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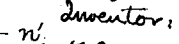
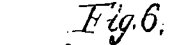
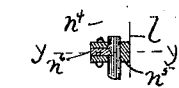
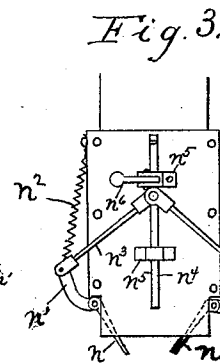
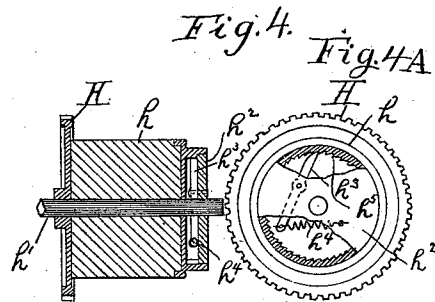
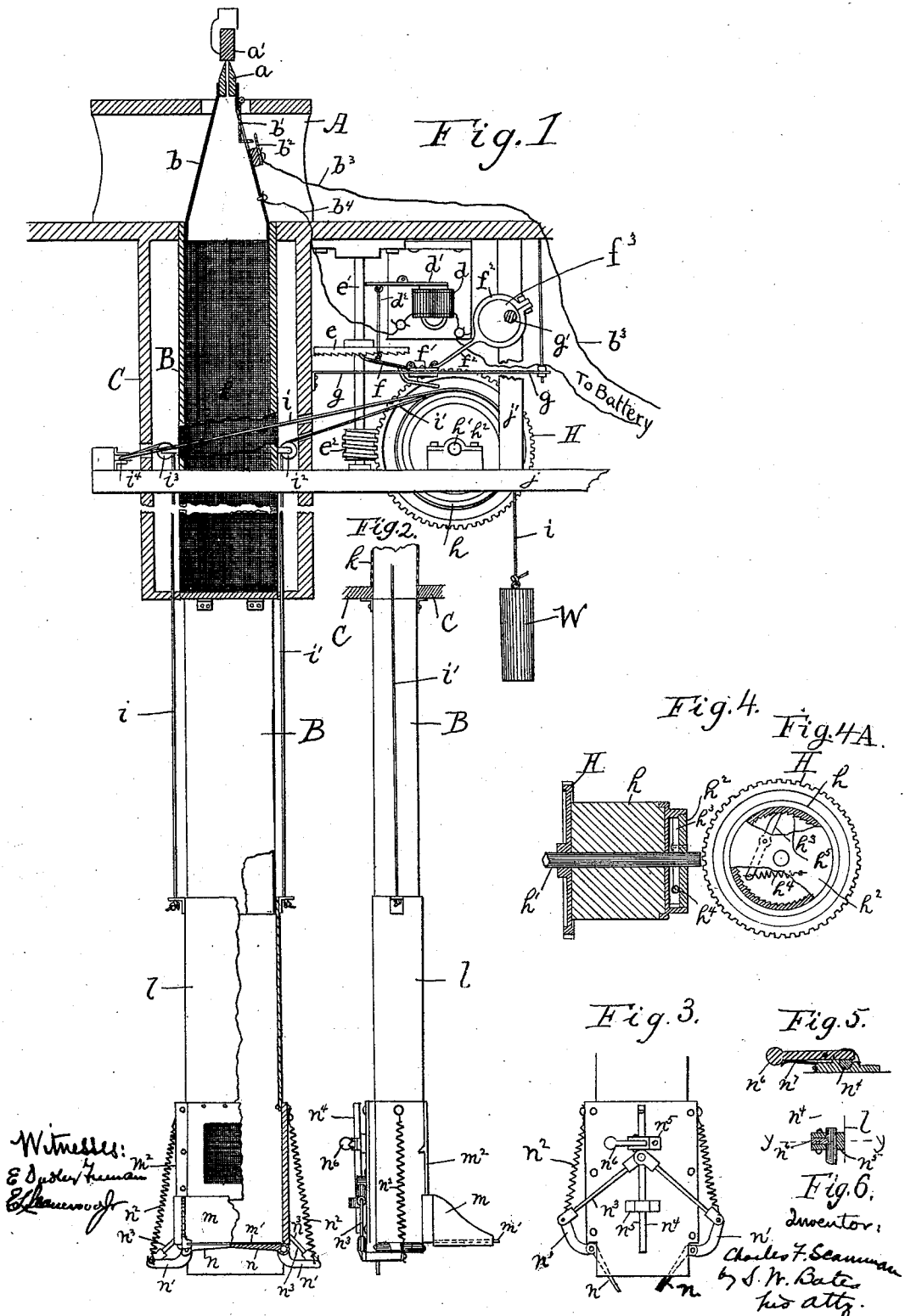
2 Sheets—Sheet 1.

C. F. SCAMMAN.

APPARATUS FOR HANDLING AND PACKING TOOTHPICKS.

No. 521,736.

Patented June 19, 1894.



Witnesses:
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100

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by S. W. Bates
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(No Model.)

2 Sheets—Sheet 2.

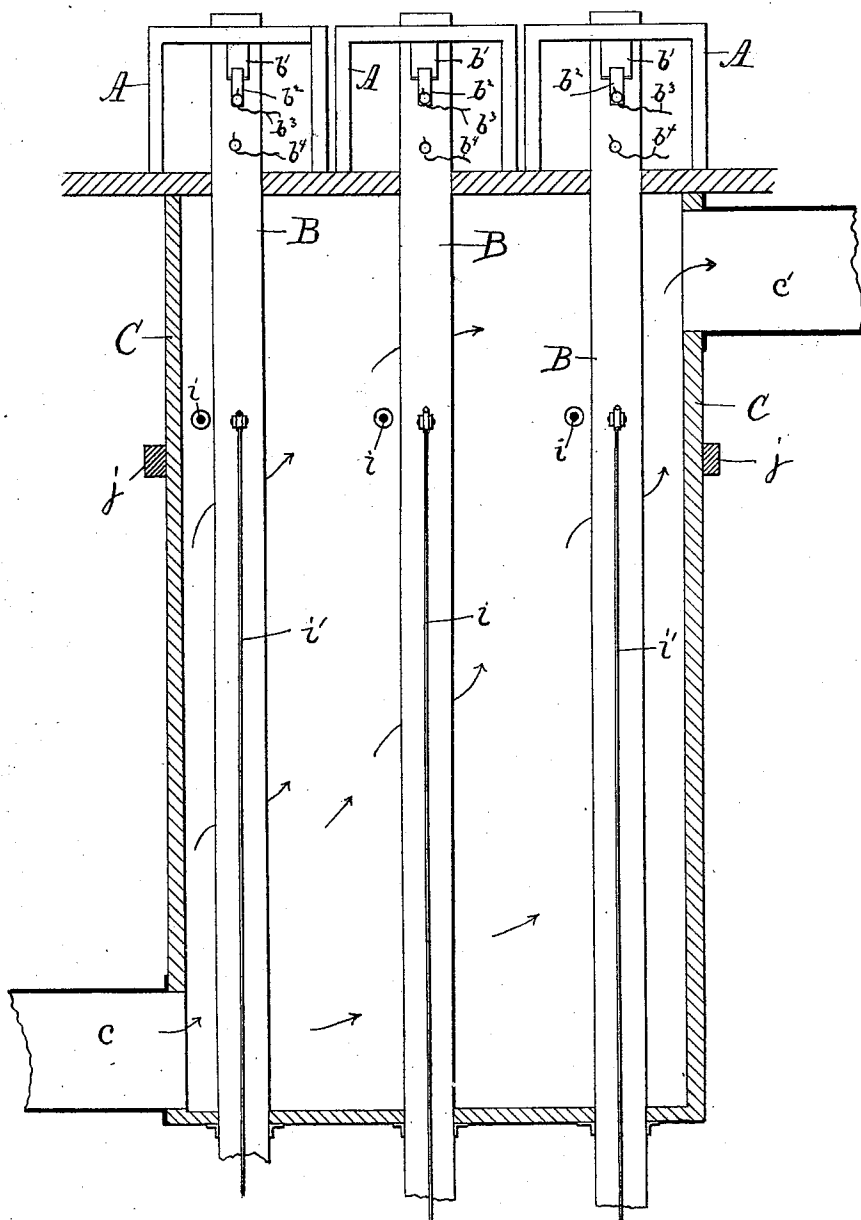
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Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES F. SCAMMAN, OF DEERING, MAINE.

APPARATUS FOR HANDLING AND PACKING TOOTHPICKS.

SPECIFICATION forming part of Letters Patent No. 521,736, dated June 19, 1894.

Application filed February 7, 1894. Serial No. 499,415. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. SCAMMAN, a citizen of the United States, residing at Deering, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Apparatus for Handling and Packing Toothpicks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a toothpick machine or more properly to an apparatus to be attached to a toothpick machine for automatically handling, drying and packing the toothpicks as they fall from the machine.

In the machines to which my invention is designed particularly to be applied, there are two cutting knives with a reciprocating block acting to press the strip of veneer intermittently against them, the picks as they are formed falling down between the knives. Hitherto the picks as they fell from the knives were received on a chute and they were taken by hand and placed in drying trays after which they were dried and packed in boxes by hand. During the various stages of this manipulation the picks became more or less disarranged and when they were packed in the boxes it required a great deal of labor to straighten and arrange them in order.

The object of my invention is to avoid this handling of the picks from the time they are formed to the time they are packed and to provide an attachment to the cutting machine by which they may be dried and packed without the use of hand manipulation.

The object of the invention is accomplished by allowing the picks to fall into a spout or receptacle beneath the machine which spout is kept normally full of picks which are removed from the lower end of the spout as fast as they are dropped or forced in by the cutting mechanism. In order to accomplish this purpose the upper end of the spout is gradually contracted to the narrow opening through which the picks fall laterally into the spout. Provision is also made whereby the capacity of the spout or receptacle may be automatically expanded to allow a limited amount of accumulation for the reason that the picks

are removed from the bottom preferably by the boxful while they are fed uniformly in at the top. Means are provided for drying the picks as they descend through the spout although the apparatus may be used where drying is not necessary.

While, as I have stated the apparatus herein shown was designed with particular reference to toothpick machines having a set of cutting knives and a reciprocating block it may be used with machines using rotating knives or indeed with any form of toothpick machine.

The stop motion hereinafter described as the invention of myself and Henry P. Churchill is made the subject of a separate application filed herewith.

In the accompanying drawings I have illustrated mechanism which is well adapted to carry out the several features of my invention although I desire it to be understood that I do not limit myself to the exact mechanism herein shown.

In the drawings Figure 1 is a general vertical section and elevation of a toothpick machine having my apparatus attached thereto. Fig. 2 is a side elevation of the lower end of the spout. Fig. 3 is a rear view of the same. Fig. 4 is an end view and Fig. 4^A a section of the let off drum. Figs. 5 and 6 are details of the latch which secures the trap doors. Fig. 7 is a section taken at right angles to that of Fig. 1, showing several machines connected with one drying apparatus.

A represents a toothpick machine, *a* represents the cutting knives and *a'* is the reciprocating block which works against the cutting knives. The picks as they are formed, drop between the knives and fall into the spout or receptacle B secured underneath.

The spout B as here shown is vertical and it is sufficiently long so that the picks will be dry or nearly so when they reach the bottom. The substantially entire upper end of the spout is gradually contracted in size so that it has a small section immediately below the knives. I find that the gradual contraction of the upper end of the spout to the point where the picks enter is very essential for the reason that any offset in the spout or sudden widening of the same gives the picks a chance

to settle and leave a space not entirely full, in which case the picks quickly become crossed and disarranged.

Means are provided by which the capacity of the spout B may be automatically expanded to make room for the incoming picks and I effect this result as here shown, by making the lower end of the spout telescoping so that as the picks are forced in at the top the telescoping section will expand. The object of this arrangement will appear later. The telescoping section *l* is constructed to slide vertically on the lower end of the spout B and it is counter weighted by means of a weight W connected with the section *l* by means of cords *i* and *i'* said cords passing around a drum *h*. In the form of machine which I have herein shown, the picks are removed from the lower end of the telescoping section *l* a boxful at a time.

For the purpose of removing the picks I make use of a pair of trap doors *n* pivoted to the lower end of the section *l* and forming when closed, the bottom of the spout. Each door is provided with an outwardly extending arm *n'* to which is pivoted a link *n³* these links being in turn pivoted to a longitudinally sliding rod *n⁴* by which the doors are closed. This rod slides in two guides *n⁵*, one above the other and the upper guide is provided with a latch *n⁶* by which the rod is held down and the doors *n* prevented from opening. The latch *n⁶* is operated by means of a spring *n⁷* and it is adapted to engage a notch in the rod *n⁴*. Spiral springs *n²* *n²* are attached to the ends of the arms *n'* for the purpose of pulling them upward and depressing the doors.

The picks are removed by cutting off a quantity sufficient to fill a box and then discharging them through the trap doors by lifting the latch *n⁶* and allowing the doors to drop. In this operation I make use of a cut-off plate *m'* which is adapted to slide in horizontal guides in a vertically sliding plate *m* which is mounted on the lower end of the section *l* by means of guides *m²* and which may form as herein shown the front of the spout immediately above the lower end. This face plate *m* is slid upward the height required to cut off a box of picks and the cut-off plate is then inserted. The latch *n⁶* is then lifted releasing the doors through which the picks are discharged into a box held in position below. As soon as the doors are opened and the picks immediately above them discharged, the face plate *m* is forced downward by weight of the picks in the spout and the counter-weighted section at the same time moves upward taking up the space which was occupied by the picks which were removed. The doors are then closed and the operation repeated when another box has been formed. While the lower end is closed and the machine is feeding picks in at the upper end, the telescoping section *l* is pushed downward thus expanding the capacity of the

spout. This is desirable because it is not practicable to remove the picks exactly as fast at the bottom as they are fed in at the top. The expanding section is made large enough so that one or more boxes may be removed and then the machine may be left to gradually fill up without close watching. Instead of forcing the expanding section down by the force of the picks as they are pressed in at the top by the action of the reciprocating block, I prefer to connect with it a let-off mechanism which may be adjusted to release the telescoping section in the exact proportion in which the picks come in at the top. The cords *i* and *i'* already spoken of as supporting the section *l* pass over pulleys *i²*, *i³*, and *i⁴* and thence around the drum *h* which is so mounted on the shaft *h'* as to move freely on it in the direction for winding up the cords *i* and *i'*, but is prevented from turning on the shaft in the opposite direction. To effect this result I form on one end of the drum a ratchet *h⁵* which is engaged by a pawl *h³* pivoted to a plate or disk *h²* secured to the shaft *h'*. The pawl allows the drum to turn to wind up the cords but not in the opposite direction. On the opposite end of the shaft *h'* is secured a gear H which is engaged by a worm *e²* on a vertical shaft *e'* and on the same shaft is a ratchet *e* which is operated by a reciprocating pawl *f*. The pawl *f* is pivoted to a carriage *f'* which reciprocates on guides *g* and which is operated by means of a pitman rod *f²* and an eccentric *f³* mounted on the shaft *g'*. It is desirable to provide a stop motion to act on the let-off mechanism so that when no picks are being fed in at the top the telescoping section will not be released. If no such device is used the body of picks in the spout will settle down and leave a space immediately below the knives, containing no picks, and as a result they are liable to become crossed and disarranged as they fall into the spout. It is important always to keep the spout entirely full of picks up to the knives so that they will have no distance to drop and no chance to get crossed. To overcome this difficulty I have illustrated a stop motion in connection with the rest of my apparatus but I do not claim to be the sole inventor of this stop motion the same having been devised by myself and Henry P. Churchill jointly. A swinging arm *b'* is pivoted in an opening in the side of the spout just below the knives and this arm is so arranged that when the spout is empty it will swing into the spout but when the latter is full it will be pressed outward by the weight of picks above it. The upper end of the spout and the arm *b'* are constructed of metal or other good conductor of electricity, and secured to the spout but insulated from it is a fixed arm *b²* of metal. When the arm *b'* is pressed outward by the picks it makes an electrical contact with the arm *b²*. A wire *b³* leads from the arm *b²* to a battery and the return wire *b⁴* is

connected as here shown, with the metal spout, thus bringing it in electrical connection with the arm *b'*. Somewhere in the circuit formed by these two wires and the battery is placed an electro-magnet *d* which has a pivoted armature *d'*. This armature is connected with the pawl *f* in such a manner that when the current is on the magnet, the pawl will be raised into engagement with the ratchet *e* and the let-off mechanism will be in operation. The circuit is completed when the arm *b'* is pressed outward against the arm *b²* by the force of the picks. Thus it will be seen that when the spout is entirely full of picks the arm *b'* is pressed outward and the let-off mechanism is in operation, but when the picks are drawn down so that the arm *b'* swings in, the current is interrupted and the pawl *f* drops and stops the let-off.

In order to dry the picks when they come wet from the machine, I form two sides of the spout of pervious material such as wire netting. This is shown at *k*. The spout or spouts, if there are more than one, are inclosed in a casing *C* through which an air blast is made to pass. In Fig. 7 I have represented three machines connected with one casing and provided with an inlet flue *c* and an outlet flue *c'*. As before stated, the length of the spouts is such that the picks will be sufficiently dry before they reach the lower end.

While the telescoping end which I have described is very desirable for the purpose of allowing an accumulation of several boxes so that the machine does not have to be closely watched, it may be dispensed with and a non-extensible spout used.

I claim—

1. In a toothpick machine, the combination with the cutting knives, of a spout into which the picks drop laterally, having a trap at the lower end for the removal of the picks, the substantially entire upper end of said spout being gradually contracted to a narrow opening as least as long as the pick at the point where the picks enter.

2. In a toothpick machine, the combination with the cutting knives, of a spout permanently located below said knives and into the top of which spout the picks are dropped laterally, said spout being capable of holding a plurality of boxes of picks, and means at the lower end of said spout for removing said picks one box at a time.

3. In an apparatus for handling and packing toothpicks, the combination with the cutting knives, of a spout beneath said knives into which the picks drop, a telescoping section on the lower end of said spout and a

trap or valve on the lower end of said section for removing the picks, substantially as described.

4. In an apparatus for handling and packing toothpicks, the combination with the cutting knives, of a spout beneath said knives into which the picks drop, a telescoping section on the lower end of said spout, positive automatic let-off mechanism for operating said telescoping section and a trap or valve for removing said picks, substantially as described.

5. In an apparatus for handling and packing toothpicks, the combination with the cutting knives, of a spout beneath said knives into which the picks drop, a telescoping section on the lower end of said spout, counter-weighted cords for supporting said section, a drum on which said cords are wound, a shaft on which said drum is loosely mounted, a ratchet on one end of said drum and a gear on the opposite end, a disk secured to said shaft and a pawl pivoted to said disk and adapted to engage said ratchet, a worm adapted to engage said gear and a shaft on which said worm is mounted, a ratchet on said shaft and a reciprocating pawl for operating said ratchet, substantially as described.

6. In a toothpick machine, a spout into which the picks drop, a pair of trap doors pivoted on the lower end of said spout, a vertically sliding plate forming the front of said spout immediately above said trap doors, horizontal guides in said plate and a cut-off plate adapted to be inserted in said guides and means for securing said trap door in place, substantially as described.

7. In a toothpick machine, a spout into which the picks drop, a pair of trap doors pivoted on the lower end of said spout, horizontal guides adapted to move vertically in said spout, and a cut-off plate adapted to be inserted in said guides and means for securing said trap door in place, substantially as described.

8. In a toothpick machine, a spout into which the picks drop, a counter-weighted telescoping section on the lower end of said spout, a pair of trap doors on the lower end of said telescoping section, horizontal guides adapted to move vertically on said telescoping section, and a cut-off plate adapted to slide in said horizontal guides.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES F. SCAMMAN.

Witnesses:

S. W. BATES,

E. DUDLEY FREEMAN.