Starks & Perrigo,

Smoke Machine.

No. 11,084. Patented June 13, 1854.

Fig 1.

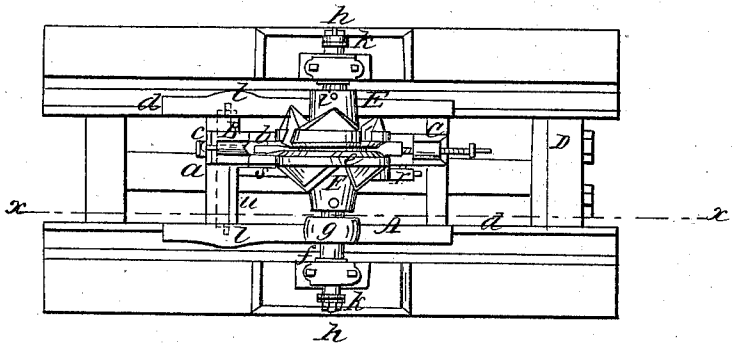


Fig 4.

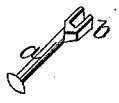


Fig 2.

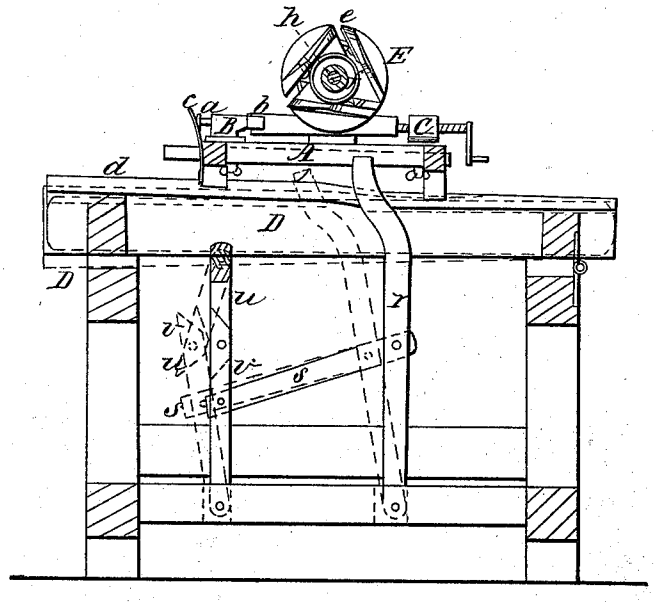
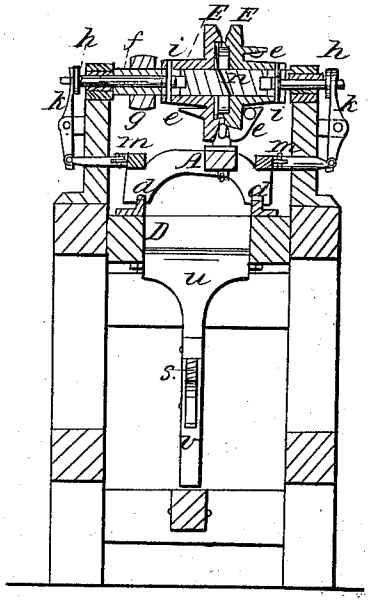


Fig 3.



UNITED STATES PATENT OFFICE.

I. STARKS, OF GENOA, AND L. PERRIGO, OF GROTON, NEW YORK.

DEVICE FOR HOLDING PIECES IN SPOKE-MACHINES.

Specification of Letters Patent No. 11,084, dated June 13, 1854.

To all whom it may concern:

Be it known that we, I. STARKS, of Genoa, in the county of Cayuga and State of New York, and L. PERRIGO, of Groton, Tompkins county, New York, have invented a certain new and useful Improvement in Spoke Planing or Dressing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which forms part of this specification, and in which—

Figure 1 represents a plan of our improved machine: Fig. 2 a vertical longitudinal section through the line X X in Fig. 1 and Fig. 3 a vertical transverse section taken centrally through the revolving cutter heads which plane or dress the spoke: Fig. 4 is a view in perspective of the socket bar with its clamp-head for holding one end of the spoke, detached.

The general principles of action of this machine are the same as those of many others for planing or dressing wood, as, for instance, the stuff to be dressed is fed forward between revolving cutters which, as they rotate, plane the stuff to the form required.

The carriage (A), which holds the stuff or spoke in the rough to be planed, is provided at the forward end with a headstock (B) which is provided with a socket bar (*a*) that is fitted so as to slide longitudinally through and turn in the headstock and has a clamp head (*b*) at its inner end to receive the hub end of the spoke and hold the spoke being planed. This clamp head is beveled to a V shape at its back and fits into a V shaped recess in the headstock, to prevent the socket bar, with the spoke, turning, when the spoke is set and held up against the headstock by a tail screw in a puppet (C) at the back of the carriage. A spring (*c*) fast to the forward end of the headstock (or any other equivalent device may be used) serves to press the socket bar (*a*) inward, so that, on slackening the tail screw in the puppet (C), the clamp head (*b*) is forced out of its V recess in the headstock, when the spoke, together with the socket bar, may be turned, for the purpose of planing or dressing either longitudinal half of the spoke alternately without taking the spoke out or disturbing its truth, and this is an expeditious and true method of adjusting the spoke for the purpose of planing either half in succession. The carriage (A), thus holding the spoke, travels on rails (*d*) projecting from a bed (D), and is forced forward by hand from the back so as to pass the rough spoke or stuff between revolving cutter heads (E) that plane and dress the one edge, during the passage of the stuff between them, and, upon the one edge being planed, the carriage is run back and the spoke turned half around and adjusted, as before described, for planing the other edge by again running the carriage forward.

The cutter heads (E) are provided with two three or more knives (*e*) each, set obliquely and arranged so that the knives in the one cutter head are intermediate with those in the other cutter head. The cutting ends of the knives are of hollow curvilinear form to round the spoke as required and the cutter heads carrying the knives are so hung upon their driving shaft (*f*) as to be capable of adjustment nearer to or farther from each other for the purpose of giving to the spoke the required variable shape, as is well known and has before been done in various machines for dressing irregular forms by causing the cutters to recede and advance as required by "formers" or their equivalents pressing the cutters inward and outward to their work, but in a less perfect and practicable manner than that by which we accomplish the same, as will be perceived by the following description: The cutter heads shaft (*f*), which carries the driving pulley (*g*), is drilled, at either end, for a portion of its length, at its center, and pins or inner shafts (*h*) fitted therein: these inner shafts are connected with the driving shaft and cutter heads, so as to cause them all to rotate together, by cross pins or keys (*i*) passing through all three, oblong slots being made in the driving shaft, where the cross pins fit through, to enable the inner shafts (*h*), which have longitudinal play, moving the cutter heads nearer to or farther from each other along the driving shaft, as specified, to cut the spoke of the required variable thicknesses and shape. The outer ends of the inner shafts (*h*) are connected with levers (*k*) which serve to force the cutter heads together, at the required point as the stuff passes through the machine, by means of "swells" or "formers" (*l*) projecting from the rails of the carriage (A), and, as the carriage passes along, acting upon rollers (*m*) connected by rods with the levers (*k*). A spring (*n*)

between the cutter heads serves to keep the cutter heads at their required distance apart when not pressed inward by the "swells" on the carriage rails. Thus the cutter heads are forced inward to their work, when required to cut deeper or closer, by pressure applied centrally to them which causes them to slide freely on their driving shaft and effectually restrains them from "sticking," likewise the arrangement of means by which this is accomplished is compact and offers no obstruction to the driving belt but leaves a clear space around the cutter heads, and beneath, for the travel of the carriage, whereby the liability of accident is lessened, et cetera.

The rails, or the bed upon which the carriage runs, have the requisite incline given them to taper the spoke. The bed (D) is hinged at its back end to the frame of the machine. The carriage at the extremity of its forward stroke, immediately after the spoke is passed through the cutters, is made to trip or fall the bed suddenly to the position represented in red lines (Fig. 2), when the carriage is drawn back, carrying the spoke along with it, free of and below the revolving cutters; thus, by the sidden drop of the bed and the slight jar consequent thereon by its striking the cross piece of the frame at the forward end, causing the spoke to clean itself of and shake off any small chips or shavings that may have been left adhering to the spoke by the cutters, and, by the lowered position of the spoke in its back travel, preventing the spoke from touching and dulling the knives. Upon the carriage arriving at the end of its back stroke, it similarly and suddenly raises the bed to its original inclined and higher position requisite for a repetition of the planing process. No delay occurs in thus raising and lowering the bed, as the carriage is made to trip and set it, as the carriage approaches the ends of its double stroke, by means of a lever (*r*) which is struck alternately by either cross rail of the carriage and which is connected by a rod or link timber (*s*) to knuckle-jointed levers (*u* and *v*) the one of which is hinged to the bed and the other to the frame below. The position of these several levers is represented by red lines (Fig. 2) when the bed is down and by black lines when raised. By this arrangement of the knuckle-jointed levers, the bed is caused to drop the instant the carriage strikes and moves the operating lever (*r*) during the advance movement of the carriage, as the weight of the bed with its carriage assists to bend or move the levers to their position represented in red lines immediately upon the knuckle-jointed levers being thrown out of their vertical sustaining position, so that, little or no power or time, in pressing forward the carriage, is lost in dropping the bed; and the same arrangement of levers effects an ease in lifting it. Also, should any defect be observable in the action of the knives upon the spoke, the knives become suddenly displaced, or aught else occur likely to damage the spoke or require or suggest immediate stoppage of the cut and liberation of the spoke from contact with the knives, and clearance is effected most expeditiously by only slightly touching or pressing forward the operating lever (*r*) so as to start only the knuckle jointed levers out of their vertical position, when the weight of the bed itself and carriage thereon, combined, will perfect the liberation. By this manner of operating the bed and the arrangement whereby the spoke is planed or dressed to its shape, either edge alternately, without detaching it to dress the one edge after the other, the work is almost as expeditiously performed as it is by other machines planing both edges at once, while the machine itself is much simpler, less liable to derangement and less costly, and forms a more equal or truer spoke by reason of both edges of the spoke being planed by the same cutters.

What we claim as new and useful and desire to secure by Letters Patent is—

The manner of holding and operating the spoke in the carriage so that, upon slackening the tail screw at the one end, the spoke is forced backward and made capable of being turned without disturbing it from its centers, and is restrained from turning when set, by means of the sliding and turning socket bar in the headstock provided with a clamp head fitting in a V or other suitably shaped recess in the headstock and the socket bar with its clamp-head forced backward by a spring or its equivalent, substantially as specified whereby great expedition and truth is ensured in turning and setting the spoke.

In testimony whereof, we have hereunto subscribed our names.

ISAAC STARKS.
LYMAN PERRIGO.

Witnesses as to Starks:
ABRAM W. STEVENS,
HIRAM BIRDSALL.

Witnesses as to Perrigo:
H. S. FARRAR,
HIRAM D. LYON.