

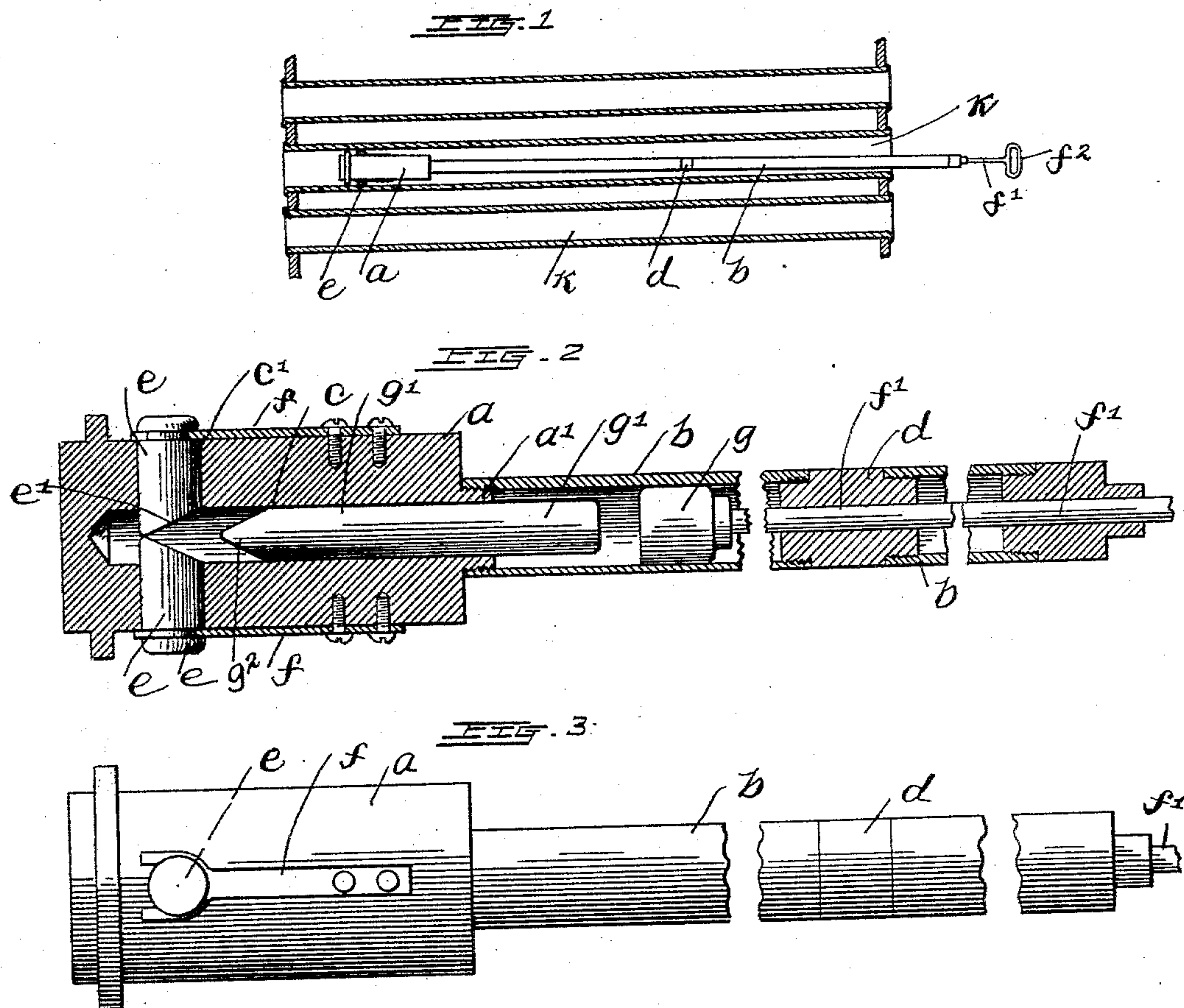
(No Model.)

E. F. GWYNN.

DEVICE FOR REMOVING SCALE FROM BOILER TUBES.

No. 597,409.

Patented Jan. 18, 1898.



WITNESSES:

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DEVICE FOR REMOVING SCALE FROM BOILER-TUBES.

SPECIFICATION forming part of Letters Patent No. 597,409, dated January 18, 1898.

Application filed August 19, 1897. Serial No. 648,830. (No model.)

To all whom it may concern:

Be it known that I, EDWARD F. GWYNN, a citizen of the United States, residing at Delaware, in the county of Delaware and State of Ohio, have invented a certain new and useful Improvement in Devices for Removing Scale from Boiler-Tubes, of which the following is a specification.

My invention relates to the improvement of devices for removing scale from boiler-tubes; and the objects of my invention are to provide a simple, reliable, and effective device of this character whereby scale and other foreign matter which may accumulate upon the outer surface of boiler-tubes may be easily and readily removed, to provide improved means for imparting a blow or blows to the inner side or surface of a boiler-tube at right angles with the direction of the length of the tube, and to provide other improvements in details of construction and arrangement, which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal section of a group of boiler-tubes, showing my improved device located in one of said tubes in position for use. Fig. 2 is a central longitudinal section of said device, and Fig. 3 is a plan view of the same.

Similar letters refer to similar parts throughout the several views.

In constructing my improved scale-removing apparatus I provide a cylindrical body or head *a*, with a rearwardly-extending neck portion *a'*, to which is detachably connected a body extension *b*, the inner end of which communicates with and forms a continuation of the central passage or internal longitudinal channel *c* of the head *a*. This passage or channel *c* extends to a point in the forward end portion of the head, and near said forward end portion of said passage I provide, at right angles therewith, one or more outwardly-extending oppositely-located passages *c'*, the passages *c* and *c'* combining to form an angular passage or way which leads from the outer end of the body *a* outward through the forward portion of said body.

In constructing the tube *b*, I provide the latter at intervals with coupling-plugs or core-

pieces *d*, the latter serving to unite the various sections of the tube *b* and being provided with comparatively small passages through their central portions, for the purpose hereinafter described.

Arranged to slide in each of the passages *c'* is a hammer head or pin *e*, the outer end portion of the latter preferably being rounded, as shown, and projecting on the outer side of the body *a*. The inner end of each of the hammers *e* is formed with a diagonal or beveled face, as indicated at *e'*. The hammers *e* are prevented from too great outward movement by means of spring-strips *f*, one end of each of which is secured to the body *a* and the remaining end of which is made to embrace or engage with the outwardly-projecting head portion of the hammer.

f' represents a hammer-rod which is adapted to extend within the tube *b*, said hammer-rod bearing within the comparatively small central passages of the coupling-plugs *d*. The inner end of this hammer-rod is provided with a suitable hammer-head *g*.

Within the forward end portion of the tube *b* and extending within the head *a* is a plunger *g'*, the latter having its forward end portion of the wedge shape indicated at *g''*.

In utilizing the above-described device the body *a* and a portion of the tubular extension *b* is inserted, as indicated in Fig. 1 of the drawings, within a boiler-tube *k*, after which the plunger-rod *f'*, which is provided with a suitable outer end handle *f''*, is forced backward and forward or is so operated as to impart successive strokes of the hammer-head *g* on the outer end of the plunger *g'*, thus driving the inclined faces of the forward end of the plunger against the correspondingly-shaped ends of the hammers *e*. It is obvious that said wedge-shaped plunger end being driven into the V-shaped space which normally exists between the inner ends of said hammers *e* must result in the blow of the hammer-head *g* being imparted through the hammers *e* to the inner wall of the boiler-tube. Owing to the fact that said hammers are normally in contact with or in close proximity to the inner surface of said tube, it is obvious that the blow delivered thereon is in the nature of a quick concussion or jar, which will serve to loosen and remove any foreign matter which

may cling to the outer sides of the boiler-tubes. In order to direct the blows of the hammers *e* at different points in the tubes, it is evident that the body *a* may be rotated
5 within said tube and that said body may be drawn backward and forward therein as may be desired.

It is obvious that instead of employing two hammers, as indicated at *e*, but one of said
10 hammers may be used and a blow therefrom imparted to but one point on the boiler-tube at a time. It will be observed that the coupling-plugs *d* will serve as bearings for the hammer-rod and that the operation of fore-
15 ing said rod in and out of the body *a* may be accomplished with ease and accuracy.

From the construction and operation herein described it will be seen that simple, reliable, and effective means are provided for loosening and removing the scale and other foreign
20 matter from the exterior surfaces of boiler-tubes, and that the device which I employ for the purpose may be produced at a reasonable cost and may be readily operated by unskilled
25 persons.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In a device for removing the scale from boiler-tubes, the combination with a body *a* 30 having a central longitudinal passage *c* and one or more passages *c'* leading outward therefrom, a hammer *e* arranged in each of said last-named passages, springs engaging said hammers and normally retaining the same in 35 their innermost positions, of a tubular extension *b*, bearing-plugs arranged within said tubular extension as described and a hammer-rod adapted to bear and slide in passages formed in said bearing-plugs, a hammer-head 40 on the inner end of said hammer-rod, and a plunger in advance of said hammer-head, the latter being adapted by contact with the inner ends of said hammers *e* to force the same outward, substantially as and for the pur- 45 pose specified.

EDWARD F. GWYNN.

In presence of—

F. A. OWEN,

E. S. OWEN.