(1.) WOOL, n. s. [med. Sax.: wulon, Dutch.] 1. The fleece of sheep; that is woven into cloth.—A gown made of the finest wool. Raleigh.—Cause clothes to take wool, paying only two parts of the price. Heyward.—Struithum is a root used by the wool-drovers. Arbuth. 2. Any short thick hair.—Wool of bat and tongue of dog. Stock.

(2.) Wool is the covering of sheep. See OVIS, and SHEEP. Wool resembles hair in a great many particulars; but besides its fineness, which constitutes an obvious difference, there are other particulars which may serve also to distinguish them from one another. Wool, like the hair of horses, cattle, and most other animals, completes its growth in a year, and then falls off; hair does, and is succeeded by a fresh crop. It differs from hair, however, in the uniformity of its growth, and the regularity of its shedding. Every filament of wool seems to keep exactly pace with another in the same part of the body of the animal; the whole crop springs up at once; the whole advances uniformly together; the whole blooms from the skin nearly at the same period, and thus falls off if not previously torn, leaving the animal covered with a short coat of young wool. Its parts are commonly of the same thickness in every part; but wool constantly varies in thickness in different parts, being generally thicker at the points than at the roots. That part of the fleece of sheep which grows in winter, is finer than what grows in summer. While the wool remains in the state it was first torn off the sheep's back, and not fastened into its different kinds, it is called fleece. Each fleece consists of wool of divers qua-

Wool, and degrees of fineness, which the dealers therein take care to separate. The French and English usually separate each fleece into three parts, viz., 1. Mother-wool, which is that of the back and neck. 2. The wool of the tails and legs. 3. That of the breast and under the belly. The Spaniards make the like division into three parts, which they call prime, second, and third; and for the greater ease, denote each bale or pack with a capital letter, denoting the part. If the separation be well made, in 15 bales there will be 12 marked A, that is, finest, or prime; two marked B, for second; and one C, for third. The wool most esteemed are the English, chiefly those about Leicester, Cobswold, and the like of Wight; the Spanish, principally those about Segovia; and the French, about Berry: which last are said to have this peculiar property, that they will not knot or bind with any other sort; whereas the rest will only knot with their own kind. Among the ancients, the wool of Attica, Megara, Laodicia, Apulia, and especially those of Tarentum, Parma, and Altona, were the most valued. Varro affirms, that the people there used to clothe their sheep with skins, to secure the wool from being damaged.

(3.) WOOL-SCOURING, an operation performed in Edinburgh, in 1791, for the purpose of obtaining the best kinds of fine-wooled sheep, with a view of ascertaining, by actual experiments, how far each species or variety is calculated for the climate of Great Britain; the qualities of their wool respectively; the use to which each kind of wool could be most profitably employed in different manufactures; and the comparative value of each species of sheep, so far as the time can be determined.

Wool-scouring, a well-known operation, which, when performed by the hand, is laborious, tedious, and expensive. The expense of it through all England has been calculated at no less a sum than £200000; and to lessen this expense, the Rev. Edmund Cartwright of Doncaster in Yorkshire patented himself, some years ago, of carding wool by machinery. After repeated attempts and improvements, for which he took out three patents, he found that wool can be combed in perfection by machinery, of which he gave the following description: In Plate CCXLVIII. Fig. 1, is the crank lathe. A is a tube through which the material, being formed into a fiber, and lightly twisted, is drawn forward by the delivering rollers. B, a wheel upon the crown of the crank, C, a wheel on the opposite end of whose axis is a pinion working in a wheel upon the axis of one of the delivering rollers. When two or more fibers are required, the cans or buckets, in which they are contained, are placed upon a table under the lathe (as represented at D), which, by having a slow motion, turns them together as they go up. Fig. 2. Is the circular carding comb, for giving work in the head, carried in a frame by two cranks. Fig. 3. The combing-needle, having the teeth pointing towards the center, moved by cog-shears upon the rim, and carried round upon trucks, like the head of a windmill, a, b, the drawing rollers, c, d, calender, or conducting rollers. Underneath the table is another pair of rollers, for drawing out the backings. The
The wool, if for particular nice work, goes through three operations, otherwise two are sufficient: the first operation opens the wool, and makes it connect together into a rough fiber, but does not clear it. The clearing is performed by the 2d or, if necessary, a 3d operation. A set of machinery, consisting of 4 machines, will require the attendance of an over-looker, and 6 children, and will comb 400 lb. in 12 hours. As neither fire nor oil is necessary for combing by the machine, the living of these articles, or even of the saw alone, will in general, pay the wages of the overlooker and children; so that the actual saving to the manufacturer is the subje of what the combing costs, by the old imperfect mode of combing by hand. Wool combed by the machine is better, especially for spinning by the machine, at least 12 per cent; being all equally mixed, and the fibers uniform, and of any required length.

WOOLEN, n.f. [wool and fell]. Skin not stripped of the wool.—Wool and woolfels were ever of little value here. Dyer.

(1.) WOOLEN, adj. [from wool]. Made of wool not firmly laced, and hence used of cloth like it, for any article; it is likewise used in general for made of wool, as distinct from linen.—I was wont to call them woolen raffals. Skak.—I had rather they were woolen, Skak.—Woollen cloth will lye, lain fearlessly, Bacon.—Spice of his woolen night-cap. Dryden.

(2.) WOOLEN, n.f. Cloth made of wool. His breeches were of rugged woollen. Hudsh.—Ordains! in woollen! twould a faint provoke! Pope.—He is a belch-drap and a woollen draped. Swift.

(3.) WOOLEN CLOTH. See CLOTH, § 5 and 6. The following is the specification of a patent granted to Mr. Harmany of Sheffield, for a machine for raising a rage on all sorts of woollen clothes, and cropping or shearing them, which, together, come under the description of Drifting woollen Cloths, and also for cropping or shearing of fulfins. It is dated March 29, 1794. See Plate CCCXCVIII. Fig. 1, exhibits a side and end view of shearing cloth from lift to lift. A, is the frame, with its pillars, legs, and rails. B, is the elevation or shearn-box over which the cloth is extended. C, is the cropper’s shears in their situation for working, with their bolts or levers. D, the harnie or breeches fitted to each end of the riding blade of C; at the near end is hollowed the bow of C, and at both ends fastened with screws passing through the blade, or else is grooved to admit the blade, and is fastened with wedges. It is composed of two strong pieces of plank, with holes to admit screws through to nut-screws fastened to their upper surfaces, and square holes through which pass small pillars; other two pieces of plank are frames for wheels turning on pins (as in drawing) situated under the pieces fastened to the riding blade; here the lower ends of screws are riveted to plates, but so as to turn, which plates are screwed to the wheel-frames; also, in the lower pieces, small pillars are fixed, which, passing through the upper pieces, steady the harnie; the harnies turned to one side or the other bring the edges of C to the angle of B, for the work of shearing. E, the inclined planes on which the wheels of D roll when the machine is working. F, is the working axle, with its rods or rails; the gudgeon of this axle rests on the cross rails of A; the axle has the inclination of B and E, as in drawing. Its rods, fixed to the sides of it by projecting pieces, are about four inches from its centre, and the thimbles of G ride down them to keep pace with C in its progress. G, is the line communicating at the lower end with the thimble with the rods of F, and at the upper end with the bob or lever of C, as in drawing. H, is an axletree, with its handle, cog-wheel, and stop, fixed by stops, on which it turns, to the pillars of A. I, is the line communicating with the extremities of K at one end, and the other with H. K, levers, turning on their pins, and, by the action of K and I, work against F, to raise C from B, for all necessary purposes. L, pulleys in their frames, to give a proper direction to I, that the turning of H may have the effect before named. M, is a crank attached to the lower gudgeon of F; the crank handle has an eye in it, through which a square leg pales, against which works the lower end of a screw on the shaft of which is one side of the fid eye. This screw, turned to right or left, moves the leg in the eye at pleasure. The fid leg at the other extremity has a handle where the near end of the catch is fitted on. Now, as the leg is shifted by means of its eye and screw in that end where the handle is further from the centre of F, N works O with more speed. N, is the catch that works O. O, is the cog-wheel of N, with its lower end by its cog-wheel. P, is an iron axle, with pulleys near both ends, with a cog-wheel. Q, is a small screw, fitted into the mortise of the projection on the lower extremity of P, and pinned, and the other end is fitted to the crank handle of S; S, is the crank axle and pulley that carries the band which goes to the power that works the machine. The situation for R, is that end that fits on the crank of S, is directly behind the lower end of F, and under the further extremity of B, where the crank end of S rides on a flop fixed to the further rail of A; the pulpoy end where the flop is rides on X. Now the crank S being put in motion, gives R the necessary vibration, and R works F, which alternately raises or falls its rods or rails by G, C works, and, to effect the progression of C, F being in a working plate, M works N, and O works F, and C is carried forwards by T, and to carry C forwards farther or lower, as necessary. For the dute performance of shearing cloth, the handle of the leg of M, where N is fitted on, must be brought nearer to the centre of F for flaking, and more distant from the said centre to increase the speed, as then N will take more or less teeth in O. Or the progression in this frame may be effected by the method described in the progression of fig. 7, under the letters M, N, O, P, T, the lines for carrying forwards C by P, U, is a projection fastened to D, and works against U when C is about to flop. V, is a nail and small wood pales passing through a mortise fixed to one of the legs of A, at nearly one end, and by a working joint, goes up to near the lower end of F. W, is a lever, pulling through its fulcrum, and pinned
WOOF (262) WOOF

placed to the upper end of X; and near the other end rolls on a small notch, sunk in the inside of the upper end of one of the pillars of A, and weighted in the extremity with head or iron, X, is the stem of the pulley end of S, and, by a small sword, goes up to W, on the near side of one of the pillars of A, through which X goes, and moves on a pin, and is the stem of one end of Q; and the further side of the said pillar, where the letter X stands, is the stem of the pulley end of S.

Now when U or V works against U or V, W is thrown into a notch, and W, flanking, raises X, and0 flanks the hand on the pulley of S; then the machine stops, and X, raising the stem of S on the further side of the pillar of A, on the near side of it, turns the stem of O, and the screw-pin on is thrown out of the large cog-wheel of P, Y, is a small axle on Reps, fastened to D, with its handle and bands going too near the extremity of Z. Z, two small rails, with catches at their extremities, which fall into notches in D to finish both the sides of C together. Now when the machine stops, by the means already described, the pressure of the handle of Y, with the catches of Z, from their notches in D, and the sides of C are at liberty, and may be driven by the hand to the necessity of situation for lifting the cloth, and turning H to the right, to clear them from B. The cloth being raised, the stem of C, to their proper situation, and the catches of Z will finish them; then turn H to the left, throwing back its catch, and the sides of C are brought to their work, when lift up to its notch, the extremity of W, and the band on S, is tightened, and the machine works. Fig. 4, a side and two ends running the length-way of the cloth, A, the frame, with its pillars, legs, and rails. B, a circular cushion, or shear-board, formed to the angle of the cooper's shears, and at each end rolling on fops fixed to the top rail of A, to be moved, as occasion shall require. C, the cooper's shears in its harnes, or working position. D, the harnes, attached to both ends of the ledger blade of the shears C, as particularly described in fig. 1, under the letter D; but this mode of shearing requires that the firng piece, attached by screws to the ends of C, should be framed together near the back of the said ledgers blade, to take the weight of the ends of the shears. When the whole width of a narrow cloth is thorn, the second shears of C is placed behind that in drawing, and has another, B, for it to work upon, and I, to be worked by. And that part of D attached to the heel of C and letter E, are lengthened as described (fig. 3.) under the letter C; so in like manner the shears are situated behind each other in taking the width of a broad cloth. Here must be noted, as in this mode of shearing the cloth having the progression, the wheels of D are omitted, and pieces of wood, half round, supply their place. E, is a small frame in its fops, with its arms and lines. The situation of E is seen under letter D, fig. 3; it is attached to the heel part of the harnes, as there seen by the drawing. One of the lines of E goes down to the working-rail of E, in the aforesaid, fig. 3; and the other line communicates with the lever or bob of D. F, the roller, with its handle, on which the cloth to be thorn is wound. G, the roller, to guide the cloth to B; the middle one which swells when on it, tightens the lips of the cloth as it rides forward; the fops are movable, for the purpose of setting clothes more or less longituded. H, the rod, cranked on every side, with the pulley for protection, and that which carries a band to the working power situated at the upper end of A, near Q. I, is the thimble fitted on the crank, with the line going up to near the extremity of the bob working C, K, and axle, with its cog-wheel and fops, as particularly described (fig. 1.) under the letters I, K, L, and produces a like effect, and must be fixed to this figure the same as in that. L, the check to F, fastened by a pin at the near end, and pulling under F, being hollowed to it, the further extremity (being carried under C and B) having a weight fastened on it. M, the roller, with a cog-wheel, to which the end of the cloth is attached; and being tightened by the handle of F, the weight on L keeps it in that tight state as it is carried through the work. N, an iron axletree, carrying a large pulley with one groove, and a five-groove pulley with its fops, that out of eight licks under A on a cross rail. O, an iron axletree, carrying a five-groove pulley and cross pins on fops, as in drawing. P, bands going from the small pulley of H to the large pulley of N: and from the five-groove pulley of O to the five-groove pulley of D. Now these five-groove pulleys gradually descend in their dimensions from fourteen inches to three inches in one, and the other may be the same dimensions, or very considerably smaller; or it may be reduced to a pulse of three inches diameter with one groove. These five-groove pulleys stand, in respect to each other, in contrary directions. Now when the crank by a band on the pulley on its upper extremity is set to work, the band D, from the other pulley, puts O and P in motion, and carries forward M. That M may have different speed, the band of the five-groove pulleys must be shifted for that purpose to the different grooves, which give them more or less speed. The Stop-frame—Q, the fop where rides the upper end of H, which fop at one end is tenoned into the pillar of A, and pinned. R, is a small sword, at the lower end tenoned into the extremity of O, and pinned; and at the upper end is mortised, so as to admit the further end of O. S, is the lever, tenoned into the mortice of R, and pinned, and passing through a mortice in the pillar of A. Now to stop the frame, the near extremity of the lever S must be pressed down, and that flanneth the band communicating from the actuating power to the pulley of H. When fast agoin the said extremity of S must be lifted up, and pinned there. To work this machine, put the cloth to work as directed under letter M; then throw back the fop of G, and the shears are brought to their work; then raise the extremity of S, and the machine works. Fig. 3, shews 12 a mode of shearing cloth the length way, a side and end view. A, is the frame, with its pillars, legs, and side and end rails. B, the inclined planes, as fig. 1, under E, C, the shear boards, over which the cloth is stretched from H to I; every shear has its board, and is placed by the side of each o-
other, so as to take the width of the cloth; and the shears, situated for the like purpose on them, the harnesses B and small working frame E, are lengthened accordingly. D, the cropper’s shears in his harness, and bob or working levers, with E, fig. 1, in its proper situation, attached by the rope to the harness of D. E, an axle, with the line communicating with the bob at one end, and with the other one of the axle rods, by a thimble, described under F and G, fig. 1; F, the line and thimble before named. G, a small axle, with its levers, pulleys, &c., particularly described under letters H, I, K, L, fig. 1. H, rollers for the cloth, and their cog-wheels and flaps. I, a lever, with its catch and flap to the wheel of H, which is on the other side of the pillar of A, near the middle of A, and falls into the cog-wheel of H, which line communicates with the lower end of the catches on H and L, and pulley through small pulleys, fixed under the catches, on the middle of the frame A, that H, through the upper extremity of the said lever, the catchers are raised out of the cogs of their wheels, to give liberty for winding the cloth when the wind is round on the roller of H, situated near to I. K, a roller to guide the cloth when wound forward, that is to say, may keep its situation on the surface of C; it is placed near the axle G, on steps, in the same direction fixed to the pillars of A. L, an axle, with its handles, cog-wheel, and flap, rolling on B, with its projection, which is the middle of a small groove, B, or one corner of a small groove, B, or one corner of the frame, fixed to the frame, B. M, a crank, with its pulley with one groove, and a small five-groove pulley. N, a small groove, of about 3 inches diameter. The larger one-groove pulley carries a hand, to the power that drives the machine. The situation of this crank is nearly the same as L, fig. 1, and produces the like effect. O is an axle, with a large five-groove pulley and a few pinions. These pinions of N and O having their bands, and depend in the dimensions, as particularly described under letter F, fig. 2, P, a roller, with its cog-wheel, on which the bands of which carry forward D, all the other threads, more or less, fastened together by a rail, at their proper distances from each other (as in drawing), so that each may take its proper share of cloth, being situated as described under letter C. Bands from P to D carry forward the shears of D. For lifting this frame, the top part of F, under letters U, V, W, X, must be put to H, fixed to the rails and pillars of A. Q, is a projection attached to D, and will stop this frame when the parts above directed are fixed to it in the manner described. D, R, is a line attached to the shears of D, and pulling through a small pulley fixed in the back rail of A, runs through another pulley fixed in a convenient situation over the frame of this pull. S, and by pulling its extremity draws back the shears of D when they have cut their board of cloth. For working this machine, the cloth is wound on the upper roller of H, and round a small roller at the upper end of A, and extended down C, and under K, and to the other roller of H, where it is attached; the roll of the upper roller falling into its wheel, the cloth is tightened by the lower roller and the handles of the roller. I, their respective catches falling into the cogs of their wheels, which keep the cloth in a tight state, then throwing back the shears of D, the shears of D are let down to their work, when, by means of R, they are brought to their proper situation on B. Then lift up the lever of the upper frame into its notch, as directed under letter S, fig. 1, and the machine stops, as before directed, and particularly described, fig. 1, under X, to shift the cloth for cutting another length, presses down the near extremity of I of this third figure, and wind the cloth that is cut on H. When lifting up the far extremity of I, the cloth may be tightened as above described, and the shears of D shifted to continue their work. Fig. 4. For raising a flag on cloth preparatory to shearing. A, the middle frame, with its table, frames, and croters, B, the frames, one open and the other shut, which turn on hinges, and when shut ready for work, are fastened by buttons screwed loose to C. C, is a frame mortised to fit four sides of D, which frame slides through the gutters or flutes of I, when working. D, the middle frame, with its large pulley, which by a band goes to the working power. These bands wind on the frame, D, and the flag may work alternately. E, working rails, fitted on the crank handles, and fastened on by screws. These rails have a working joint near the side of G, and on the other side of G are attached, by screws, to each end of D; and as E works the frames of D, which carry C and B, works round L, and to raise the flag. G, the pulleys, fixed in their frames, over which F rides. H, the board for raising, in its inclined posture, with the cloth passing over it from one roller of I to the other. I, the rollers, situated before and behind H, and attached to the legs of A, by screws, the gudgeons rising on steps; and at the upper end of H is a small roller, to guide the cloth round the end of H, with fixed for both sides of the cloth, after the manner of S, under the letter G. K, the check to the fore roller I, which at one end is attached to one of the legs of A, and near that end lies over the same roller, and hollowed to fit it, and at the other end carries a weight, as in drawing. L, two pieces of planks, situated on both sides H, at the upper termination of M. The inside of the said planks are fluted or guttered to the angles of L, which bands at the foot of A. The small projection at the top of L is a pattern of the slides fixed to the sides of D, which pass through the second angle when the shears are working, which board then is from the cloth.
To effect the revolution of the flides that carry C, the top piece of L is fastened to the fide of its plank, at or near the upper end, by a screw, on which it moves, and at or near the bottom end it is fastened to its plank, but with the liberty to play. Now when D, by its flides, has paffed through the gutter, the lower end of the top piece of L falls, and forms a bridge, to carry the flides of L to the top of the gutter, for the making of another revolution. M, are small flonds, terminating in L, and fastened with pins, and paffing through fockets fixed to the rail of A, and mortiffed at the lower extremity into N, where they move on pins. N, a strong rail, extending along the fide of A, having a joint in it, and turning on pins in a mortife fixed to the pillars of A. O, an axle, with small projections at its ends, in Reps, lying on the lower rail of A, extending from one fide of the machine to the other. P, small flonds, one tenoned into the projection of O, and the other admiffing the near extremity of N, through a mortife where it moves upon a pin. Q, an upright leg, fastened at the lower end to the axle of O, near the lower rail of A. Now by turning this leg to right or left, it moves O, and Q, by its projection, raises and lowers the near extremity of N, and N raises and falls L, which has a like effect on B, C, D; foth that, by these mediums, B is brought into contact with H in all neceffary degrees. R, is a cog-wheel, its situation is on the further extremity of the back roller of I. S, two catchers, for carrying forwards R, attached to I at one end in mortifes, and moving on pins, and the other working the eogs of R. T, the working leg, fixed to the further pillar of A by a screw, as in drawing. The upper extremity of the head rod goes through a focket, fixed to the further rail of F, near the upper part of it. Now, by the vibration of this head extremity of T, in its focket, by E working F, S carries round R, and by varying the pins of S nearer to, or more distant from, the centre of its motion, the head R is carried forwards either fatter or flower. For shifting B and C to right and left of H, for the purpose of raising more regularly, U, a cog-wheel and fob of the under fide, with a handle near the periphery of the faid cog-wheel, to act as a cramp on the top-fide. V, three rails. The rail that croffes the top of H is tenoned into the extremities of thofe that form or lie to the right and left of it. W, the fcrews on which V rides, with pins to keep the rails of V in their place. X, honds fastened at one end to C, and the other extremity paffing through nuts fixed to V, where they are fainted by the end fcrews working through the fide of their nuts againft them. Y, two legs, fainted together at the lower end by a working joint at the upper ends. The further is attached to the near rail of F, and that nearer works upon a pin, a little fhort of its extremity, with a catch falling into the teeth of W; and as it works U round, there is another catch on the fame fide, which prevents the faid U from working back. Now F works Y, and Y works U, and U works by its cramp V, and X shifts C from right to left by turns in the degree neceffary by tightening and slackening the hand X. Z, is the near fob of E, screwed to a fhort rail at one end, to-