

## **Lithotrity and the new lever lithotrite / by Patrick Heron Watson.**

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# LITHOTRITY,

AND

## THE NEW LEVER LITHOTRITE.

BY

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## THE NEW LITHOTRITE.

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I WAS requested in the month of March, by Dr Milne, to see with him Mr L., æt. 80, who had long suffered from symptoms of calculus and enlarged prostate. I had about a year previously seen this patient, and then operated by lithotrity upon a calculus fully the size of a large pigeon's egg. The complete relief to the symptoms of urinary retention, from which he had recently begun to suffer, afforded by two crushing operations, led to his refusing to have anything further done at that time, as he was much occupied with family matters. This relief was, however, short-lived, as the old symptoms recurred, and led him at once to accede to Dr Milne's recommendation, that the operation of lithotrity should be completed.

On examining the bladder with a converted lithotrite of Messrs Weiss's pattern, I at once seized a calculus behind the prostate, which measured eight lines upon the scale, and, on adjusting the lever forceps to the shaft of the instrument, proceeded to crush. After opening and closing the handles of the forceps some eight or ten times in rapid succession, I found that nothing farther remained in the bladder to obstruct the free play of the jaws of the lithotrite. I accordingly closed the forceps, and removed the instrument from the bladder. And now, on introducing a catheter with a Clover's washing-bottle attached, I removed a quantity of uric acid detritus, amounting to more than two drachms. The whole procedure, from the introduction of the lithotrite to its removal, occupied less than three minutes. The next day I met this patient in the street perfectly well, and in great glee at the facility with which the crushing had been completed. I have since had an opportunity of examining his bladder, and find no trace of calculus matter in the viscus, though symptoms of irritation due to the enlarged prostate still continue to exist.

I have detailed this case—one among several—in illustration of the employment of a new modification of the crushing power, capable of application to any lithotrite in common use, whereby it can be worked with greatly-increased rapidity, and the result attained with equal delicacy of manipulation and even greater power. I was led to invent this lever-power instrument in the end of last year, in consequence of a case which occurred in my practice in the autumn. The patient was an exceedingly irritable man, with a uric-acid calculus rather too large for lithotrity, but who insisted that lithotrity should be performed, and who could obviously ill bear any frequent repetitions of the procedure, or any long-continued application of the instrument in the ordinary way. The difficulty was in his



instance overcome by the employment of chloroform, whereby the stone was crushed at one sitting; but the importance of some more rapid means of applying the crushing power, as suited to such exigencies, forced itself strongly upon my mind.

I accordingly devised for this purpose the application of leverage by means of movable forceps, adapted to each blade of the litho-

trite, in such wise that the closing of the handles might approximate the jaws of the lithotrite, and the opening of them, effected by a spring between their shafts, might cause the jaws to gape. The alternate movement of the jaws thus came to resemble a chewing motion, by means of which I found experimentally that fragments might be safely reduced to detritus with far greater rapidity than by any other movement. I also found that the movement was quite as steady and quite as powerful as that effected by means of the screw.

The accompanying woodcut (Fig. 1) shows the entire instrument, with the lever-forceps attached, and open to their full gape. The lithotrite is that usually known as Weiss's. Its peculiarity consists in the fluted handle containing the female catch screws, which are made to project and seize the male screw rod by means of the gliding slot projecting from the upper surface of the instrument (A, Fig. 4).

In employing this lithotrite the surgeon stands on the right side of the recumbent patient, and introduces the instrument into the bladder with the jaws closed, and without the lever-forceps. Rotating the instrument through rather more than a quarter of a circle, right or left, after having opened the blades in the middle space, he closes them gently, and in all probability at once secures the calculus or the fragment. He now closes the slot so as steadily to hold the stone in the jaws till the lever-forceps are applied. When they are secured in position, on reversing the slot, the alternate closing and opening of the handle-shafts of the forceps crushes fragment after fragment. As the larger portions are broken

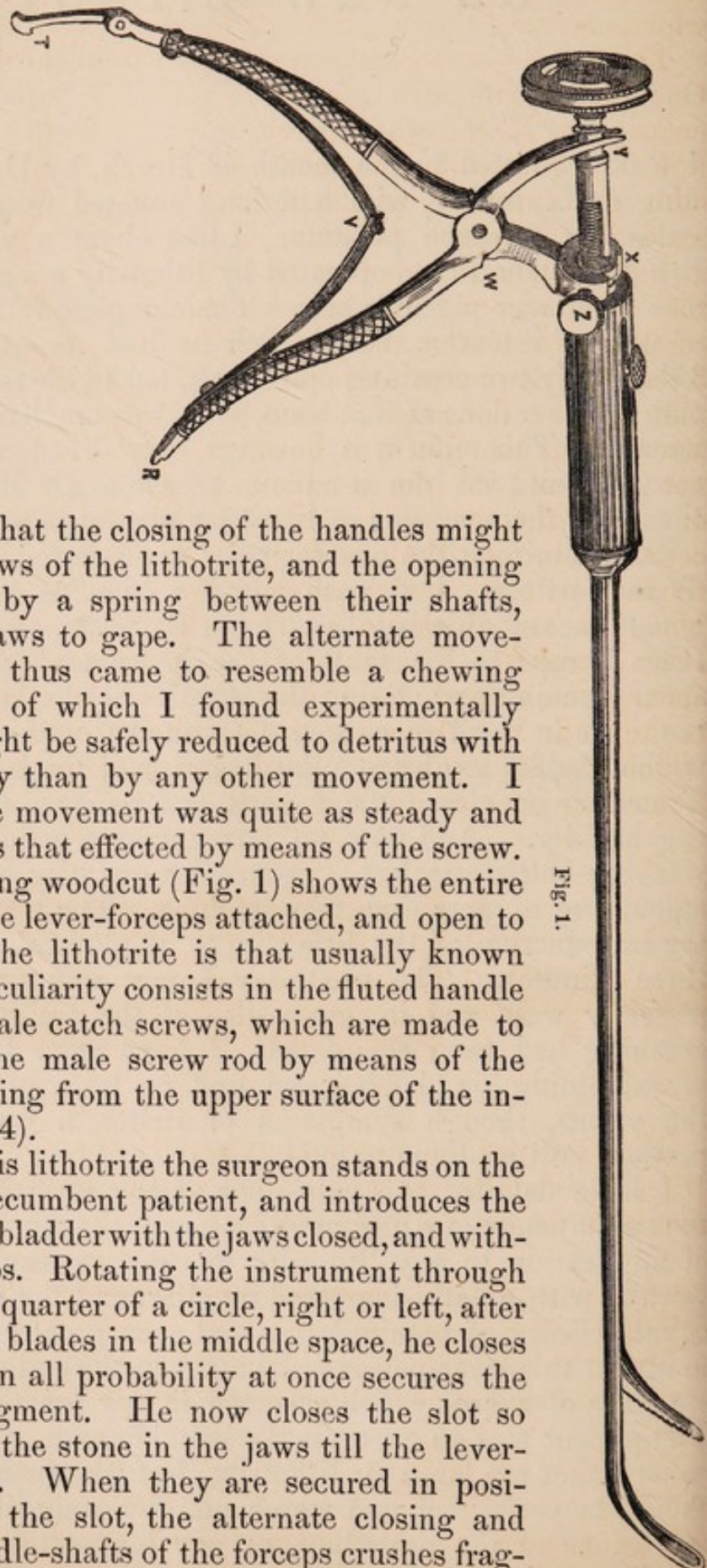


Fig. 1.



down, the fragments fall immediately below the jaws; a slight increase therefore of the rotation of the lithotrite brings the remaining smaller portions within its grasp, till nothing but detritus is left, which can easily be washed out by the Clover apparatus.

The lever-forceps are shown apart from the lithotrite in Fig. 2.

One blade terminates in a circular collar X, the other in the fork Y. The collar X encircling the extremity of the female blade of the lithotrite, is held steady in position by the pinch-screw Z, which catches in the groove B C (Figs. 3 and 4), and prevents the slipping of the collar, while, unless screwed up too much, it does not interfere with the rotation of the lithotrite within the collar. The fork Y plays upon the thinned portion of the male blade of the lithotrite at D (Figs. 3 and 4). The elliptical spring which opens the blades is shown at V. A spring-catch is shown open at S T (Fig. 2), by which the blades, when closed, can be kept so by the extremity T holding between the fork at R.

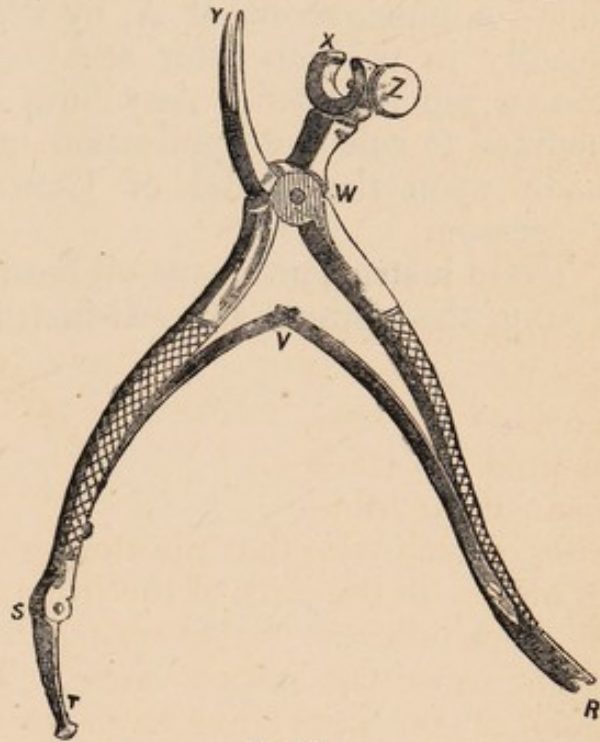


Fig. 2.

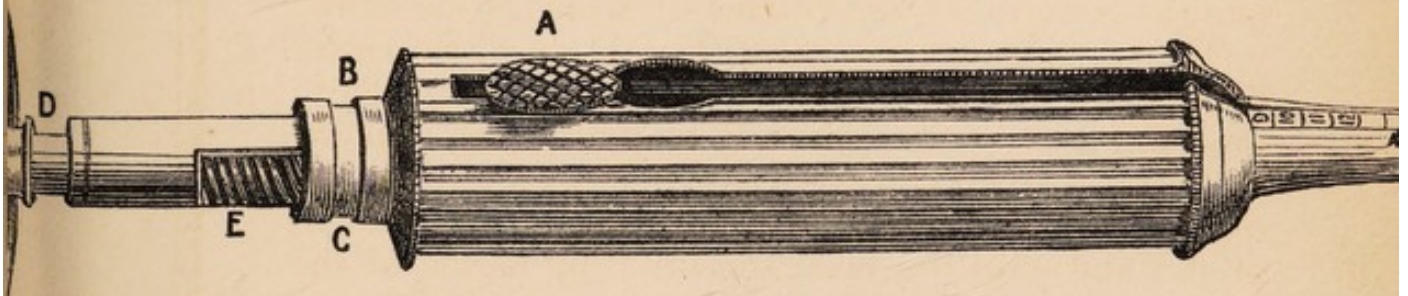


Fig. 3.

Fig. 3 shows the proximal extremity of an ordinary Weiss lithotrite, modified for the application of the lever-forceps, but equally available for use with the screw.

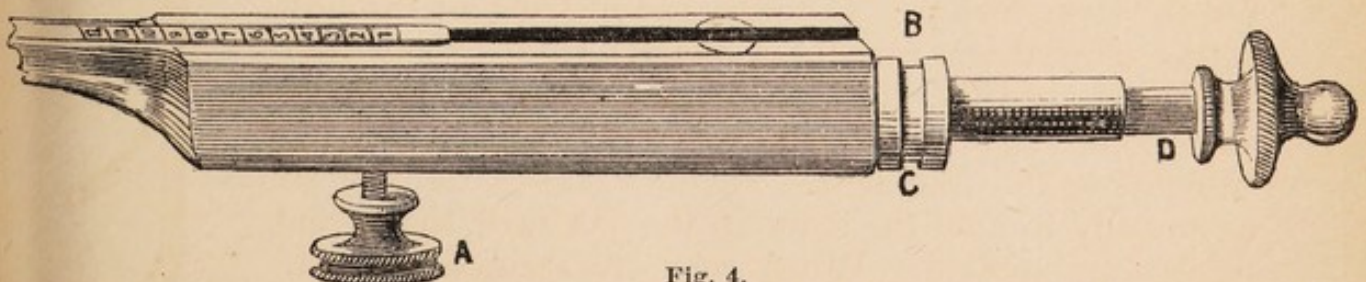



Fig. 4.

Fig. 4 shows an old-fashioned screw-lithotrite of the early Weiss pattern, converted to suit the forceps. The change consists in



the removal of the crushing screw, the elongation of the female blade by the grooved projection B C to fit the collar X on the one blade of the forceps, and in a commensurate elongation of the male blade beyond the female blade, with a thinned shaft at D, suited to the forked extremity of the other blade of the forceps. There is also added a pinch-screw at A, by which the blades may be retained steadily in position after securing the calculus, until the lever-forceps are adjusted. Any form of lithotrite may in this way be modified to suit the application of the lever-forceps, whether it be made upon the model of Charrière, Coxeter, or Sir William Fergusson.

These instruments have all been made or converted for me by Mr Young, the eminent surgical-instrument maker of this city.



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