

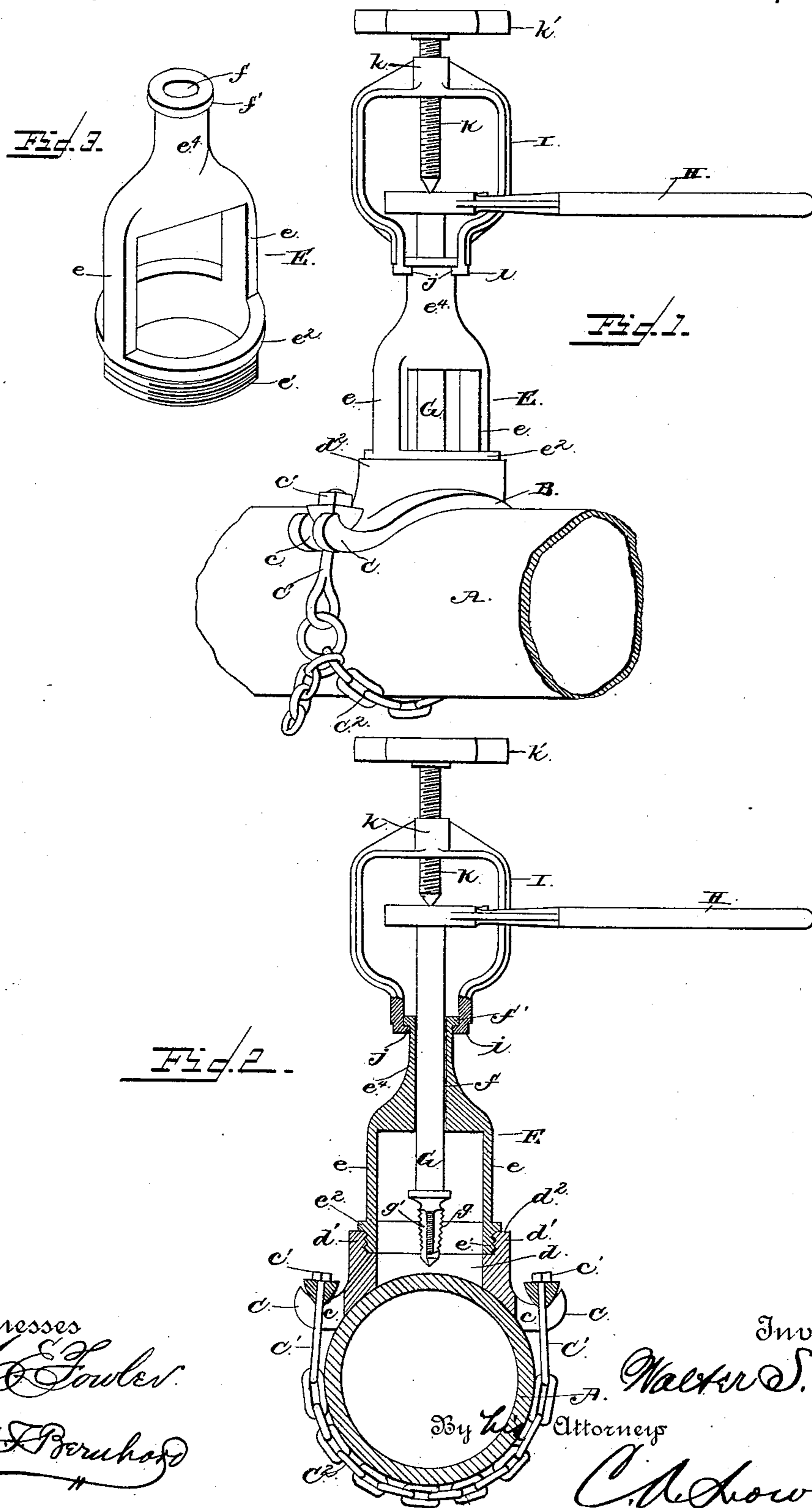
(No Model.)

W. S. PAYNE.

# DEVICE FOR TAPPING MAINS.

No. 351,397.

Patented Oct. 26, 1886.



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# UNITED STATES PATENT OFFICE.

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## DEVICE FOR TAPPING MAINS.

SPECIFICATION forming part of Letters Patent No. 351,397, dated October 26, 1886.

Application filed June 23, 1886. Serial No. 206,014. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER SETH PAYNE, a citizen of the United States, residing at Fostoria, in the county of Seneca and State of Ohio, have invented a new and useful Improvement in Devices for Tapping Mains, of which the following is a specification.

My invention relates to improvements in devices for tapping mains; and it consists of the peculiar combination and novel construction and arrangement of the various parts for service, substantially as hereinafter fully described, and particularly pointed out in the claims.

My invention is especially designed as an improvement in that class of devices for tapping dry mains known to the art as "crows;" and the primary object of my invention is to provide an improved device for tapping mains which are relieved of the pressure of the water or other liquid, or gas-pipes with small pressure, which shall be very light and simple in construction, so that it can be easily and conveniently carried or transported.

A further object of my invention is to provide improved means which can be readily and quickly adjusted or fitted upon saddles of different sizes to operate or tap mains of different diameters, and which shall also provide a support and guide for the drill-shank and effectively hold it in place when drilling or centering, all as presently described.

In the accompanying drawings, which illustrate a device for tapping mains embodying my invention, Figure 1 is a perspective view of the device adjusted for use upon a main. Fig. 2 is a vertical central sectional view through the saddle, the carrier and guide, and the yoke with the feed-screw detached from the main. Fig. 3 is an enlarged perspective view of the carrier detached from the saddle and yoke.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the main or pipe upon which my improved tapping device or machine is to be adjusted for use to drill and tap a hole therein, so that branch pipes can be connected with the main.

B designates the saddle, which has its inner face curved to correspond to the outer con-

vexity or curvature of the main or pipe upon which it is to be fitted. These saddles are to be provided or furnished with the machines in sets of different sizes, so that they can be adapted for use upon mains of different diameters, and at their ends the saddles are provided with bracket-lugs C, which have transverse slots c, through which are passed the eyebolts C', that have the nuts c' and the chain C' connected therewith. The nuts bear on the bracket-lugs, and the chain passes around the main, so that by lengthening or shortening the chain the device can be adjusted upon mains of different diameters. The saddle is further provided with a central opening, d, for the free passage therethrough of the drill, and around this opening is formed a projecting rib or flange, d', that is arranged a short distance from the edges of the opening to form a seat or ring, d'', the flange d' being interiorly threaded, as shown.

E designates the carrier, which is cast or formed in a single piece of metal for strength and durability in the construction and cheapness of manufacture. This carrier consists, essentially, of the parallel standards e, which are arranged a short distance from each other, an annulus or ring, e', at the lower ends of the parallel standards, which has its outer periphery exteriorly threaded, and an annular ledge or flange, e'', at its upper edge, and a neck, e', at the opposite upper ends of the vertical standards. The neck is formed or cast solidly and has a central longitudinal opening or passage, f, the length or longitudinal axis of the opening greatly exceeding the diameter of the passage—say by two and one-half or three times—so that an extended bearing-surface or guide is provided for the drill G, which passes through the said passage and is guided therein, whereby the drill is steadied and rendered very firm. The neck e' is rounded or curved on its upper surface to impart a neat finish thereto, and the neck is provided at its upper extremity with an annular flange or ledge, f', for a purpose presently described. By forming the carrier in a single piece of metal with the annulus or ring, the arms or standards, and the neck, I provide means which are very simple, strong, and durable in construction, as well as light and portable, and cheap. The diameter of the drill G is a little less

than the diameter of the longitudinal passage of the carrier, so that the drill fits snugly and closely in the passage, while at the same time it is free to have the requisite longitudinal movement in feeding it forward, and to be rotated under the action of a lever, H, and ratchet mechanism, which, however, does not form a part of this invention, and I have therefore not deemed it necessary to describe the same more fully herein.

I designates the yoke, which has a contracted lower end that is in the form of an annulus or ring, *i*, with a slot to separate or divide the ring, and the ring has an inwardly-projecting flange, *j*, that is adapted to take under the flange of the carrier at the neck thereof when the apparatus is adjusted for use. The upper end of the yoke has a central threaded opening or bearing, *k*, therein, through which works a feed-screw, *K*, which has a hand-wheel or handle, *k'*, at one end, and is pointed at its opposite lower end. The hand-wheel provides convenient means for rotating the screw to feed the drill forward, and the pointed end of the drill fits in a counter-sunk portion or recess in the head of the drill-shank, so that the screw is retained in contact with the drill. The drill is provided with the tapered and threaded end, as at *g*, which has the longitudinal recesses or cut-out portions *g'*, the extreme point of the drill being pointed and cut to provide the spiral or inclined cutting-edges which act upon the work. When the drill is in operation, the pointed end thereof first enters the metal or pipe to form the hole or opening, and the longitudinal channels or grooves conduct the cuttings away from the hole or permit the escape thereof. When the threaded portion of the drill enters the hole or openings cut by the point, the sides of the hole are threaded or tapped, as will be readily understood, and as the point of the drill is tapered, it will readily tap holes of different diameters.

This being the construction of my invention, the operation thereof is as follows: The saddle of proper size is first fitted upon the main and adjusted thereto so as to fit snugly, after which the chain is passed around the pipe or main and connected with the eyebolts of the saddle. The carrier is now fitted on the saddle and secured rigidly thereto by screwing the annulus or ring into the interiorly-threaded flange of the saddle until the flange of the annulus rests on the upper edge of the saddle-flange, and the lower edge of the ring bears upon the ledge or seat *d'*, thereby providing a firm and secure support for the carrier. The drill having been first fitted in the neck of the carrier and adjusted so that the pointed end thereof bears on the work or main, the yoke is now applied to the carrier and adjusted so that the flanges *f'* and *j* are in contact with each other, and the screw *K* is turned until the pointed end thereof takes into the recess of the drill to feed the latter forward. The lever *H* is turned by hand in

the usual manner to rotate the drill, which is fed forward by the screw at the proper rate until the hole or opening of proper size has been cut in the main, after which the yoke and screw can be detached from the carrier and the lever *H* swung clear around to give increased power to the lever and effect the operation of boring and tapping more quickly. After the threaded portion of the drill enters the hole or opening formed by the cutting-edges of the drill the hole is interiorly threaded or tapped, as will be readily understood.

My invention is simple and strong in construction, cheap and inexpensive of manufacture, and light, so that it can be conveniently carried or transported.

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

1. In a device for tapping mains, the combination of a saddle, a carrier detachably connected to the saddle and comprising the integral uprights *e*, and the neck *e'*, having the longitudinal passage, a drill fitted loosely in the passage to rotate and move longitudinally freely therein, a yoke connected to the carrier, and a feed-screw fitted in the yoke and bearing on the drill, the parts being constructed substantially as described, for the purpose set forth.

2. In a device for tapping mains, the combination of a saddle having an opening, *d*, a carrier detachably connected to the saddle and comprising the parallel uprights *e*, and the neck *e'*, formed of a single piece, the drill having a smooth exterior surface and fitted loosely in a longitudinal passage, *f*, of the carrier to rotate and move longitudinally therein, and provided with the conical threaded lower end and the longitudinal passages *g* in the periphery of said threaded end, a yoke connected to the carrier, and a feed-screw fitted in the yoke and bearing on the drill, the parts being constructed substantially as described, for the purpose set forth.

3. In a device for tapping mains, the combination of a saddle having the threaded ring, a carrier formed of a single piece and comprising a threaded ring to be connected with the saddle, the arms or standards, and the neck having the longitudinal passage, the yoke having a divided ring fitted on the neck of the carrier and carrying the feed-screw, the drill fitted in the passage of the carrier-neck and having its lower end tapered and threaded, said lower end of the drill being further provided with the inclined cutting-edges and the longitudinal channels, substantially as described, for the purpose set forth.

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

WALTER SETH PAYNE.

Witnesses:

G. G. SILL,  
WM. JAEGER.