(No Model.)

# A. L. MITCHELL.

## CORK SHELL CUTTING MACHINE.

No. 520,605. Patented May 29, 1894.

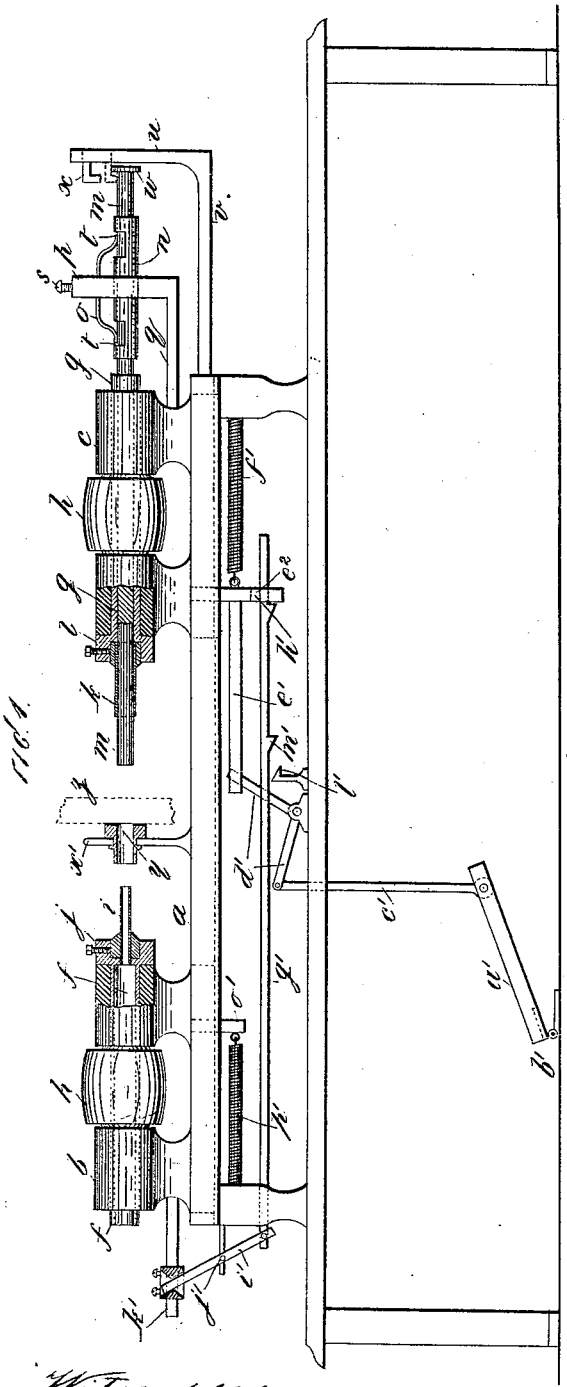

FIG. 1.

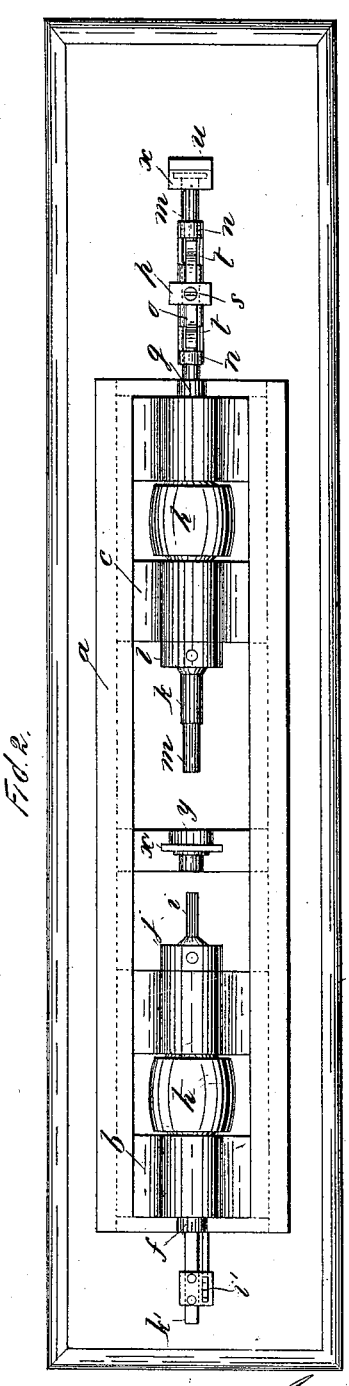

FIG. 2.

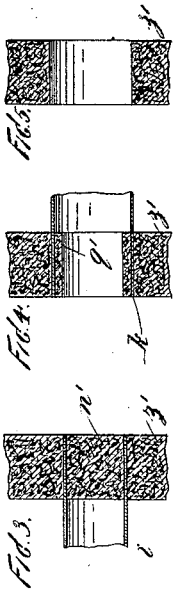

FIG. 3.

FIG. 4.

FIG. 5.

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# UNITED STATES PATENT OFFICE.

ADOLPH L. MITCHELL, OF ROCKVILLE CENTRE, NEW YORK.

## CORK-SHELL-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 520,605, dated May 29, 1894.

Application filed May 11, 1893. Serial No. 473,875. (No model.)

*To all whom it may concern:*

Be it known that I, ADOLPH L. MITCHELL, a citizen of the United States, and a resident of Rockville Centre, Queens county, New York, have invented new and useful Improvements in Cork-Shell-Cutting Machines, of which the following is a specification.

My invention consists of improved apparatus for cutting "cork shells," that is, hollow corks, both inside and outside, with one "chucking" of the cork blank, and at one operation of the machine, whereby the work may be accomplished more rapidly and cheaper, and the shells may be cut more accurately than as carried out at the present time by separate operations with resetting of the blank at the second operation, as hereinafter fully described, reference being made to the accompanying drawings, in which—

Figure 1, is a side elevation of my improved cork-shell-cutting machine with some of the parts in longitudinal section. Fig. 2, is a plan view. Figs. 3, 4 and 5 are details in section and on an enlarged scale, illustrating the operation of the machine.

In this example of my invention I represent the cutters as mounted horizontally on a horizontal bench, as the bed-frame of a lathe, but they may be mounted on a vertical standard as the standard of a drill press or boring machine, and I propose to avail myself of either arrangement as preferred.

*a*, represents the bed-frame, *b* and *c*, sliding stocks therein; *f*, and *g*, rotating hollow mandrels carried in the stocks, respectively, and each having a pulley *h*, to be driven by a belt from a counter-shaft to rotate the mandrels. The mandrel *f*, carries a thin hollow cutter *i* of small size, in the chuck *j*, attached to its end fronting the other mandrel, which also carries a like but larger cutter *k*, in the chuck *l*, attached to its end fronting mandrel *f*. In this mandrel there is also a rod *m*, preferably of wood, and of greater length so as to project at each end, and capable of sliding lengthwise in the mandrel. At the tail end of said mandrel *g*, is a friction clamp consisting of the tube *n*, through which the rod *m*, extends and the spring *o*, bearing at its ends on the rod, said spring and tube being carried in the standard *p*, supported on an arm *q*, extending from the tail end of stock *c*, a temper screw *s*, is arranged in the standard *p*, with suitable relation to the spring for graduating the pressure of the spring on the rod *m*, according to the required frictional resistance to be produced on the rod; tube *n*, is notched in the side at *t*, for contact of the ends of the spring with the rod but the spring may reach beyond the ends of the tube.

Back of the standard *p*, is another standard *u*, supported on a fixed arm *v*, projecting from the end of the bed-frame, *a*, which standard extends a suitable distance above the axis of the rod *m*, for a stop to limit the back movement of the rod so that back movement of the stock *c*, being continued after the rod has been stopped by said standard, *u*, will cause the mandrel to be shifted backward along the rod, and cause the rod to project forward of the cutting end of the cutter *k*, the friction clamp being thus made to slide along the rod. The rod *m*, has a collar *w*, on the end, next to the standard *u*, and there is a hook catch *x*, fitted on the standard suitably to slide downward and engage the rod by the collar, to hold it while the stock *c* may be shifted forward to project the cutter *k*, beyond the other end of the rod where it may be sharpened with a file or stone without obstruction by the rod. In this case the hook catch *x* may be supposed to project from a slot in the standard in which it can be shifted downward by the attendant to engage the rod *m*, but it is obvious that it may be arranged in various ways for the purpose. Between the two cutters is a standard *x'*, supporting a disk *y*, against the face of which, and fronting cutter *k*, the cork slab, from which the shells Z, Fig. 4, are to be cut, is placed and held by the attendant as indicated by the dotted line *z*, Fig. 1; the cork slab is represented in full lines at *z'*, Figs. 3, 4 and 5; rod *m*, is then shifted forward and made to press against the cork so as to hold it more firmly, then cutter *i*, is made to move forward through the bore of the die, and cut out the core *n*, from the shell, against the end of rod *m*, and then retire taking the core within its bore; then cutter *k*, is made to move forward and cut the exterior of the shell from the slab, and then retire when the shell is ejected from it

by the rod $m$. The cores, retained in the cutter $i$, are ejected from it into the hollow mandrel by other following cores, and in like manner expelled from the mandrel $f$. Various contrivances of apparatus may be employed for effecting these movements of the pressure rod $m$, and the cutters and I will avail myself of any suitable or preferred means. What I have represented in this case as one example of what may be employed consists of the foot treadle $a'$, pivoted on the floor at $b'$, and connected by rod $c'$, with the bell cranks $d'$, and rod $e'$, with a rigid arm $e^2$ of the stock $c$, to shift the stock forward by pressing the treadle down, with a coiled spring $f'$, to effect the reverse movement of said stock, and to actuate the stock $b$, by the same treadle, a pushing bar $g'$ is arranged in a vertical slot of said arm $e^2$, with a shoulder $h'$ of the under side normally bearing against the surface of the arm below the slot, said rod being pivoted to one end of rock lever $i'$ having a fulcrum at $j'$, and at its other end connected with a rod $k'$, projecting from stock $f$, all so that at the same time that cutter $k$ is moved forward cutter $i$ will also be moved forward. The cutters are represented in the drawings in the most distant positions of their backward movements, in which it will be noticed that cutter $k$ has a greater distance to move in doing its work than cutter $i$ has, hence both starting at the same time and moving at the same rate of speed, cutter $i$ will accomplish its work before cutter $k$ reaches the cork slab. A bevel headed stud $l'$ is placed on the floor, and another one $m'$ is placed on the under side of the bar $g'$ in such relation that at the moment cutter $i$ has accomplished its work, bar $g'$ will be raised so that shoulder $h'$ will escape through the slot of arm $e^2$ so as to be no longer pushed by said arm, when a coiled spring $p'$ connected to arm $o'$ of stock $f$ will pull said stock back and withdraw cutter $i$, while cutter $k$ continues its forward movement and accomplishes its work, after which the attendant releases the foot treadle and spring $f'$ reverses stock $c$, and rod $m$, also, until it is stopped against standard $u$, by which it ejects the cork shell from cutter $k$, and is again reset, preparatory to pressing up the cork slab and holding it on the face of the die, when stock $c$ is moved forward again.

I claim—

1. In a cork shell cutting machine, the combination of the stationary disk, the cutter of the exterior of the shell, the cork presser located in and movable lengthwise relatively to said cutter, and means to actuate the presser, the core cutter located on the other side of the stationary disk relatively to the exterior cutter and the cork presser, and acting against said presser, and means to actuate the presser, core cutter, and the cutter of the exterior of the shell substantially as described.

2. In a cork-shell-cutting machine, the combination of the stationary disk, supported on the bed-frame in an intermediate position, the hollow rotating cylindrical core cutter mounted on a sliding stock at one side of said disk, the hollow rotating cylindrical cutter of the exterior of the cork mounted on a sliding stock at the other side of said disk, the presser located and adapted to slide in the bore of said exterior cutter, and means to actuate the presser, core cutter and the exterior cutter, substantially as described.

3. In a cork-shell-cutting machine, the combination of the stationary disk, supported on the bed-frame in an intermediate position, the hollow cylindrical core cutter mounted on a sliding stock at one side of said disk, the hollow cylindrical cutter of the exterior of the cork mounted on a sliding stock at the other side of said disk, the pusher located and adapted to slide in the bore of the said exterior cutter, the friction clamp, and the stop controlling the presser, and means to actuate the sliding stocks of the core cutter and the exterior cutter, substantially as described.

4. In a cork-shell-cutting machine, the combination of the stationary disk, the core cutter mounted on a sliding stock at one side of said disk, the exterior cutter mounted on a sliding stock at the other side of said disk, the foot treadle and mechanism connecting said treadle and sliding stocks in the relation whereby both cutters are actuated by the treadle and the core cutter takes effect prior to the action of the exterior cutter, and means for tripping the connection of the core cutter and the treadle and reversing the core cutter in advance of the action of the exterior cutter, substantially as described.

5. In a cork-shell-cutting machine, the combination of the stationary disk, the core cutter mounted on a sliding stock at one side of said disk, the exterior cutter mounted on a sliding stock at the other side of said disk, the treadle connected with the stock of the exterior cutter, the slotted arm pendent from said stock, the push-bar connected with the stock of the core cutter and arranged in the slot of the said pendent arm of the stock of the exterior cutter, and having the stop shoulder co-acting therewith, also the trip studs for releasing the push bar from the arm, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 28th day of April, 1893.

ADOLPH L. MITCHELL.

Witnesses:
W. J. MORGAN,
S. H. MORGAN.