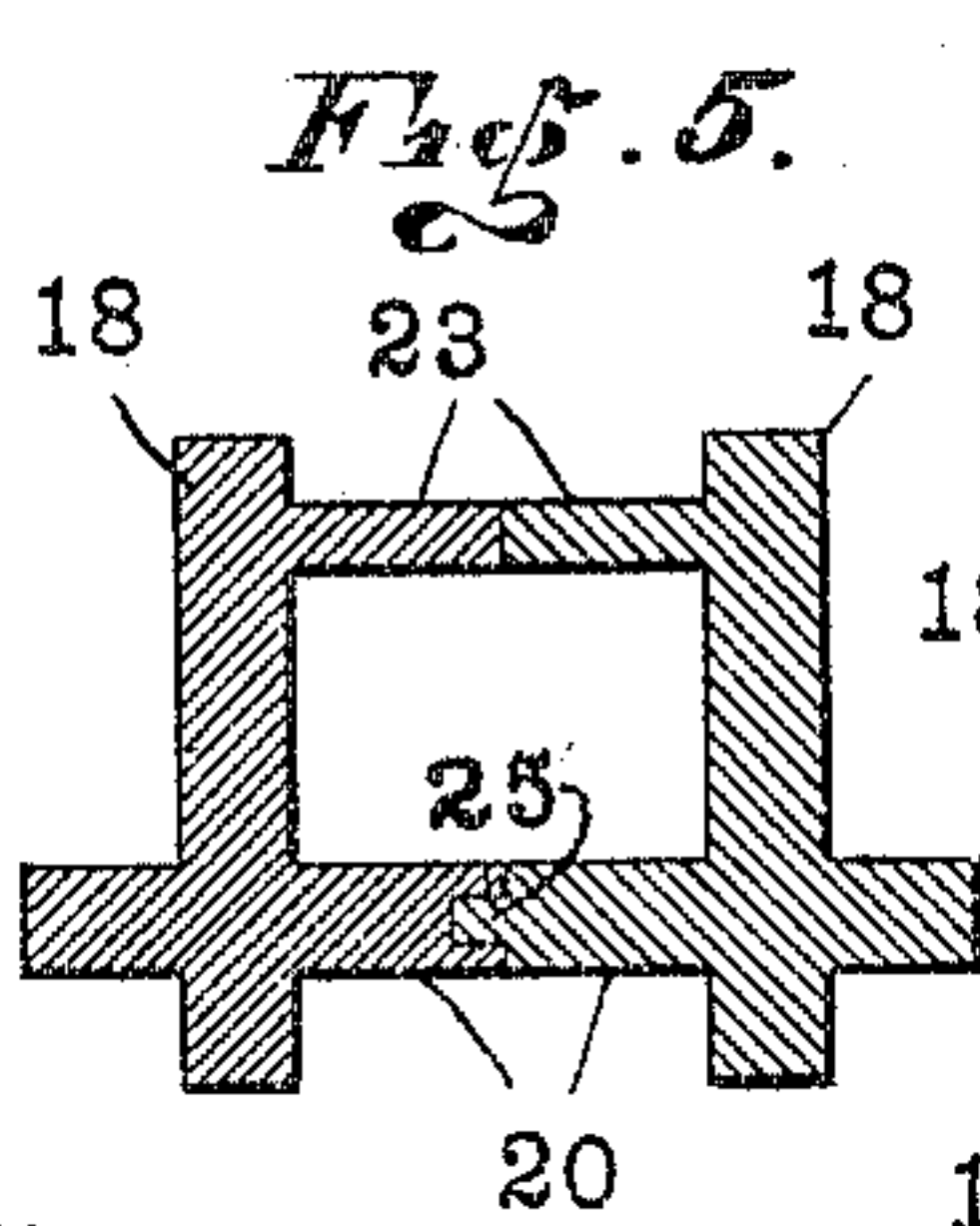
*Fig. 3.*



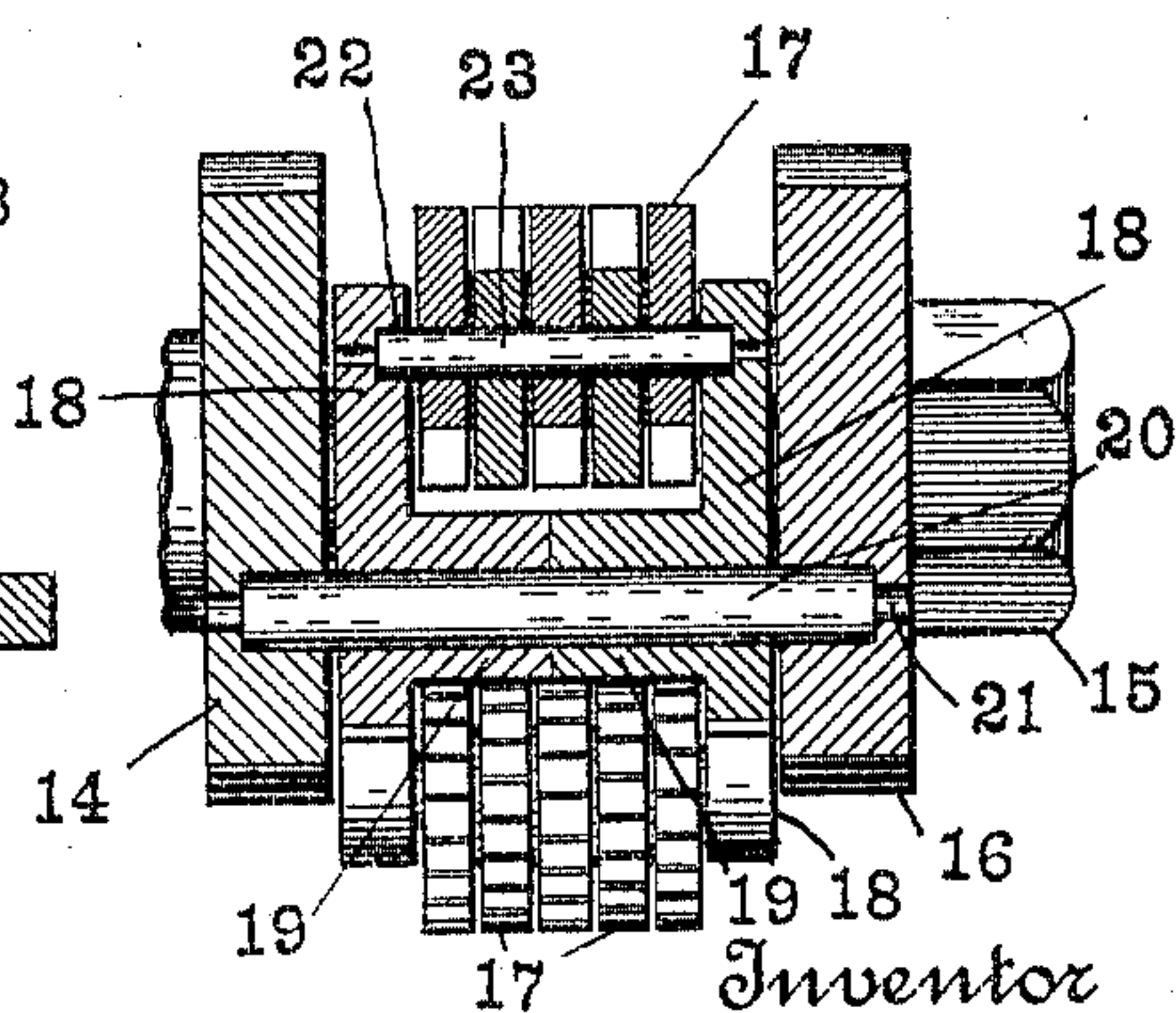
*Fig. 2.*



*Fig. 5.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

EUGENE METTLER, OF INDIANAPOLIS, INDIANA.

## BOILER-TUBE CLEANER.

SPECIFICATION forming part of Letters Patent No. 776,478, dated November 29, 1904.

Application filed March 14, 1904. Serial No. 198,012. (No model.)

*To all whom it may concern:*

Be it known that I, EUGENE METTLER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Boiler-Tube Cleaners, of which the following is a specification.

The object of my invention is to produce a cleaner-head for the water-tubes of boilers in which all of the parts are held in position by a single bolt or nut and in which pins upon which the cutters rotate cannot work out of place.

The accompanying drawings illustrate my invention.

Figure 1 is a side elevation; Fig. 2, an end elevation; Fig. 3, a section on line 3 3 of Fig. 2; Fig. 4, a section on line 4 4 of Fig. 2, and Fig. 5 a modification.

In the drawings, 10 indicates a shaft adapted to be connected by a universal joint 11 or otherwise to a suitable turbine 12, mounted in the motor-casing 13.

Shaft 10 is provided with a head 14 and is threaded at its outer end. Splined upon shaft 10 and held thereon by nut 15 is a similar head 16.

Each set of cutters 17 is carried in a carrier which consists of a pair of mating castings 18, each of which is provided with an inwardly-extending lug 19. A pintle 20 passes through each pair of lugs 19 and enters holes 21, formed in the inner faces of heads 14 and 16. The holes 21 should not be carried through heads 14 and 16, at least for their full diameter, thus preventing displacement of the pintle 20.

Drilled for its full diameter only partially through the end of each casting 18, parallel with pintle 20, is a hole 22. Mounted in the two holes 22 is a shaft 23, upon which is journaled a desired number of disk-cutters 17. If desired, pintle 20 and shaft 23 may be made in two pieces and cast integral with castings

18, as shown in Fig. 5; but in this case there should be suitable polygonal mating portions 25 between the lugs 19.

It will be noticed that by removing the single nut 15 the parts may be entirely disassembled.

I claim as my invention—

1. In a tube-cleaner, the combination, with a rotating shaft and head carried thereby, of a mating head detachably mounted on the shaft, a cutter-carrier consisting of a pair of mating parts, interacting axially-separable pivotal connections between the cutter-carrier members and the two heads, a cutter supported between the members of the cutter-carrier, and means for holding the detachable head upon the shaft and thus holding the cutter-carrier members and cutter in position.

2. In a tube-cleaner, the combination, with a rotating shaft and head carried thereby, of a mating head detachably mounted on the shaft, a cutter-carrier consisting of a pair of mating parts, a cutter-shaft extending therebetween, a cutter journaled thereon, pintles for said carrier extending into the heads, and a fastening means for the removable head.

3. In a tube-cleaner, the combination, with a rotating shaft and head carried thereby, of a mating head detachably mounted on the shaft, a cutter-carrier consisting of a pair of mating parts, a cutter-shaft extending therebetween but only partially therethrough, a cutter journaled thereon, a pin extending through the mating parts of the carrier and only partially into the two heads, and means for holding the removable head to the shaft.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 8th day of March, A. D. 1904.

EUGENE METTLER. [L. s.]

Witnesses:

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JAMES A. WALSH.