(No Model.)

C. C. HOWELL.

BLEEDER FOR STEAM PIPES.

No. 543,444. Patented July 23, 1895.

Fig 1

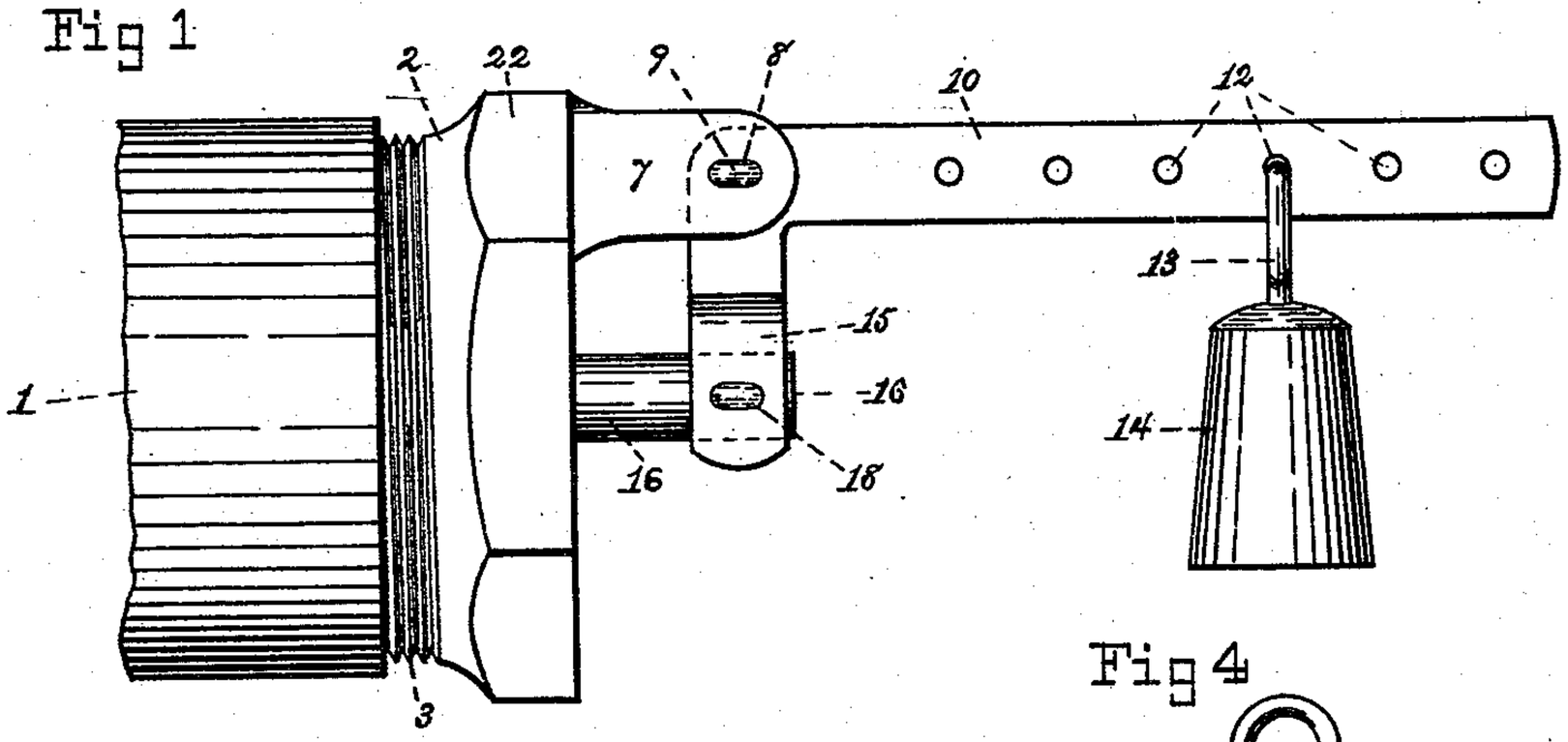

Fig 2

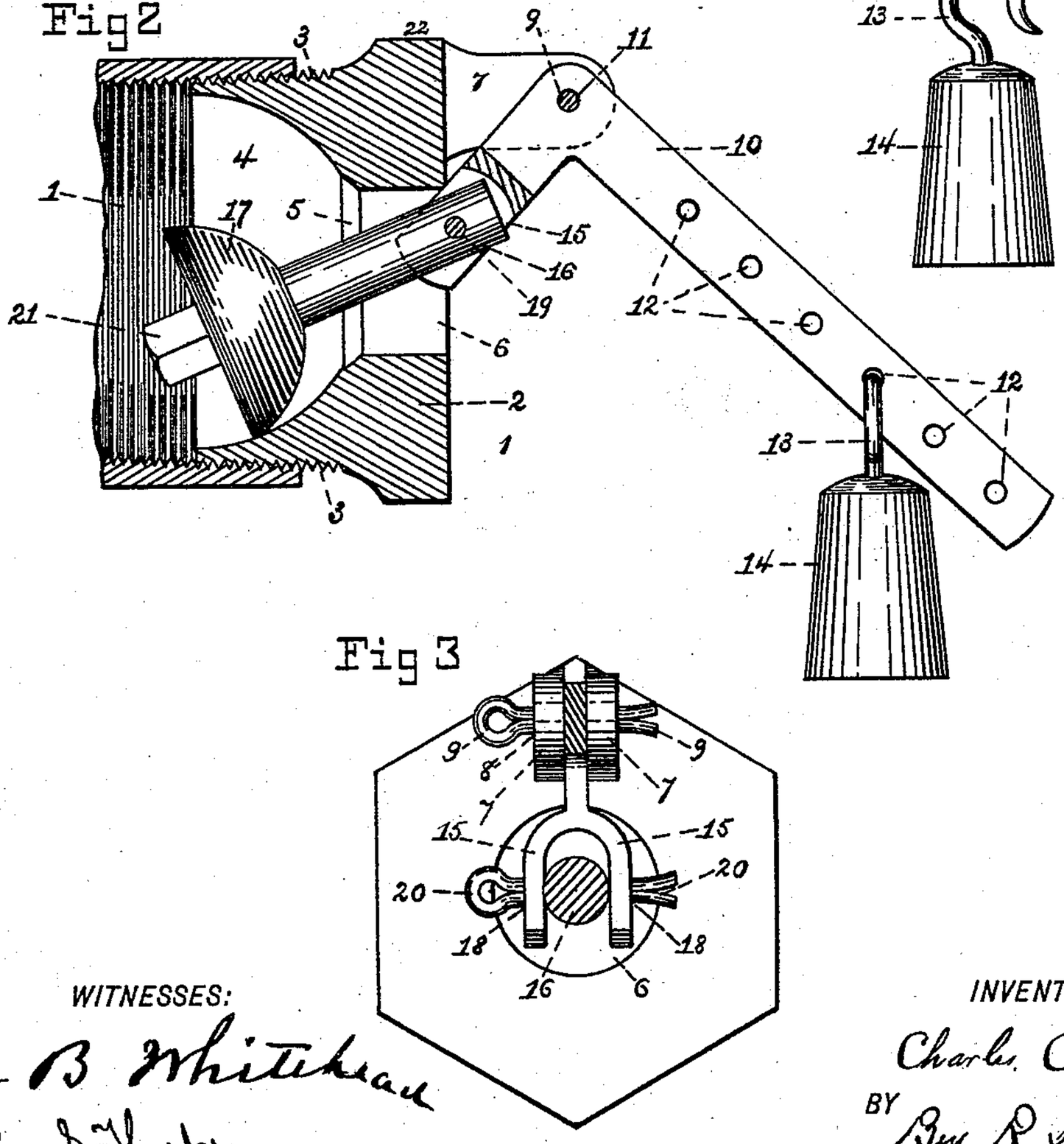

Fig 4

Fig 3

WITNESSES:

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BLEEDER FOR STEAM-PIPES.

SPECIFICATION forming part of Letters Patent No. 543,444, dated July 23, 1895.

Application filed March 13, 1895. Serial No. 541,586. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. HOWELL, a citizen of the United States, residing at Red Rock, in the county of McKean and State of Pennsylvania, have invented a new and useful Improvement in Automatic Bleeders for Steam-Pipes, of which the following is a specification.

My invention relates to that class of valves used for relieving steam-pipes of the water formed therein by the condensation of the steam.

The object of my invention is to provide an automatic bleeder that can be regulated to act with the steam at any desired pressure, also one so constructed that the valve and its seat can be reground at any time by the person in charge of the machinery. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of my bleeder connected to the end of a steam-pipe line. Fig. 2 represents a vertical cross-section of Fig. 1. Fig. 3 represents an end view of Fig. 1, with the lever in cross-section. Fig. 4 represents the lever-weight and shows the hook for attaching it to the lever.

Similar numerals refer to similar parts throughout the several views.

Numeral 1 is the end of a steam-pipe line in which the body 2 of the bleeder is inserted. The body 2 is provided with the screw-threads 3, the angular portion 22, the valve-chamber 4, the valve-seat 5, the orifice 6, and the lugs 7. The lugs 7 are provided with the orifices 8, through which the split pin 9 passes, which movably secures the bent lever 10. The bent lever 10 is provided with the perforation 11 and the several perforations 12, which latter are for the purpose of receiving the hook 13 of the weight 14. The inner end of the lever 10 is bent at right angles and provided with a forked extension 15, which fits over the stem 16 of the valve 17. The forked extension 15 is provided with the perforations 18 and the valve-stem 16 with a perforation 19. Through the orifices 18 and 19 is inserted the split pin 20, thereby movably securing the valve 17 to the bent lever 10.

21 is an angular projection on the valve 17.

With the present system of operating oil-wells in this section of the oil-regions a steam-boiler is established at a central point with several oil-wells, and the steam-engines at the wells are connected to it by means of steam-pipe lines, which vary from a few hundred feet to fifteen hundred or two thousand feet in length. The wells are pumped at stated periods, generally once a day for a few hours, so that when they are started up the steam-pipes are cold, and they have more or less water in them from the condensation of the steam used in the previous pumping.

One man, called the "pumper," will attend to all the wells, and when one is started up to pump he must be at the boiler to turn on the steam, which in a long steam-pipe line will at first condense to a considerable extent and force the water to the end of the steam-line. If there is no place for it to escape, it will go into the engine-cylinder with the attendant danger of bursting the cylinder or otherwise damaging the engine.

By the use of my automatic bleeder the steam-pipes are relieved of the condensed steam and water before they reach the engine.

The method of operating it is as follows; The body 2 is screwed into a coupling or other fitting of the steam-pipe line, near the steam-engine, by means of a wrench, which engages with the angular portion 22. At first the weight is suspended at the outer end of the lever in order to keep the valve open. The pumper then watches the flow at the orifice 6. As soon as all the water is discharged from the steam-pipe line, he sets the weight at such a point on the lever as to close the valve, and after the weight is once suspended at the desired point on the lever it will never again have to be disturbed for the purpose of regulating the valve, for the following reason: The steam-boiler carries, say, eighty pounds of steam-pressure regularly. In order to do the work, the steam at this pressure is turned into the steam-pipe line and drives the water in the pipes to the bleeder, through which it is discharged. The pressure of the steam at the bleeder at this time will not be above, say, thirty pounds, caused by the condensing and intermingling of the steam with the water in the pipe. As soon as the water is discharged the steam-pressure will immediately increase and close the valve, it being set to close at, say, thirty-five pounds' pressure, and

it will remain closed until the steam is shut off, when, being relieved from the steam-pressure, it will automatically open and allow the steam-pipes to drain.

Should the valve or its seat become defective and need refitting the pumper can disconnect the bent lever, remove the bleeder from the steam-pipe line, and place it in a vise. Then by fastening the angular portion of the valve in a carpenter's brace he can easily regrind the valve and its seat.

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

1. In an automatic bleeder for steam pipes the combination with the body formed with the lugs and angular portion and provided with a valve-chamber having a valve seat therein, of the hemispherical valve provided with an angular projection and a stem, the bent lever pivotally secured to the lugs and provided with the forked extension adapted to be pivotally secured to the valve stem and the weight, substantially as shown and described.

2. An automatic bleeder for steam pipes, comprising the body externally screw-threaded formed with the lugs, angular portion, and discharge orifice, and provided with a valve-chamber having an interior valve-seat, a valve provided with an angular extension on the one side, and on the other a stem adapted to engage with the bent lever, the bent lever pivotally secured to the lugs, provided with the forked extension and with a series of perforations, and the weight provided with a hook adapted to engage with the perforations of the lever, substantially as shown and described and for the purpose herein set forth.

CHARLES C. HOWELL.

Witnesses:
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