

be put in *Practice* to all Intents and Purposes, as if this *Impediment* were absolutely Removed.

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*An Account of an Experiment shewn before the Royal Society, of Shooting by the Rarefaction of the Air :  
By Dr. D. Papin, R. S. S.*

**W**Hereas ordinary Wind-Guns do their Effect by the Compression of the Air. *Otto Ghericke* hath found a new Sort that shoots by Rarefaction ; and he hath Publisht that device at large in his Book about *Pneumatick Experiments*, but he doth not express how strong was the Effect. I have therefore had the Curiosity to try it my self by another Contrivance, which I take to be better than his : First, because I can make a Rarefaction much more perfect than he could do. Secondly, because his Device could not be used but for Guns of a small bore ; but my way may be apply'd to the biggest bore that can be made by Workmen : So that one might by this means throw up vast Weights to a great distance.

**A A** is a Pipe very equal from one end to the other.

**BB** a small Pipe solder'd to a Hole near the end of the Pipe **A A**, and apply'd to the Plate of the *Pneumatick Engine*.

**CCCC** some kind of Stool to bear up the hinder part of the Pipe **A A**.

**D.** a peice of Lead fitted to the bore of the pipe **A A**.

The pipe **A A** is to be shut at both ends by *Valves* outwardly apply'd, and so the said pipe **A A**, though never so big, may be exhausted of Air by means of the *Pneumatick Engine* : Which done, the *Valve* towards **D** must be suddenly open'd, so that the whole pressure of the *Atmosphere* acting upon the Lead **D** may drive it along the pipe **A A** with

**C 2**

such

such a swiftness, that it will be able to carry it to a great distance : And because such a *Valve* shutting a great hole would prove very difficult to be opened, when the pipe *A A* is of a great Bore, the aperture towards *D* may be left much smaller than the pipe ; the swiftness of the Air being so great, that even through a pretty small aperture, it presses the lead *D* as freely almost as if the whole Bore was quite open.

Having prepared a Barrel carrying a lead of 2 ounces, the Experiment was shewn before the *Royal Society*, and the Effect was found very considerable, the force being little less than that of the *Wind-Gun* by compression ; the same experiment being afterwards repeated with a longer Barrel, 'twas found that the length in this way of shooting was very little, if any advantage.

*Part of a LETTER from Dr. Salomon Reifel,*  
*Chief Physician to the Duke of Wirtemberg, about an*  
*extraordinary Tincture given to a Stone : Stutgardie,*  
*Febr. 120. 1686.*

**A** Urifaber Stutgardianus, qui & gemmis & Metallicis typis nummorum cudendorum insculpendis artificiosus est, nomine *Christophorus Muller*, Anno 1685, aurum *aqua regis* solutum, oleo *Tartari* præcipitatum atque edulcoratum, quod aurum fulminans dicunt, dum in scutella, quam *Maturellam* vocant, ex lapide *Chalcedonico* coloris unci pellucidi *onychini* seu *Cornei*, vitro pro fusione præparato rubro mixtum, & aqua fontana imbutum tereret, ad faciendam *Encausta* seu *smalta* ; de quibus *Anton. Nerius* vertente *Andrea Friso*, egit *lib. 6. Artis Vitrariae* ; invenit iterato tertium eodem labore : quod color pulveris istius puniceus, qui per dies aliquot siccatus in vasculo manserat, quousque interterendum

Tab 1.

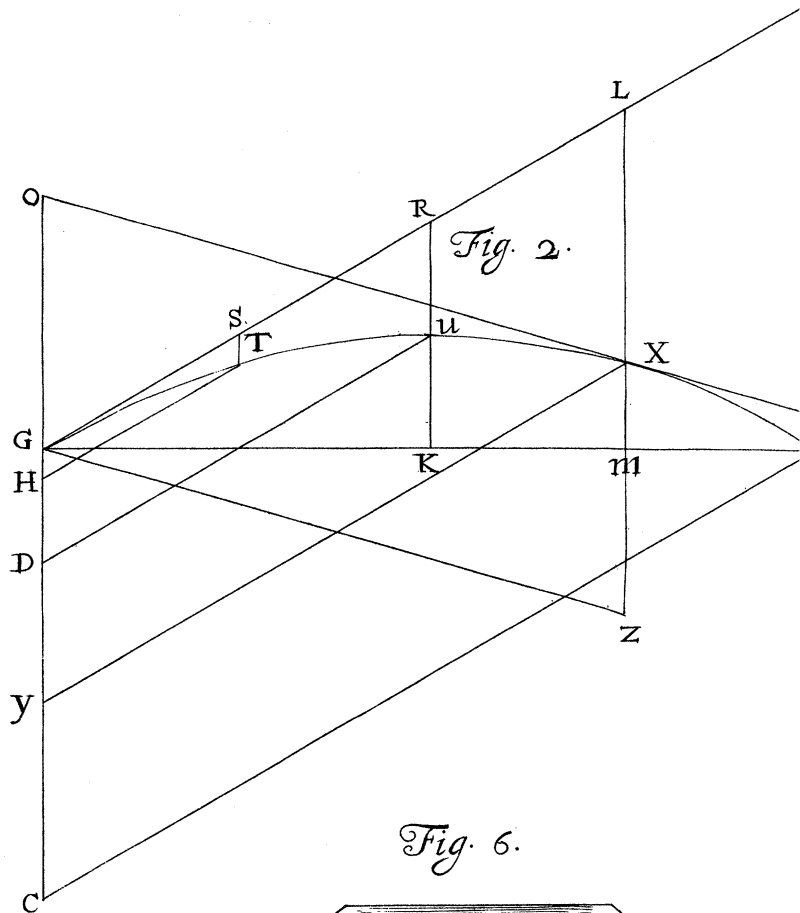
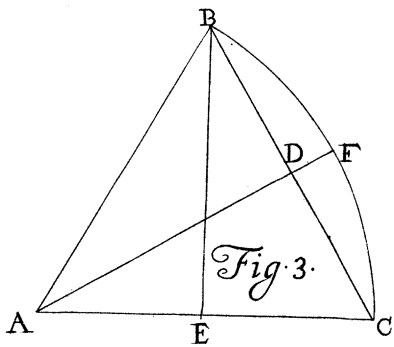
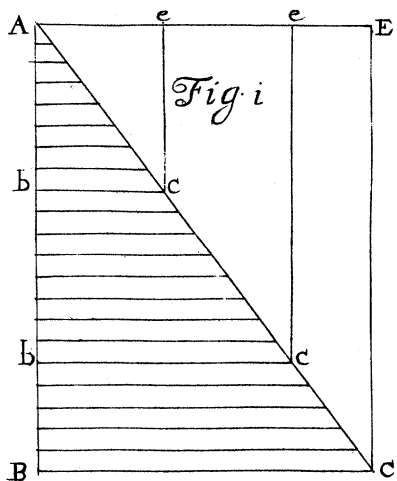


Fig. 6.

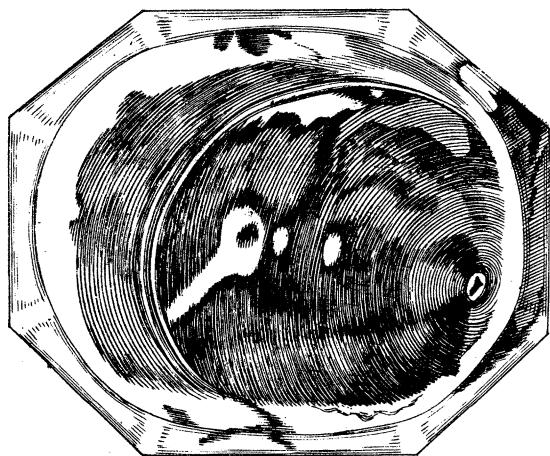
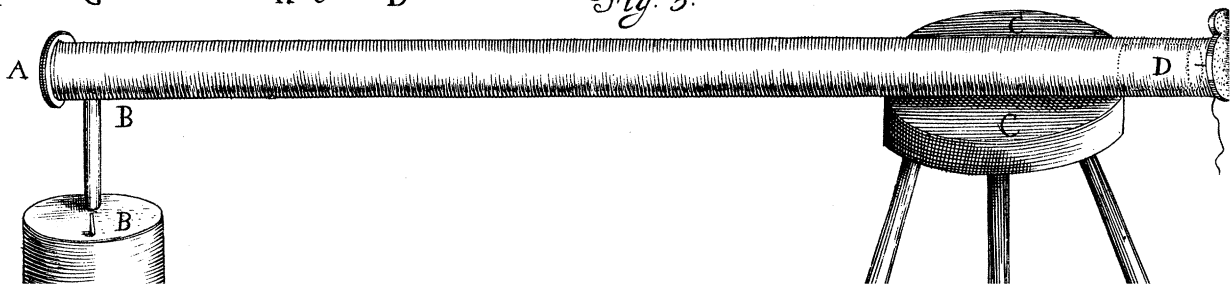
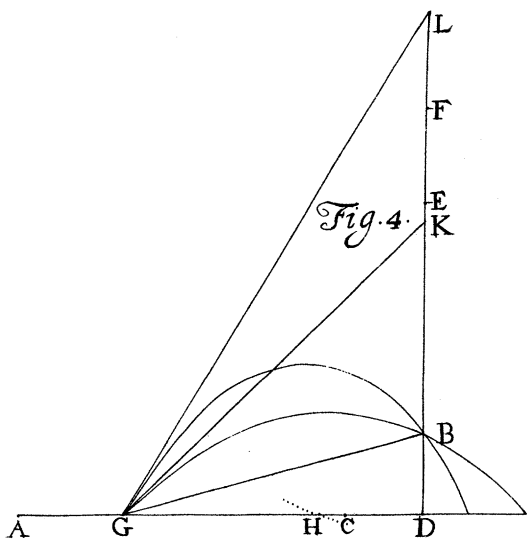
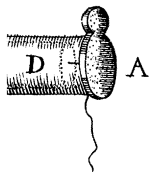
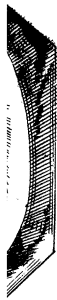
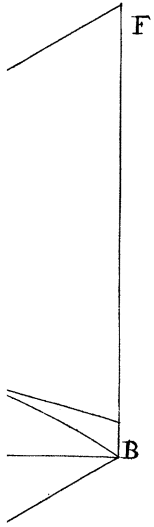
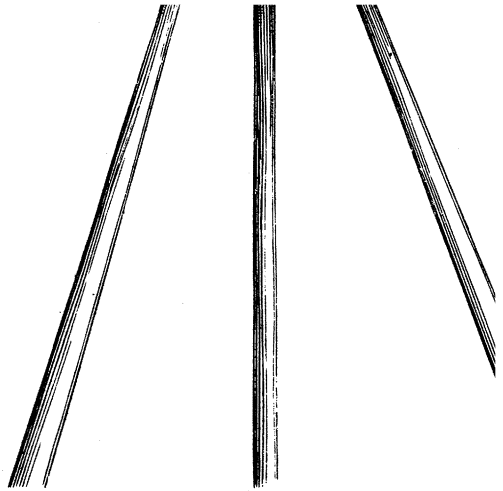
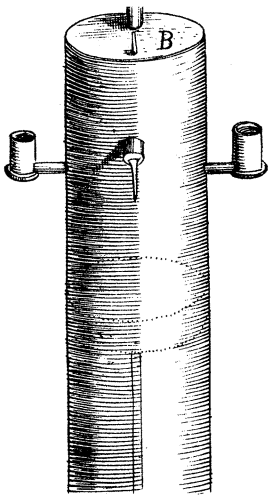
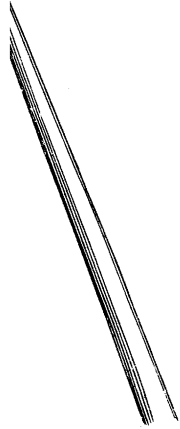


Fig. 5.









Tab 1.

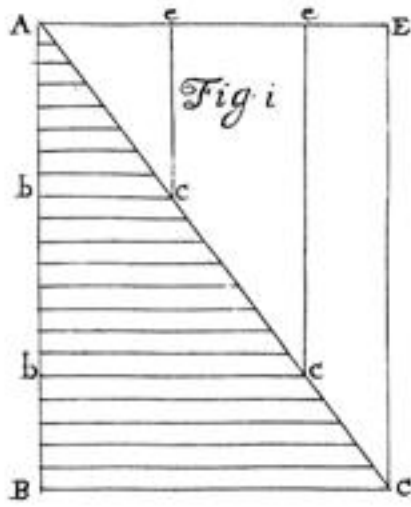


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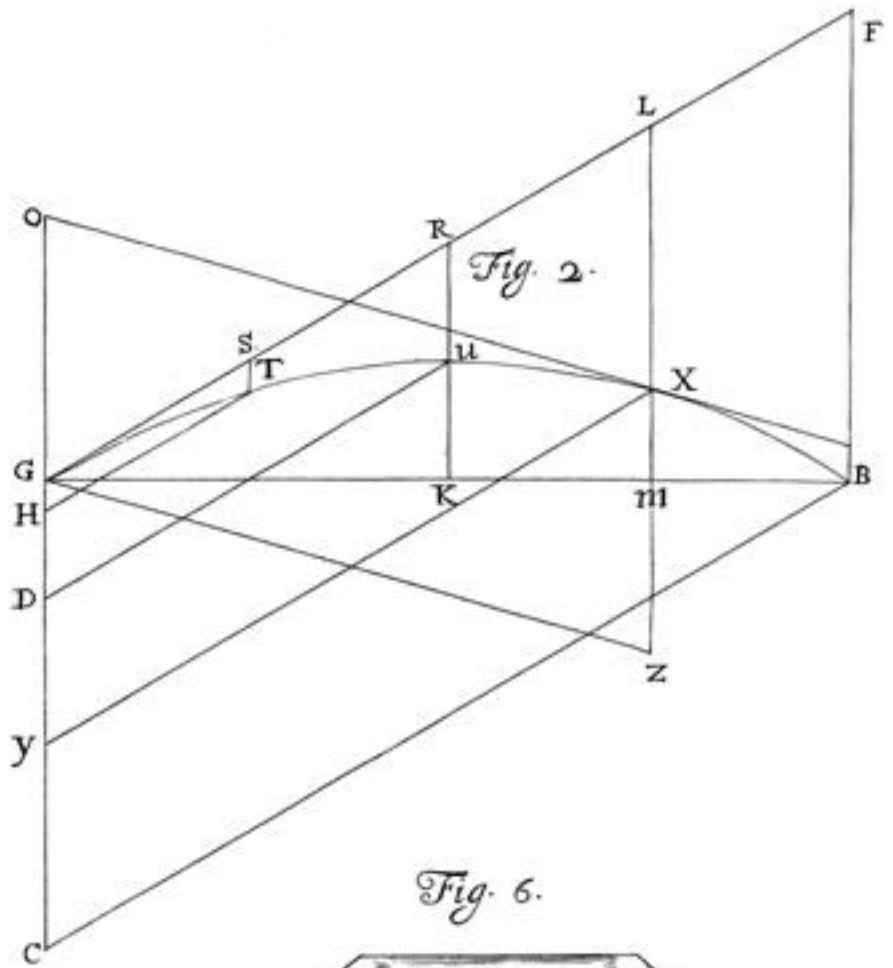


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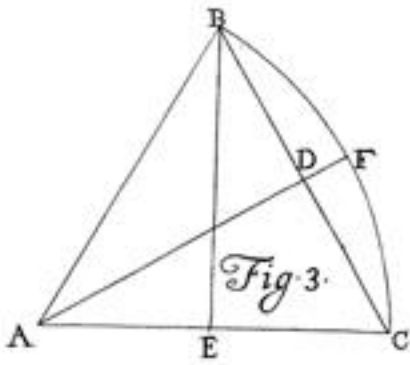


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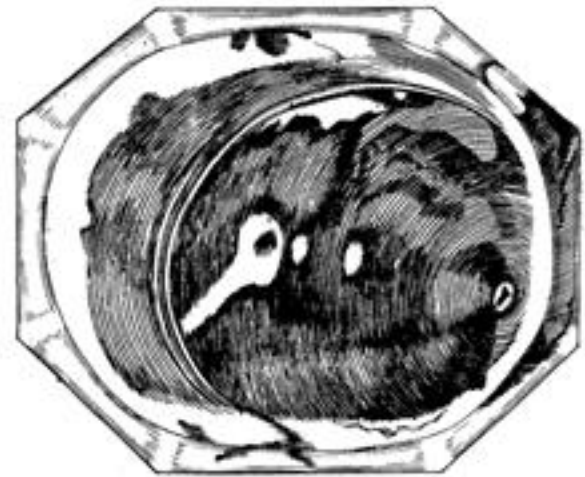


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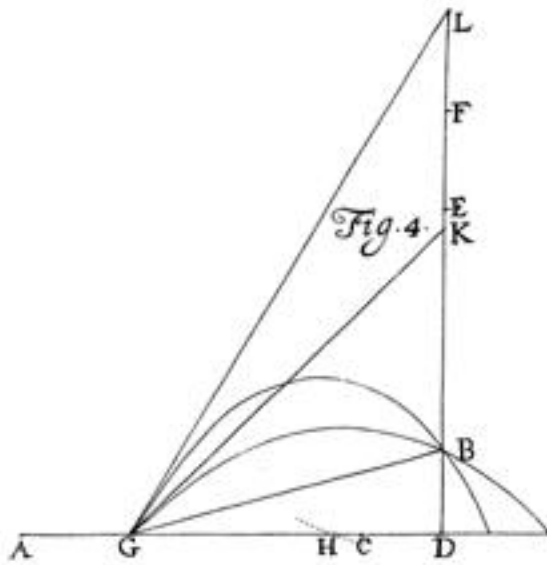


Fig. 4.

Fig. 5.

