

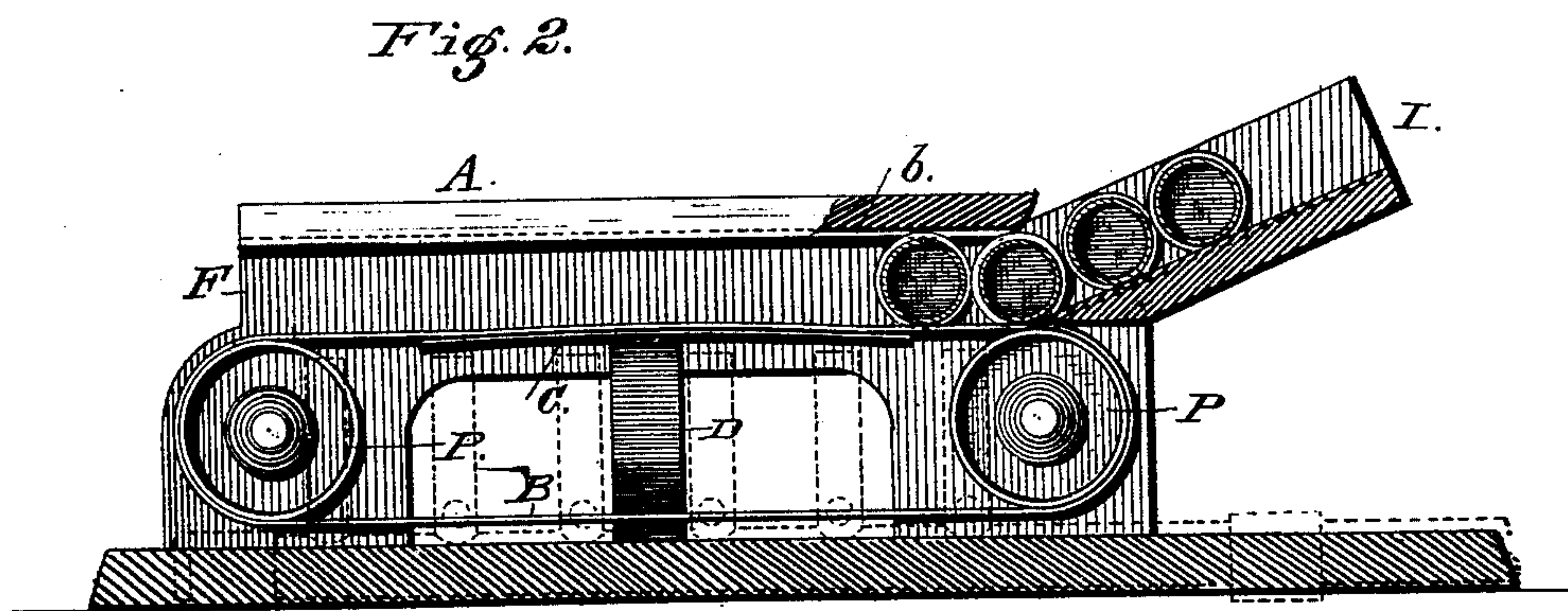
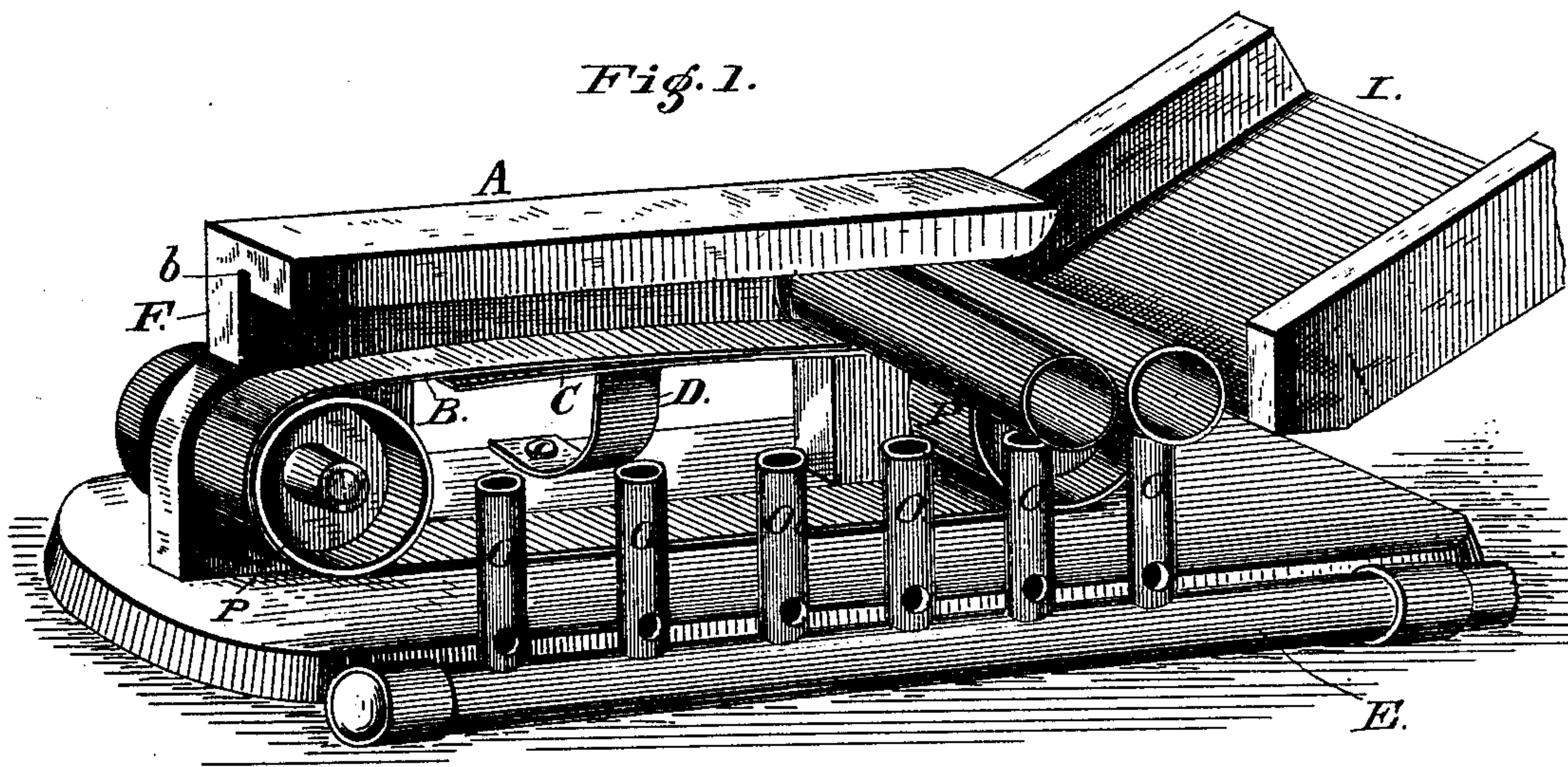
(Model.)

E. R. HUNT.

Apparatus for Annealing Cartridge Shells.

No. 233,250.

Patented Oct. 12, 1880.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## APPARATUS FOR ANNEALING CARTRIDGE-SHELLS.

SPECIFICATION forming part of Letters Patent No. 233,250, dated October 12, 1880.

Application filed September 17, 1880. (Model.)

*To all whom it may concern :*

Be it known that I, EDWIN R. HUNT, of New Haven, in the county of New Haven and State of Connecticut, have invented certain Improvements in Apparatus for Annealing Cartridge-Shells, of which the following is a specification.

This invention relates to an apparatus for annealing cartridge-shells or similar articles; and the invention consists in the arrangement of an endless belt in connection with a suitable frame or guide, by which the shells are rolled along in a horizontal position, so they can be heated by flames from vertical Bunsen or other burners, and thus dispense with the use of a blast, as hereinafter more fully set forth.

Figure 1 is a perspective view of an apparatus embodying and illustrating my invention, and Fig. 2 is a longitudinal vertical section of the same.

In the manufacture of metallic cartridge-shells it is necessary to anneal them at various stages during their formation, and of late years it has been customary to do this by means of a flame produced by a blast of air and gas, the air being forced through the pipe by means of a rotary blower or some similar device. To drive this blower or fan requires considerable power, which is a constant source of expenditure.

The object of my present invention is to dispense with the blast ordinarily used, and thus to cheapen the operation of annealing the shells.

To accomplish this object I provide a suitable frame on which two pulleys or wheels, P P, are mounted on horizontal journals, as represented in the drawings, and around which is placed an endless belt, B, which may be made of thin metal or any suitable material, the only object of using metal for the belt being to prevent its being injured by the heat, though this is not absolutely necessary, especially when it is designed to anneal the shells for a short distance only from their open ends downward toward their heads, as is done preparatory to reducing, or, as it is termed, "necking them down."

Parallel with the belt B, I arrange a stationary guide, A, which may consist of a flat strip equal in width to the belt, or nearly so, connected to or made solid with a stationary side piece, F, which, as shown, is arranged vertically, or which may be held in place by any other suitable support.

In the guide-piece A a longitudinal groove, b, is formed, as shown in Fig. 1, and in dotted line in Fig. 2, of proper size for the flange of the shells to roll in, this groove being arranged so as to be even and parallel with the back edge of the belt B, as shown in Fig. 1. At one end I arrange an inclined chute, I, of a width equal to the length of the shells, with its lower end terminating at such a point as to deliver the shells between the belt B and guide A, so that as the shells roll or slide down this chute they will be taken by the belt and rolled along between it and the guide A, as shown in Fig. 2.

Parallel with front edge of the belt B, I arrange a series of vertical burners, O, in such a position that the flames issuing from them will be directly under the ends of the shells as the latter are rolled along, thus heating them uniformly all around.

I propose to use what are known as "Bunsen burners" as being best adapted to the purpose, although it is obvious that any simple form of burner may be used, if desired.

As represented in Fig. 1, a series of these burners, more or less in number, may all be connected to and supplied by a single gas-pipe, E, which may be made adjustable laterally, so as to set the burners nearer to or farther from the belt, according to the length of the shells to be annealed.

In order to create the necessary friction and keep the shells in contact with the belt on one side and the guide on the other side, and for the purpose also of enabling the apparatus to operate on shells of various sizes, I apply a yielding support either to the belt or to the guide, as may be preferred. In this case I have represented it as applied to the belt and as consisting of a curved flat spring, D, hav-



ing secured to its upper end a flat piece of spring metal, C, which bears against the under surface of that part of the belt which is nearest to the guide A, as shown clearly in the drawings.

Instead of a single spring-support a series of them may be used of such a size and form as that each shall bear on but a single cartridge at a time, in which case it would be more convenient to apply them to the guide instead of to the belt.

A thick strip of soft and elastic rubber or felt may be applied to the under surface of the guide A and made to answer for several different sizes of shell, and by making the guide A adjustable to and from the belt, by means of screws or any similar adjusting devices, the one machine may be adapted to anneal all the various sizes of shells made.

It is obvious that the guide A may be arranged below instead of above the belt B, the location of the chute I being changed to correspond, the operation and effect being the same.

I am aware of the invention of T. G. Bennett, by which the shells are made to rotate on their axes while being subjected to the action of the flame, and also of the yielding support

used in his invention, and therefore I do not claim either of these, broadly; but,

Having described my invention, what I claim is—

1. The combination of the endless belt B and guide A with one or more vertical burners, O, said parts being arranged to operate substantially as and for the purpose set forth.

2. In combination with the endless belt B and guide A, one or more yielding supports, C D, or equivalent devices, arranged to operate as described.

3. In combination with the endless belt B and guide A, the inclined chute I, arranged to deliver the shells to the belt, substantially as described.

4. The herein-described method of annealing shells or similar articles, which consists in rolling them along in a horizontal position over one or more vertical burners, whereby the heat is applied uniformly to the entire circumference of the shell without the aid of a blast.

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Witnesses:

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