of yam, which surround the stems of the spindles during the process of giving the twist, are stripped off or uncoiled, to permit the building-feller to press down the threads to the proper point for commencing the build at each successive stretch.

We now proceed to shew the manner in which the dif­ferent parts of the machine come successively into action during one stretch or draw. The carriage being suppos ed at the beam, the flywheel shaft is put in motion ; and the belts from the flywheel and drum of that shaft being upon the respective fast pullies of the shafts which they drive, the various gear work connected with those shafts is put in motion, and, consequently, twist is thrown in to the thread by the spindles, while the rollers slowly yield the slubbing or sliver, and the regulating wheel, with its eccentrics, moves back the carriage, with a motion equivalent at first to the out-give of the sliver by the rollers, but gradually increasing, so as to take up the ex tension of the sliver, which is caused by the throwing out of the twist. When a sufficient quantity of slubbing has been given out, the cam disc upon the outer end of the mangle wheel shaft allows the roller lever to drop towards its centre, which, disengaging the intermediate wheel that conveys motion to the rollers, instantly stops them ; but the twist continues to be thrown uniformly in, and the outward motion of the carriage continues gradually extending the thread, and proportionally diminishing its grist, in the manner regulated by the eccentτic wheels, that is, with a motion at first about equal to the delivery of the rollers, and gradually becoming slower and slower. When the carriage approaches its utmost limit outward, the cam piece 11 attached to it, comes in contact with the tail of the hanging lever 12, which, being connected by a wire with a stud in the opposite end of the driving-belt lever 13, shifts the belt from the fast pulley to the pulley 9, giving the slow motion to the vibrating shaft which we have already noticed, which, as its pinion has passed the returning point, moves the mangle wheel backwards, and, of course, the carriage towards the beam, with a very slow and steady motion, giving in to the tension of the threads as the twist is thrown in. As soon as the desired amount of twist has been given, the cam of the cam shaft will come in contact with the escapement lever 14, attached to the bracket 15, and allow the weight to pull the belt lever one notch, throwing the belt upon the loose pulley 92, whereby the movements derived from this shaft cease. Simultaneous with this, one of the wipers of the cam shaft pulls the twist belt lever, so as to disengage the twist shaft ; and another wiper acts upon the apparatus, which presses the break against the break pulley, and stops the motion of the spindles. The motion of the cam shaft now causes the wiper of the stripping shaft to press upon the stripping lever, the point of which, pressing upon the cross head or horizontal plane, strips the coils of yarn from the spindles, and puts down the upper faller-wire into a proper position for guiding the threads upon the copes. As soon as this has been performed, one of the wipers of the cam shaft will have ar rived at a position to draw off the last notch of the escapement lever, whereby the driving belt is thrown upon the fast pulley of the driving shaft, which with its connections are again put in motion. The pinion of the mangle wheel, now passing along the teeth of the inner range, produces an accelerated motion of the carriage toward the beam ; and the winding-on motion is at the same time communicated through the differential box to the twist shaft and spindles. When the carriage is nearly at its inward limit, a tappit lever, at the point of the vibrating frame, comes in contact with the crosstail of the twistbelt lever, and throws that belt upon the fast pulley, to put the spindles again in mo­tion for twisting ; and at the same instant the mangle pin­

ion has arrived at that point of its eccentric path, at which it takes in to the inverted teeth, and produces the outward motion of the carriage, and the whole train of motions consequent upon it. (b. s.)

SPINOZA, Benedict, was born at Amsterdam the 24th November 1632. His father was a Jew of Portugal, and by profession a merchant. After being taught Latin by a physician, the son 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 be cause he could not endure the restraint which it would have imposed. He also refused being constituted heir to an independent fortune, to the prejudice of the natural claimants ; and he learned the art of polishing glass for spectacles, that he might be enabled to maintain himself by the labour of his own hands.

His retreat from the synagogue was hastened by an alarming incident. As he was returning home one evening from the theatre, he was stabbed by a Jew : the wound was slight, but the attempt naturally led Spinoza to conclude that the Jews had formed the design of assassinating him. After leaving the synagogue he professedly became a Chris tian, 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 she 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 Christian 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 Mahommedan. His “Tractatus theologico-politicus”(Hamb. 1670, 4to.) is a better proof of his insincerity than a thou sand such conclusions ; for this book contains all those doc trines in embryo which were afterwards unfolded in his posthumous works, 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 reve ries. 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 ab sent when the philosopher arrived, he immediately retum ed and spent a considerable time with him in conversation. The elector Palatine offered to make Spinoza professor of philosophy at Heidelberg ; but this offer he thought it expedient to decline. He died of consumption at the Hague on the 21st February 1677, at the age of forty-five. 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.

Soon after his death appeared a thick volume entitled “B.d.S. Opera Posthuma.” [Arastelodami] 1677, 4to. A collective edition of his works has been published in the course of the present century : “ Benedicti de Spinoza Opera quae supersunt omnia. Iterum edenda curavit, praefationes, vitam auctoris, nec non notitias quae ad historiam