proper for the ſeveral kinds of working. Hemp, flax, nettle-thread, and other like vegetable matters, are to be wetted in ſpinning : ſilks, wools, &*c.* are ſpun dry, and do not need water ; yet there is a way of ſpinning or reeling silk as it comes off the caſes or balls, where hot and even boiling water is to be uſed (see Silk). The vaſt variety, and the importance of thoſe branches of our manufactures, which are produced from cotton, wool, and flax, ſpun into yarn, together with the cheapneſs of proviſions, and the low price of labour in many foreign countries, which are our rivals in trade, have occaſioned many attempts at home to render ſpinning more eaſy, cheap, and expeditious. For which see *Cotton Spinning* and *Cotton Mills.*

Theſe contrivances have in ſome parts of Scotland been applied to the ſpinning of flax ; but a very conſiderable improvement has lately been made by Mr An­tis of Fulneck near Leeds of the common ſpinning wheel. It is well known, that hitherto much time has been loſt by ſtopping the wheel in order to ſhit the thread from one ſtaple on the flyer to another ; but in Mr Antis’s wheel the bobbin is made to move back­wards and forwards, ſo as to prevent the neceſſity of this perpetual interruption, as well as to obviate the Ganger of breaking the thread and losing the end. This is effected by the axis of the great wheel being extend­ed through the pillar next the ſpinner, and formed into a pinion of one leaf A, which takes into a wheel B, ſeven inches diameter, having on its periphery 97 teeth; ſo that 97 revolutions of the great wheel caule one of the leſſer wheel. On this leſſer wheel is fixed a ring of wire c c c; which, being ſupported on six legs, ſtands obliquely to the wheel itſelf, touching it at one part, and projecting nearly three quarters of an inch at the oppoſite one ; near the side of this wheel is an upright lever C, about 15 inches long, moving on a centre, three inches from its lower extremity, and connected at the top to a Aiding bar D; from which rises an upright piece of braſs E, which working in the notch of a pul­ley drives the bobbin F backward and forward, accord­ing as the oblique wire forces a pin G in or out, as the wheel moves round. To regulate and asſiſt the alter­nate motion, a weight H hangs by a line to the sliding bar, aind paſſing over a pulley rises and falls as the bobbin advances or recedes, and tends conſtantly to keep the pin in contact with the wire. It is evident, from this deſcription. that one ſtaple only is wanted to the flyer ; which, being placed near the extremity K, the thread palling through it is by the motion of the bobbin laid regularly thereon. For this invention the Society inſtituted at London for the Encouragement of Arts, &c. gave the author a premium of twenty gui­neas.

SPINOSUS caulis, in botany ; a stem covered with strong woody prickles, whole roots are not ſuperficial, but proceeding from the body of the ſtem. When applied to a leaf, *ſpinoſum fοlium,* it indicates the mar­gin running out into rigid points or prickles, *quod mar­gine exit in acumina duriοra, rigida, pungentia.*

SPINOUS, in botany. See Spinosus.

*SPInous Fishes,* ſuch as have ſome of the rays of the back-fins running out into thorns or prickles, as the perch, &c.

SPINOZA (Benedict), was born at Amſterdam the 34th November 1632, His father was a Jew of Por­tugal, by profeſſion a merchant. After being taught Latin by a physician, he applied himſelf for many years to the ſtudy of theology, and afterwards devoted himſelf entirely to philoſophy. He began very early to be diſſatisfied with the Jewiſh religion ; and as his temper was open, he did not conceal his doubts From the ſynagogue. The Jews, it is ſaid, offered to tolerate his in­fidelity, and even promiſed him a pension of a thouſand dollars *per annum,* if he would remain in their ſociety, and continue outwardly to practiſe their ceremonies. But if this offer was really made, he rejected it, per­haps from his aversion to hypocriſy, or rather becauſe he could not endure the reſtraint which it would have imposed. He alſo refuſed the legacy of a very conſiderable fortune, to the prejudice of the natural heirs ; and he learned the art of poliſhing glaſs for ſpectacles, that he might ſubſiſt independently of every one.

He would probably have continued in the ſynagogue for ſome time longer, if it had not been for an accident. As he was returning home one evening from the the­atre, he was stabbed by a Jew : the wound was flight ; but the attempt naturally led Spinoza to conclude that the Jews had formed the deſign of aſſaſſinating him. After leaving the ſynagogue, he became a Chriſtian, and frequented the churches of the Lutherans and Calviniſts. He now devoted himſelf more than ever to his favourite philoſophical ſpeculations ; and finding himſelf frequently interrupted by the visits of his friends, he left Amſterdam, and settled at the Hague, where he often continued for three months together without ever ſtirring from his lodging. During his reſidence in that city, his hoſteſs, who was a Lutheran, asked him one day if ſhe could be ſaved while the continued in her re­ligion ? “ Yes (replied Spinoza), “provided you join to your religion a peaceable and virtuous life ’’ From this anſwer it has been concluded that he was a Christan in appearance only, while in reality he regarded all re­ligions as indifferent. But this concluſion would be too ſevere, even if the woman had been a Mahometan. H is *Tractatus Theolοgico-politicus*, which was publiſhed about that time, is a better proof of his inſincerity than a thouſand ſuch conclusions ; tor this book contains all thoſe doctrines in embryo which were afterwards unfold­ed in his Op*era Posthuma,* and which are generally conſidered as a ſyſtem of atheiſm.

His fame, which had now ſpread far and wide, obli­ged him ſometimes to interrupt his philoſophical reve­ries. Learned men viſited him from all quarters While the prince of Condé commanded the French army in Utrecht, he intreated Spinoza to viſit him; and though he was abſent when the philoſopher arrived, he returned immediately, and spent a conſiderable time with him in converſation. The elector Palatine offered to make Spinoza profeſſor of philoſophy at Heidelberg ; which, however, he declined.

He died of a conſumption at the Hague on the 21st February 1677, at the age or 45. His life was a perpetual contradiction to his opinions. He was tempe­rate, liberal, and remarkably diſintereſted ; he was ſociable, affable, and friendly. His converſation was agreeable and inſtructive, and never deviated from the ſtricteſt propriety.

The only edition of the works of Spinosa that we have ſeen is in two volumes ſmall 4to; the former of