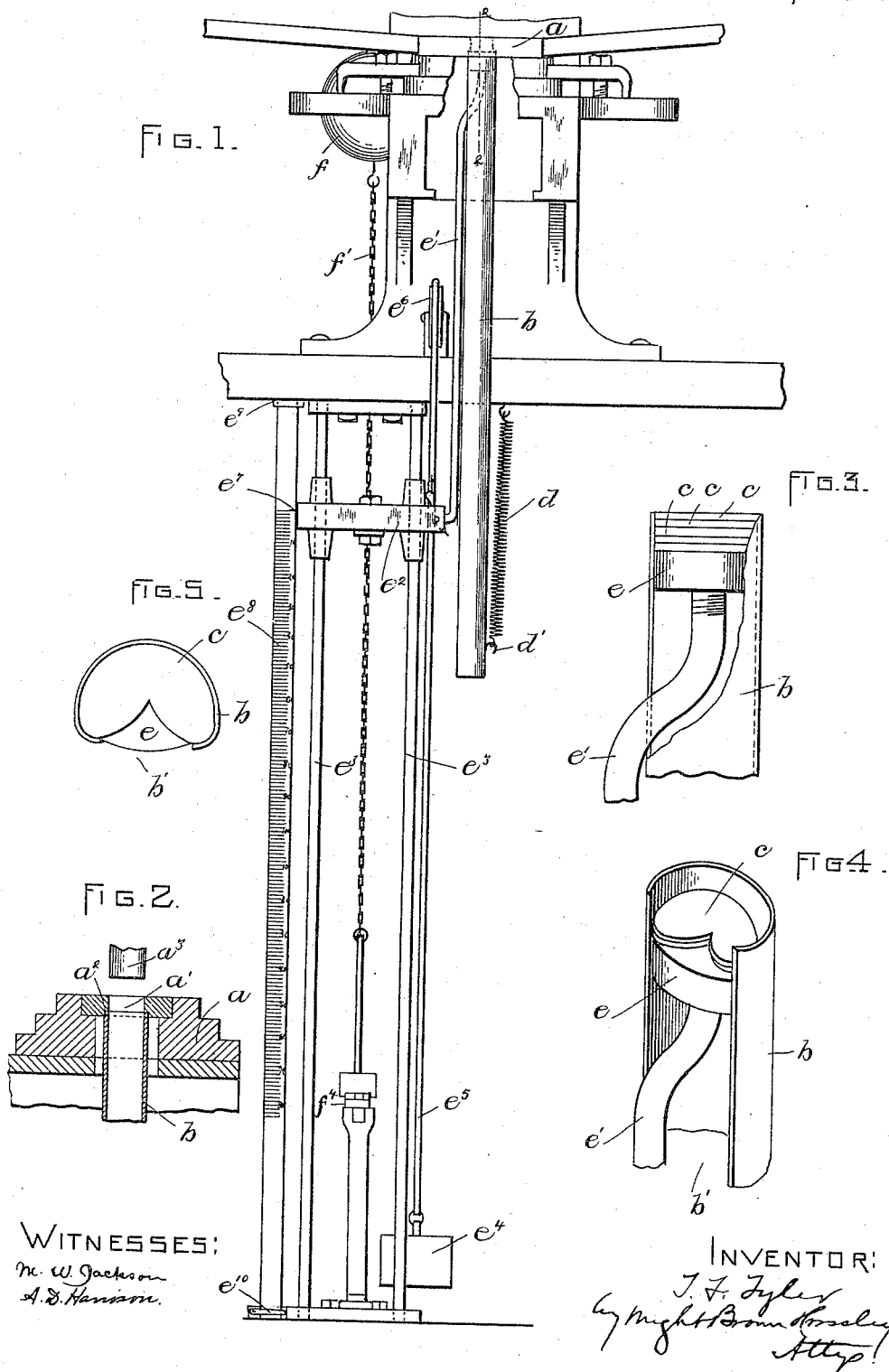


T. F. TYLER.  
BLANK CUTTING MACHINE.

No. 492,342.

Patented Feb. 21, 1893.



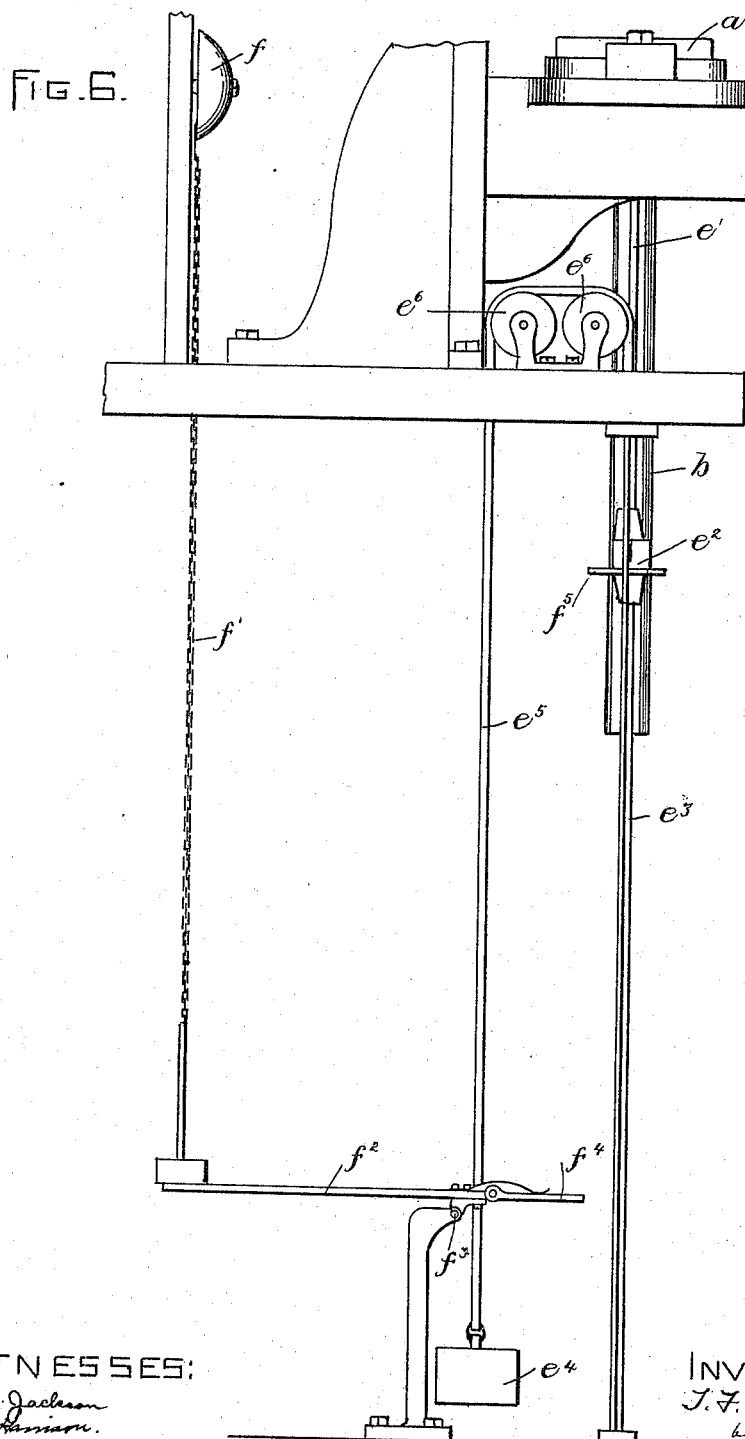
(No Model.)

2 Sheets—Sheet 2.

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WITNESSES:

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A. D. Harrison.

INVENTOR:

T. F. Tyler

by Knight Brown Crossley  
Attys.

# UNITED STATES PATENT OFFICE.

THADDEUS F. TYLER, OF LYNN, MASSACHUSETTS.

## BLANK-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 492,342, dated February 21, 1893.

Application filed May 23, 1892. Serial No. 434,057. (No model.)

*To all whom it may concern:*

Be it known that I, THADDEUS FRANK TYLER, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Blank-Cutting Machines, of which the following is a specification.

This invention relates to machines for cutting out flat blanks from sheets of material such as leather board, leather, or other material, by means of a suitable punching die and bed die.

The invention has for its object to provide improved means for storing or accumulating the blanks as fast as they are cut, and for conveniently removing the blanks from the machine.

The invention also has for its object to provide means for counting the number of blanks accumulated, and for giving a signal upon the accumulation of a given number of blanks.

To these ends the invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming part of this specification: Figure 1 represents a front elevation of a portion of a blank-cutting machine provided with my improvements, a part of the machine being broken away. Fig. 2 represents a section on line 2—2, Fig. 1. Fig. 3 represents an enlarged side elevation of the upper portion of the blank receptacle, and the movable follower therein, a portion of the receptacle being broken away. Fig. 4 represents a perspective view of the parts shown in Fig. 3. Fig. 5 represents a top view of the parts shown in Figs. 3 and 4. Fig. 6 represents a side elevation of the construction shown in Fig. 1.

The same letters of reference indicate the parts in all the figures.

In the drawings: *a* represents the fixed die, which co-operates with a movable punching die *a*<sup>3</sup> (Fig. 2) in cutting blanks from a sheet of material, the fixed die *a* having an aperture *a*<sup>1</sup> of the form of the blanks to be cut, while the movable or punching die *a*<sup>3</sup> is formed to accurately fit and enter said orifice and co-operate with the walls thereof in punching out a blank from a sheet of material laid upon the upper surface of the fixed die. Means

are provided for reciprocating the movable die, as usual in machines of this class.

My invention has nothing to do with the construction of the machine, so far as the dies and the means for operating the movable die are concerned. I do not, therefore, show the mechanism for operating the movable die *a*<sup>3</sup>.

In carrying out my invention, I provide the blank-receptacle *b*, which is an elongated tube, preferably of sheet metal, having an opening *b*<sup>1</sup> at one side, as shown in Figs. 4 and 5. The form of the receptacle *b* in cross section is such as to correspond to the form of the blanks *c*, which are produced by the machine. (In the present instance, the blanks *c* are intended for caps or tips for children's shoes.) The receptacle *b* is detachably secured to the machine, preferably by means of a spring *d*, engaged at one end with the supporting-frame of the machine, and detachably connected at the other end with a hook *d*<sup>1</sup> or other suitable device, affixed to the lower portion of the receptacle *b*, the arrangement being such that, when the upper end of the receptacle is placed against the bottom of the fixed die *a* and the lower end of the spring is engaged with the hook *d*<sup>1</sup>, the stress of the spring will press the upper end of the receptacle against the fixed die with sufficient firmness to hold the receptacle in place.

I prefer to form a seat or cavity *a*<sup>2</sup> in the underside of the fixed die *a* for the reception of the upper end of the receptacle *b*, said seat preventing the lateral displacement of the upper end of the receptacle and causing the interior of the receptacle to coincide with the orifice *a*<sup>1</sup> of the die.

*e* represents a plate or follower, which is supported by a rod *e*<sup>1</sup>, affixed to a sliding cross-head or carrier *e*<sup>2</sup>, which is movable on vertical guide-rods *e*<sup>3</sup> *e*<sup>3</sup>. The follower *e* is shaped to fit the interior of the receptacle, and is adapted to slide loosely therein and support the blanks *c* that are forced into the receptacle by the action of the movable die *a*<sup>3</sup>. The rod *e*<sup>1</sup> is bent or offset near its upper end, as shown in Figs. 1, 3 and 4, its bent portion passing through the side opening *b*<sup>1</sup> in the receptacle *b*. The carrier *e*<sup>2</sup> is counterbalanced by a weight *e*<sup>4</sup>, affixed to a cord or strap *e*<sup>5</sup>, which is attached to the carrier *e*<sup>2</sup>

and passes over guide-pulleys  $e^6$ , said weight being adapted to support the carrier  $e^2$ , the rod  $e'$  and the follower  $e$  at any point to which they may be moved.

5 It will be seen that, as each blank is formed, it will be forced into the orifice  $a'$  of the fixed die, and from thence into the receptacle  $b$ . As fast as the blanks are forced downwardly into the receptacle, the follower  $e$  retreats, 10 said follower being caused to support the column of blanks in the receptacle and prevent them from falling loosely in the receptacle. The accumulation of blanks in the receptacle forces the carrier  $e^2$  downwardly, and thus 15 causes a pointer  $e^7$ , affixed to said carrier, to co-operate with a graduated rod or bar  $e^8$ , affixed to the machine, in indicating the number of blanks that have been inserted in the receptacle.

20  $f$  represents a gong, the hammer of which is connected by a cord or chain  $f'$  to the weighted end of a lever  $f^2$ , which is pivoted at  $f^3$  to a fixed support, and has a pivoted toe-piece  $f^4$ , arranged to come in contact with 25 an arm or projection  $f^5$  on the carrier  $e^2$ , when the latter is descending. The contact of the arm  $f^5$  with the toe-piece  $f^4$  first raises the weighted end of the lever  $f^2$ , and then releases said lever, causing its weight to exert 30 a sufficient downward pull on the chain  $f'$  to strike the gong. The toe-piece  $f^4$  is so connected with the lever  $f^2$  that it will not yield independently to downward pressure, but is virtually a part of the lever  $f^2$  when it is being 35 pressed downwardly. Hence the arm  $f^5$ , in moving downwardly, acts upon the toe-piece in the manner described. After said arm has passed below the toe-piece, and when it is being moved upwardly and strikes the 40 under side of the toe-piece, the latter swings upward independently, far enough to permit the arm  $f^5$  to pass by it without moving the lever  $f^2$ .

The gong  $f$  and the described devices for 45 ringing the same, constitute a signal, which gives notice when the receptacle  $b$  has been filled with blanks, the lever  $f^2$  being arranged to be operated, as described, when the follower  $e$  reaches the lower portion of the receptacle  $b$ . The operator is therefore warned to 50 stop the machine. The receptacle, filled with blanks, may now be removed from the machine by detaching the spring  $d$  from the receptacle. The accumulation of blanks in the 55 receptacle may be disposed of in any desired way, such as by forcing them out of the receptacle into boxes designed to hold them, for storage or shipment, or the receptacle may be placed in another machine, organized to mold 60 or shape the blanks, in which case the blanks will be fed one at a time from the lower end of the receptacle to the forming devices, by any suitable means.

I prefer to provide two or more receptacles 65  $b$  for each machine, so that, while the charge

of blanks is being removed from one receptacle, another can be in place in the machine, receiving another charge.

The graduated plate or rod  $e^8$  should be graduated in accordance with the thickness 70 of the blanks, so that each graduation or space will correspond to the thickness of one blank. I prefer to make said plate or rod removable, so that I may use differently graduated plates or rods according to the thick- 75 ness of the material which is being cut. To this end, the upper end of the rod or plate  $e^8$  may be inserted loosely in the socket  $e^9$ , affixed to the supporting-frame, its lower end being held by a latch  $e^{10}$  in a socket on the 80 floor or base on which the machine rests.

I do not limit myself in all cases to the employment of a follower, as the receptacle may be made of such size internally as to prevent the blanks from falling loosely in it. Hence, 85 when the counting of the blanks or the giving of a signal is not an object, the follower may be dispensed with; or the follower may be supported in the receptacle by frictional contact with the interior surface thereof, instead of 90 by a counterbalancing weight.

I claim—

1. The combination with a fixed die and a movable die, of a blank receptacle coinciding with the fixed die, and means for detachably 95 connecting said receptacle with the fixed die, said means consisting of a seat to receive the upper end of the receptacle, and a yielding support for its lower end as set forth.

2. The combination with fixed die and a 100 movable die of a blank receptacle having an opening in one side and coinciding with the fixed die and detachably connected therewith, a follower movable in said receptacle, said fol- 105 lower being supported on a rod having a bent portion extending through said opening, and a yielding support for said rod as set forth.

3. The combination with a fixed die and a movable die of a blank receptacle coinciding with the fixed die, a follower movable in said 110 receptacle, a pointer movable with said follower, and a removable graduated plate co-operating with said pointer, as set forth.

4. The combination of a fixed die and a movable die, of a blank receptacle coinciding 115 with the fixed die, a follower movable in said receptacle, and a signal operated by said follower, said signal having a flexible connection with one end of a lever, the other end of which has a pivoted toe-piece located in the 120 path of movement of a projection from the follower, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 21st day of 125 May, A. D. 1892.

THADDEUS F. TYLER.

Witnesses:

C. F. BROWN,  
A. D. HARRISON.