

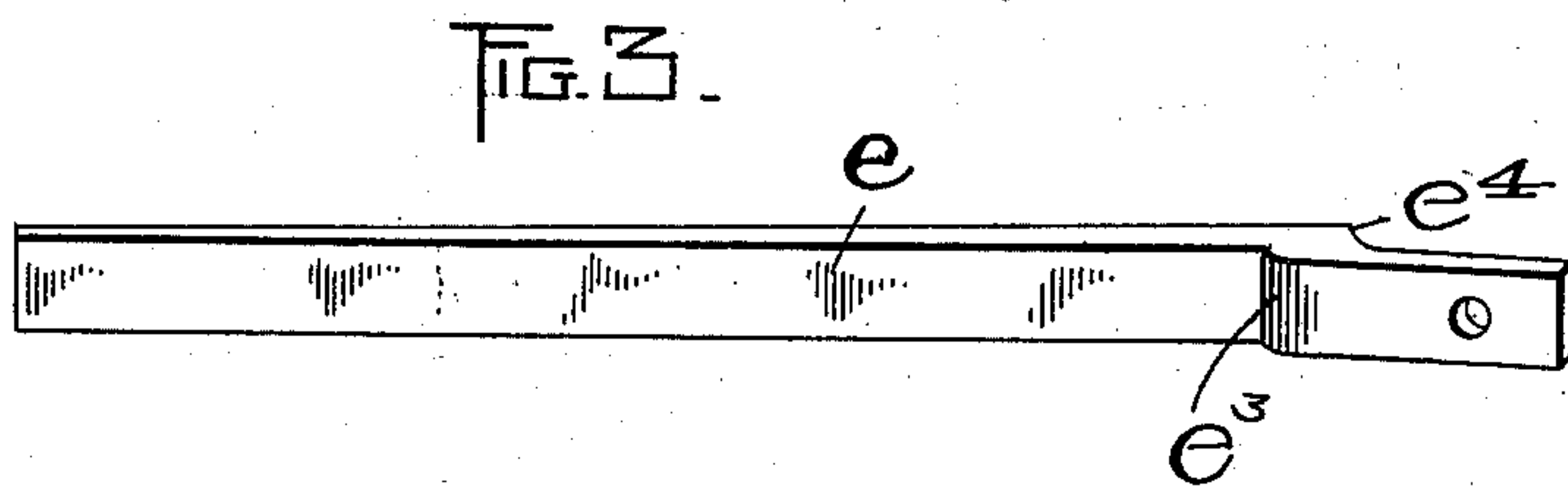
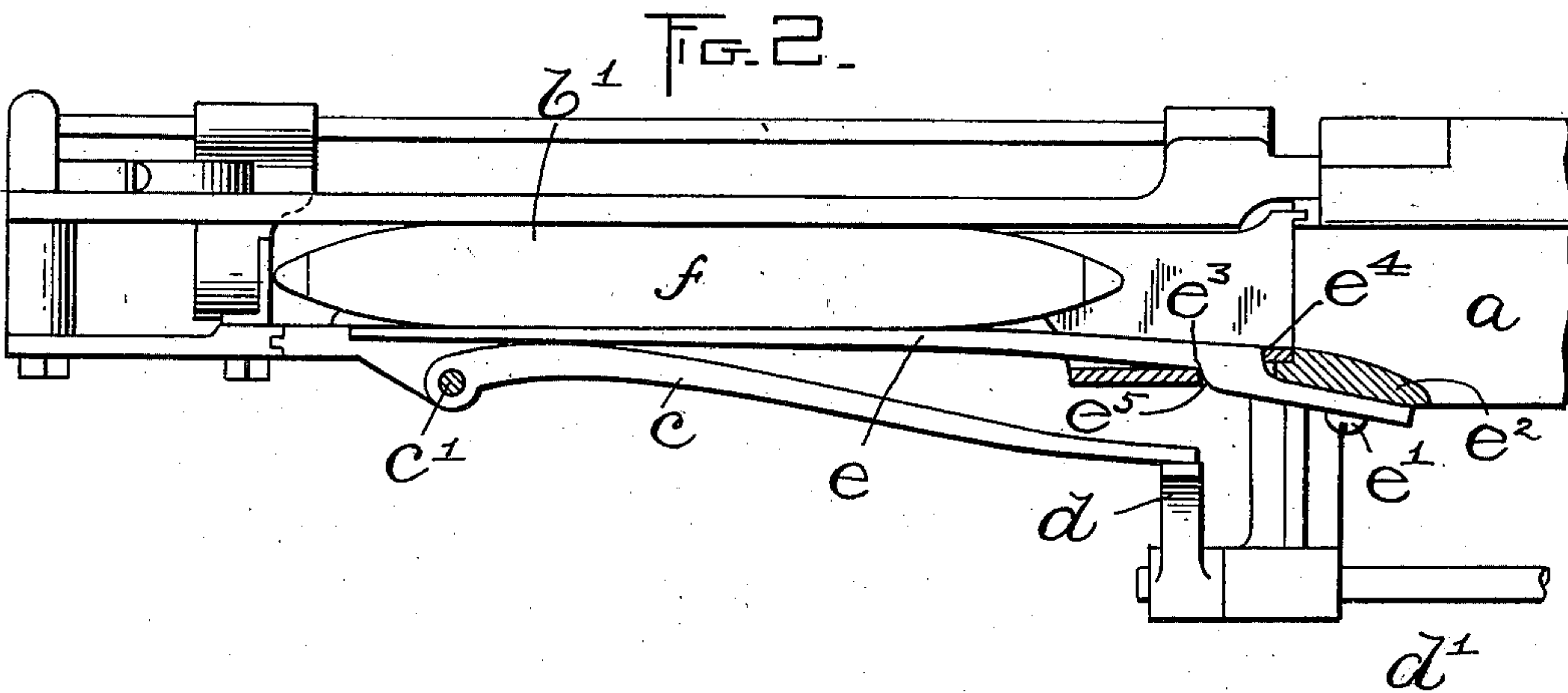
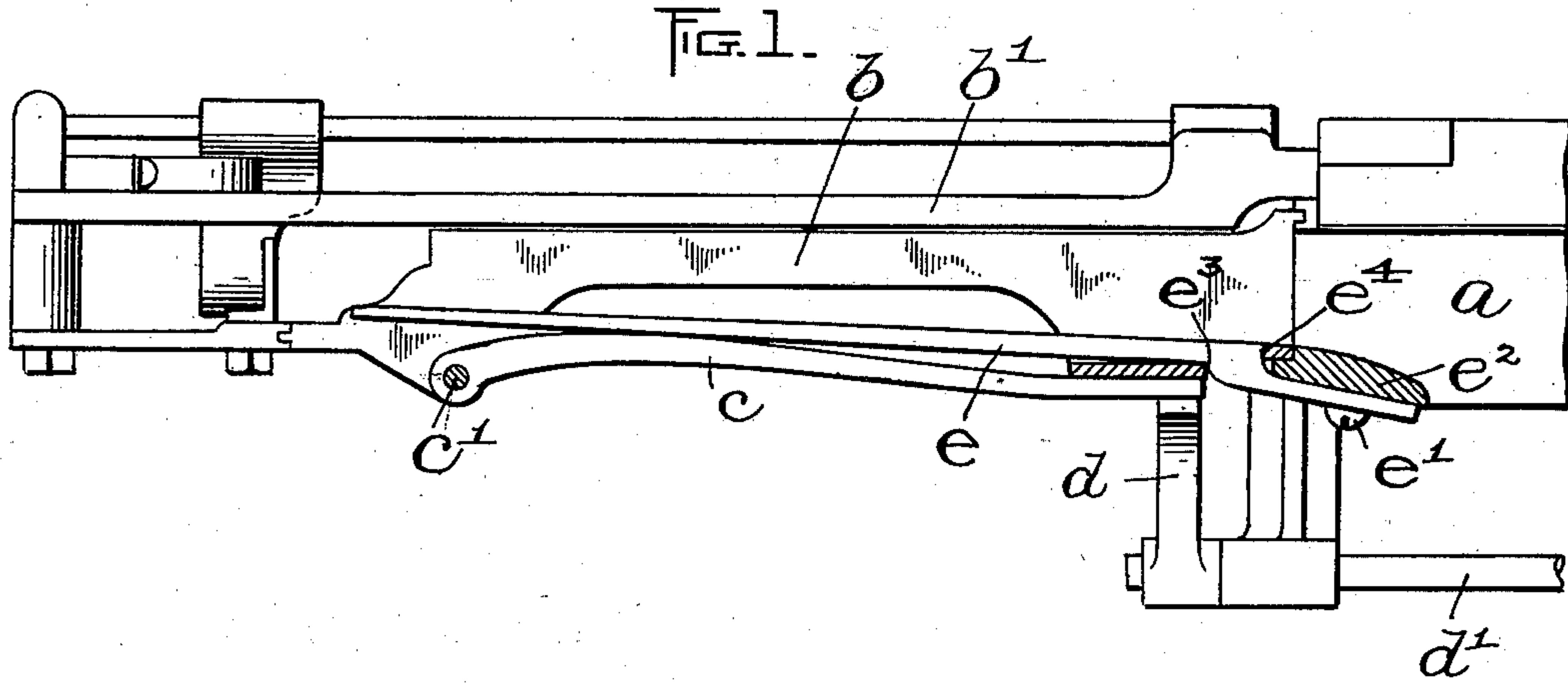
No. 654,916.

Patented July 31, 1900.

C. F. PERHAM.  
SHUTTLE BINDER.

(Application filed Dec. 5, 1898. Renewed May 31, 1900.)

(No Model.)



WITNESSES:

A. S. Harrison.

P. W. Pezzetti.

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# UNITED STATES PATENT OFFICE.

CHARLES F. PERHAM, OF LOWELL, MASSACHUSETTS.

## SHUTTLE-BINDER.

SPECIFICATION forming part of Letters Patent No. 654,916, dated July 31, 1900.

Application filed December 5, 1898. Renewed May 31, 1900. Serial No. 18,639. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. PERHAM, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Shuttle-Binders, of which the following is a specification.

This invention has relation to shuttle-checking devices or "shuttle-binders," as they are usually termed, being designed more particularly as an improvement upon the devices shown in Letters Patent No. 562,653, granted to me June 23, 1896.

The object of the invention is to secure the gradual checking of the shuttle at the end of its pick and prevent it from banging; and it therefore consists of a shuttle-binder possessing certain features of construction and relative arrangement of parts, all as illustrated upon the accompanying drawings, described in the following specification, and pointed out in the appended claims.

Reference is to be had to the accompanying drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 represents in plan view, partially in section, the end of a lay with the shuttle-box. Fig. 2 represents a similar view with the shuttle in the box. Fig. 3 represents in detail a spring.

Referring to the drawings, *a* indicates the lay, having a shuttle-box *b* of ordinary construction.

*c* is a shuttle-binder which is similar to that shown in my prior patent. It is pivoted at *c'* to the shuttle-box, and its free end extends inwardly toward the center of the lay, it being curved, as shown, so that when the free end rests against the outer surface of the shuttle-box its movable portion is projected into the path of the shuttle. Against the end of the binder is a finger *d* on the end of a spring-tensioned dagger-rod *d'*, such as also described in my said patent.

The present invention consists of a resilient strip *e* of suitable material, preferably wood, which is secured in the shuttle-box to bear against the shuttle. The said strip is rigidly secured by a screw *e'* to a lug *e''* on the lay in front of the mouth of the shuttle-box, and it

extends through an aperture *e'''* in the shuttle-box, as shown. The strip is formed with a shoulder *e''''*, which bears against one wall of the aperture *e'''*, and with another shoulder *e'''''*, which bears against the opposing wall. The strip decreases in thickness toward its end from the shoulders *e''''* *e'''''*, and it normally lies at an angle across the path of the shuttle, as shown in Fig. 1. I have stated that I construct this strip of wood, and the reason therefor is that said material is sufficiently resilient and produces a suitable friction-surface for the shuttle, which is also usually formed of wood, and is durable enough for the purpose for which it is intended.

The supplemental spring *e* and the part *c* constitute compound levers for gripping the shuttle with a great pressure, the strip *c* being fulcrumed near the mouth of the shuttle-box. As said, although the strip *e* projects into the path of the shuttle, yet it is almost parallel with the opposite wall of the shuttle-box, so that when the shuttle enters the box its point enters the space between the strip and the wall, and its sides are engaged by the latter as the strip is forced inward by the lever *c*. Consequently while heretofore the curved portion at the end of the shuttle struck against the inwardly-extending part of the lever *c* now it slides between two friction-surfaces which are almost parallel and is easily stopped, whereby I am enabled to run the loom rapidly without breaking the filling and injuring the shuttle. The strip *e* may be regarded as a false side wall which is movable toward and from its opposite wall to engage or release the shuttle.

From the foregoing and from the description furnished in my said prior patent it will be seen that when the shuttle *f* is approaching the end of its pick the tension on the shuttle-binder is increased or decreased in accordance with the rapidity at which the shuttle is moving, and that instead of the shuttle-binder directly engaging the shuttle the latter comes in contact with the supplemental spring-strip and is stopped at the proper point. The shuttle wedges itself between the strip *e* and the opposite wall *b'* of the shuttle-box, said strip having been moved into the path of the shuttle by said shuttle-binder. The cam or curved edge of the



shuttle-binder engages the outer face of the false wall or strip, and consequently as the shuttle continues to enter the box and the binder to move outward the point of contact  
 5 between said wall and binder advances toward the free end of the said wall, whereby the leverage of the binder against the said wall increases. When the shuttle has been brought to a state of rest, the binder is carried  
 10 by its spring back far enough for the false wall to release the shuttle that it may be projected by the picker-stick through the shed.

Having thus explained the nature of the invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. A shuttle-checking mechanism comprising  
 20 ing a shuttle-box, a false wall attached to the mouth of the box and having its free end extending toward the opposite end of said box, and a shuttle-binder pivoted adjacent the last-mentioned end of the said box, said  
 25 shuttle-binder having an inwardly-curved edge bearing against the outer face of the said wall, whereby the point of contact between the binder and the wall advances toward the free end of the said wall as the  
 30 shuttle continues to enter the box.

2. A shuttle-checking mechanism comprising a shuttle-box, a shuttle-binder, and a supplemental resilient, substantially-straight strip having one end attached to the mouth  
 35 of the shuttle-box and the other free end projecting between the shuttle-binder and the opposing wall of the shuttle-box, whereby said shuttle-binder bears against the said free end of the said strip.

3. A shuttle-checking mechanism comprising a shuttle-box and a substantially-straight spring having one end secured to the shuttle-box at the mouth thereof, and its free end  
 40 arranged to be thrust at an angle to the longitudinal lines of the shuttle-box in the path of the shuttle by the shuttle-binder, whereby  
 45 said shuttle may be frictionally engaged substantially throughout its whole length by said spring.

4. A shuttle-checking mechanism comprising a shuttle-box, a substantially-straight resilient strip attached at the mouth of the said box and having its free end projecting  
 50 toward the opposite end of the shuttle-box, and means for bearing yieldingly against the outer face of said wall to move its free end transversely of the path of the shuttle, where-  
 55 by the shuttle may be frictionally engaged by substantially the entire length of the said strip.

5. A shuttle-checking mechanism comprising a shuttle-box, having a stationary side

wall and a movable false wall between which the shuttle can enter, said wall being formed of resilient material attached at one end, and  
 65 a pivoted lever having a cam-surface bearing against said false wall at its free end whereby said free end may be moved transversely of the path of the shuttle.

6. A shuttle-checking mechanism comprising a shuttle-box having a stationary side wall and a movable resilient false wall between which the shuttle can enter, said movable wall having one end secured at the mouth  
 70 end of the said box, and having its other end free to move transversely of the box and a lever fulcrumed near the last-mentioned free end and having a curved surface bearing against said wall, said false wall and lever  
 75 constituting compound levers for engaging the shuttle.

7. A shuttle-checking mechanism comprising a shuttle-box having a stationary side wall and a movable substantially-straight false wall between which the shuttle can enter, said movable wall being resilient and  
 85 having one end secured at or near the mouth of the shuttle-box, with its free end movable transversely of the path of the shuttle and a curved lever fulcrumed near the other end of the box, and bearing against the said movable wall, said wall and lever constituting  
 90 compound levers for gripping the shuttle.

8. A shuttle-checking mechanism, comprising a shuttle-box having a side wall and a false wall between which the shuttle can enter, said false wall being of a length adapted to contact with the shuttle throughout the  
 95 length of the straight side thereof, said false wall being attached at one end to the mouth of the box, and having its free end movable transversely of the box, and means constructed and arranged to move the free end of the wall at an angle to the path of the  
 100 shuttle, substantially as set forth.

9. A shuttle-checking mechanism comprising a shuttle-box having a false wall attached to the mouth thereof, with its free end extending toward the opposite end of said box, said false wall being of a length adapted to  
 110 contact with the shuttle throughout the length of the straight side thereof and an automatic binder for moving the free end of the said wall to an angle relatively to the path of the shuttle to check the same and then releasing  
 115 said wall to reduce the pressure of the said wall against the shuttle.

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

CHARLES F. PERHAM.

Witnesses:

A. D. HARRISON,  
 P. W. PEZZETTI.