

S. NOBLE & J. P. COOLEY.

Improvement in Tooth-Pick Machines.

No. 123,790.

Patented Feb. 20, 1872.

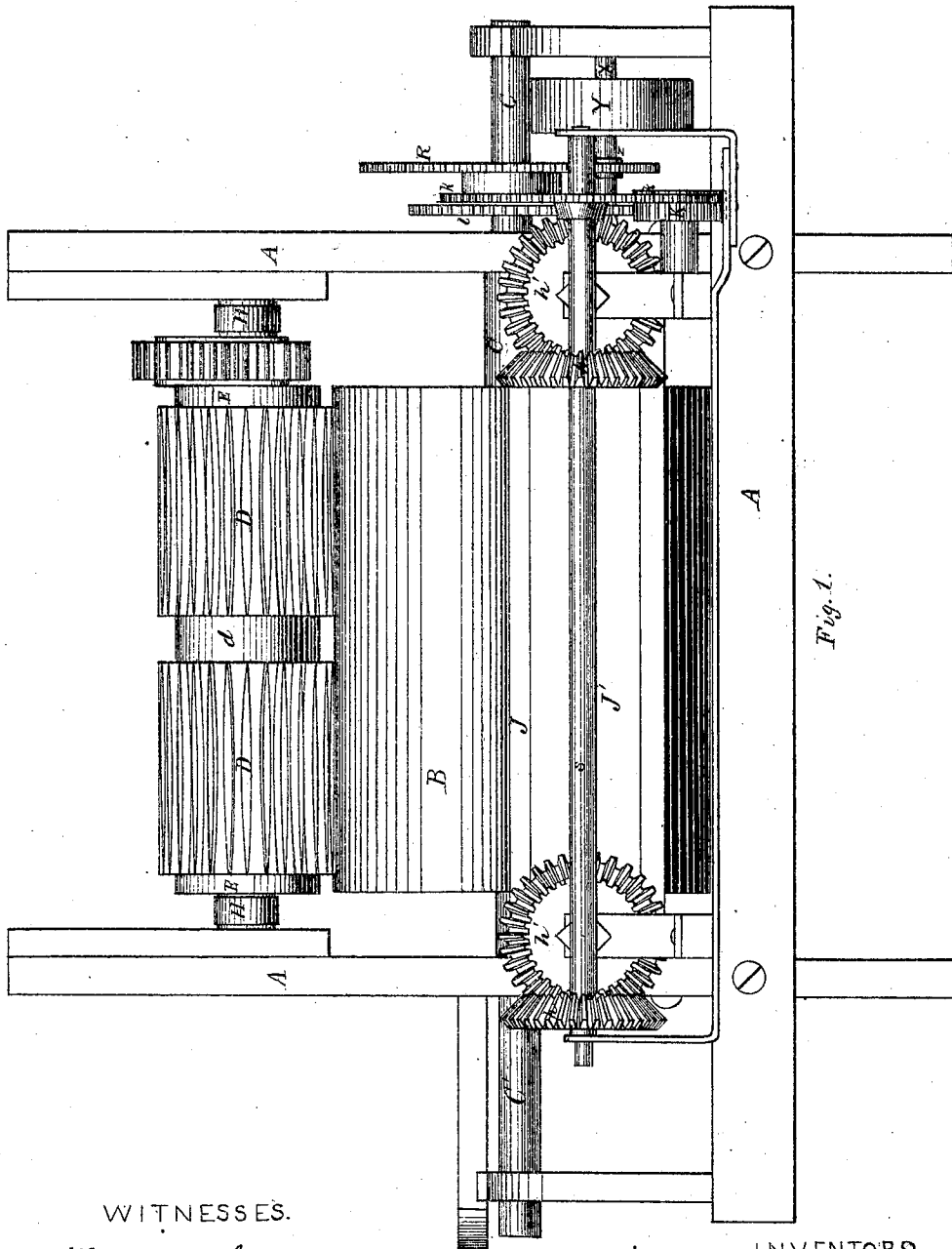


Fig. 1.

WITNESSES.

*W. H. Baulow*  
*Lucy May*

INVENTORS

*Silas Noble*  
*Jas. P. Cooley*

S. NOBLE & J. P. COOLEY.

3 Sheets--Sheet 2.

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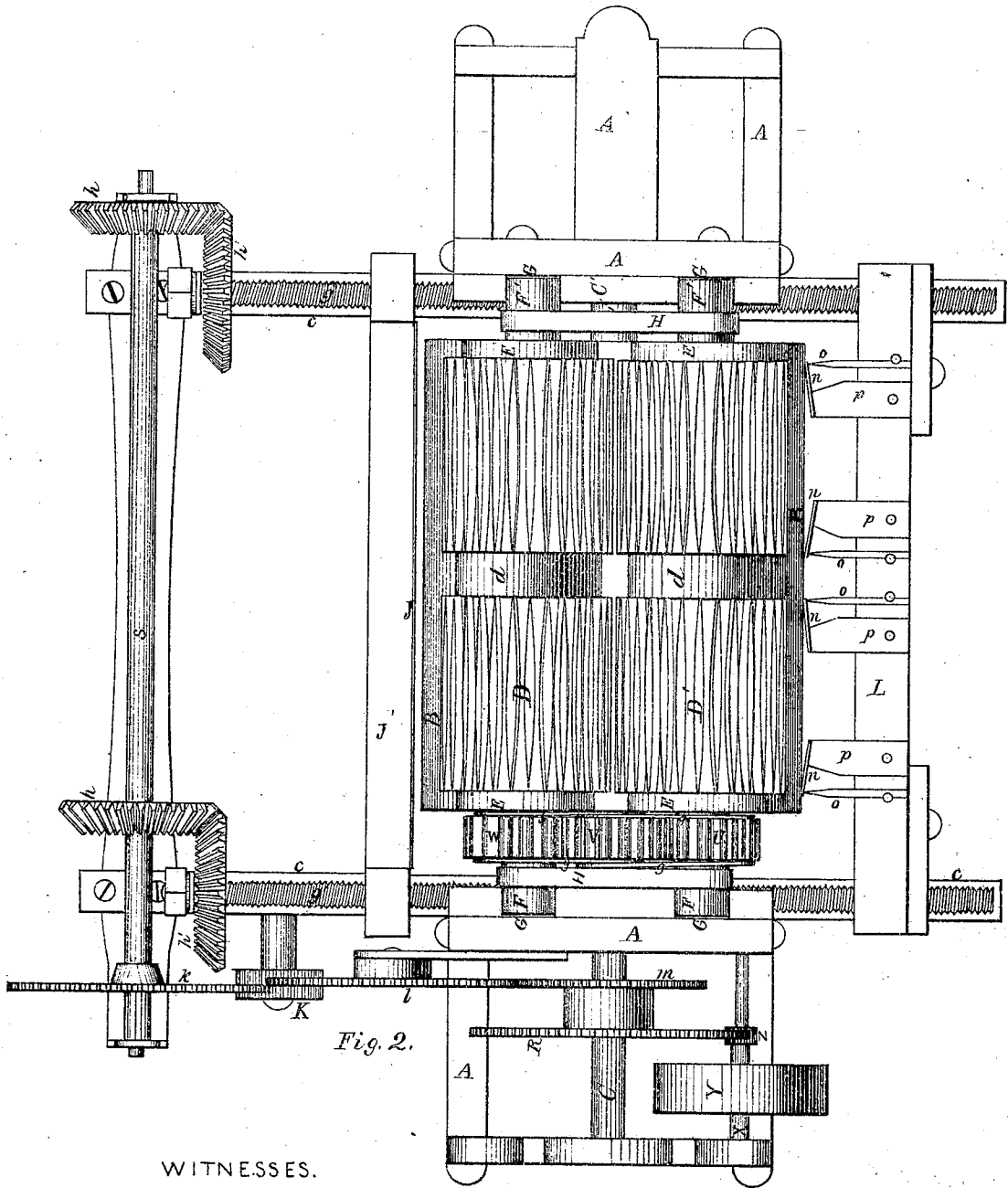


Fig. 2.

WITNESSES.

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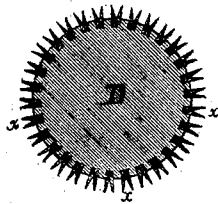


Fig. 5.

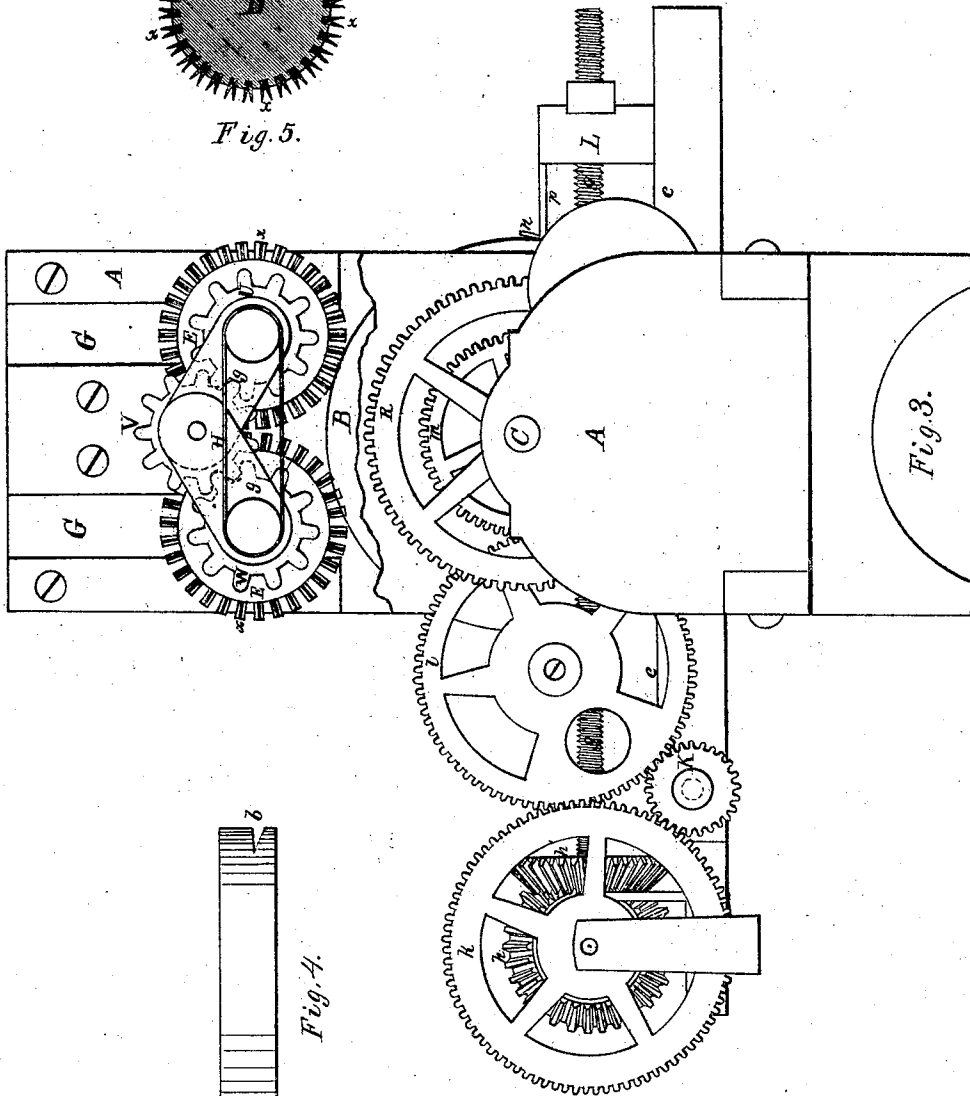


Fig. 3.



Fig. 4.

WITNESSES.

*W. H. Burton*  
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INVENTORS

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# UNITED STATES PATENT OFFICE.

SILAS NOBLE AND JAMES P. COOLEY, OF GRANVILLE, MASSACHUSETTS.

## IMPROVEMENT IN TOOTH-PICK MACHINES.

Specification forming part of Letters Patent No. 123,790, dated February 10, 1872; antedated February 1, 1872.

### SPECIFICATION.

We, SILAS NOBLE and JAMES P. COOLEY, both of Granville, in the State of Massachusetts, have invented a new and useful Machine for Making Tooth-Picks, of which the following is a specification:

The invention consists in the construction and organization of a novel machine whereby a block of wood may, with little waste, at one operation, be cut up into tooth-picks ready for use.

In the drawing, Figure 1 is a front elevation of the machine. Fig. 2 is a plan. Fig. 3 is a side elevation with portions of the main frame broken out. Fig. 4 is a view of one of the cylinder-knives, showing the slots by which it is secured in its place. Fig. 5 is a transverse section of one of the knife-bearing cylinders.

A is the main frame. B is a round block or log to be cut up into tooth-picks. It is held between two shafts, C C', in the same manner as the block to be operated upon is held in the ordinary lathe, the shafts C C' have each suitable bearings in the main frame. X is the main shaft, to which motion is imparted through the pulley Y. Z is a pinion upon the main shaft, gearing with a wheel, R, upon shaft C, as shown. D D' are revolving cylinders, carrying knives, *z*. Each cylinder has two sets of knives, as shown in Fig. 1. The knives are secured to the cylinders in pairs. (See Fig. 5.) They have a curved form, and those of each pair have their concave sides opposite each other, that they may cut or stamp the figure of a tooth-pick upon the log B, as shown in Fig. 2. The knives have broad backs, those of each pair filling a groove cut in the cylinders D and D' for their reception, as shown in Fig. 5. To secure the knives in their places the pair is placed in its groove and moved toward the center-band *d* of the cylinder until a projecting ring upon the band fits into the slot *a* in the knife. The movable disk E is then moved toward the knives until a projecting ring upon the disk enters the slot *b* of the knife, and the disk is secured to the cylinder by a set-screw. The cylinders have projecting from their outer ends shafts F F' F', which slide up and down in grooves G G in the main frame. The cylinders rest upon the log B, from which they receive their motion through friction, being held down upon the block by means of weights or springs (not

shown) acting upon metallic bands H H, which pass around the shafts F F, as shown, and which serve to divide the pressure of the weights or springs equally between the two cylinders. These cylinders are strongly geared together by the toothed wheels U, W, and V, the wheels U and W being rigidly secured to the shafts F F, and the wheel V having for its axle the pivot by which two bars, *g g*, are hinged together, while the other ends of both bars are bored to allow the free passage of the shafts F F, as shown. This hinged gearing preserves a uniformity of motion between the wheels U and W, but at the same time permits the wheels U and W to change their relative positions. The spaces between the grooves in the cylinders D and D' are equal to the width of the groove, (see Fig. 5,) in order that the knives of the cylinder D may cut tooth-picks upon the log in the spaces not operated upon by the knives of the cylinder D'. J is a knife, the same in construction and operation as a knife heretofore used in cutting a ribbon from a log. It is set in a frame, J', which slides back and forth on bars *c c* attached to the main frame, a projection upon the knife-frame running in a groove in the inner side of the bars *c c* to steady the knife. The frame J' receives its motion from the block B by means of the screws *g' g'* passing through the frame and intermediate gearing, consisting of the bevel-wheels *h h'*, the wheel *k* upon the shaft *s* of the wheel *h*, the wheel K upon an axle projecting from the main frame, the wheel *l* supported by a bracket, as shown, and the wheel *m* upon the shaft C. Corresponding to the frame J' and operated in the same manner, there is in rear of the block B a frame, L, carrying knife-blades *n n* and chisels *o o*. The blades are secured to the frame by supports *p*. As indicated in the drawing, the blades *n* cut each a beveled shaving from the log to point the tooth-pick at both ends, and the chisels *o* cut paths around the log to determine the length of the tooth-pick.

The operation of the machine is as follows: The blocks to be operated upon having been chucked between the shafts C C', the machine is set in motion. As the log slowly revolves the blades *n* and chisels *o* perform the operations just described, the frame carrying these instruments moving toward the log at every revolution of the log a distance equal to the

thickness of a tooth-pick; the log continuing its revolution, that portion which has been operated upon by the blades *n* and chisels *o* passes under the cylinders *D'* and *D*, whose knives make their cuts successively as before stated, and the blade *J*, then coming into play and moving at the same speed as the blades *n* and chisels *o*, shaves the tooth-picks and waste wood from the block. The knife *J* cuts just deep enough to shave off the tooth-picks cut or stamped by the knives *x*, and leaves the block smooth for the continued operation of the various cutting instruments. The depth to which the knives *x* cut is regulated by the disks *E* or collars of different thickness placed upon the disks, smaller disks or thinner collars being employed as the knives wear away.

In the operation of this machine each pair of cutters of the cylinder *D* cuts its tooth-pick in the space left upon the log between two successive cuts of pairs of knives of cylinder *D'*. The two cylinders being strongly geared together, there is no difficulty in doing this while the log remains large; but when the log has somewhat diminished in size, it is necessary to make use of some device to ensure that the cylinder *D* shall operate upon the spaces left by the cylinder *D'*; and for this purpose we introduce a slight curve into one or both of the vertical grooves *G G* in which the shafts of the cylinders run as previously described.

In our own machines, the cylinders being three inches in diameter from cutting-edge to cutting-edge, we find that we need not introduce any curvature until the diameter of the log is reduced to about eighteen inches. And in practice we have found it best to curve both the vertical grooves and to make the curves inward as the grooves descend. The curvature is very slight, the two grooves approaching

each other about one-quarter of an inch in a fall of eight inches. (We cut from the log until its diameter is reduced to two and a half inches.) At the beginning of the fall the degree of curvature is almost imperceptible, but it increases as the cylinders descend. It is too slight to appear in the drawing.

The knives *n n* may be employed in combination with the knife *J* independently of the cylinders, the latter being taken out of the machine or raised out of the way to cut a beveled ribbon from the log; and it is obvious that the knife-bearing cylinders might be used independently of the other cutting instruments to cut tooth-picks from a beveled ribbon passed under them, over a flat surface, or over a revolving cylinder, the ribbon being fed along by means of the strip of waste left between the two sets of knives upon the same cylinder. If but one set of knives is used upon a cylinder, then a waste strip must be left on each side of the ribbon for feeding purposes.

We claim—

1. The cylinders *D* and *D'*, arranged substantially as described, so that the knives of the cylinder *D* shall operate upon the revolving log in the spaces not operated upon by the cylinder *D'*, for the purpose described.

2. The standard, constructed with the curved grooves *G G* to compel the knives of the two cylinders to operate properly in relation to each other whatever may be the diameter of the log.

The above specification of our said invention signed and witnessed at Granville, this 20th day of March, 1871.

SILAS NOBLE.  
J. P. COOLEY.

Witnesses:  
R. H. BENLON,  
LUCY MAY.