



## III. Description of a new instrument for trepanning

Mr. John Rodman

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ing as the weather is more or less favourable for drying the body. The process of drying might perhaps be a little shortened by the application of artificial heat.

The theory of this process, as C. Chaptal thinks, is, that the ether, while it evaporates, volatilises the moisture in the animal body, by these means effects a gradual desiccation, and thus removes the only cause of corruption.

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III. *Description of a new Instrument for Trepanning, invented by Mr. JOHN RODMAN, Surgeon in Paisley. Communicated by the Inventor.*

THE operation of trepanning must be considered a very important one in surgery, both on account of the dangers with which it is often attended, and the beneficial effects which follow the successful performance of it. The danger and accidents which attend this operation arise partly from the imperfection of the instruments employed, and partly from want of dexterity in the operator.

To manage the instruments now in use for trepanning with neatness and facility, would require a degree of mechanical dexterity which falls to the lot of few surgeons: yet surgeons the most inexperienced, and unaccustomed to operations of any kind, are often necessarily called upon to perform this operation.

The trepan is allowed by the greater number of surgeons to be a dangerous instrument, and the use of the trephine, though more generally employed, has been sometimes followed by fatal accidents.

The chief objection to the more general use of the trepan seems to arise from the chance of its passing suddenly in upon the brain towards the end of the operation. To avoid such an accident, the celebrated professor of anatomy at Edinburgh says, in his lectures, that it might be as well to begin the operation with the trepan, and to finish it with the trephine. But, whichever of these instruments be employed, there is still a risk of the bone being unequally cut: for, if the instrument be held in the smallest degree to one side during the operation,

tion, the bone at that side to which it is most inclined will soonest give way, and consequently the brain may be injured before the surgeon is apprised of it. Such accidents, it is well known, have frequently happened. Sometimes, too, the centre-pin, from agitation or inattention of the surgeon, has been left in the instrument to the end of the operation, and, after passing through the bone, has perforated the brain.

Besides these, and several other obvious objections, the number of necessary auxiliary instruments sufficiently evinces the propriety of attempting to simplify and improve the present mode of operating.

The manner of perforating the skull by the instruments now in use is, first, with the perforator, to make a small hole in the bone of a sufficient depth to receive the centre-pin of the saw, then to apply the instrument, and to continue sawing till the groove is deep enough to preserve the instrument steadily without the centre-pin: the instrument then is withdrawn, and the pin removed by means of the key. The surgeon now proceeds to finish the operation, and, having replaced the instrument, works through the bone with the greatest caution, taking care to withdraw and replace the instrument from time to time, in order not only to clear away the dust that fills up the teeth of the saw, but to discover whether the portion of bone to be removed is nearly separated.

By this way of operating it is evident a considerable portion of the time is taken up even in preparing for the operation, beside what is lost during the course of it. To save time in this, as in every other operation, must be considered as a matter of great consequence both to the patient and surgeon. With a view to show how this may be accomplished, it will be necessary to mention in what manner the operation may be conducted with the instrument now to be proposed.

The patient being prepared for the operation, and the instrument applied, as in the plate, care must be taken to make the sawing-teeth round the whole circumference touch the surface of the bone equally. This can easily be done; for, though the inequality of the bones on which the instrument is placed be such as to prevent the saw from acting on all points

points of the circle alike, one or other of the legs may be lengthened or shortened at pleasure, by means of the setting screws; and in this manner it may be made to fit exactly.

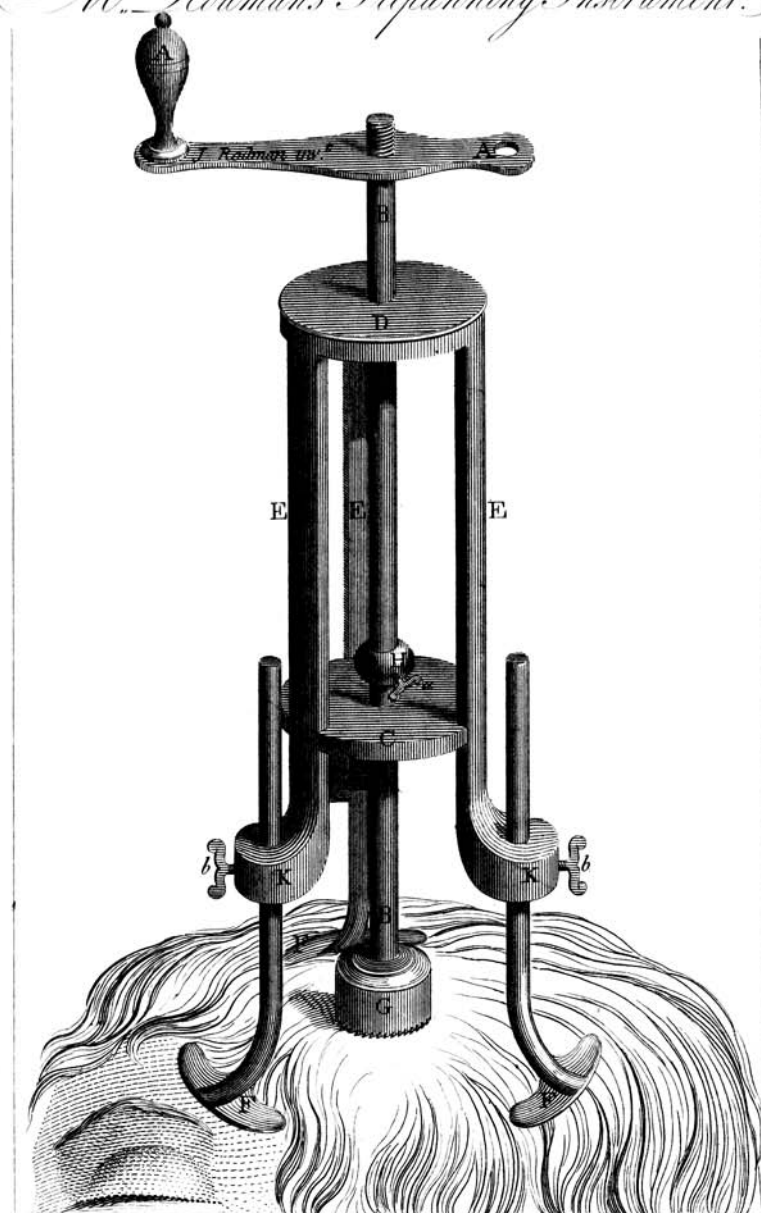
The next step of the operation is, to cut the pericranium with one or two turns of the instrument, and, if necessary, that portion of the membrane within the circle of the saw may be removed with the fingers. The sawing is now begun by turning the handle with one hand, and holding the instrument firmly with the other. Thus the bone may be cut very quickly; and if the surgeon wish to proceed cautiously towards the end of the operation, he may then work the instrument in the manner of the trephine, which can be done by grasping the handle with one hand, and supporting the frame as before mentioned.

The simplicity of the instrument, and the mode of operating with it, will be better understood by the following description:

A, A, the handle, (Plate VII;) B, B, the axle, passing through D, the upper part of the frame; and C, the cross-band. E, E, E, the sides of the frame; F, F, F, the feet or rests, which slide in the sides of the frame K, K, K, and are fastened with thumb-screws *b, b*; G, the cutting-head, fixed on the end of the axle; H, a collar which slides upon the axle, and can be made fast upon it with the thumb-screw *a*.

The sliding-collar may be used with advantage when the surgeon is afraid of plunging the head of the instrument into the brain during the operation; for, by fixing it at a certain distance above the cross-band, it will rest upon it, sooner or later, according to the intention of the operator, and prevent the instrument from passing deeper until the collar be shifted. For this reason, as well as the superiority of the instrument in general to those in common use, it is particularly recommended to surgeons who may have frequent occasion to perform this operation on board a ship at sea.

# *M. Rodman's Trepanning Instrument.*



*Millar del.*

*Lowry sculp.*