

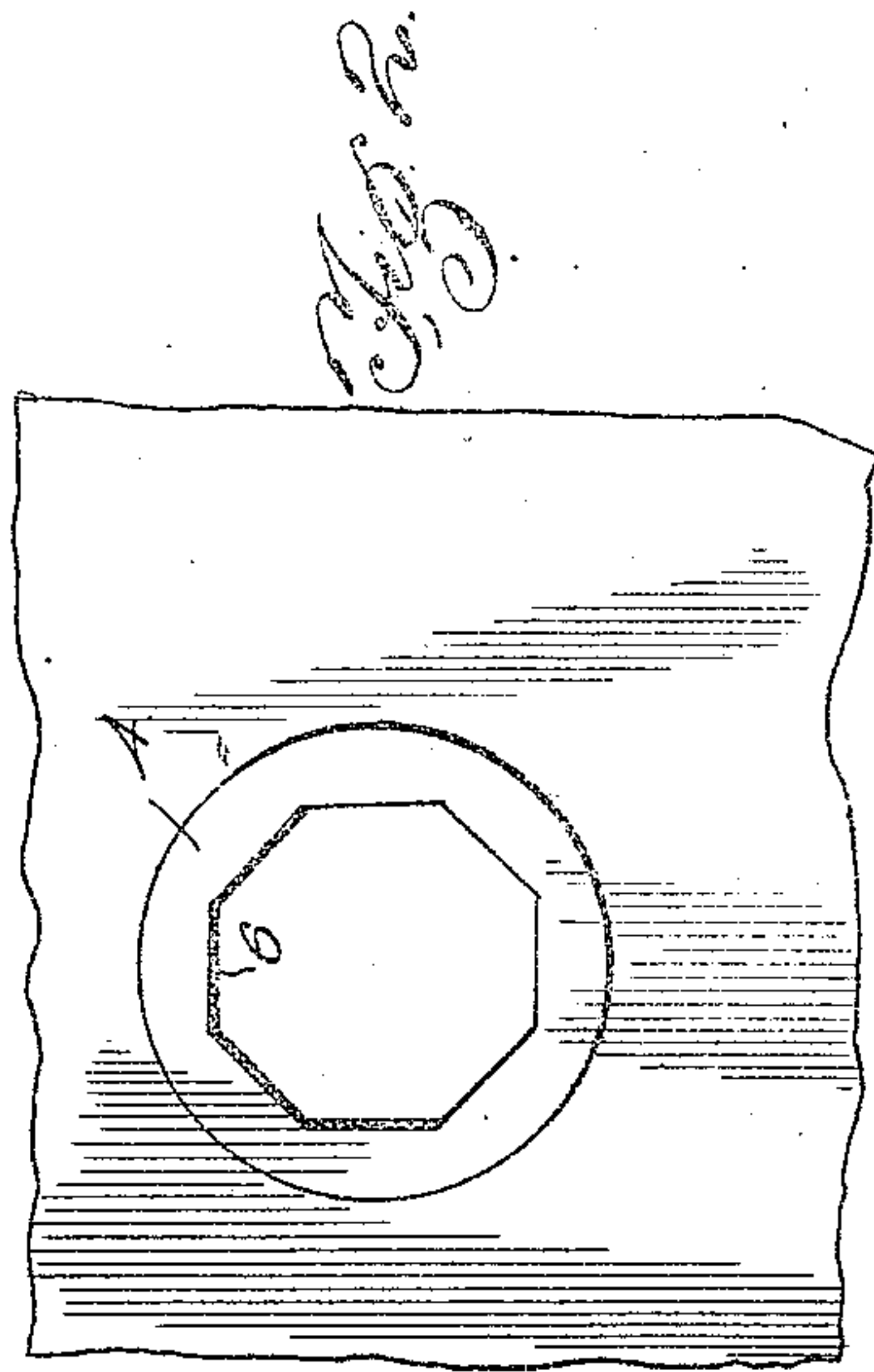
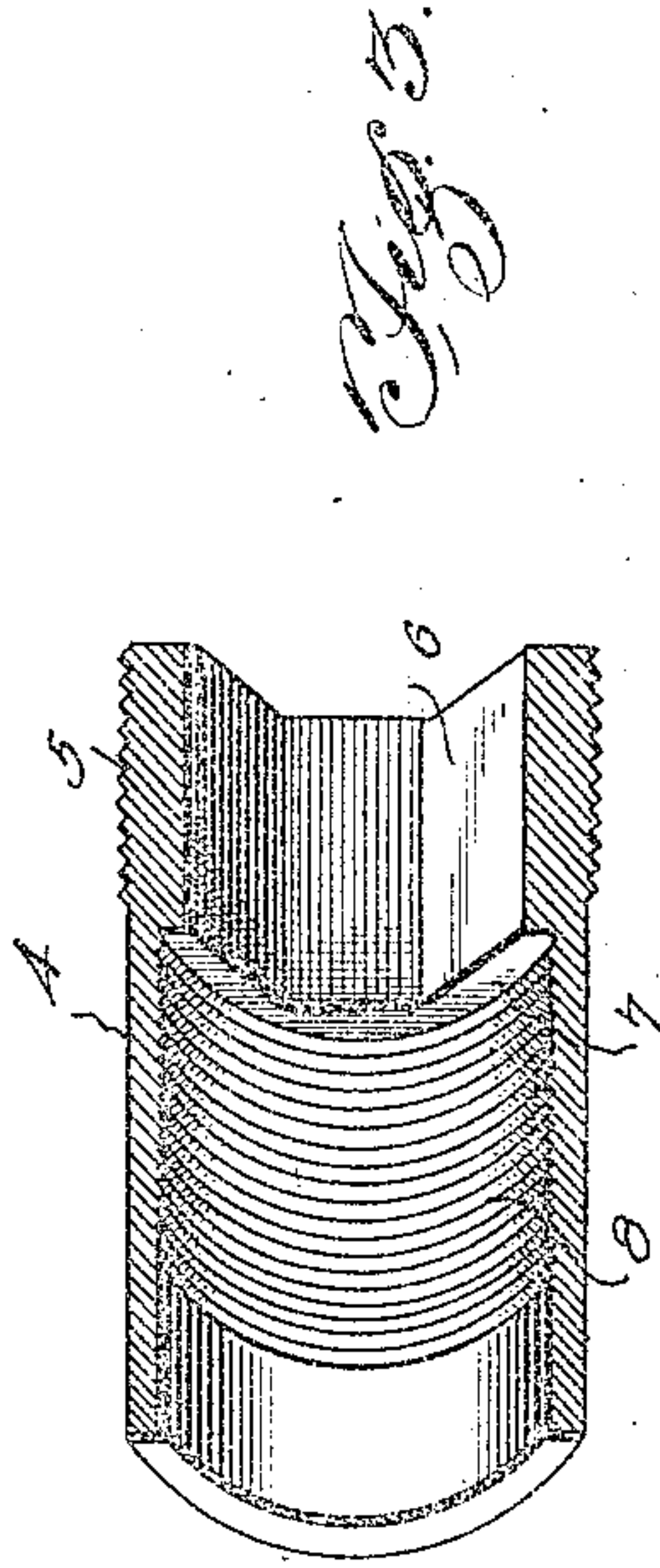
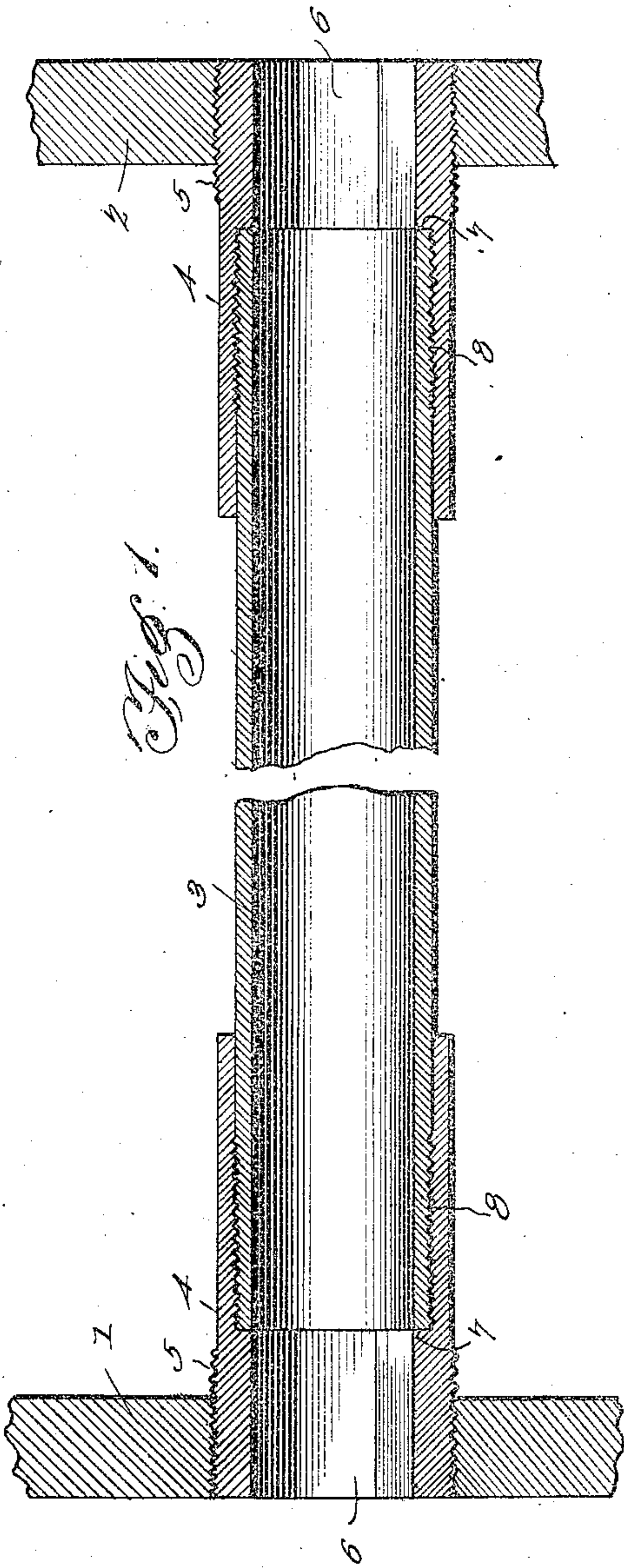
No. 689,630.

Patented Dec. 24, 1901.

G. L. AUTENRIETH.
BOILER FLUE COUPLING.

Application filed Apr. 10, 1901.)

(No Model.)



Witnesses

Wm. Simpson
H. J. Shepard.

G. L. Futenrieth Inventor
by *Charles*
Attorneys

UNITED STATES PATENT OFFICE.

GEORGE LEWIS AUTENRIETH, OF KANSAS CITY, MISSOURI.

BOILER-FLUE COUPLING.

SPECIFICATION forming part of Letters Patent No. 689,630, dated December 24, 1901.

Application filed April 10, 1901. Serial No. 55,236. (No model.)

To all whom it may concern:

Be it known that I, GEORGE LEWIS AUTENRIETH, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a new and useful Boiler-Flue Coupling, of which the following is a specification.

This invention relates to steam-boiler flues, and has for its object to provide an improved coupling for connecting a flue to the flue-sheet of a boiler and formed to facilitate the application and removal of a flue and also to strengthen and preserve the latter at its weakest point, which is adjacent to the inner side of the flue-sheet.

With this and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a longitudinal sectional view of a steam-boiler flue connected at opposite ends to the respective flue-sheets by means of the present invention. Fig. 2 is a front elevation of a portion of a flue-sheet, showing one end of the improved coupling. Fig. 3 is a sectional perspective view of one of the couplings.

Like characters of reference designate corresponding parts in all of the figures of the drawings.

In Fig. 1 of the drawings there have been shown portions of the opposite flue-sheets 1 and 2, respectively, between which extends an ordinary steam-boiler flue 3, the opposite ends of which are connected to the respective flue-sheets by means of the couplings 4, which are duplicates in construction and arrangement.

Upon reference to Fig. 3 of the drawings it will be seen that each coupling is tubular and externally of cylindrical shape throughout its length, the outer end portion thereof being externally screw-threaded, as at 5, to take into the screw-threaded opening in the flue-sheet. The outer end of the coupling is in-

ternally thickened and made polygonal, as at 6, so as to form an outer terminal wrench-seat for the reception of a bar or other device for turning the coupling in screwing the same into the flue-sheet. The inner end of the polygonal wrench-seat forms an inner marginal shoulder 7, and from this shoulder the interior of the coupling is internally screw-threaded, as at 8, outwardly for a suitable distance and terminated short of the inner end of the coupling, which is smooth.

The coupling is inserted into the opening in the flue-sheet, so as to receive the adjacent end of the flue within the smooth inner end portion of the coupling, after which a polygonal wrench head or bar is inserted into the polygonal outer terminal wrench-seat of the coupling and rotated to screw the coupling into the screw-threaded opening in the flue-sheet and also to screw the coupling upon the externally-screw-threaded end of the flue until the inward movement of the coupling is stopped by the inner marginal stop-shoulder 7 striking the adjacent end of the flue.

It will now be apparent that the inner end portion of the coupling is internally smooth to facilitate the reception of the flue within the coupling before the latter is turned to engage the screw-threads. Also it is designed to overlap the flue and strengthen the same. The inner marginal surface of the polygonal wrench seat or socket is substantially flush with the inner walls of the flue, so as to obviate as much as possible internal shoulders and projections, which would collect sediment and interfere with the draft through the flue.

From the foregoing description it is apparent that should the coupling burn out it may be conveniently replaced without removing the entire flue, as the opposite couplings are applied inwardly through the respective flue-sheets. Also by reason of the internal wrench-seat the coupling may be screwed up flush with the outer face of the flue-sheet or it may project, as may be desired.

It will be understood that it is contemplated to have the engaged screw-threaded portions of the coupling and the flue correspondingly tapered to draw together said parts.

In view of the screw-threaded connections between the couplings and the flue-sheets and also with the flues there is a positive detach-

able connection between these parts, and in view of the positive connections the flue and the couplings form a brace connection between the flue-sheets to prevent outward displacement thereof by the internal pressure of the steam. Moreover, the couplings are made in standard sizes to fit the different flues, and in view of the fact that the openings in the opposite flue-sheets correspond in size the flue may be fitted through either flue-sheet, as may be most convenient. The inner terminal smooth portion is not weakened by the formation of threads, and neither is the overlapped portion of the flue weakened, whereby a strong and durable joint is provided between the coupling and the flue.

What is claimed is—

1. The combination with opposite flue-sheets, having screw-threaded openings corresponding in position and size, of a flue corresponding to the openings, located between the flue-sheets and terminated short thereof, and having its opposite ends externally screw-threaded, and opposite duplicate tubular couplings connecting the respective ends of the flue to the flue-sheets, each coupling being inserted through the opening in the adjacent flue-sheet and embracing the adjacent end of the flue, the outer end portion of the coupling being externally screw-threaded to fit the

opening, the outer portion being also internally thickened and formed into an internal polygonal wrench-seat, the inner end of the seat forming a marginal stop-shoulder lying against the adjacent end of the flue, and the intermediate internal portion of the coupling being screw-threaded to fit the screw-threaded portion of the flue, whereby a detachable connection is formed between the coupling and the flue, and the latter parts also form a brace connection between the opposite flue-sheets.

2. A coupling for boiler-flues, consisting of an open-ended cylindrical tube, having its outer end externally screw-threaded, and internally thickened and formed into an internal polygonal wrench-seat, the inner end of the seat forming an inner marginal stop-shoulder, the inner end portion of the coupling being externally and internally smooth and the internal intermediate portion of the coupling being screw-threaded between the shoulder and the smooth portion.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE LEWIS AUTENRIETH.

Witnesses:

G. PALMER,

A. BRUBAKER.