

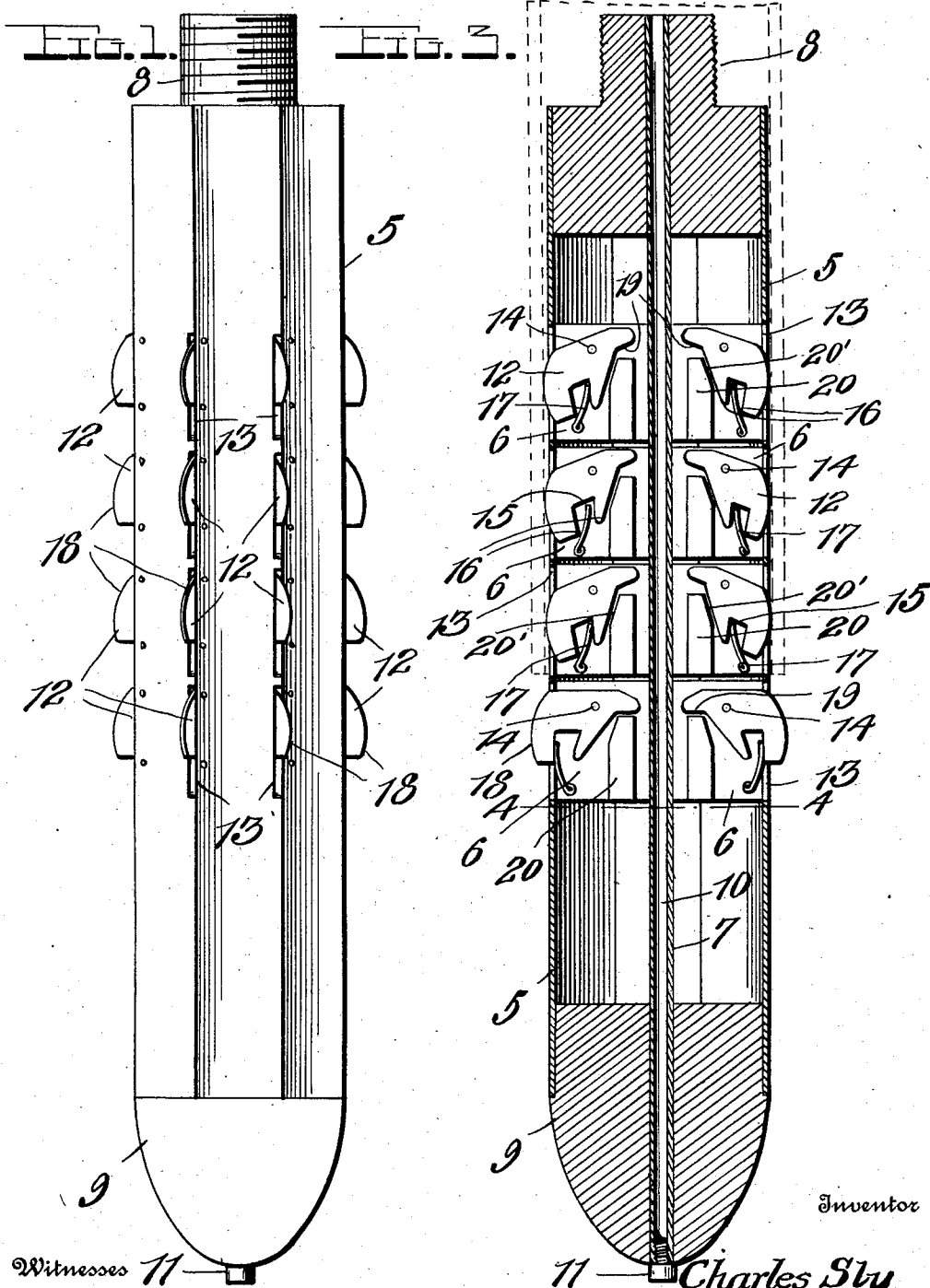
C. SLY.
REAMER.

APPLICATION FILED APR. 24, 1911.

Patented Dec. 12, 1911.

2 SHEETS—SHEET 1.

1,011,384.



Witnesses 11

Chas. L. Gristauer.
L. H. Ellis.

Inventor

11 Charles Sly

By Watson E. Coleman.
Attorney

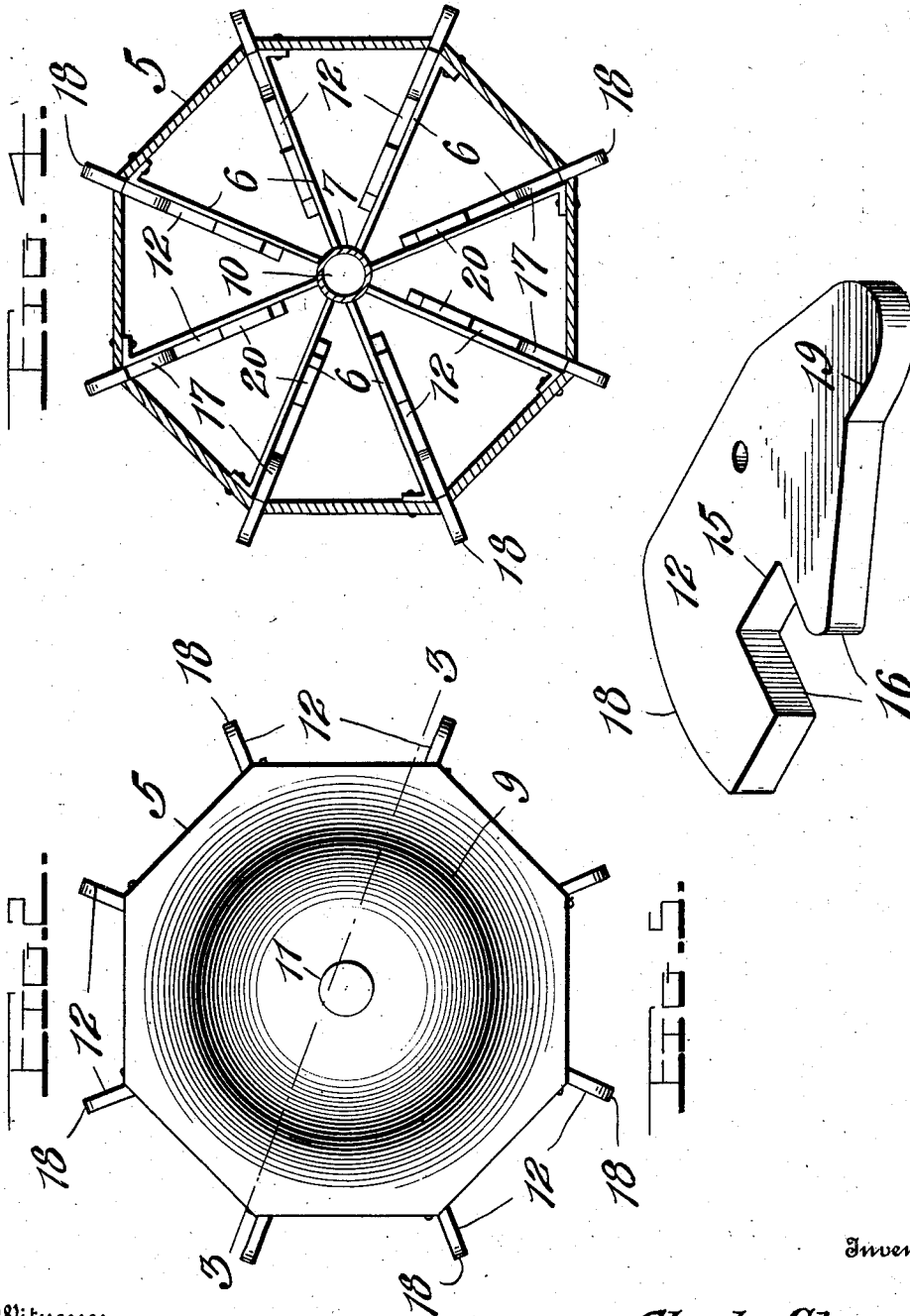
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UNITED STATES PATENT OFFICE.

CHARLES SLY, OF CORPUS CHRISTI, TEXAS.

REAMER.

1,011,384.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed April 24, 1911. Serial No. 622,996.

To all whom it may concern:

Be it known that I, CHARLES SLY, a citizen of the United States, residing at Corpus Christi, in the county of Nueces and State of Texas, have invented certain new and useful Improvements in Reamers, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved reamer and more particularly to a device of this character which is adapted for reaming well drilling tubes such as are employed in drilling deep water or artesian wells.

The primary object of my invention resides in the provision of a reamer of the above character which is of simple construction, may be quickly and easily inserted or removed from the drilling tube and is also highly efficient in practical use.

A further object of the invention is to provide means for easily and quickly cleaning out the interior of the reamer, one end of said reamer being so formed as to expand the upper end of the well drilling tube when removed therefrom.

A still further object of the invention is to provide a many sided body and a plurality of spring held pivoted dogs mounted in said body in vertical series at each of the corners formed by the sides thereof whereby a great number of tube engaging reaming members may be provided.

With the above and other objects in view, the invention consists of the novel features of construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a reamer constructed in accordance with my invention; Fig. 2 is a top plan view thereof; Fig. 3 is a vertical section taken on the line 3—3 of Fig. 2; Fig. 4 is a detail section taken on the line 4—4 of Fig. 3; and Fig. 5 is a detail perspective view of one of the pivoted dogs.

Referring more particularly to the drawings 5 indicates the hexagonal body of the reamer. A plurality of vertical partition plates 6 are secured to said body adjacent to each of its corners and extend inwardly to form a central hub portion 7. The upper end of the body is formed with a tapered extension 8 which is screw threaded whereby the reamer may be connected to any well known form of operation machine. The lower end of the reamer body is also slightly

tapered and rounded as shown at 9. A longitudinal opening 10 is formed through the central hub portion of the reamer body and is closed at its lower end by a threaded plug 11.

A plurality of dogs 12 are pivotally mounted within the body at each of the corners thereof, the hexagonal shell comprising said body being provided at its corners with spaced longitudinal openings 13. These openings are rectangular in form as shown in Fig. 1. The dogs 12 are pivoted upon vertical series of pins 14 which are secured in each of the radially extending plates 6. As shown in detail in Fig. 5 the dogs 12 are formed with the recesses 15 and the lips 16 adjacent to said recesses. A heavy leaf spring 17 is secured to the shell body between the openings 13 therein. The free ends of these springs extend into the recesses 15 in the dogs and normally tend to force the curved outer ends 18 of said dogs outwardly. The inner ends of the dogs beyond the lips 15 are formed with a shoulder 19. This shoulder is adapted to engage with the upper end of a vertically disposed stop cleat 20 which is secured to the plate 7. The forward movement of the dogs is limited by the engagement of the lips 16 with the beveled surfaces 20' formed on the upper ends of said cleats.

In the operation of my improved reamer, the tapered rounded end 9 thereof is first inserted into the upper end of the drill tube. After the reamer has been lowered in the tube to the proper position, the same is rotated by the operating machine and the engagement of the outer curved edges of the pivoted dogs 12 with the inner surfaces of the drill tube will cleanly remove all accumulations and incrustations.

In Fig. 3 of the drawings the well drilling tube is shown in dotted lines, and all of the dogs 12 with the exception of those at the upper end of the reaming tube, are disposed below the lower end of the drill tube. It will thus be seen that when the reamer is in position within the tube, the dogs are forced inwardly against the tension of the spring blades 17, said springs forcibly holding the scraping edges of the dogs in contact with the wall of the drill. The dogs which are disposed below the lower end of the tube will remove all of the surrounding material and permit of the easier operation of the drill. When the reaming tube is moved up-

wardly, the engagement of the curved outer edges with the lower end of the tube will force the dogs inwardly and scrape any dirt or other material from their curved scraping edges 18.

5 From the foregoing it is believed that the construction and operation of my improved reaming tube will be readily understood without necessitating any further description. 10 The device is strong and durable in construction and extremely efficient in practical operation. The parts are of simple form and owing to the construction of the reamer body, in the event that any one of 15 the scraping dogs should become broken it may be readily removed and another substituted therefor. The dogs are preferably formed from hardened steel, but it will be obvious that if desired any other material 20 may be employed. It will also be understood that any desired number of the radial series of dogs may be employed and the invention is not restricted to the exact arrangement thereof as shown in the drawings. 25 The device is also susceptible of a great number of other minor modifications without materially departing from the essential feature or sacrificing any of the advantages thereof.

30 Having thus described the invention what is claimed is:—

1. A reamer comprising a hexagonal body, a plate secured at one of its longitudinal edges adjacent to each of the corners of the 35 body and extending inwardly therefrom, a plurality of dogs pivoted upon each of said plates and extending through openings in the body, a plurality of springs secured to each corner of the body, said dogs having 40 recesses therein to receive the springs, said

springs being adapted to force the scraping edges of said dogs outwardly from the openings, lips formed upon the dogs, shoulders on the inner ends of the dogs, and stops arranged upon said plates for engagement by 45 said lips and shoulders to limit the pivotal movement of the dogs.

2. A reamer comprising a hexagonal shell, a central hub arranged in the shell, a plurality of radiating plates carried by said hub 50 and secured at their outer edges to the shell adjacent to its corners, a vertical series of dogs pivoted upon each of the plates, said shell having openings at its corners through which the dogs extend, means secured to the 55 shell normally forcing said dogs outwardly through said openings, and means arranged in the body for limiting the pivotal movement of the dogs.

3. A reamer comprising a hexagonal shell, 60 a central cylindrical hub provided with a longitudinal bore arranged in the shell and a plug closing the lower end of the bore, a plurality of plates radiating from the hub, the outer edges of said plates being secured 65 to the shell adjacent to its corners, a vertical series of dogs pivotally mounted upon each of the plates, said shell having openings at its corners through which the dogs extend. 70 means for yieldingly holding the dogs against inward movement, and means arranged on said plates for limiting the pivotal movement of said dogs in either direction.

In testimony whereof I hereunto affix my 75 signature in the presence of two witnesses.

CHARLES SLY.

Witnesses:

G. H. JOHNSON,
GERTRUDE EGAN.