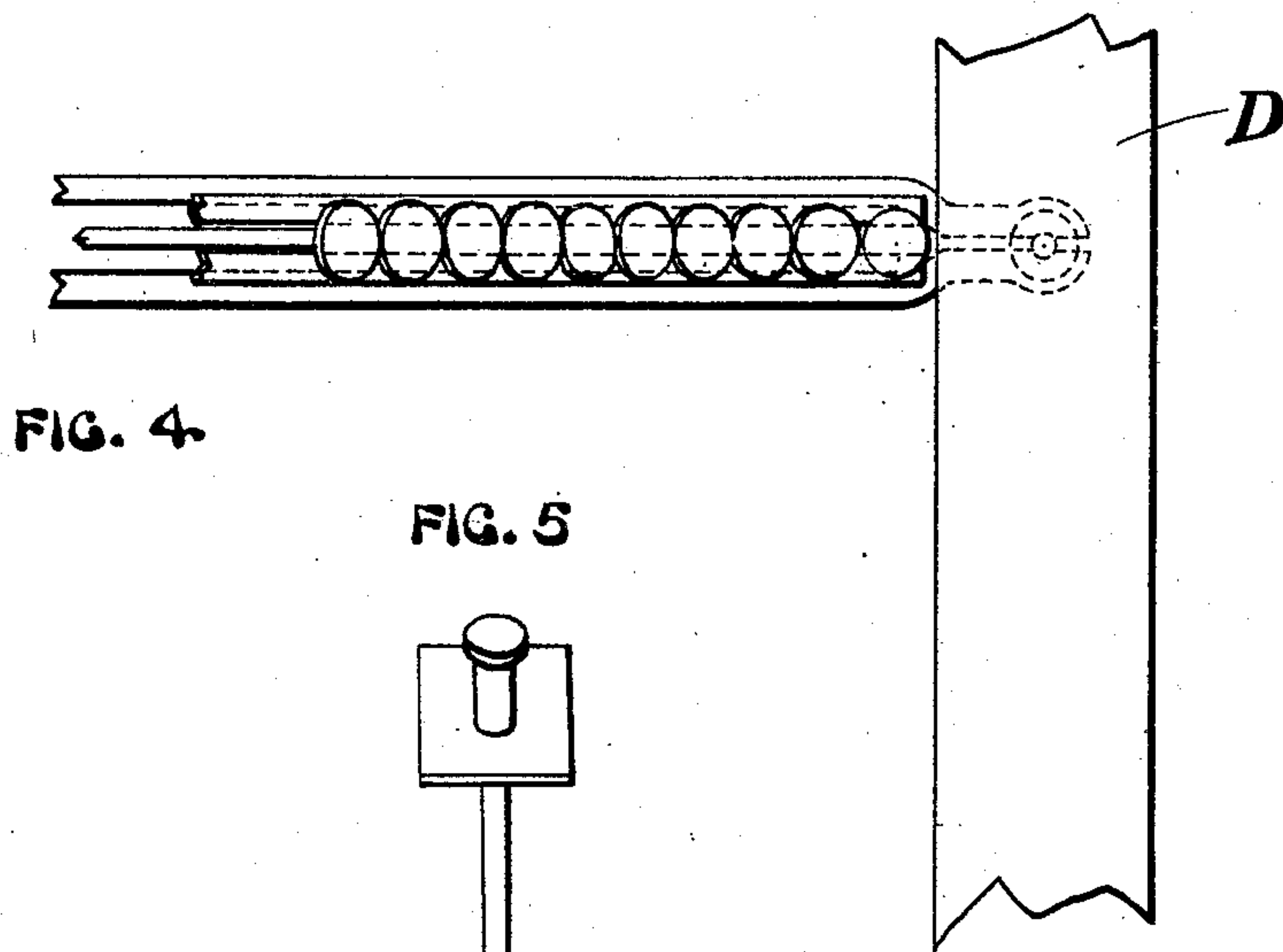
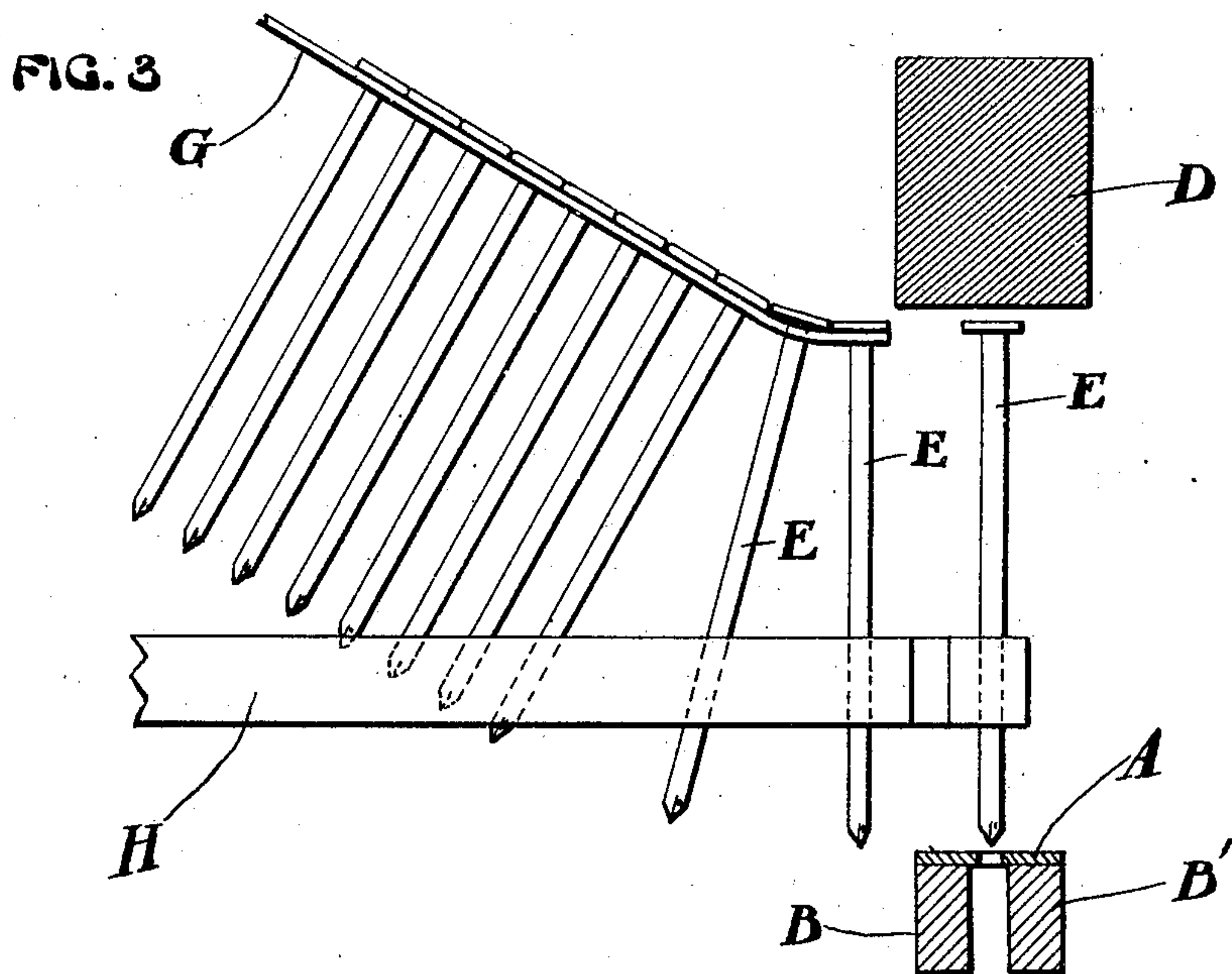


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APPLICATION FILED AUG. 8, 1910.

978,924.

Patented Dec. 20, 1910.

2 SHEETS—SHEET 2.



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2 SHEETS—SHEET 1.

FIG. 1

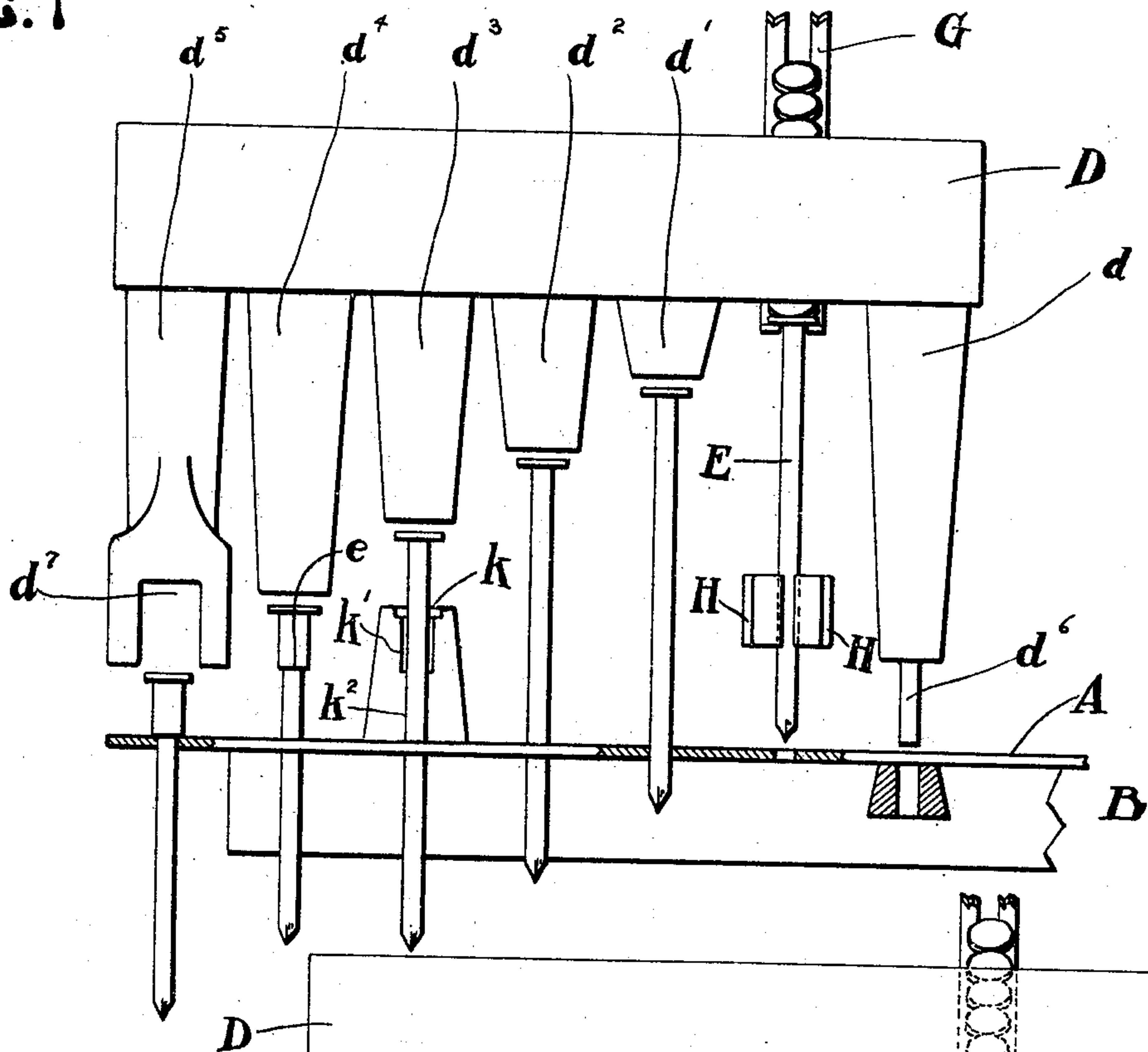


FIG. 2

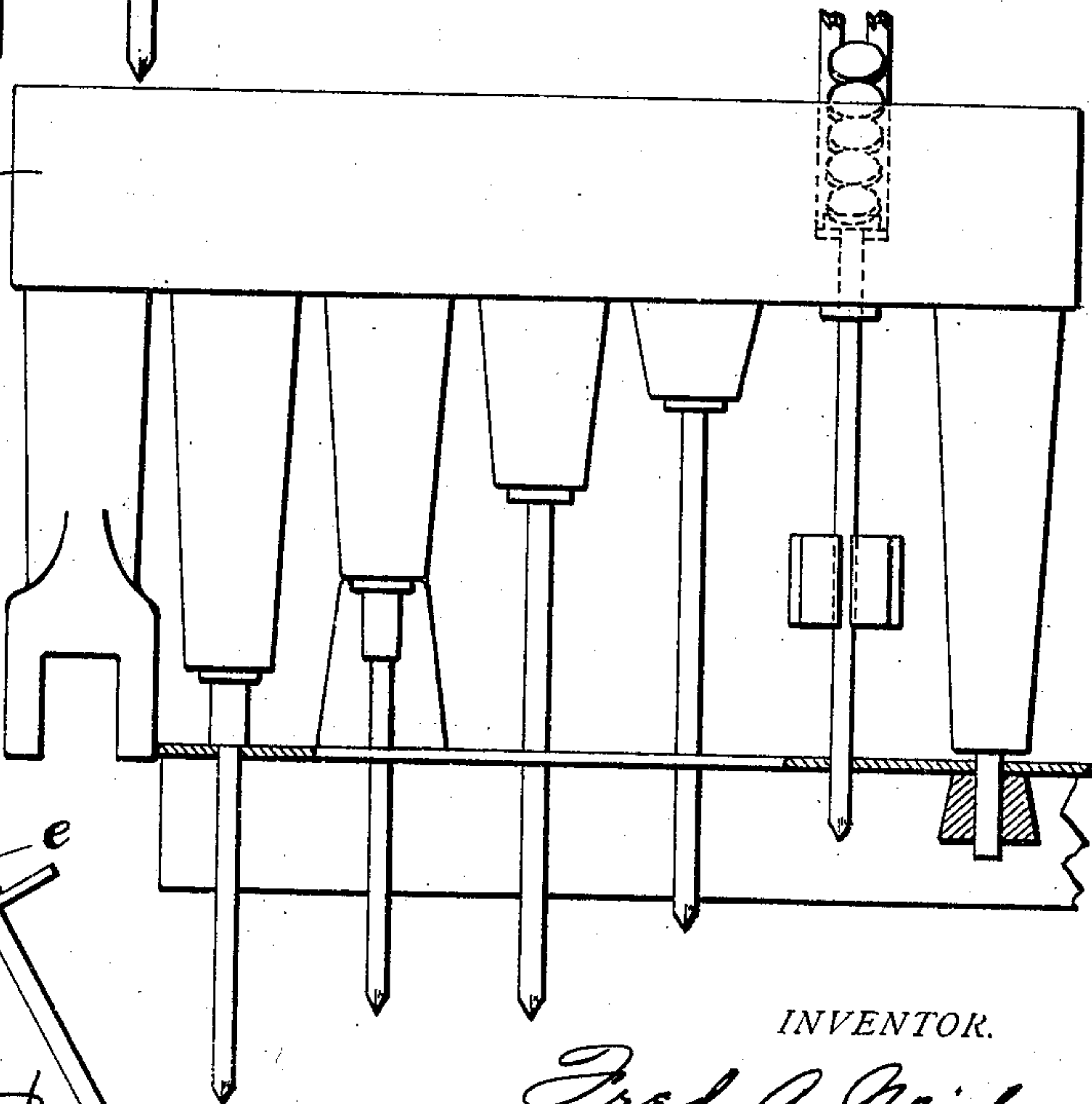
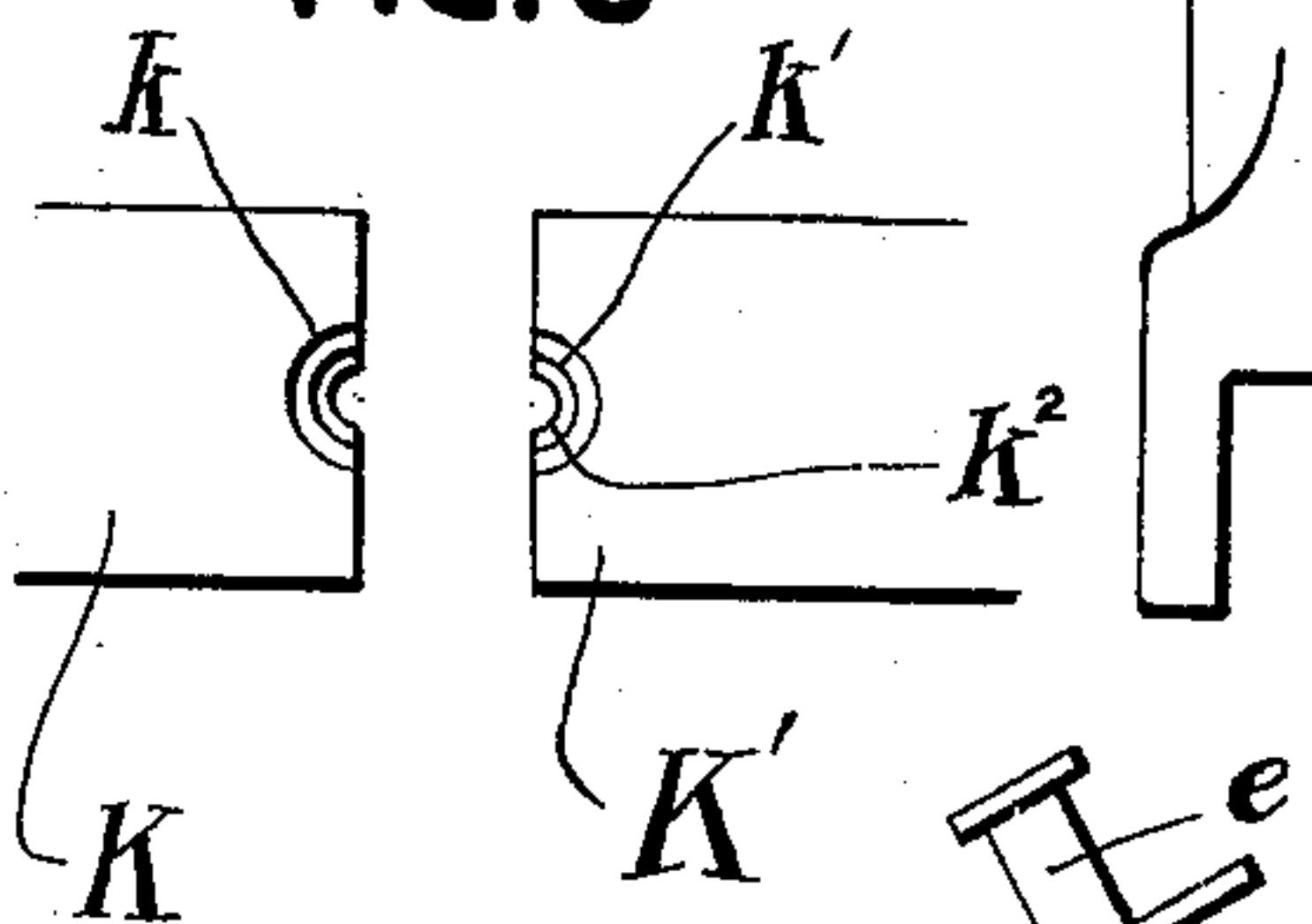


FIG. 6



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PROCESS OF FORMING DOUBLE-HEADED NAILS.

978,924.

Specification of Letters Patent. Patented Dec. 20, 1910.

Application filed August 8, 1910. Serial No. 576,082.

To all whom it may concern:

Be it known that I, FRED A. NEIDER, a citizen of the United States of America, and resident of Augusta, county of Bracken, State of Kentucky, have invented certain new and useful Processes of Forming Double-Headed Nails, of which the following is a specification.

My invention relates to processes of forming nails, each of which consists of a nail with a shoulder upset near its head, and a washer contacting the shoulder and forming a second head for the nail.

The object of my invention is a process whereby the nail may be formed quickly and at a minimum cost.

I will describe my process in connection with an apparatus for carrying out the process.

Figure 1 is a view partly in elevation and partly in section of an apparatus, illustrating the position of the nails at one stage of the process. Fig. 2 is a view similar to Fig. 1, but showing the next stage. Figs. 3 and 4 are side elevations and plan views, respectively, of the nail feed, the head of the press and the metal strip and the table being shown in section in Fig. 3, and the head being shown in plan in Fig. 4. Fig. 5 is a perspective view of the nail made by my process. Fig. 6 is a plan view of the dies for upsetting the shoulder on the nail.

A brief description of my process is as follows:—A strip of metal is fed forward beneath a punch, which perforates it. The strip is then fed forward another step and receives in the perforation a nail. At the time said nail is inserted, the strip receives a second perforation. The strip is then fed forward another step, the nail is driven farther through the strip, a second nail is inserted in the second perforation, and a third perforation is formed; then the strip is fed forward another step, the first nail is gripped between dies, which have a recess in their upper face, and a punch descends upon the upper end of the nail and upsets it into said recess. While the aforesaid process of upsetting the first nail is carried on, the strip is being further perforated and is receiving another nail in the perforation just formed; then the strip is fed forward another step, and the nail with the shoulder just formed is driven through the strip to set the shoulder against the strip. While this step is being performed upon the first

nail, the aforesaid steps are being performed upon nails in earlier stages of the process. Then the strip is fed forward again, and the end of the strip which contains the nail, with its shoulder seated against the strip, is severed from the strip, thereby forming a completed nail. While this last step is being performed, the aforesaid steps are simultaneously performed upon the nails at the earlier stages of the process.

In the drawings in which I have illustrated an apparatus for carrying out my process, the strip A is fed forward over a table, which consists of two longitudinal bars B, B', which are spaced apart a distance large enough to pass the shank of the nail. Above the table is a head D, upon which is mounted a punch d , hammers d' , d^2 , d^3 and d^4 , and a die d^5 . Punch d has a shank d^6 of a size somewhat smaller than the shank of the nails E. The hammers d' , d^2 , d^3 and d^4 project downward from the head D at progressively increasing distances. The die d^5 has a recess d^7 of a size, such as to pass the head of the nail, and is positioned upon the head D, so that its inner end registers with the outer end of the table B.

Nail feed G may be a run way of any approved pattern, such as shown in Figs. 3 and 4, to feed the nail adjacent to the head D and the table bars B, B', so that the nail may be grasped by fingers H and carried forward over a perforation in the strip A. Upsetting dies located above the strip A may consist of jaws K, K', which have in their adjacent faces semi-cylindrical bores k , k' and k^2 , respectively, of decreasing size, so as to fit the head, the shoulder and the shank, respectively, of the nail.

In carrying on my process, the strip of metal A is advanced over the bars B, B', so that the end of the strip stands beneath the punch d . The head D is then forced downward to carry the end d^6 through the strip A, then the head is raised; then the strip is fed forward one step, so as to bring the perforation just formed beneath a nail, E, which is held between fingers H, which have been advanced to this position simultaneously with the raising of the head and the feeding forward of the strip. The head is then lowered, so as to drive the nail E into the perforation just formed, and simultaneously to form a second perforation in

the strip, by means of the end d^6 of the punch. The head being raised, the strip A is fed forward another step to bring the second perforation in alinement with the second nail E, and to bring the first nail under the hammer d' . The descent of the head now drives the first nail farther into the strip A, inserts the second nail into the second perforation, and forms a third perforation in the strip. The head being raised and the strip being fed forward, a third nail is carried into position for being inserted into the third perforation, and upon the descent of the head, the first and second nails are driven farther into the strip, a third nail is inserted in the third perforation, and a fourth perforation is formed by the punch. The head being raised, the strip is fed forward again, and, simultaneously with the raising of the head, dies K, K', are advanced and clamp the shank of the nail between them. The descent of the head D now causes the hammer d^3 to force the upper end of the shank downward and spread it outward into the recess formed by the bore k' . Simultaneously the earlier processes heretofore described are performed upon the nails and the strip. The head being again raised, the strip is fed forward, so as to bring the first nail beneath the hammer d^4 , and to bring the second nail into the path of the dies K, K', and to bring the third, fourth and fifth nails, respectively, beneath the hammers d^2 , d' , and over the perforation last formed. The descent of the head then causes the hammer d^4 to carry the nail downward, and bring the shoulder e in contact with the strip. The head being raised, the strip is then fed forward to bring the first nail beneath the severing die d^7 . The descent of the head then causes the die d^7 , co-acting with the bars B, B', to sever the end of the strip, and to form the completed nail. Thereafter, each descent of the head simultaneously performs the following operations:—severs the completed nail from the strip; carries a shoulder of a nail into contact with the

strip; upsets another shoulder upon another nail; drives other nails farther into the strip; inserts a nail into the perforation last formed, and forms a fresh perforation in the strip.

What I claim is:—

1. A process of making double-headed nails consisting of forming a perforation near one end of a strip of metal, driving a nail which has a shoulder adjacent its head through the perforation and causing the shoulder to seat against the strip, and then severing the end of the strip which contains the nail from the rest of the strip.

2. A process of making double-headed nails consisting of forming a perforation in a strip of metal, setting a nail into the perforation, upsetting a shoulder upon the nail adjacent to the head, driving the nail downward into the strip, so as to cause the shoulder to abut against the strip, and severing the end of the strip containing the nail with the shoulder and thereby forming the completed nail.

3. A process of forming double-headed nails, which consists of the following steps:—1st, perforating the end of a strip of metal; 2nd, inserting a nail in the perforation and simultaneously forming a second perforation; 3rd, upsetting a shoulder upon the nail, inserting a nail in the second perforation, and forming a third perforation; 4th, seating the shoulder of the nail against the strip, forming a shoulder upon the second nail, inserting a third nail into the perforation last formed, and forming a fresh perforation, and 5th, severing the end of the strip containing the first nail, carrying the shoulder of the second nail into contact with the strip, forming a shoulder upon a third nail, driving a fourth nail farther into its perforation, inserting a nail into the perforation last formed, and forming a fresh perforation in the strip.

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Witnesses:

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