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### Machine for Branching Artificial Flowers.

Few people outside of the trade are aware of the extent of the manufacture of artificial flowers. It has been estimated that ten thousand people, mostly girls, are employed in this business in New York. These girls are chiefly employed in what is called "branching," that is, the arrangement of stems, leaves, flowers, and fruits, previously made in large establishments, upon stems, the length of which is limited on account of the inconvenience in turning them when wound by hand.

basis of the stems is wire, and two threads of suitable
al are laid along this wire to prevent
uent slipping of the colored thread,
forms the outer covering of the stems.

The ends of the short stems of leaves, flowers, buds, and fruits, being laid against the wire are wound under the outer covering, and are thus fastened to it.

The process is a slow one, and, as we have said, is limited to such length of the main stem as can be conveniently manipulated.

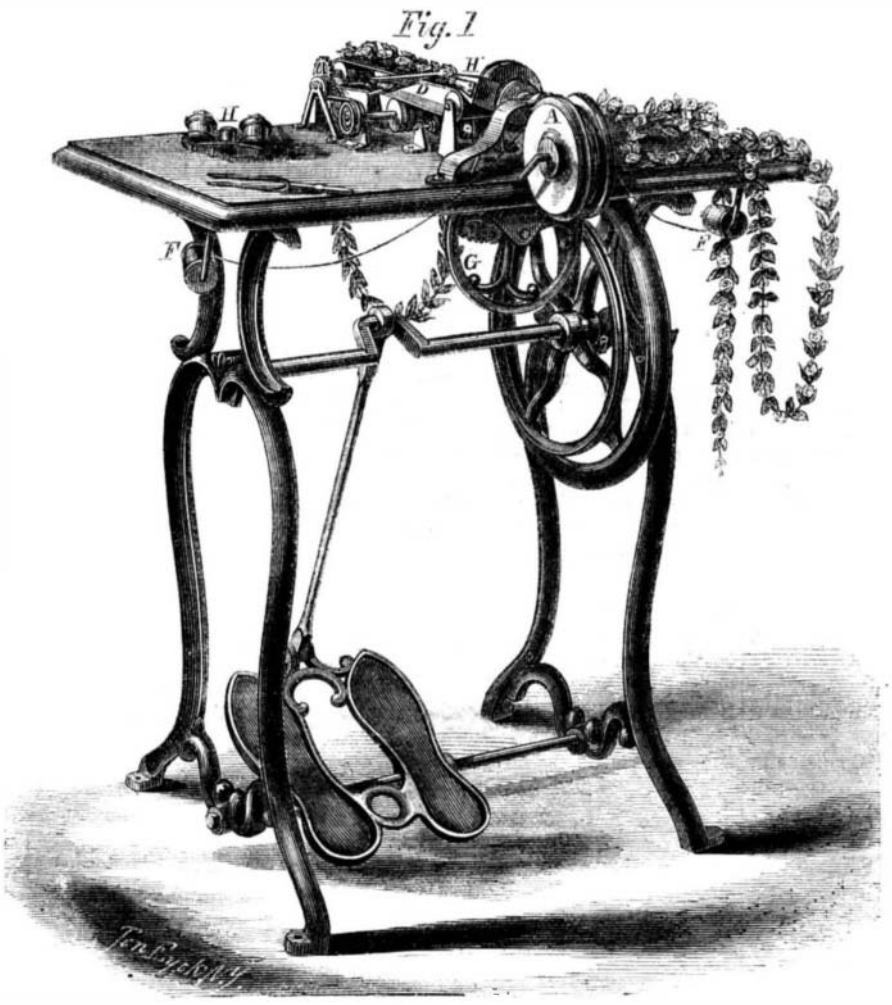
Our engravings illustrate a very ingenious machine for performing the latter kind of work. The general features of the invention being admirably shown in Fig. 1, and portions of the device in Figs. 2 and 3.

The wire being fed from a spool, A, Figs 1, 2, and 3, then passes through a hollow spindle, B, Figs. 1 and 2, and lies upon an endless feed belt, C, to which it is clamped by small pincers, D, Figs. 1 and 2. The small pulleys upon which the feed-belt, C, is carried, are actuated by a train of gearing receiving its motion from gearing and pulleys underneath the table, not fully shown in Fig. 1.

The motion of this belt carries with it the wire stem which is slowly unwound from the spool, A. Two threads passing through an eye, E, Fig. 3, are also drawn through the hollow spindle, B, in conjunction with the wire, by the motion of the endless belt. These threads are unwound from the spools, F, Fig. 1. At the same time a rapid rotary motion is given to the hollow spindle by a small belt from the driving pulley, G, Fig. 1. Motion is imparted to G, from gearing not fully shown in the engraving, but which the imagination can easily supply, the form of this gearing being wholly immaterial to the claims of the inventor.

On the revolving hollow spindle, B, is fixed a spool frame, H, which carries a single spool when formed as in Fig. 2, and two spools when formed as in Fig. 3. The covering threads are led from these spools through the loop of a small flyer on the end of the hollow spindle, B, and being held in contact with the wire as the latter is slowly fed through the spindle, are wound rapidly and uniformly over its surface, the spool frames revolving with the spindles.

Fig. 1



GIRAUDAT'S MACHINE FOR BRANCHING ARTIFICIAL FLOWERS.

The ends of the stems of leaves, fruits, or flowers being thrust into the end of the hollow spindle, are at once caught, and firmly wound under in a manner far superior to hand work, and so much more rapidly that a girl may perform in two hours as much work as she could do in ten hours by hand.

Fig. 2

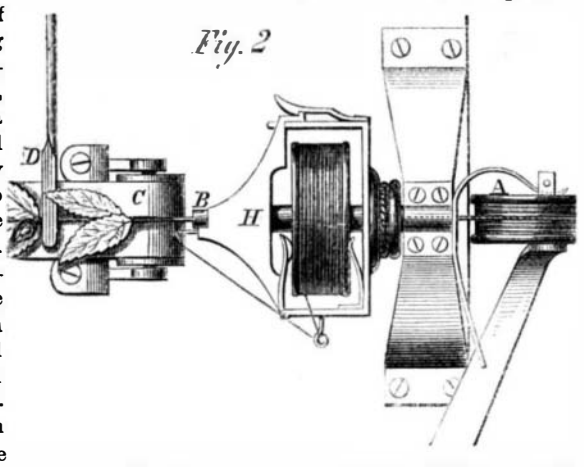
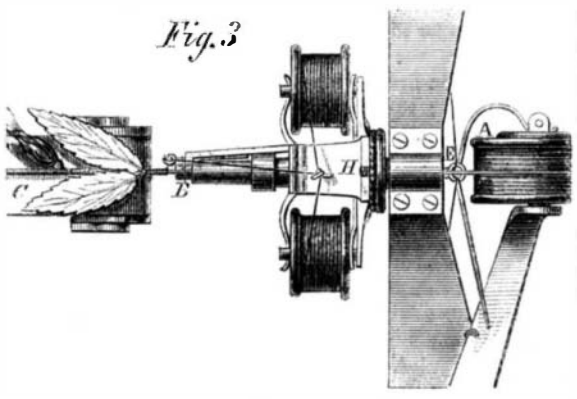


Fig. 3



It is also obvious that by readjusting the pincers on the endless belt a wire of any length may be wound and branched which cannot be done by hand labor. Friction springs are provided to prevent the spools from turning too easily, and thus the requisite tightness in winding is secured. This is a beautiful and unique machine, and to be fully appreciated it needs to be seen in operation.

Patented through the Scientific American Patent Agency, November 9, 1869, by Ambrose Giraudat, whose place of business is at 16 Wooster street, New York, where the machine may be seen in practical operation.

### WASTE NOT--HOW SMALL THINGS ARE UTILIZED.

(From Chambers' Journal.)

One of the blessings of modern science presents itself in the form of economy, frugality, utilization. Things which were formerly thrown away as waste are now applied to man's purposes, to an extent far beyond our general supposition. Dr. Lyon Playfair and Mr. P. L. Simmonds have frequently drawn attention to this subject, chiefly in illustration of the wonders of chemistry. Mr. Simmonds has recently collected a new budget of instances, which he has brought under the notice of the Society of Arts.

Before touching on these, let us refresh the reader's memory by a summary of results already recorded. Beautiful perfumes are produced from substances not merely trivial, but in some cases fetid and repulsive. Fusel oil, putrid cheese, gas tar, and the drainage of cow-houses, are thus transformed; the result is a triumph of chemistry; but it is commercially shabby and unfair to call perfumes thus obtained by such delightful names as "oil of pears," "oil of apples," "oil of pine-apples," "oil of grapes," "oil of cognac," "oil of bitter almonds," "eau de millefleurs." Blue dyes are made from scraps of tin, old woolen rags, and the parings of horses' hoofs. Old iron hoops are employed in ink making; bones as a source of phosphorus for tipping Congreve matches; the dregs of port wine for making Seidlitz powders; the washings of coal tar for producing a flavoring condiment for *blanc-mange*. Old woolen rags are the foundation of the prosperity of Dewsbury and Batley, in Yorkshire; these musty, fusty, dusty, frouzy fragments being ground up into shoddy and mungo. Other relics of old woolen garments are made to yield flock for wall paper, padding for mattresses, and Prussian blue for the color makers. Chemicals are employed to destroy the cotton fibers in old worn-out balzarines, orleans. coburgs, and other mixed fabrics for ladies' dresses, and to liberate the woolen or worsted fibers for a new career of usefulness. Woolen rags, when even the shoddy maker will have nothing to do with them, are choice materials for the farmer as manure. That bones are used for knife handles we know very well; but it appears they are also used for bone-black by color and varnish makers, for size by dyers and cloth finishers, and for manure by farmers. Horns and hoofs are a very magazine of useful products in the hands of the scientific chemist. Whalebone cuttings yield Prussian blue; dogs' fat is (shamefully) made into sham cod-liver oil; wool scourers' waste and washings reappear as beautiful stearine candles; bullocks' blood is used in refining sugar, in making animal charcoal, and in Turkey-red dyeing; ox gall or bile is used by wool scourers and by color makers; fishes' eyes are used for buds in artificial flowers; bladders and intestines are made into air-tight coverings and into musical strings; all the odds and ends of leather and parchment dressing are grist to the gluemaker; calves' and sheep's feet yield an oil which is doctored up most fragrantly by the perfumer; stinking fish is always welcome as manure to the farmer; and a brown dye is extracted from those small bedroom acquaintances whom few of us like to talk about, and none like to see or to feel. At least fifty thousand tuns of cotton waste, the residue and sweepings of the mills, are annually utilized by being worked up into coarse sheeting, bed covers, *papier-mache*, and the commonest kinds of printing paper. Seaweed is used as a material for paper, as a lining material for ceiling and walls, and as a source whence the chemist can obtain iodine. Various kinds of seed, when the oil has been squeezed out of them, are useful cattle fatteners as oil cake. Grape husks yield a beautiful black for choice kinds of ink; raisin stalks constitute a capital clarifying agent for vinegar; bran or corn refuse is valuable in tanning, calico printing, and tinplate making; brewers and distillers' grains are fattening food for cattle. Bread raspings are in France sometimes used as a substitute for coffee, and as a tooth powder. Tan-pit refuse is valuable for the gardener's hot-house. Damaged potatoes, and rice and grain are made to yield starch. Ground horse-chestnuts are not unknown to the makers of cheap maccaroni and vermicelli. Cork cuttings and scraps are eagerly sought for stuffing and for buoyant purposes. Pea shells are used as a food for milch cows, and spirit may be distilled from them. Sawdust is now applied in a prodigious number of ways, for making paper, distilling oxalic acid, smoking fish, clearing jewelry, filling scent bags, stuffing dolls, etc. Tobacco ashes are made into tooth powder. The coal tar from gas works is made to yield sulphate of ammonia, sal ammoniac, printers' ink, lampblack, disinfectants, naphtha, benzole, paraffine, and the magnificent series of aniline colors for dyeing and calico printing. The sediment in wine casks is made into cream of tartar. Old kicked-off horseshoe nails yield the best of all iron for musket barrels. As for the shops in which gold workers, jewelers, and gold-beaters work, not only is the very dust on the floor precious, but a refiner will gladly give a new waistcoat or apron for an old one, for the sake of the auriferous particles thereby obtained.

Mr. Simmonds' new batch comprises many instances of substances recently transferred from the domain of waste to that of utility, and many suggestions for a similar transference in other quarters.

First, for the animal kingdom. Horse flesh is certainly not waste so long as dogs and cats eagerly feed upon it; but the French say that we ought not to leave it to the dogs and cats, by reason of the excellent qualities it possesses for human food; however, we must leave this matter to the hippophagic admirers of "chevaline." Fish are applied to many more useful purposes than was customary a few years ago; shark fins are prized as food by the Chinese: shark liver is boiled down by them for oil; shark skin is dried and used for polishing wood and ivory; dried shark heads are given by the Norwegians to cattle as food; smoked and dried dogfish is eaten as food, as are also the eggs, while the skin and the liver are applied to the same purposes as those of the shark. The French procure useful medicinal oil from the liver of the skate fish, which used to be thrown away, but which is now