

(No Model.)

2 Sheets—Sheet 1.

L. D. CASTLE.

TAP FOR STEAM AND GAS FITTINGS.

No. 284,377.

Patented Sept. 4, 1883.

fig. 1

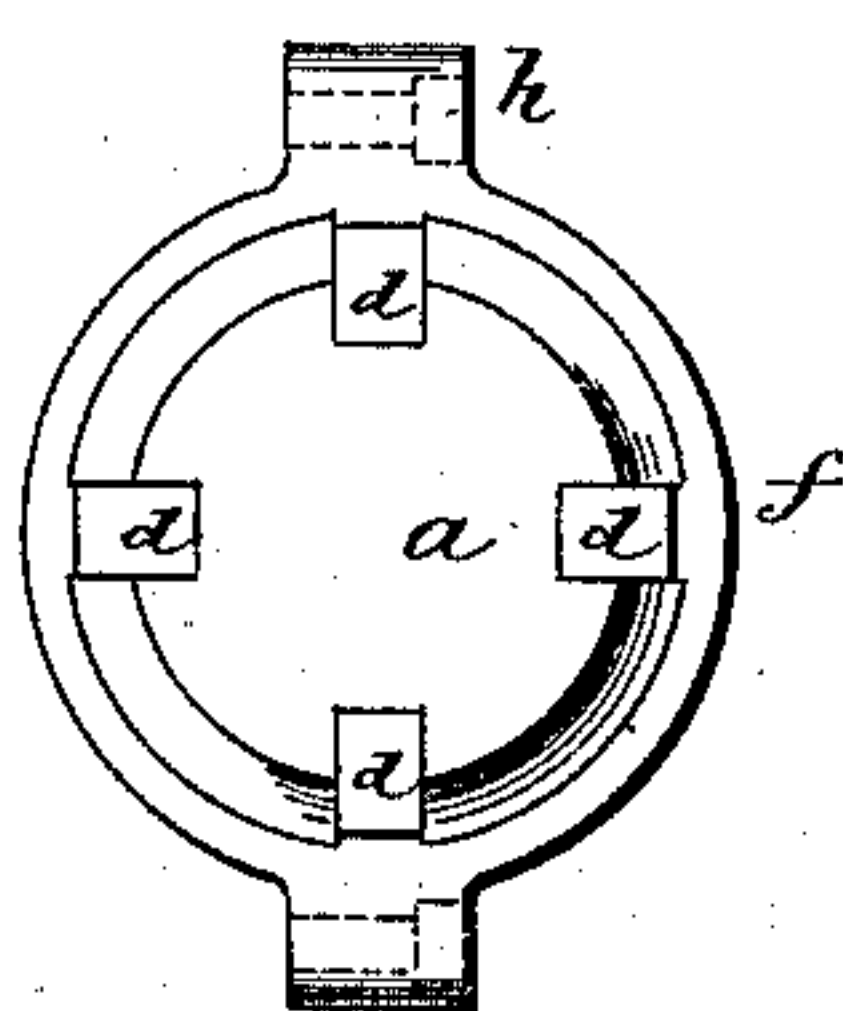
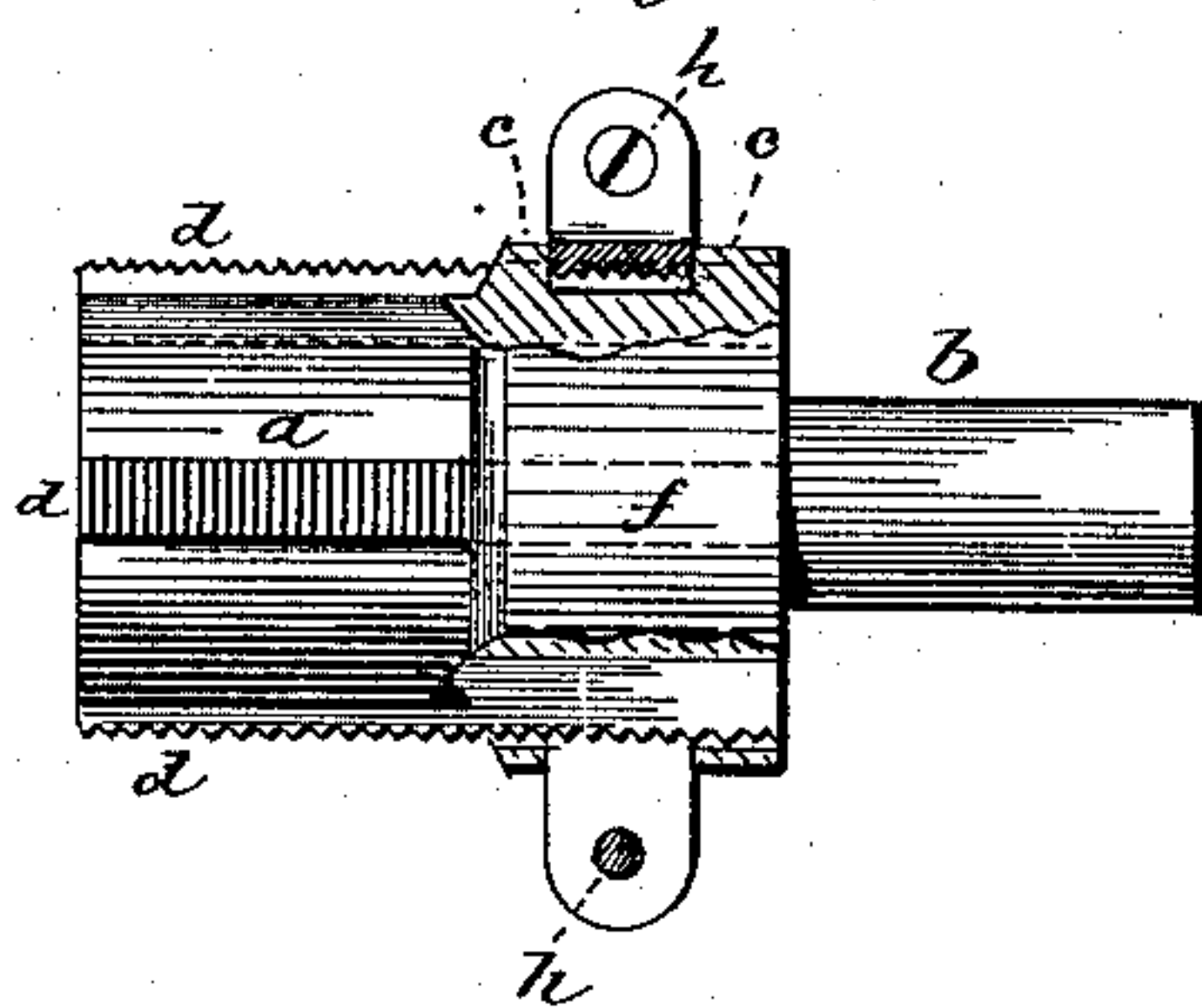


fig. 2



Witnesses,
J. P. Murray
L. D. Castle

Lewis D. Castle
Inventor,
By Atty.
J. P. Murray

(No Model.)

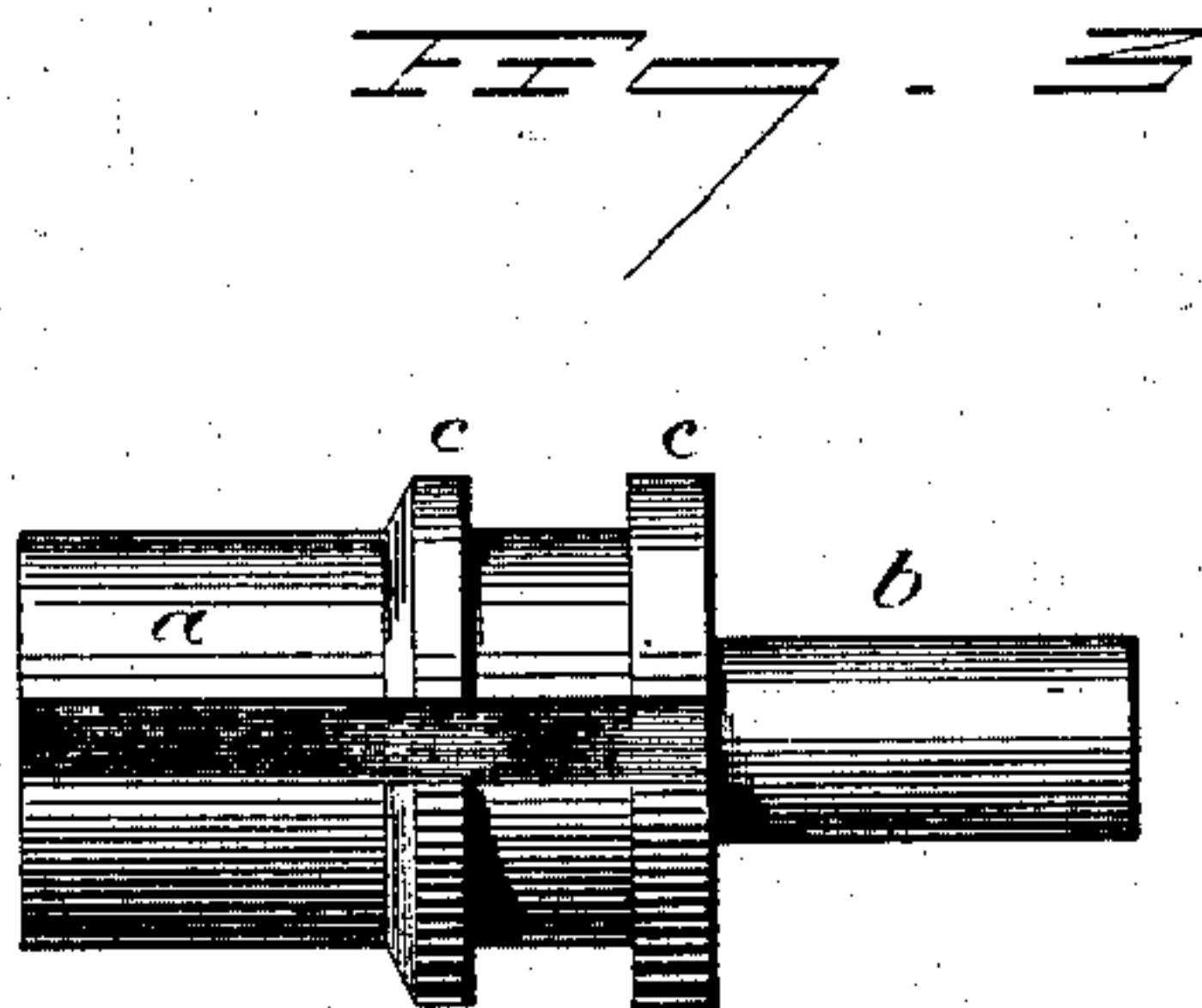
2 Sheets—Sheet 2.

L. D. CASTLE.

TAP FOR STEAM AND GAS FITTINGS.

No. 284,377.

Patented Sept. 4, 1883



Witnesses.
J. H. Sumner
L. G. Kelley

Lewis D. Castle
Inventor
By Atty.
J. M. Cole

UNITED STATES PATENT OFFICE.

LEWIS D. CASTLE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE
A. BURRITT HARDWARE COMPANY, OF SAME PLACE.

TAP FOR STEAM AND GAS FITTINGS.

SPECIFICATION forming part of Letters Patent No. 284,377, dated September 4, 1883.

Application filed May 7, 1883 (No model.)

To all whom it may concern:

Be it known that I, LEWIS D. CASTLE, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new Improvement in Taps for Steam and Gas Fittings; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, an end view; Fig. 2, a sectional side view; Fig. 3, a side elevation of the head or stock with the cutters and clamping-ring removed.

This invention relates to an improvement in the construction of taps for steam and gas fittings, and which are designed to be used in tapping-machines. A practical tap is an essential element in tapping-machines, and must be one in which the thread-cutters can be readily adjusted or repaired. Heretofore taps for this purpose have been made consisting of a body and shank, the body of frustum-of-cone shape—that is, of smaller diameter at the forward end than at the rear—this body having longitudinal grooves on its surface, and with a screw-thread near its larger end, the pitch of which corresponds to the pitch of the thread to be cut. Then into the grooves cutters or bars are introduced, the edge projecting and threaded, corresponding to the thread on the body and to the thread to be cut, combined with a corresponding internally-threaded ring, which is turned onto the body over the cutters, and onto the screw-threaded portion of the body, and by interlocking with the screw-threaded portion of the body and the threads of the cutters the cutters are secured in place. This construction necessitates a nice fitting of the cutters in order to properly engage the holding-ring, and that adjustment cannot be varied, for the reason that the internally-threaded ring limits the diameter through the cutters, and if a little larger thread is required to be cut than the diameter of the ring will permit, a different tap must be employed.

The object of my invention is to improve this class of taps and permit of a greater range of adjustment of the cutters; and it consists in a cylindrical body provided with a

shank, and constructed with longitudinal grooves to receive the cutter-bars, and with an annular groove near its rear end, combined with a divided ring constructed to fit in said annular groove and clamp the cutters in their respective grooves, as more fully hereinafter described.

My improved tap consists of a head, *a*, constructed with a shank, *b*, to fit into a hole on the spindle of the machine, and so as to revolve therewith. It is also constructed with annular projections *c c* near its rear end, the walls of which projections form a groove for the ring *ef*. Longitudinally on the head and through the projections *c* grooves are cut to receive the cutter-bars *d*. These cutter-bars fit the grooves closely, but project from the periphery of the head, as seen in Fig. 2. Their projecting edge has ribs or serrations cut thereon, corresponding to the pitch and incline of the screw-thread to be cut in the fittings.

The holding-ring consists of two parts, *ef*, divided at diametrical points, and internally threaded, corresponding to the cutters *d*, and so as to be placed around the head in the annular groove between the two projections *c c*, and over the several cutter-bars, the internal threads on the ring entering between the ridges or threads on the cutters, and the two parts are clamped together by screws *h*, as shown, or otherwise, and when so clamped they secure the cutters in their place. The thread in the ring, setting into the corresponding thread of the cutters, locates those cutters their proper relative position to each other, so that one cutter will follow the other in cutting the thread, and without any possible variation, and, whether or not the cutters project forward to any considerable extent or vary in their relation to each other, the thread of the ring always defines and brings them to their proper relative position and clamps them securely in place.

If at any time it is desirable to repair one or more of the cutters, it is only necessary to loosen the ring, so as to disengage such cutter from the ring, and when repaired replace them so as to engage the thread of the ring; then reclamped, their proper relative position is assured. If one cutter breaks it does not interfere with the proper working of the others.

The cutters may be of such length that when a break occurs they may be simply readjusted—that is, drawn farther out from beneath the ring. Different pitches of cutters, or cutters
5 for different diameters, may be set in place of other cutters, a ring being made to correspond to the cutters required. Thus the same head may be employed for various pitches of thread or different diameters. Again, if at any time
10 the same pitch, but a little larger diameter, is desired, then it is only necessary to loosen the ring and place a thin piece of metal or other suitable material in the groove beneath each of the cutters, and then reset the clamping-
15 ring, the divided ring permitting such adjustment, because the division comes at opposite diametrical points and between the cutters. This divided ring has therefore advantages over the close ring of previous constructions.
20 From the foregoing it will be understood that I do not claim, broadly, a tap consisting

of a body having longitudinal grooves, into which the cutter-bars may be placed, the edge of the bars screw-threaded, the body correspondingly screw-threaded to receive the nut, 25 which will engage both the thread on the body and the thread on the cutters; but

What I do claim is—

The herein-described tap, consisting of the head *a*, constructed with longitudinal grooves 30 in its surface and an annular groove near its rear end, threaded cutter-bars *d*, arranged in said longitudinal grooves, and the divided ring *e* *f*, threaded corresponding to the thread on the cutters, the two parts arranged in said annu- 35 lar groove and secured together to clamp the cutters in place, substantially as described.

LEWIS D. CASTLE.

Witnesses:

J. B. DOHERTY,
H. A. PENDLEBURY.